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THE WISCONSIN ENGINEER

« MEMBER »
E. C. M. A.

FEBRUARY
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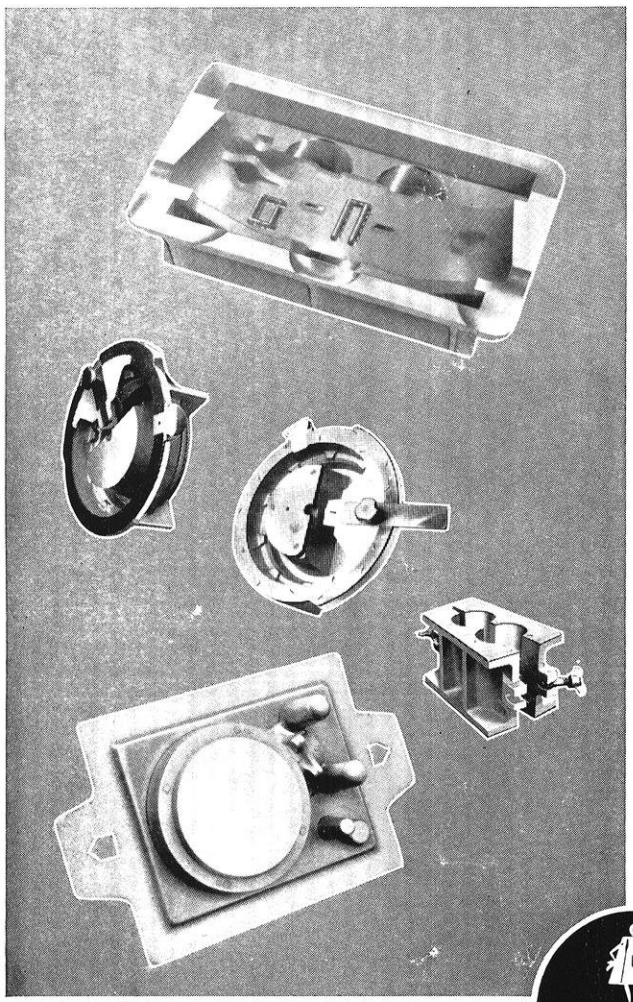
DOWMETAL CORE BOXES, MATCH PLATES AND PATTERNS



Patterns shown above save 42½ lbs. over previous lightest metal patterns. Handled 1525 times a day saves foundrymen lifting 64,800 lbs.

Dowmetal Core Boxes and Patterns illustrated by courtesy of the Detroit Pattern Plate Co., Detroit, Mich.

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..Matchless in Quality

..Part Easier from Sand

THESE are the characteristics of match plates, patterns and core boxes made of the world's lightest structural metal, Dowmetal.

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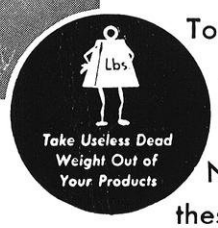
To have a pattern or core box that parts smoothly from sand, without sticking—that makes a clean mold—use Dowmetal.



Never before has a metal pattern met all these important foundry requirements for lightness, clean molds, and ease of machining and finishing.

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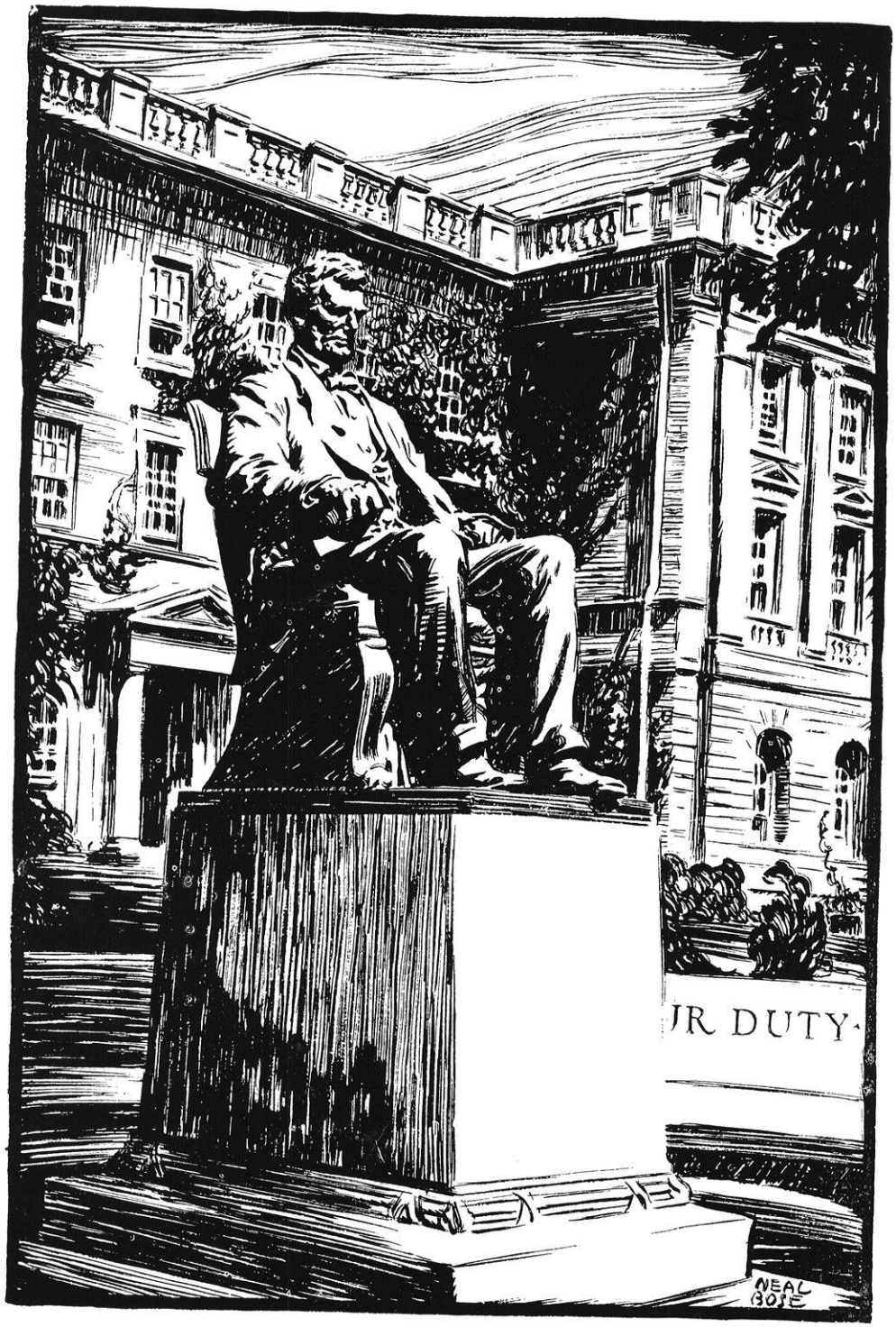


And so they buried Lincoln? Strange and vain!
Has any creature thought of Lincoln hid
In any vault, 'neath coffin lid,
In all the years since that wild spring of pain?
'Tis false, he never in the grave hath lain.
You could not bury him although you slid
Upon his clay the Cheops pyramid
Or heaped it with the Rocky Mountain chain.
They slew themselves; they but set Lincoln free.
In all the earth his great heart beats as strong,
Shall beat while pulses throb to chivalry
And burn with hate of tyranny and wrong.
Whoever will may find him, anywhere
Save in the tomb. Not there—he is not there!

Written by James Thompson McKay on the re-interment of Lincoln at Springfield, Ill., on April 14, 1887.

The Wisconsin Engineer

VOLUME 37, NO. 5 FEBRUARY, 1933

The Engineer's Responsibility in Patent Matters

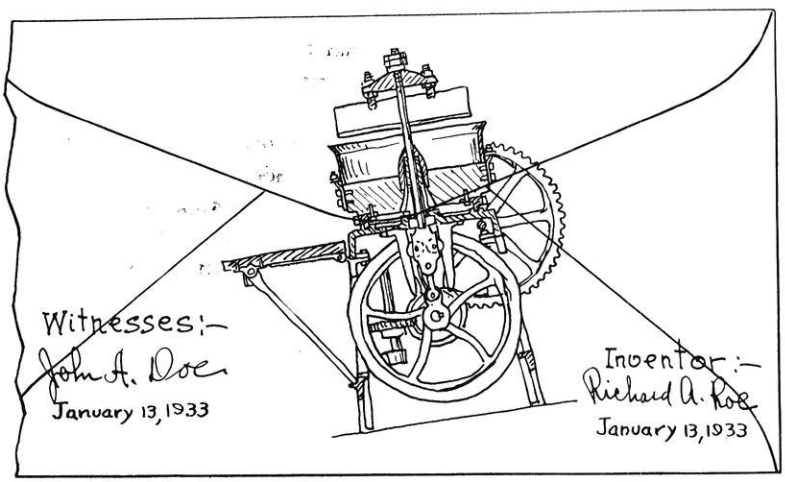
By William D. O'Connor, m'22, M. S., LL. B.
Patent Attorney, Milwaukee, Wis.

