

**THE LICENSE FEE AS A MEASURE OF DAMAGES.**

During the debate, on the 16th ult., in reference to the second session of Senate bill No. 300, Senator Conkling quoted the familiar aphorism that "everybody knows more than anybody," and he added: "The ablest committee in this body, or any other, may sit and listen to attorneys representing somebody else, and come to a most conscientious and intelligent conclusion, and still, in a matter so complex as this, it is more than likely that, when the converging rays of a great many minds are turned upon that subject, new considerations and new thoughts may be suggested, which it is well worth while to utilize."

The remarks of the distinguished New York statesman lose none of their pertinency from the fact that the arguments before the committee were almost wholly by eminent barristers retained for that purpose by associations more or less inimical to patents.

It is observable that advocates and apologists of the Wadleigh bill—perhaps conscious of the fallacious character of their conclusions—seem desirous to subordinate legislation to such mere judicial fictions and technicalities of the forum as that which finds it necessary to regard the infringer of a patent as a "trustee," before the rights of recovery of profits can be adjudged against him; and the fiction which would exalt the license fee from its position as one of several tests of value to be the absolute "measure" of compensation to the defrauded patentee; thus placing the clandestine user on a level with the licensee, and arbitrarily fixing the price at which the private property of one man may be appropriated by any other.

Instead of the procrustean rules with which it is sought to tie the hands of tribunals, much better would be the mode recommended by Senator Matthews, who, in closing the debate, remarked: "I am of opinion that every avenue of evidence ought to be kept open, for proof, in each individual case, according to its circumstances, and that the amount in such a case should be reasonable and fair, and that that should be left absolutely, upon that evidence, to the discretion of the tribunal charged by law with the finding of such a verdict or the making of such a decree, without any restraint, without any artificial rules to bind that discretion, without shutting out any light; so that every fact and every circumstance which is material and important to the determination of the question shall be permitted to be proved."

Now, is not the much insisted rule of the license fee, as the absolute measure of damage or profit, directly in conflict with the Ohio Senator's well stated principle of action? Does not the drift of reasoning that prescribes such a rule virtually destroy the "EXCLUSIVE" attribute which the Constitution makes inherent in the franchise?

It is conceded by Mr. Christiancy that the right, so long as it remains wholly in the hands of the inventor, is his, to do as he pleases with, as much so as the right of possession in a mine or a field; nay, more, that, in such a close monopoly, the patentee is entitled as a measure of damage against an infringer, to the entire usufruct or beneficial results of his improvement, although such results are very well known to be often manifold the amount of the customary license fee.

The sometimes relative insignificance of the license fee is well known to be attributable to the anxiety of the patentee—before many months of his brief franchise have slipped away—to get the manufacture into the hands of competent men, and, in order to accomplish this, and that the device may fight its way against the *vis inertiae* of routine and prejudice and reach early and extensive sale, the patentee is willing to forego a very large proportion—often exceeding nine tenths of the actual benefit. He is willing to surrender so much to the legitimate manufacturer and to the public, but not one cent to the marauder.

Now, apart from questions of justice, apart from questions of constitutional right, can any one doubt that it is for the public interest, that the patentee should be encouraged to relax somewhat of this strict monopoly, should be permitted, without let or hinderance, to select the mode, the agents, and the places in which and by whom his franchise shall be utilized?

An illustration may be cited familiar to many. Some twenty-five or thirty years ago the manufacture of tongued flooring was subject to the Woodworth patent. This manufacture, in Hamilton county, Ohio, was restricted to fourteen mills, of which each paid to the patentee a stipulated annuity of \$1,000. The ability of these licensees to undertake the manufacture rested implicitly on the patentee's guarantee as to the maximum number of mills. Now what would have become of their contracts and of the business founded on those contracts, if any trespasser—say, a wealthy building association—could have stepped in and defied the inventor and the honest licensees, in the assurance that Justice—should she be invoked—could at most but adjudge the license fee as the reasonable compensation for the tortious use?

The frequent, somewhat promiscuous disposal of their rights at almost nominal figures, by necessitous or unthrifty inventors, does not, as some would have us believe, necessarily imply a total surrender to the public at a given price, nor does it invest any one with the liberty to appropriate such right on the terms thus granted to others, or any terms; nor does Congress, nor all the tribunals between the two oceans, step in between the humblest patentee that can be cited by Senator Christiancy and that patentee's "EXCLUSIVE" property in his own invention.