Editor's Note: *A subsequent article on patent matters by Mr. O'Connor will appear in a future issue. The illustrations on the following pages are reproductions of actual patents which were printed in pamphlet form by the United States Patent Office.*

MATTERS relating to patents arise from time to time in most enterprises in which engineers are engaged. In view of the fact that an engineer is primarily responsible for the success of a project which he undertakes, in all particulars, it follows that he is responsible for the proper consideration of patent matters relating to his work. It is important, in performing the duties arising from this responsibility, that the engineer give careful attention to all patent matters which concern his particular field of activity. Proper procedure must be followed to obtain adequate patent protection on new inventions and care must be taken to avoid infringement of patents held by others.

To be able to perform this phase of his work properly, the engineer should be well informed on the subject of patents. He should be familiar with the interpreting of patents and with the procedure of procuring and enforcing patent protection on inventions. The engineer should be acquainted with the services rendered by patent attorneys and should recognize the circumstances which make it advisable to consult a patent attorney. To obtain the best results in the practical solution of a patent problem, cooperation between the engineer and the patent attorney is necessary.

A good working knowledge of patent matters broadens the scope of an engineer's usefulness and increases the value of his services to industry.



"First sketch of the invention should be signed and dated by inventor and witnesses."

The Legal Basis of a Patent

A United States Patent for an invention is a contract between the Government and the inventor, whereby the Government grants to the inventor the right to exclude all others from making, using, or selling his invention for the term of seventeen years, and in return requires the inventor to make a full and exact disclosure of his invention to enable the public to understand and utilize the invention after the patent has expired.

The law provides that, "Any person who has invented . . . any new and useful art, machine, manufacture, or compo-

sition of matter or . . . improvements thereof, . . . not known or used by others in this country, before his invention . . . thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application . . . may . . . obtain a patent therefor."

A mere idea or suggestion cannot be patented. In applying for a patent on an invention, the inventor must file in the Patent Office, an application including a complete description, accompanied by suitable drawings, setting forth an operative device embodying the invention, together with the required government filing fee.

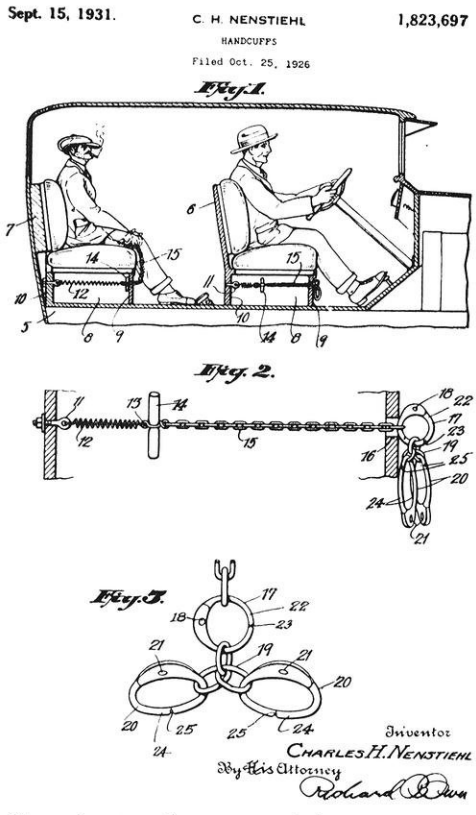
After the Patent Office has examined the application to see that it complies with the requirements of the law and to determine whether or not the invention is new and patentable, a patent may be granted.

Nearly 2,000,000 patents have been granted by the United States Patent Office and patents are now being granted at the rate of approximately one thousand a week. United States patents are enforcible only within the jurisdiction of the United States and in some of its posessions.

Patent Matters in Industrial Organizations

Organizations which employ engineers usually require each of their salaried employees to enter into a contract of employment which provides that the employee must assign to the employer the patent rights to all inventions relating to the activities of the organization made during the term of employment.

Agreements of this nature are necessary because the employer must have ownership of the patent rights in inventions made by its engineers in order to obtain a return upon the expenditures for salaries and for equipment used in developing the inventions.


Sept. 15, 1931. C. H. NENSTIEHL 1,823,697
HANDCUFFS
Filed Oct. 25, 1926
Fig. 1.
Fig. 2.
Fig. 3.
Inventor
CHARLES H. NENSTIEHL
By His Attorney
Richard Dwn

Reproduction of just one of the two million patents granted by the patent office.

When an invention relating to the employer's activities is made by an employee not under contract to assign the invention to the employer, the employer has what is known as a "shop right" or license to use the invention in his factory without paying royalties under any patent that may be granted to the inventor.

Generally, each industrial organization has an established connection with a group of patent attorneys who attend to its patent matters. In large companies, a patent department composed of engineers and attorneys employed by the company on salary is usually maintained as an integral part of the organization. Most other industrial organizations retain a firm of patent attorneys in private practice to take care of their patent work.

Whenever any question of importance concerning patents arises in an industrial organization, it should be taken up with the patent attorneys for investigation. There are in general circulation some very inaccurate ideas concerning the laws relating to patents. Costly mistakes have resulted from relying on opinions concerning patents, given by persons not especially trained or experienced in patent matters.

Preserving Evidence of Invention

One of the most important duties of an engineer in connection with inventions, is to preserve evidence of the date of each invention and of the dates of important events in the development and perfection of the invention. The date on which an invention is made is a definite fact, but after the elapse of several years it is often difficult to establish and prove this fact.

The Government grants a patent on an invention to the person who proves that he is the first and original inventor. It is not unusual that a contest in the Patent Office is lost by the original inventor merely because he was unable to prove his date of invention.

The fact of the date of invention is ordinarily proven by the testimony of witnesses supported by papers which show or describe the invention and which are identified by the witnesses as having been seen by them at a definite time. In order to preserve evidence of the date of invention, the first sketch or written description of the invention should be signed and dated by the inventor, and signed and dated by a witness who understands the invention.

Engineers often make rough sketches while explaining new ideas to others but, unfortunately, they usually discard the sketches at the close of the conversation. Usually when an engineer intends to protect his new idea by patent, he decides to make a finished drawing illustrating the invention and to have it properly dated and witnessed in a formal manner. However, many months may elapse between the time that the engineer makes his invention and explains it by means of rough sketches, and the time that he has an opportunity to make a working drawing which illustrates his idea to his satisfaction. If the engineer does not preserve his original rough sketches he will find it very difficult, in later years, to prove that he made the invention at a date earlier than the date of the finished drawing and he may be forced to adopt the later date as his date of invention for all practical purposes. In establishing the actual date of invention, it is the earliest sketch, no matter how crude, that is of the greatest value.

Engineers should form the habit of preserving all rough sketches made to illustrate new ideas and in addition to the preliminary sketches, drawings made later in connection with the invention should be preserved to provide evidence

that the invention was never abandoned and to show the progress of the development of the invention.

Each sketch or drawing should be signed and dated by the inventor on the day that it is made and signed and dated by at least one witness who could be called upon later to testify that he saw the drawing on the date placed by his signature.

To avoid misunderstandings as to the date of a drawing, it is advisable to write out the name of the month rather than to indicate the month by number.

After the drawings have been signed and dated, no changes in them or additions to them should be made. If a drawing is altered in any way after it is dated, its value as evidence is destroyed because the inventor cannot then swear that the drawing had been completed at the time it was dated.

Every engineer should keep a file for papers relating to his inventions, or preferably, a separate file for each invention that has become of especial importance and a general file for miscellaneous records of ideas that have been put aside for the time being. Sooner or later some paper in the file will be come of sufficient value and importance to justify the trouble of saving all of the other papers, some of which may have become obsolete.