As the patentee of a valuable device, jealous of the reputation of this offspring of my brain, and regardful of the interests of those who may, with my consent, have undertaken

its manufacture, can I be denied the exercise of my own discretion in the selection of licensees? Would not they, and might not even the public, be best served by my doing so? Well, now, what becomes of this option, if any irresponsible party may step in and manufacture my device on no royalty at all—for many patentees are unable to incur the expense of a patent suit, and with the further assurance that, in the event of prosecution, the measure of compensation is the ordinary license fee?

Gentlemen who concede my exclusive right to my invention in its integrity so long as I confine the manufacture to my own attic, and that even to the extent of the entire benefits, usually manifold the amount of an ordinary license fee, will scarcely allege that the interests of the community are subserved by such a narrow policy. But does not the proposed rule offer a premium for just such a policy?

Gentlemen call this a Statute of Repose. Truly, of repose with a vengeance—the REPOSE OF DEATH!

GEO. H. KNIGHT.

Cincinnati, January 23, 1879.

**AMERICAN INDUSTRIES.—No. 5.****THE MANUFACTURE OF LUBRICENE.**

One of the inevitable problems connected with the general introduction of machinery is that of proper lubrication; this is second only to correctness of design and good workmanship in the machinery itself. Manufacturers and users of machinery well know how difficult it is to cope with this problem. It is perhaps simple enough to lubricate surfaces so that friction is minimized; but there are other elements in the problem, which are quite as important as this, among which we mention the matter of economy, the time consumed in applying the lubricant, and the effect of the lubricant on the surface to which it is applied.

These points, although apparently quite simple, are really complex and have recently commanded a great deal of attention in the mechanical world; so much indeed that it has been made the subject of the most delicate tests known in mechanics.

Oils for lubricating purposes are generally comprised in three classes, viz.: vegetable oils, animal oils, and mineral oils.

Among the vegetable oils, olive oil holds without dispute the first place; it has the great advantage that it can be purified without the assistance of mineral acids, and thus attains a higher value, which cannot be approached by other oils of vegetable origin. Next to olive oil come the oils extracted from sesame, sometimes called "gingelly oil;" from ground nuts, which, to a certain extent, can also be purified without acids. Colza and cotton-seed oils follow at a long distance; they must needs be purified by acids, which free them from the pectic and azotic matters which they contain in considerable quantities.

Unfortunately, this necessary treatment with, say, sulphuric acid, while it bleaches the oil, also alters materially its composition, predisposing it to easy decomposition. Besides, if the proper proportions of acid are not carefully employed, fatty acids are produced, which, dissolving in the oil, are detrimental to its application as a lubricant.

The second class comprises the oils and greases derived from animal substances. They are used for the finest machinery, for which they are specially valuable, and where the quantity is so small that the price is no consideration. They must all be much refined, either to remove the free fatty acids which sometimes are present in comparatively very great amounts, or other animal matters which very often accompany them in solution, which, not being wanted, are impurities. To this class belong the lard and neat's-foot oils, pressed cold, and purified with salts of lead; also, spermaceti and others. The lower qualities of these oils are sometimes used in place of vegetable oils, as not being more expensive, but their price is kept down by deficient rectification, and as thus they are apt to oxidize soon and to desiccate, they can never be used with any advantage for ordinary machinery.

Well purified animal oils are also applicable to the lubrication of heavy machinery where the bearing surfaces are large and the weight great.

Mineral oils form the third class. They are not suitable for the heaviest class of machinery, on account of their want of cohesion, and generally high degree of inflammability.

Olive oil thus stands first as a lubricant. It has of late been much displaced by mineral oils, on account of its price, but it is a question whether, all things considered, it is not cheaper in the end. Of course it must, like other vegetable oils, be purified, and is more valuable the better this has been done. These purifying processes deprive it not only of the fatty acid, but also of its odor; but, as other vegetable oils are equally neutralized and bleached, these qualities can be no guide to its lubricating properties.

Crude vegetable oils contain, as a rule, from one to six per cent. of impurities, which depreciate their efficiency, and which must be removed by the application of acids. The amount of acid left in the oil is of the highest importance, for it is this acid which attacks the lubricated surfaces and wears them away.

In 1877, the American Institute, by a series of exhaustive tests of various lubricants, conducted by Prof. R. H. Thurston, of the Stevens Institute of Technology, determined the qualities of a great number of lubricants, and as a final result, after several months of investigation, awarded the medal of superiority to Mr. R. J. Chard, of this city, for the

product now widely known as lubricene, which is said to combine the desirable qualities of the lubricants above enumerated, while it is without their objectionable features.

Prior to this, in 1875 Mr. Chard received a silver medal from the American Institute, and he received a medal for his products at the Centennial.

In view of the great importance of this subject, and of the merits of this particular lubricant, we describe, as far as the manufacturer will permit, the process of making lubricene.

The works and office, which are illustrated on our title page, are located at 134 Maiden Lane, in this city. Here three principal grades of lubricants are made, which are known as Lubricene, Cylinder oil, and Engine oil. The materials used in the manufacture of these lubricants are tested and properly compounded by sample in the laboratory. The ingredients, which are common well known substances, consist of animal fats and oils, mineral and vegetable oils, caoutchouc, and an alkali.

The fat after being carefully refined is put in a melted state into the caldron seen at the upper left hand corner of the engraving; the oils, caoutchouc, and alkali are added, the whole is then subjected to a rather high but well regulated temperature for two hours, after which it is drawn off into pans, and conveyed to the cooling room shown at the lower left hand corner of the engraving. In the winter the natural temperature of the air will cool the compound with sufficient rapidity, but in warm weather the temperature is reduced by artificial means; the tables upon which the pans rest being hollow, a current of cool water is permitted to flow through. When the compound attains the required temperature, it is conveyed to the packing room, where it is removed from the pans and packed into cans or kegs, each package being weighed to insure a proper measurement of the lubricene.

The cans or pails for containing the lubricene are made in great numbers by approved machinery in the shop shown at the lower right hand corner of the engraving.

Cylinder oil, which is composed of mineral and animal oils and an alkali, is compounded in the caldron in the middle ground at the top, and is drawn directly from the caldron into barrels for shipment.

Engine oil is compounded in the larger caldron at the right. It consists of animal oil with the addition of a percentage of mineral oil.

The secret of the success of these lubricants lies in the care exercised in their manufacture, and in the peculiar combination of materials, whereby homogeneity and smoothness are secured. The engine oil is compounded with a view to the neutralization of the fatty acids, which, in the case of oils and fats not treated in this manner, are freed by the action of steam and work havoc with the valves, valve seats, piston, and cylinder.

Beside economy in the lubricant itself, Mr. Chard claims a great saving in the matter of time, as, when these lubricants are applied with a peculiar cup of his own manufacture, the friction surfaces are continuously lubricated without waste, and without the necessity of constant attention.

We are informed that these lubricants have been adopted by some of the principal railroads in the country, and that it is growing in favor wherever it is introduced.

**A FLOATING ELECTRIC LIGHT.**

M. de Lussex, of Belgium, has lately tried with success an electrically lighted beacon or buoy, for coast and harbor purposes, made as follows: The lantern of the buoy is provided with a Ruhmkorff coil, a vacuum tube or globe. A battery composed of large zinc and carbon plates placed close together are carried on the lower part of the buoy in contact with the sea water. Wires from this battery lead to the primary circuit of the induction coil, and the secondary electric discharges appear in the vacuum tube. This apparatus yields a constant electrical light as long as the battery lasts. It is not very strong, only becomes visible at night; but the plan, it is believed, may be made useful.

**Is the Subdivision of Electric Light a Fallacy?**

Mr. W. H. Preece, the eminent electrician and manager of the English postal telegraph system, contributes a paper to the *Philosophical Magazine*, in which he points out that the theory of the electric light cannot be brought absolutely within the domain of quantitative mathematics, for the reason that we do not yet know the exact relationship existing between the production of heat and the emission of light with a given current. We, however, know sufficient to predicate that what is true for the production of heat is equally true for the production of light beyond certain limits. He shows that the full effect of a current can only be obtained by one lamp on a short circuit, and that when we add to the lamps by inserting more of them on the same circuit, or on a circuit so that the current is subdivided, the light emitted by each lamp is diminished in the one case by the square, and in the other case by the cube, of the number inserted. With dynamo-electric machines there is a limit which has to be reached before this law begins to act, and it is this fact that, in Mr. Preece's opinion, has led so many sanguine experimenters to anticipate the ultimate possibility of extensive subdivision of the light—a possibility which he considers hopeless, and which experiment has hitherto proved to be fallacious.

The *Textile Colorist* is the title of a new and handsome monthly publication, devoted to practical dyeing, bleaching, printing, finishing, etc., by Dr. M. Frank. \$4 a year. Philadelphia, Pa.