Even after a patent has been granted on an invention, the evidence of the date of invention should be preserved. If suit is brought to enforce the patent, the defendant will usually try to prove that the patentee was not the first inventor. The court will then go into the question from the beginning and it may become necessary to prove the date of invention in order to sustain the patent.

Between two rival inventors, the one who first perfects his invention and reduces it to practice has a considerable advantage before the tribunals of the Patent Office. Hence, it is desirable to have records of the construction of the first apparatus embodying the invention in addition to evidence of the date of invention. Orders for materials used in constructing the apparatus and work orders should be preserved, and photographs should be taken of the finished apparatus for use in proving the date of "reduction to practice".

The Patent Office considers the filing of an application for patent a "constructive reduction to practice" and if it is not possible or convenient to actually build apparatus according to the invention, it may be advisable to file a patent application directed to the invention as it has been developed on paper in order to preserve the inventor's rights and prevent the invention from becoming an abandoned experiment through inactivity.

If the invention has been actually reduced to practice, it is usually advisable to postpone filing a patent application until the possibilities of the invention have been well worked out and good mechanism for practicing the invention has been designed. A patent application can then be prepared directed to the preferred form of the apparatus embodying the invention and showing also some of the variations or modifications of the apparatus that may have been developed. In this way the inventor may present his invention to the Patent Office as a completely developed and thoroughly workable idea, and will obtain better patent protection than he would have obtained upon his first sketchy ideas of the invention.

Usually, in a patent application filed prematurely, the invention is illustrated by inferior or crude apparatus. After the application is filed, the apparatus may be greatly improved upon, and in an effort to obtain patent protection on the new apparatus, another application may then be filed directed to the improvements. However, the patents resulting from the two applications are usually not so satisfactory as would have been one patent resulting from a single application directed to a completely developed invention. By including in the application details of the apparatus and several modifications of the invention, others may be forestalled from obtaining patents at a later date that might cover some of these elements and embarrass the original inventor.

If an engineer contemplates putting in public use apparatus embodying an invention or publishing an article or advertising matter describing the invention, he should first make sure that he will not jeopardize his patent rights in the invention by doing so.

In the United States an inventor has a period of two years in which he may file a patent application after the invention has been in public use or on sale in the United States or patented or described in a printed publication in any country. However, in some foreign countries no patent protection whatever can be obtained upon an application filed after the invention has been published in any country. Hence, if foreign patent protection is desired, care must be taken to apply for a patent before publication of the invention.

By international convention between the important coun-

"My invention consists in a trap which is baited, attached to a string, and swallowed by the patient after a fast of suitable duration to make the worm hungry. The worm seizes the bait, and its head is caught in the trap, which is then withdrawn from the patient's stomach by the string which has been left hanging from the mouth, dragging after it the whole length of the worm."*

A. Myers,
Removing Tape Worms.
No 11,942. Patented Nov 14, 1854.

Witnesses.
S. Walker
J. H. Hamilton

Inventor
Aaron Myers

(Continued on page 77)

With the U. S. Coast and Geodetic Survey

On the Alaskan Frontier

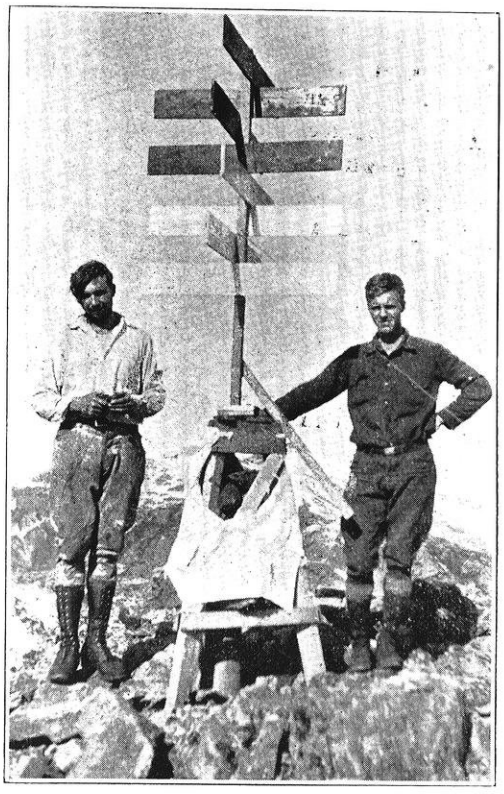
By Robert H. Paddock, c'32

OUR survey party's boat was returning early one morning from one of its occasional trips to town. With one man at the wheel, the rest of us were napping in the bunks below, when a sudden lurch to starboard catapulted some from our hard beds to the harder floor. As the boat slowly resumed its even way we made for the after deck and there saw — not one, but three whales, diving and spouting and racing along — one some distance to the right, another a hundred yards or so astern, the third but a short distance to the left. This last was the one for which the pilot had had to put the wheel hard over to avert striking it or having it strike our boat.

That was one of the incidental experiences encountered by a party of the United States Coast and Geodetic Survey in its summer work. The opportunity to be a member of such a survey party on the boundary of Alaska comes but seldom.

The original survey and location of the Alaska-Canada frontier was begun in 1904 and, except for a few disputed sections which were not completed till after the World War, was rapidly carried through from latitude 54 degrees 40 minutes north to the Arctic Ocean.

A resurvey or check of certain portions of this boundary in the Panhandle of Alaska, namely, where the line crosses the Stikine River, Port Snettisham, and the Taku River, was desired in 1929. Under the supervision of the Coast Survey, and with the cooperation of the Boundary Commission and the State Department, this check survey was successfully carried out.



The author (right) at survey target on Elbow Mountain.

A primary or first order triangulation net has been carried up from the United States along the coast to Alaska. This resurvey, classed as second order triangulation, was in effect a hookup of the primary net and the original boundary survey, as well as being a check on the latter.

The summer's work was itself of the usual high accuracy required by the survey, but its results also served to indicate the excellence of the earlier work, done under much more difficult conditions, and without the advantages of modern equipment for blazing a trail through virgin country.

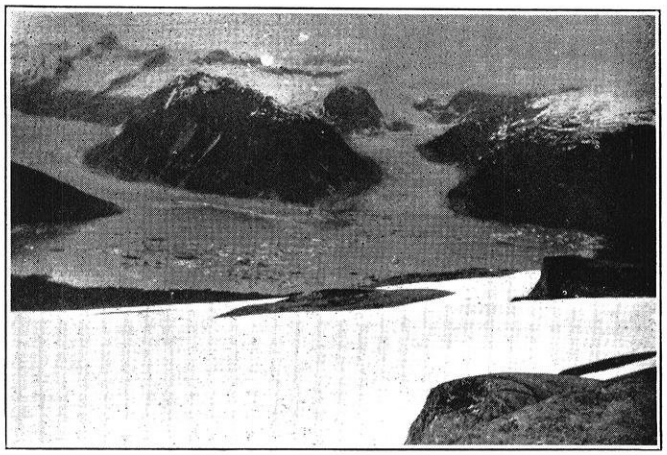
In addition to the customary triangulation equipment provided, we had been supplied with two complete mountain camping outfits, each containing a balloon silk, waterproof, mosquito-proof tent, capable of being rolled into a small bundle and made a part of the usual mountain pack. These tents could each accomodate four men, the usual number in a mountain observing party. Each man carried his own sleeping bag. A Primus stove furnished our cooking plant on the untimbered peaks. Dried potatoes, soup vegetables, eggs, and milk made up our light weight food supplies for such trips.

For our work on the large but fast and shallow rivers, rushing down from the mountainous reaches of British Columbia, we had a 30-foot river boat, originally designed for poling, but rebuilt for use with an outboard motor. Into its foot and a half of shallowness and three to four foot breadth we could stow approximately a ton of our freight. For work in the deeper waters and inlets of the Pacific, the covered motor launch which figured in our whale episode, was used.

Climatically, southeastern Alaska in summer is a region of mild temperatures and, not infrequently, of extended spells when there will be many successive days of rainy weather followed by equally extensive periods of perfect survey weather. The former was the fate of our party when for 26 days we were unable to move from our base on the Stikine River to work the mountain peaks.

Our party arrived from the States in May and established its base in comfortable but abandoned quarters of a power plant on Taku Inlet. Here, till late in June when the mountains might be expected to be somewhat freer of snow, we made camp, carrying a very comprehensive triangulation net up the Inlet from the base lines at its mouth of Taku River which emptied into the Inlet.

Hours were often required for the relocation of a single old station, because of the physical changes that 30 to 40 years had wrought in the landscape. Then, perched at times on a rock where there was but room for theodolite and observer—if the latter remained in one position—work was begun in the occupying of 26 stations along the Inlet. Some stations could be occupied only at the right tide, inaccessible as they were at others, due to the 12 to 14 foot tide conditions occurring in the inlet. Others, it was found



View of Twin Mountain surrounded by glacier taken after ice had sloughed off the face of glacier.

after unfortunate experience, could be occupied only at slack tide for the inrushing or ebbing tides apparently also caused severe air currents which affected observations at such stations.

Similar conditions had to be met and solved on the mountain stations where, for example, it was soon discovered that vertical angles on distant targets, due to the effect of refraction, would be as much as a degree, at times more, in error if observations were made late in the afternoon or early in the morning. Umbrellas, or large sun shades had to be carried up the mountains to protect the instrument from the sun during observations. Windshields had to be provided on the peaks to secure the maximum stability of the instrument during the work.

The survey, following customary triangulation principles, was carried from the tidewater stations of Taku Inlet to the mountains and thence by mountain stations to the boundary. A similar procedure was followed on the Stikine River.

The work consisted first of setting up targets on a number of established points. These points were later successively occupied by an observer with a theodolite — a precise transit — who measured horizontal and vertical angles to other stations, thus carrying an accurate measure of distance throughout his survey, if he had, as did our party, a previously accurately measured base line from which to start. This was the procedure followed on both mountain and tidal stations.

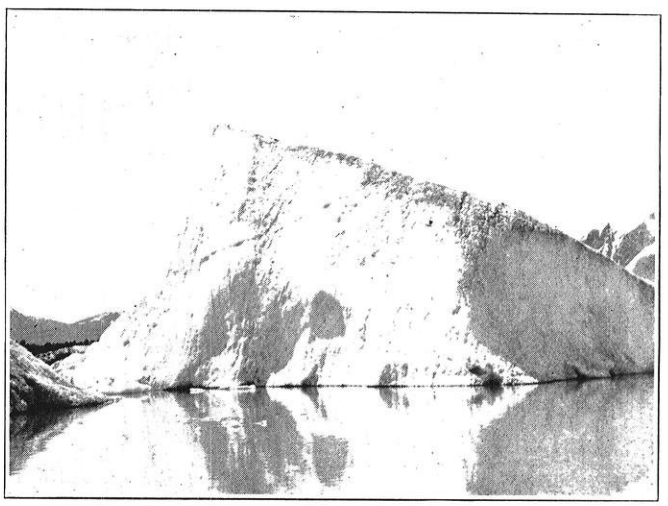
The targets at sea level stations consisted of two-by-two uprights to the top of which were nailed at right angles four to six long, thin, flat boards, half wrapped with black and half with white cloth. The targets were anchored solidly to the ground. On mountain targets this was an even more important and necessary precaution. Improperly or carelessly done, it meant that a mountain gale might come along, tear down our standards and necessitate an additional trip to the peak.

On the mountains we found many of the bases of the old standards intact, only the upper portions blown away by the winds of a score of years.

The double trip to these mountain stations was what made the work most difficult — and at the same time most interesting. A reconnaissance party first climbed the peak, establishing the best route, building a very substantial target and tripod at the peak with prepared lumber brought up from the base camp. Especially in the Stikine River district was assignment to the reconnaissance party an arduous task.

Getting to the mountain was usually much more difficult than its actual ascent. Surrounded at its base by exceptionally dense and almost impenetrable undergrowths of alder, devil's club, elderberry, wild currant, spruce, hemlock and cottonwood, with swift rushing, icy cold, and stony bedded streams encircling it, the mountain had well protected itself against attack. The reconnaissance party's job included slashing a trail through this undergrowth so that it might itself return to its starting point and to the river boat which had carried the party within striking distance of the mountain; and, also, that the observing party might the more quickly reach the peak and utilize the few days of satisfactory observing weather. Often a separate trail-cutting party was necessary and in a few cases two or three days were required to slash a trail through so that a party, each man of which carried a pack of 50 to 70 pounds, could travel more easily.

Our first mountain ascent took place June fourth while snow was still on the mountain well below the half way mark. Inexperienced, soft and unacquainted with condi-



One of the 75 foot ice bergs floating in the bay of the above scene.

tions, we took nine hours to ascend the 4500 foot peak, an ascent that later in the month took less than two hours. It was the peak under which, on the first observation trip, we stayed till our rations ran out, waiting for the clouds to break, and under which we were lulled to sleep on succes-

(Continued on page 79)

« CAMPUS NOTES »

WISCONSIN SOCIETY OF ENGINEERS

The Wisconsin Society of Engineers will hold its annual convention here at the University on February 23 and 24. As in past years, students are welcome to attend the meeting and absorb the lectures, according to Professor Ray S. Owen, secretary of the organization.

MORE ELECTRICALS

Bob Ball, e'35, asked Mr. J. E. Van Vleet in mechanics the other day if brake shoes weren't obsolete. And since Van is a real up to date guy, he took Bob out and showed him the anchor he carries which he throws out when he wants to stop his car.

HI-LIFE AT BUNGALOWEN

Colonel Ray Owen staged his annual midwinter rodeo out at Bungalowen across Lake Monona, Saturday afternoon, January 7, 1933. Per tradition, the sophomore Civils comprised the audience, participants, and entrants. Frank Matthias, Harry Thrapp, and "Red" Wagner dished out the "Java", "sinkers", wieners, and beans. "Red" decided later that he ate too many beans.

According to reports, the hospitable Colonel even secured the use of Jack Schaefer's iceboat for the day, and personally piled the lads in for rides. Incidentally, as a tip for youse guys destined to spend six weeks at Devil's Lake sometime in the future, Ray Owen can produce beefsteaks in the field what am beefsteaks.

Baseball, football, skating, and a general ruckus were all on the program. No kicks have been registered, so we may conclude that the outing upheld the traditional high standard set in past years.

PLUMBERS MEET IN FIVE DAY COURSE OF INSTRUCTION

The third annual short course for Wisconsin plumbers was conducted from February 13 to 17 inclusive by the University department of hydraulic and sanitary engineering in cooperation with the Wisconsin Plumbing Supervisor's association and the Wisconsin Master and Journeyman Plumber's association.

Prof. O. L. Kowalke of the chemical engineering department lectured on the problem of explosive and poisonous material in sewers. Eighteen lectures were given in the course by hydraulic and sanitary engineers, mining and metallurgy experts, geologists, and engineering chemists. Demonstrations and laboratory work supplemented the lecture work.

OPPORTUNITIES FOR ENGINEERING STUDENTS

Eligible members of the student body of the engineering school are asked to report to Prof. F. E. Volk, librarian of the engineering library, if they are interested in working on the staff of the *Wisconsin Engineer*. Valuable experience which will benefit students after graduation is to be gained. There are opportunities for doing work in the circulation and advertising departments as well as in the editorial department for students who prefer the business phase of the enterprise.

DEPRESSION DATES

One of our up and coming junior electricals took his gal for a walk through the chemistry building, Friday evening, January 13. They report a surprising amount of stuff packed away in the corridors and catacombs of the third and fourth floors. Incidentally, they encountered only one person in their wanderings, and he told them to be sure and turn on the lights when they were through so they wouldn't take a header down the steps. They were finally routed about 9 o'clock when someone in research lab. No. 413 started to practice on a clarinet. Nope, no names this time; he's bigger than I am.

PROF. H. E. BABBITT OF ILLINOIS ADDRESSES TECHNICAL CLUB

"I have been told that my pictures of the dancers of the Island of Bali are best in existence, bar none," stated Mr. H. E. Babbitt, Professor of Sanitary Engineering at the University of Illinois, at a meeting of the Technical Club held at the Congregational church Monday evening, February 6, 1933. "And after I have delivered my lecture, I will entertain you with my motion pictures, all of which I took on my trip around the world," continued the Professor.

Professor Babbitt stressed particularly the sanitary conditions prevalent in other countries, and he had many slides illustrating his statements. "The Japanese want Manchuria because of its steel mills and natural resources. Manchuria is also served by many canal systems which are used for irrigation, transportation, and water supply." China uses its canals for the same things and also for sewage disposal. — The pedestrian in Singapore must be ware of sidewalk cesspools. That is, in the native district. The rest of the city is well policed and cleaned.—New Zealand is divided into two islands, of which the northernmost is constantly shaken by earthquakes; hence the name 'Rickety Islands'. The inhabitants built a narrow gage railroad here after the last quake by first constructing a highway parallel to the right of way, and then starting the track at fourteen different places so as to be sure and get it finished before the next quake. — On the Island of Bali, they bathe in the streets as you can see by this slide."