**New Inventions.**

An improvement in Microscopes has been patented by Mr. Ernst Gundlach, of Rochester, N. Y. This invention relates to improvements in microscopes, by which the tube is not only adjusted parallel to the supporting post, but always retained during the adjustment at equal distance therefrom, so that the position of the optical axis is not changed, but kept in line with the axis of the illuminating apparatus. The stage and object carrier are so arranged that an improved oblique illumination is permissible. The mirror and sub-stage are suspended in a novel manner.

Mr. Joseph Vacaro, of Bayou Sara, La., has patented an improved iron fence post, which is so constructed that any or all of the fence panels may be repaired or renewed without disturbing the posts.

An improved Portable Fence has been patented by Mr. C. D. A. Curry, of Stonewall, Va. This is a cheap, light, and easily arranged fence that can be readily transported from one place to another, and set up and accommodated to the inequalities of the ground.

Mr. Robert Dillon, Jr., of New York city, has patented a simple and effective Device for Attachment to the rear part of the lower ends of Pantaloon Legs in wet weather, to prevent the mud from being rubbed upon the pantaloons legs and upon the rear parts of the boots in walking.

Mr. Solomon Zemansky, of Brooklyn, N. Y., has patented an ornamental and convenient Box adapted for holding or displaying small articles of sale, and forming a convenient package for sale, and of itself an article of ornament.

Mr. Richard E. Rye, of Mount Pleasant, Mich., has devised an improvement in the class of Clothes Driers having a revolving part, which is vertically adjustable on the pivot post, and to which a cord is applied for suspending the clothes.

Mr. Napoleon W. Williams, of Philadelphia, Pa. has patented an improved Process for Bronzing Metals, which consists in first coating the object with paraffine varnish to close up the holes, make a smooth surface, and stop oxidation, then covering the varnished surface with plumbago, to render it conductive, and finally depositing upon said surface of plumbago a coating of the required metal by galvanic action.

Mr. Thomas F. Longaker, of West Philadelphia, Pa., has patented an improved device for Attachment to Faucets for measuring liquids as they are drawn from a can or cask. It is simple, convenient, and accurate, and will prevent the liquid from being spilled and will not allow its odor to escape into the room.

Mr. George H. Hayden, of Boston, Mass., has patented an improved Cigarette Machine, in which the paper tube is formed, the tobacco packed therein, the ends of the tube turned down, and the cigarette completely finished by one passage through the machine.

Mr. William J. Doyle, of Chicago, Ill., has patented an improved Spool Holder, in which an ornamental base supports a vertical rod fitted to revolve upon the base, and the rod carries three leaves, that are each formed with a series of horizontally projecting points, which sustain the spools by means of nipples formed on the points. At the upper end of the rod is an urn formed with barbs for retaining a pincushion. The parts are made of sheet metal.

Messrs. Francis W. Allen & Daniel Crane, of Saginaw, Mich., have patented an improved tool which they call "The Inspector's Pencil,"

It is especially designed for inspectors' use for marking rough lumber.

An improvement in Lamp Burners has been patented by Mr. Joseph A. Talpey, of Somerville, Mass. This invention consists in providing the flat wick tube of an oil lamp with a taper or small wick tube, which is so placed in the flat tube as to divide it into two equal parts. When the lamp is to be used for the night, the larger wicks are turned down,

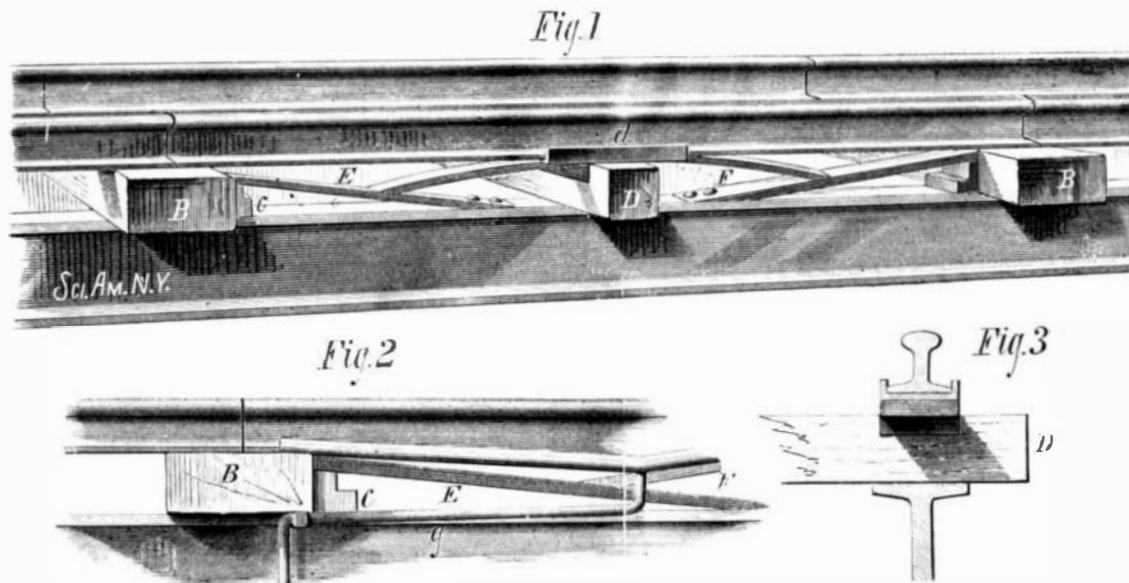
the taper wick continuing then to burn and to keep up a small flame for the night.