"Many of my motion pictures taken in the war zones in Manchuria are of areas of which it is forbidden to take pictures. I devised a method of taking them with the camera beneath my coat, and so secured these shots of the Great Wall, the factory districts, and others," concluded Professor Babbitt.

The next meeting of the Technical Club will be held February 23, in conjunction with the meeting of the Wisconsin Society of Engineers, at the Hotel Lorraine. The meeting will consist of a banquet followed by a lecture and demonstration by Professor Snead of the University Extension, Milwaukee, on Television. Students are welcome to attend the lecture, and might obtain tickets for the banquet from Prof. Arno Lenz.

YOUR LIBRARY — WHAT IS IN IT?

You who believe that the Engineering library is merely a storehouse within whose catacombs are musty volumes steeped from cover to cover with cosines, pressure-volume diagrams, and other everyday occurrences, need enlightening. In addition to the technical texts and reference works you will find books and magazines on interesting, timely topics taken from the engineering profession throughout the country.

For instance, did you know that on the magazine shelves there are current issues of such varied titles as, *Engineering Contracting Finance, Glass Industry, Aviation Engineering, Refrigerating World, and Wood Worker?* An illustrated monthly which clearly pictures the technical achievements of Russia is the magazine *U. S. S. R. in Construction.* The best French and German engineering magazines are also on the shelves. In addition to these professional publications there are thirty-eight exchange copies of college engineering magazines from practically every prominent engineering college in the country.

You who do not know that on the wall of the library there is a bronze plaque signifying that way back in 1911 the engineering college won a baseball championship in intercollege competition would benefit a good deal by investigating what your library has to offer. Freshman engineers who take engineering shop courses would be interested in perusing a group of time studies which would undoubtedly give them new ideas about the time it takes to clamp a casting on a milling machine or shaper.

Use your library—it will afford you recreation as well as material gain.

TENTATIVE PLANS MADE FOR INSPECTION TRIP

Plans are being made for an inspection trip for senior mechanical engineers to be taken during the latter part of February and the first part of March. Plans call for visits to industrial plants in Peoria, Illinois and South Bend, Indiana. The Caterpillar Tractor plant is among the list of plants to be visited in lieu of the fact that it is one of the few plants which has not curtailed production or operation appreciably under present conditions. Pumping stations, large gas lines, and power plants are also to be visited by the students.

THAT COLLEGIATE ATMOSPHERE

Then there is the embryo civil engineer, Robert Englehart, c'34, who is doing his bit to provide atmosphere in our engineering college by wearing a black beret. We give him credit, however, for not wearing puppy-blankets over his shoes which would make the situation doubly serious. We recommend *Shadow Smart* ear-muffs for cold weather.

RECOGNITION PINS AVAILABLE

Junior and senior engineering students may purchase engineers' recognition pins from the members of Polygon listed below. The lapel pin consists of a cardinal enameled "W" with a white slide-rule across its face. The pins may be procured from any of the following students: W. E. Wyss, H. H. Kieckhefer, G. G. Bayley, A. B. Epple, W. S. Woods, A. L. Brandlhofer, V. J. Palmer, and J. P. Kaysen.

RESTORATION PLAN PROPOSED BY PROF. EDWARD BENNETT

Prof. Edward Bennett, chairman of the electrical engineering department, has recently proposed a plan whereby every adult in the country would be given $100 in employment certificates and every minor be awarded $50, these employment certificates to constitute legal tender redeemable at face value for all debts public and private except duties on imports and interest on the public debt and those debts which call for payment in gold.

Professor Bennett claims that the existing credit jam and the resulting unemployment is in a large measure the direct result of the destruction of confidence by the misuse of the saved purchasing power in the years immediately preceding the crash of 1929. "The key log of the jam must be broken out by awarding credit in the form of purchasing power directly to ultimate consumers."

The proposed plan differs from the unsolved and fantastic currency legislation which has caused financial disaster in various countries in the past century in that it carries a schedule of redemption taxes levied mainly on all purchases by ultimate consumers and designed to redeem and retire the entire issue of paper in three years.

« ALUMNI NOTES »

CHEMICALS

Geissman, T. A., ch'30, is still in the refining laboratory of the Standard Oil Company of Indiana, at Whiting, Ind.

Voightman, Edward, ch'30, will complete his graduate studies in June at the Paper Institute at Appleton, Wis., and will be granted the degree of Ph. D.

Manfried, Leon, ch'29, is still working at the Milwaukee Sewage Disposal Plant.

Forrester, J. H., ch'28, was granted leave of absence by the Standard Oil Company of Indiana last year to study a year at the Massachusetts Institute of Technology where he obtained the degree of M. S. He has returned to Whiting, Ind., and is is the research department of the Standard Oil Company.

McGregor, George H., M. S.'28, is now an instructor in the Paper Institute at Appleton, Wis.

Walker, Wesley Stoddard, ch'26, Ch. E.'32, is the father of a son, George Stoddard, born on January 6, 1933. Mr. Stoddard is in the sales department of the Linde Air Products Company, Cleveland, Ohio.

Becker, L. L., ch'23, visited the University recently. He is in the sales department of the Franc Company, with headquarters in Milwaukee.

Cirves, Frank J., ch'21, has resigned his job with the Filer City Fibre Company, in Michigan, to be a chemical engineer for a paper mill in Pennsylvania.

CIVILS

Burmeister, Walter L., c'32, is teaching manual training in the Hopkins Street School in Milwaukee.

Magee, Kenneth, c'31, is anxious to hear from his friends to learn of their present location. He is unemployed at present and is doing correspondence work with the bridge department of the International Steel Company, at Evansville, Ind.

Milbrandt, W. A., c'31, is senior engineering aid with the Wisconsin Highway Commission, at Eau Claire. He is doing surveying and inspecting work. **Oscar Egger**, c'31, and **Walter Bourkland**, c'31, are at the same office doing similar work and have chief of party rating.

Hornig, Frederick F., c'30, is a student engineer with the American Telephone and Telegraph Company, at 933 N. County Street, Waukegan, Ill. His home address is 2321 Le Feber Ave., Wauwatosa, Wis.

Kutzke, William A., c'29, was married to Inez Olson of Blanchardville, Wisconsin, on January 7, 1933. They will make their home at Portage, Wis.

Brigham, R. N., c'28, is now in the Madison office of the Water Resources Branch of the United States Geological Survey.

Merz, Henry Spencer, c'28, was married to Virginia Olson of Rockford, Ill., on February 8, 1933, at Oconomowoc, Wis. Robert Merz, brother of the groom, who is a senior in the civil engineering school, was best man. The couple left for a trip to the South, and after April 1 will live at Rockford.

Birkenwald, Edward, c'27, stopped at Madison recently to visit his family and friends while on an extended vacation touring the country. He is a bridge designer with the Maine State Highway Commission at Augusta. His address is 26 Sewall Street, Augusta, Maine.

Hunder, Marcus B., c'30, is junior engineer with the War Department at Milwaukee, inspecting the rebuilding of the Milwaukee breakwater. His address is 406 Federal Building, Milwaukee, Wisconsin.

Hastings, Harold W., c'27, is the proud father of a baby girl, born on January 10, 1933. Mr. Hastings is living at 2408 Kendall Ave., Madison.

Wisner, John C., is now sales engineer with the Chain Belt Company at Rockford, Ill. He is aiding in the development of a concrete pump which is a new machine for the conveying of concrete to forms.

Schmidt, Lewis A., c'23, is a consulting engineer in Austin, Texas. At the present time he is doing graduate work at the University of Texas.

Connelly, Robert M., c'16, is the newly elected county engineer and surveyor of Outagamie County. He was formerly city engineer of Appleton, Wisconsin.

Thwaits, Frederick G., c'14, is chief engineer with the Heil Company, at Milwaukee, doing mechanical and sales engineering work.

Stivers, Charles P., c'13, is at Fort Sam Houston, San Antonio, Texas, where he has been assigned to the Ninth Infantry. He has recently completed a four-year term as instructor at the Infantry School.

Garner, Harrison L., c'09, C. E.'15, has announced that he will be a candidate for alderman of the thirteenth ward in Madison. For several years after graduation, Mr. Garner was an instructor in the engineering school. After returning from service in the World War, he served a full term as alderman of the fifth ward, and for the past thirteen years has been secretary-treasurer of the Anchor Savings Building and Loan Association, at Madison.

Lawrence, F. W., c'06, is now in Detroit with the firm of Hood, Truettner and Thisted, investment securities.

Staack, John G., c'04, and **Watson, C. T.**, c'04, recently attended the twelfth annual Big Ten Round-up at the Shoreham Hotel in Washington, D. C. Mr. Staack is chief of the Topographical Branch of the Geological Survey.

ELECTRICALS

Dack, Mitchel, e'32, was married to Hazel Morris of Dubuque, Iowa, on February 4, in Madison. He is doing graduate work now and will receive his M. S. degree in June.

Brown, George H., e'29, was married on December 26, to Elisabeth Ward of La Crosse, at La Crosse, Wis. Mr. Brown is a research fellow in the electrical engineering department. They are living at 1303 University Avenue, Madison.

Ackerman, Adolph J., e'26, and his family are located in the Panama Canal Zone where he is working as chief engineer for the construction company which is building the Madden Dam. This is a $15,000,000 project, designed to provide more water and hydroelectric power for the increased traffic through the canal.

Kelley, Neil T., e'26, is in the engineering division of the laboratories of the Chrysler Corporation, at 206 Colorado Street, Highland Park, Michigan.

Thomas, Cleo W., e'25, is assistant system operator with the Public Service Company of Northern Illinois. His address is 9106 Lamon Avenue, Niles Center, Illinois.

Goshaw, Irl R., e'24, has recently been admitted to the Bar of the State of New Work. He is working with C. A. Morton at 230 Park Ave., New York City, and is in charge of the patent department of Communication Patents, Inc., at Ampere, N. J.

6 o'clock means nothing to telephone service!

Bell System service must go on *all the time.* Day and night, Sundays and holidays, it must handle with speed and accuracy not only the usual traffic but also the unexpected rush of calls.

To meet this obligation, Bell System men tackle problems of many kinds. At Bell Telephone Laboratories, scientists develop new kinds of apparatus. At Western Electric, engineers find ways to make telephones, switchboards and cable more and more reliable. In the telephone companies, traffic engineers devise improved operating methods that make service faster, more accurate, more dependable.

Result: at noon or in the dead of night, the public reaches confidently for the telephone, knowing that Bell System service never stops.

BELL SYSTEM

TELEPHONE HOME ONE NIGHT EACH WEEK
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« « EDITORIALS » »

AN OUTGOING STAFF SAYS FAREWELL

With this issue of the *Wisconsin Engineer* the present staff bids farewell to these columns, giving way to the men who will carry on during the next school year. During the past term we have been confronted with rebuffs as well as successes and have gained experience which has served to more closely draw the demarcation line between that which can be done and that which is quite beyond our power to accomplish against the odds which we encounter. We appreciate the cooperation shown us by the members of the faculty who have aided us immeasurably in furthering our subscription campaign and giving us material suggestions.

We are passing on to the new staff responsibilities which are abnormally heavy. May they receive the wholehearted cooperation of the engineering student body whose support will be essential to the furthering of the interests of our groups on this campus. May we remind the students that this magazine is founded on distinctly non-commercial principles and is engaged in carrying out policies which will further the individual interests of students and alumni. The *Engineer* is your magazine. Give it your enthusiastic support.

If you know how to spend less than you get, you have the philosopher's stone.

— *Saying of Poor Richard.*

REPRESENTATION IN SENIOR COUNCIL?

Recently it was announced through the columns of the campus daily that the senior class president had appointed 23 seniors to the Senior Advisory Council which is to be the governing body of the class. Of the 23 members, 18 are Letters and Science students, 3 are Law 1 students (who might also be classified as L & S), one is an Agricultural student and one is an Engineering student and herein lies our gripe.

The engineers constitute approximately one-eighth of the campus population and yet we are represented on a governing body by one out of 23 representatives. Is it fair that we senior engineers should cater to the every whim of the playboys on the hill while we sit with our hands literally tied? Aren't we just as much apart of the graduating class as are the L & S students?

It is a fact that the engineers, of this senior class especially, are very active in student life. There are senior engineers who have responsible positions on practically every worthwhile activity on the campus, including social activities. Therefore it would seem that the basis for the exclusion of engineers from membership in the Advisory Council could not have been ability to govern. With these facts in mind have we not a just reason to assume that politics played a very important role in the selection of the council members and that the engineers were given a very raw deal? We challenge our worthy class president to account for his actions and explain why there is a preponderance of L & S students on the so called governing body of the class of 1933.

Snowy winter, a plentiful harvest.

— *Saying of Poor Richard.*

THE HOME STRETCH

The scholastic machinery of another semester is now rolling along under full speed. Together with the new semester looms the *new deal* promised by a new national government which will be in force before the next issue leaves the press. The beginning of a semester seems to bring out hidden potential interests of students in much the same manner as the feelings of over a hundred million people are aroused by a coming inaugural. Facilities are sharpened. All activity is concentrated into the words *think* and *do*. But human nature does not permit such interest to continue unflagged.

By June the president will be a veteran in office, and students will wearily sigh when confronted with final exams. We cannot continue along the high plane of activity with which we undertake a course of endeavor it seems.

Such periodic functions are inevitable. But think of what monotony might result were there no endings and no beginnings in our routine lives.

ACROSS THE EDITOR'S DESK Professor Jansky of the electrical engineering department recently told a story which clearly illustrates the loose manner in which technical terms were used during the recent Technocracy craze. The story follows:

At the height of the recent nationwide discussion of energy money, etc., a story in a popular morning newspaper stated that in a certain eastern city a young preacher used "The Technocrat's Dollar" as a sermon topic. When the collection basket was passed among the congregation a young lady dropped a note into it on which she expressed a desire to donate 20 kilowatt hours to the church since she was temporarily embarrassed for real money. The preacher spoke to her after the services and discovered that she really was serious about the donation and so he told her that she could deliver the amount of energy she wanted to donate to the church by pounding it out on the typewriter. This last statement intrigued Prof. Jansky and he decided to do a little research on the matter so as to determine just how long it would take to deliver the energy.

He found that it requires a pressure equivalent to one half pound to depress a key on the typewriter, that a key is depressed eight tenths of an inch to make an impression, and that a good typist can write at the rate of 300 characters per minute. After a bit of calculation, he discovered that she would have to work 30 years at 8 hours per day and 365 days per year. Do you think she would be willing to donate all of that?

It is often repeated that the machine has become the master of man, however in the discussion of the above sidelight it was brought out that its results refuted this statement in a most elementary way. The young lady in question would, no doubt ask at least $30,000 for the delivery of the amont of energy she proposed to donate. On the other hand one can, at the present time, purchase that amount of energy for less than one dollar. Thus it seems very obvious that man is the master of the machine.

After crosses and losses, men grow humbler and wiser.
— Saying of Poor Richard.

DIVERSITY News item: "I never thought I would be a professional cold catcher when I started life," said Robert Hale, jobless engineer, after submitting to a 21-day "cold catching test" at the University of California hospital.

The present economic condition has caused many a college graduate to turn to fields other than his chosen field of endeavor in which to earn a livlihood and sometimes he has become very successful in his adopted occupation. Although the above news item is a bit unusual it serves to prove that the engineer, in spite of his specialized education, is just as able, and sometimes better equipped, to make any change in his occupation which the moment may require.

ENGINEERS AND PATENT PROCEDURE

(Continued from page 69)

tries an inventor may file a patent application in a foreign country any time within a year after filing in this country, and take the date of filing in this country as the filing date of the application in the foreign country.

To obtain a valid foreign patent under this arrangement, the inventor must file a patent application in this country before publication of the invention and then file a corresponding application in the foreign country within one year after the date of filing in this country.

Applying for Letters Patent

Ordinarily, the question of whether or not to file a patent application on an invention made by an employee of a company is decided in conference between the company's patent attorneys and the engineers interested in the invention. The decision is based upon the opinions of the patent attorneys as to the probable patentability of the invention and on the opinions of the engineers as to the probable value of the invention to the company.