Mr. William Haas, of Lyndon, Kansas, has patented an improved Washing Machine which is an improvement on the machine for which letters patent No. 203,031 were granted to the same inventor April 30, 1878.

**A NOVEL RAILWAY TRACK.**

The problem of reducing the noise and vibration of the elevated railroads, which has engaged the attention of scientific experts for many months past, seems to be finally solved by an ingenious and very simple invention, just patented, and is being brought to the attention of capitalists as well as the general public.

The inventor introduces beneath each rail a series of longitudinal springs, each composed of six layers of Georgia pine or white ash, 9 inches wide and 1 inch in thickness. There is a central support, or safety check, from

**HALL'S IMPROVEMENT IN RAILWAY TRACKS.**

which the lower layers of the spring diverge at an upward angle until their ends rest upon the ties at the end of the rail. A curved spring, composed of four or more layers of pine or ash, passes over the top of the central safety check, with its ends resting midway upon the lower spring. The rail, 30 feet long, is laid over all, its center only touching the surface of the upper curved spring. By this combination the spring is constantly yielding and recovering, or readjusting itself, as the cars pass over it. The great length of the arc described by the curve of the central spring, it is claimed, makes the vibration of the cars so slight as to be quite imperceptible.

The safety check or support, immediately under the cen-

ter opportunity for the construction of gutters or troughs to conduct the oil-drippings, rain, and melted snow into the pillars supporting the structure, and thence to the ground, thus preventing another nuisance of which pedestrians complain.

The absence of the immense number of ties now in use on the present elevated railroads, and which act as a sounding board, will in itself be a large saving of expense and will reduce the noise and vibration to a minimum.

The material used in the combination is not affected by temperature or moisture. It has been discovered by careful experiment that wood is greatly superior to iron, steel, or rubber for this purpose. Georgia pine is regarded as the best, when well covered with raw linseed oil; and the next best is white mountain ash.

This invention is applicable not only to the elevated roads, but also to the construction of suspension bridges, all kinds of railroad bridges, trestlework over marshes, low ground, and elevations, and other works requiring a combination of solidity and smoothness.

The two rails forming the track are secured at the ends to the cross-ties, B, which rest on the girders, C, and which in turn are supported by posts. The semi-elliptic wooden spring, F, has attached to it a chair for supporting the middle of the rail, and its ends are sustained by wooden springs, E, that rest upon blocks, c, and are riveted to the girders. A beam, D, is laid across the girders under the middle of the rails, and is rabbeted to receive a rubber cushion, which supports the center of the spring, F, when it is subjected to undue pressure.

To prevent oil or water dripping from the rail to the ground a gutter, shown in

Fig. 3, is provided. For further information address Wm. H. Hall, 111 Nassau street, New York city.

THE Thames Embankment, London, is now lighted by electric lamps.

**AN IMPROVED TYPE WRITER.**

In this machine the type, D, are carried by the table, A, which is rotated by a bevel pinion meshing into the wheel, B, attached to its periphery. The pinion is turned by the wheel shown at the rear of the machine, and when the required letter comes under the follower, d, the latter is depressed, forcing the type downward until it strikes the paper on the platform over which the machine travels, being moved forward by the pinions, G, which mesh into racks in the base.

When the follower is relieved of pressure, arc tractile spring returns the type to its place in the table, and the follower regains its normal position.

The type are inked by the rollers, E, which are supported by a cross-piece attached to the standard, A'. These rollers receive their ink from the under surface of the table, A, and apply it to the faces of the type as the table is revolved. When it is desirable to move the table without inking the type the standard, A', is pressed downward so as to remove the ink rollers from the under face of the table, A.

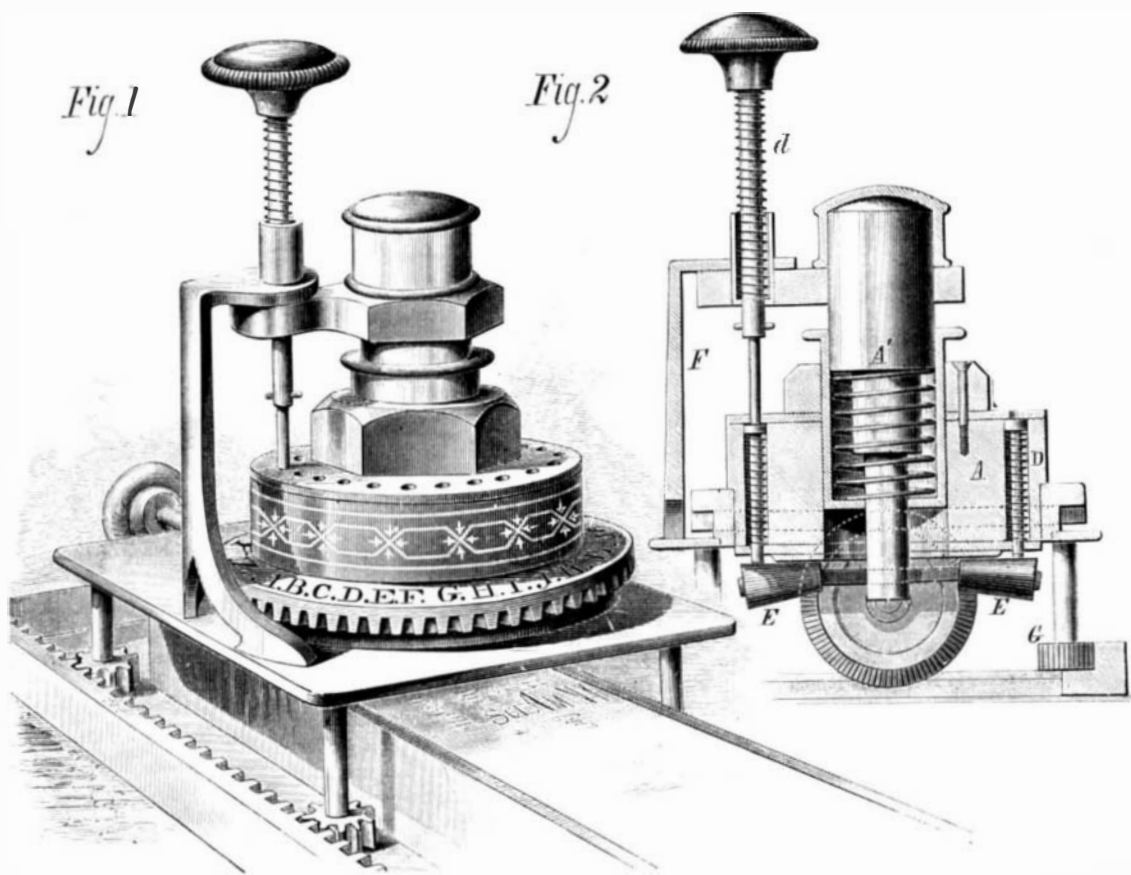
The upper surface of the wheel, B, is lettered to correspond with the type carried by the table.

This machine is so compact that it may be carried in the pocket, and it possesses the advantage of great simplicity.

This invention was recently patented by Mr. Jean A. Hitter, Jr., of St. Martins-

ville, La., from whom further information may be obtained.

THE cabinet work of the new Cunard steamer Gallia is to be in the Japanese style, and is now being manufactured in Japan. It is claimed that she will be the model steamer of the Atlantic ocean. Her estimated cost is \$850,000. It is expected that her first trip will be made in July.

**HITTER'S TYPE WRITER.**

ter of the curved spring, allows a certain amount of pressure upon the spring and no more, thus preventing too great a strain on the spring should the road be used for the conveyance of heavy freight. As there are but two ties and the safety check in every section of 30 feet, light and ventilation are secured to the ground floors of stores and dwellings on the line of the road; and in winter less snow and ice accumulate upon the track. The inclination of the spring also gives