When it has been decided to apply for a patent on an invention, the inventor should cooperate closely with the patent attorney in preparing the patent application. Close cooperation is necessary because the attorney must rely upon the engineer for full information regarding the invention and concerning the particular branch of science to which the invention relates. On the other hand, the engineer must rely upon the attorney's judgment in matters of patent law and concerning the details of prosecuting the patent application.

Before a patent attorney can prepare a satisfactory patent application, he must know in a definite and exact way just what constitutes the invention. To this end he must first understand thoroughly how the apparatus embodying the invention operates. Then he must become familiar with the history of the science to which the invention relates and with apparatus used previous to the invention in order that he may be able to select patentable features of the new apparatus.

To assist the attorney in grasping the invention, the engineer should furnish him with complete information in regard to all of the features and details of his invention. The inventor should also provide information regarding apparatus used for similar purposes before his invention was made and particularly point out the distinctions and improvements which differentiate the apparatus invented by him from apparatus known before his invention.

It is very helpful to the attorney to be given an opportunity to see the invention in operation or to see a working model of it, in order that he may be better able to appreciate the significance of its various features and to understand more fully the drawings and written descriptions of

(Continued on page 80)

« CAMPUS ORGANIZATIONS »

CHI EPSILON

Chi Epsilon held its last meeting of the semester on January 11, in the West Madison Room of the Union. Election of officers was the important business of the meeting. The following officers will head the organization during this semester:

James P. Kaysen, '33_____*President*
Alan D. Freas, '33_____*Vice President*
Robert L. Engelhardt, '34_____*Secretary*
Winfred C. Lefevre, '34_____*Treasurer*

The organization has decided that it would be both more appropriate and more comfortable if the meeting were held in the Union instead of a classroom, so hereafter the meetings will be held there.

It is planned to engage in a varied activity program next semester included in which will be an inspection trip to a power plant at Kilbourn, inspection of new Forest Products Laboratory, and various social get-to-gethers.

The first activity of the new semester will be an evening discussion meeting to be held during the first part of this month.

TAU BETA PI

On December 3, 1932, Sigma Nu Sigma, a local honorary engineering fraternity at Marquette University, was installed as the Beta chapter of Wisconsin of the Tau Beta Pi Association.

The installation was conducted by Prof. R. C. Matthews of the University of Tennessee, national secretary-treasurer, and Prof. P. W. Ott of Ohio State University, national president. Assisting them were members of the Milwaukee Tau Beta Pi Alumni Association.

Seventy-seven men were initiated in the ceremony held at the City Club in Milwaukee. Of these, 32 were students and 45 were alumni who would have been eligible for membership had the chapter existed at the time they were in school.

Following the initiation, a dinner was held in the dining room of the City Club. The main speaker of the evening was William George Bruce, who spoke on the St. Lawrence waterway project. Mr. Bruce is very active in the efforts to obtain the waterway, and at that time had just returned from Washington, D. C. where he had appeared before a Senate committee with regard to the waterway.

Royal H. Wood, m'33, Alan D. Freas, c'33, George C. Schmid, m'33, and Robert E. Moe, e'33, attended the installation as guests of the new chapter. Alpha chapter of Wisconsin welcomes the Beta chapter into the organization.

The best preparation for business is an engineering education and this is becoming generally recognized.

PROF. GEORGE FILLMORE SWAIN *of Boston.*

PI TAU SIGMA

January was a relatively inactive month for Pi Tau Sigma. Meetings were suspended because of the proximity of the semester examinations. The committees appointed in December were the only active groups. They acted on the suggestions given them at the last meeting before the Christmas vacation and are ready to submit the results at the next meeting.

With the coming semester activity will be resumed. A meeting will be held as soon as convenient at which the committees will report and new officers will be elected.

Pi Tau Sigma is looking forward to an early inspection of the local Forest Products Laboratory.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS DISCUSSED

All mechanical engineers at the University of Wisconsin have had thrown at them at some time or other the arguments that the student member of A. S. M. E. receives $3.00 for each dollar invested in dues to the society, that the first year's dues of $10.00 as junior member are refunded to him if he has been a student member, that he has free access to the employment service, and that publications of the society are available to him at half price. These are of minor importance in comparison with the gain derived by attending the student meetings.

During the time that the present Seniors have been eligible to A. S. M. E., a good many outstanding meetings have been held. These meetings featured subjects which do not come up in class, and which, for the most part, do not appear in print. To be more specific, some of the meetings that were particularly outstanding were: Bill Hasslinger's talk on gasoline and detonation; the talk by Mr. Morris of the Burgess Laboratories on acoustics; Mr. Oesterle's talk on open hearth steel, and both of the illustrated talks by Mr. Case on his experiences with the Navy air force. All of these meetings were interesting and educational; they had an intangible broadening effect.

At present the Wisconsin Student Branch is planning to obtain for its members even more intimate contact with practice. According to a new plan, suggested by Prof. Ayres, groups of students will visit executives, and learn from them current practices in management. After each group has visited a single executive, the students will get together for a general discussion, so the thoughts and pointers obtained from each executive may be shared by all. Such contacts, experiences and talks are far more valuable than all the monetary returns.

ON THE ALASKAN FRONTIER

(Continued from page 71)

sive nights by the thunderous roar of ice sloughing from the front of Taku Glacier — that ice mass at the head of the Inlet which tourist ships turn aside from their regular routes to visit.

On another peak, forced to halt our climb because of low clouds which made further progress dangerous, we parked our loads, with the intent of picking them up the next day, and went up and down ravines, gulches and valleys in pursuit of a few goats we had spied grazing, but were unable to "bag" any of them.

To Twin Peak goes the record for the most unusual time as well as the best scare of the summer. Twin Glacier, early in June, encircled the mountain and hence, some treacherous and yawning crevasses lay in our path to the mountain itself. These we passed over and on our building trip reached the mountain safely. Slick sides, worn smooth by the glacier, provided few finger or toe holds and slowed our upward progress. A vertical wall was finally climbed by means of an eroded crack in its face, the snow line was reached by two in the afternoon and we finally reached the peak at seven in the evening of the longest day of that year. On all sides there was nothing but snow and bare mountains, some with such enchanting names as "Devil's Paw". Our building job was finished by nine and we slid, slipped and fell down the snow slopes in a race against the gathering dusk. The eroded crack slowed our descent more than the ascent because of the danger of falling rocks, and by midnight we had traveled but a short distance on the debris-covered edge of the glacier. There we stopped and "siwashed". ("Siwashing" is a western term referring to camping overnight without any sleeping outfit.) With two canned frankfurters, a small square of chocolate, and two teaspoonfuls of condensed milk for each of us, we made our midnight bivouac, crowded around the sputtering fire. In the decreasing dusk of four o'clock in the morning we moved on slowly, crossed the ice foot with shaky knees and awaited the return of our boat from the base camp.

Two weeks later, after two of us had been landed on an opposite mountain shore to make a quick trip to the top, the boat went to the other mountain to take off the observing party. The ice foot had by that time broken off and the boat could reach the rocky shore. Watching its progress from time to time as we ascended we suddenly heard a rifle shot, — the two boatmen had been looking for geese — a few seconds later came a reechoing roar as tons of ice sloughed off the face of the glacier nearest the mountain. We both knew what would be the result should anything happened to the boat. We would be marooned; so would the observing party. We waited for more than an hour before we saw the boat threading its way slowly through the channel in front of the mountain. The boatman was taking no chances starting his motor until he was well away from the region where the motor's sharp sound waves might set off further sloughings. Fortunately, as we found out later, the two men had been near the beached boat at the time of the original sloughing and had been able to hang on to their craft as giant waves, caused by the tumbling and bouncing ice bergs, threatened to wreck the craft against the rock shore.

Tourist ships visiting glaciers blow their whistles and are usually successful in causing ice to slough from the face of the glaciers for the entertainment of the passengers. During July and August especially, when the sun and warm rains have caused the most rapid disintegration in the structure of a glacier, it is in such a condition that sound effects have been known to result in the sloughing off at one time as much as a half mile of the ice front.

After the rainy season, our party, hardened by the Taku experiences, attacked the Stikine mountain job with an extra spurt of speed. There we had the experience of signalling the results of our days observations by flashlight from our 4000 foot camp to the base camp some miles downstream and to find that those results were accurate enough to warrant our descent the next day. At another time, we located, by flashlight signals, a "lost" mountain party two of whose members had been injured, and about whose safety our chief was becoming slightly worried.

In the Stikine, too, on an idle Sunday we discovered a hot spring, and a decadent bathtub and pipe system, and regaled ourselves with a piping hot bath.

Four of us made the last ascent of the season. We made the trip "light", carrying only the instrument and tripod, our sleeping bags and a small supply of food, and leaving the mountain tent below. The day was perfect, cloudless, and we were all in excellent condition. That last night,

under a frosty moon with its rays shining on the tide flats at the mouth of the Stikine, our small fire flickering slowly out, and one or another of us from time to time pushing himself up hill to regain his original bed of boughs, undoubtedly topped the season and put a fitting finale on our experiences. The next morning, the last of our observations completed, we slid down to the beach and in a few hours were back to civilization, a la Wrangell, Alaska.

ENGINEERS AND PATENT PROCEDURE

(Continued from page 77)

it. Also, the invention appears to be more realistic to the attorney upon seeing it in operation than it does from mere blue prints, and he is, consequently, better able to present it in a realistic manner to the Patent Office.

If machines of the type used prior to the invention are available, they, also, should be shown to the attorney and the improvements made over them in the new apparatus pointed out.

In addition to the preferred form of the invention, any alternate apparatus which may be utilized in practicing the modifications of the invention which have been made, or invention should be brought to the attorney's attention.

In general, the more complete the attorney's information in regard to the invention and its relation to prior apparatus, the better he is equipped to obtain worth while patent protection on it.

Each patent application must be made in the names of all of the inventors and no one other than the inventors. When several engineers have worked together on an invention, it is sometimes quite difficult to determine who the inventor or inventors of each part are, and there is a tendency to place the names of several or all of the engineers on the patent application. However, this is a very bad practice if they are not actually joint inventors, as the resulting patent may be held invalid on the grounds that it was not granted to the true inventors. Because of the fact that the validity of a patent depends upon it being granted to the true inventor or inventors, engineers should see to it that no patent application is filed under the name of anyone who is not either the sole inventor or one of the joint inventors of the subject matter of the application.

The first step in the preparation of a patent application is the making of the patent drawings. The drawings must be made in accordance with regulations prescribed by the Patent Office and are usually prepared by a patent draftsman working in conjunction with the patent attorney. The patent drawings must show a workable structure embodying the invention and clearly illustrating its features, but ordinarily, they are not made to exact scale. The drawings are usually submitted to the inventor in pencil in order that correction may be made readily, if necessary, and are inked in after the application is otherwise ready to be filed in the Patent Office.

After the drawings have been prepared in pencil, the patent attorney prepares a draft of the specification and claims of the application based on the information he has received from the inventor. The patent specification is essentially a technical description of the invention as illustrated in the drawing, so arranged as to set forth clearly the features of the invention thought to be patentable. The claims which are appended to the specification are formal definitions of the invention and set forth in exact terminology the field from which others are to be excluded by the patent.

When the draft of the application is finished, the inventor should study it and the drawings carefully to make sure that the information given to the attorney has been correctly interpreted and that the invention is fully and accurately shown and described. It is important to see that all features of the invention are fully described in the specification because after the application is filed in the Patent Office no new subject matter can be added to the drawings or the specification.

The drafting of the claims of the application is a highly technical procedure and must necessarily be left largely to the attorney. Each claim is independent of the other claims and can be considered a separate little patent in itself defining the boundary lines of some feature of the invention. If the inventor has taken care to see that the attorney fully understands the invention and that the patent drawings and specification accurately and fully describe the invention, the attorney will be in position to draw the claims correctly.

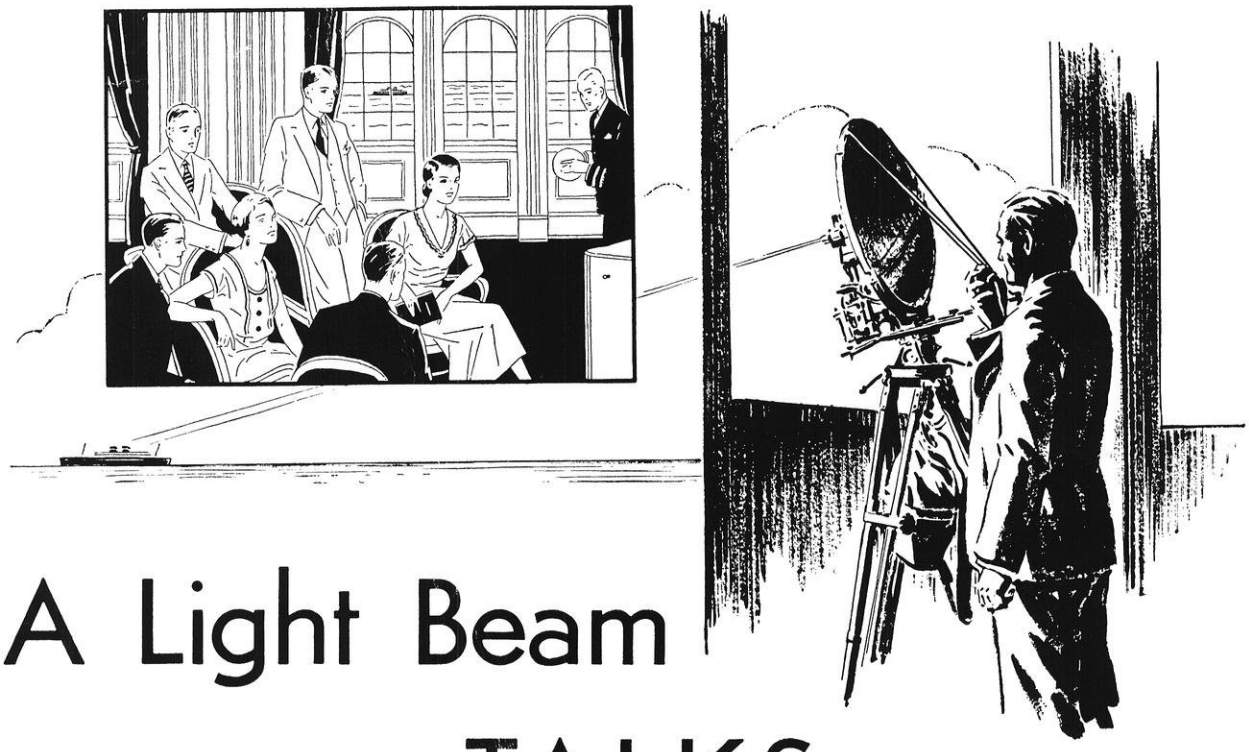
After the engineer is satisfied that the drawings, specification, and claims are in proper form to disclose and define his invention, the specification and claims are typewritten in final form and the drawings inked in for filing in the Patent Office. It is advisable that the engineer obtain a carbon copy of the specification and a print of the drawing for his file.

After the papers are in condition for filing in the Patent Office, the specification must be signed by the inventor and an oath taken before a Notary Public to the effect that the applicant believes himself to be the first inventor of the subject matter of the application. and that he does not believe that it was ever known, used, patented, or described before his invention, or patented or described in any country or on sale in this country for more than two years prior to his application for patent.

There are three places in the application to be signed by the inventor. All three signatures must be exactly alike and must include the full first name of the inventor. If an assignment is to accompany the application, it must be signed in the same manner and acknowledged before the Notary Public, making four signatures in all.

When the application has been properly signed, it is ready to be sent to the Patent Office with the required government filing fee of thirty dollars plus one dollar for each claim over twenty.

After the application has been examined and allowed by the Patent Office, the drawings, specification, and claims become parts of the resulting patent. Copies of the patent are printed in pamphlet form, the printed copy taking its place among the permanent records of the development of the art to which the invention relates, and making available to the public full information concerning the invention.



A Light Beam TALKS

FROM the flickering light of a neon tube on the skyline of New York City, a speech was sent to the *S. S. President Hoover,* 3000 feet away. The small neon tube changed the electric impulses from a microphone into light waves, which were directed to the ship in a narrow beam. A photoelectric tube in the center of a receiving mirror on the ship changed the light impulses back into sound, and the speech was heard on board.

The use of light that can be heard, and of sound that can be seen, has many applications. It can be used for speech communication; it can serve in fog to guide aircraft on their course and into port; and it can be used for radio and television broadcasting.

The development of future forms of transmission, whether in sound or light waves, will largely be the responsibility of college-trained General Electric engineers To-day, these men are planning, producing, and testing electric equipment which will help maintain General Electric's leadership in its field.

95-926DH

GENERAL ELECTRIC