New Inventions.

A New Tinning Alloy.

A new method of tinning iron goods, pins, and other articles of a like nature has been invented by M. Fouquet, of the Department of the Eure, France, which consists of an amalgam or alloy fusible at low temperatures, composed of quicksilver and tin, or of tin, lead, and bismuth in equal parts. The heat required being no more than that of boiling water greatly facilitates operations, and the articles, which have to be perfectly cleaned before being plunged into the alloy, are found to present perfectly smooth surfaces when withdrawn from the same.

Improvement in Distillation.

The distillation and rectification of tar, resin, bitumen, turpentine, shistore oil, and other substances, have been improved by M. D'Arcet, with a view to obtain a continuity of action. The principal object of the invention, and of the apparatus employed to carry it into effect, is to render the distillation of the above-named substances, and generally of all liquid hydro-carbons, liquifiable by heat, analogous to that of alcoholic liquids, and to effect this purpose at the lowest possible degree of temperature. The basis of the process may be said to consist in the continuity of the distillation or rectification, and the spontaneous separation of the resulting volatile substances. For this purpose they are placed in an apparatus divided into compartments, to each of which, in succession, increased degrees of temperature are applied. Each compartment is provided with an escapement valve, by which the products of distillation in that degree of temperature are conducted into a separate receiver.

Sprain Cured by Manipulation.

This means of treating sprain, recently revived by Mr. Gerard, is frequently had recourse to by M. Nelaton, the distinguished surgeon of the Clinique Hospital, Paris, with complete success, both in recent and old standing sprains. A case recently presented itself, in which a man sprained his ankle while leaping. Cold water was continuously applied, but he remained unable to walk for three weeks, when he came under Nelaton's care. It having been ascertained to be an example of simple sprain, one of the *internes* slid his fingers under the foot, and having greased the two thumbs, pressed these successively with increasing force over the painful parts, for about a quarter of an hour. The application was repeated several times, and in the course of the day the patient began to walk, and the next day left the hospital. This is a most simple cure for a very frequent accident, and can be applied by the most inexperienced. We would advise those of our readers who may be afflicted with a disruption of any of their ligaments to give it a trial.

Improved Dynamometer.

That disease which annually afflicts our country, and which may truly be called the "show fever," when any one who has an invention of any kind takes it to the State fair, and exhibits it to an appreciative multitude, is quickly coming—the season of exhibitions and fairs will soon be upon us, and we have to call attention to a most useful invention, which will be of great value to the judges who award the prizes.

The invention which our engravings illustrate—Fig. 1 being a front elevation, and Fig. 2 a back view—is a dynamometer of simple and improved construction, the invention of G. and J. W. Gibbs, of Canton, Ohio, and patented by them August 26, 1856. It is suitable, and will, we have no doubt, be extensively used for trying the draft of wagons, plows, reapers, mowers, &c., and the strength of cattle, horses, &c.; in fact, it measures force in nearly all of its thousand applications. It consists, as will be seen on reference to the engravings, of an elliptical spring, the advantages of which over the spiral (usually employed) are too well-known to need recapitulation.

The spring, A, is flattened out at its ends, B, and to the upper branch is attached an index, C, on which two pointers, D and E, moving on an axis, F, indicate the power exerted. One end, B, being attached to the object whose draft is to be tested, the horse or other motive power is attached to the other end, and as the strain comes on the spring it brings the two curves, A, nearer together; in so doing the bar, H, being attached at G to one curve, is pushed up, and being pivoted to a lever, I, on a small gear wheel, J, it turns that partly round, and so moves K, which is rigidly connected to the axis, F. This, of

GIBB'S DRAFT-TESTER AND DYNAMOMETER.

Fig. 1

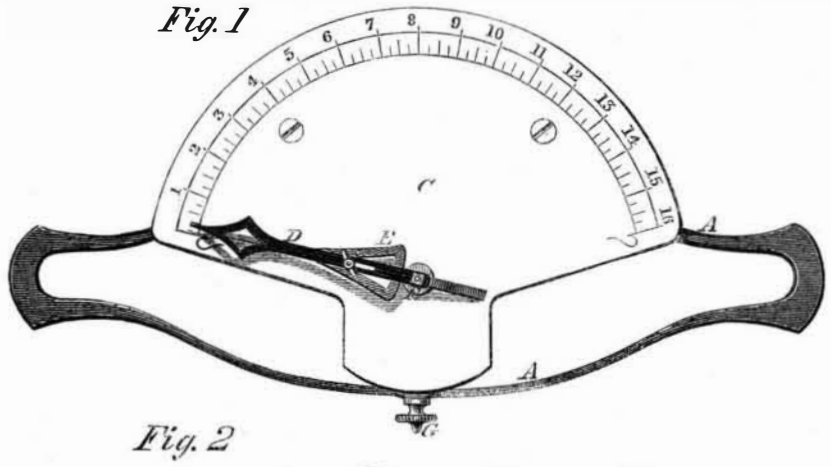
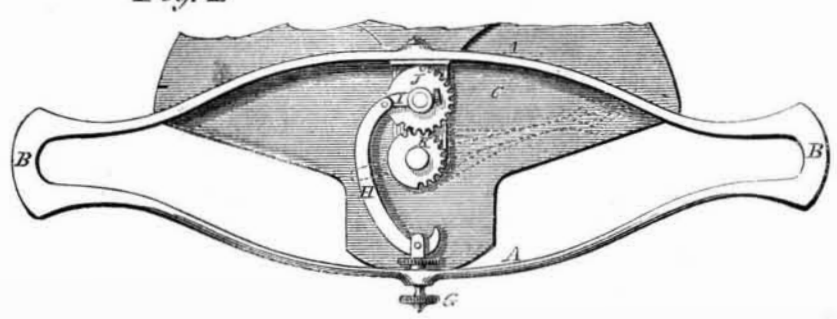


Fig. 2



course, causes the pointer, D, to move round the dial, and the whole being proportioned and graduated correctly, the indicator, E, being only loosely placed on the axis, F, vibrates as the implement to be tested is drawn along, and indicates the average draft very accurately.

It is light, simple, and perfect in its operation, and is manufactured, or the patent is for sale by Gibbs & Danner, of Canton, Ohio, who will give any further particulars. The committee of the Ohio State Board of Agriculture highly commend it; and the Secretary says that "it is the only instrument of the kind he is acquainted with that is at all times reliable."

HARRISON'S DOUBLE-ACTING FORCE AND LIFT PUMP.

Fig. 1

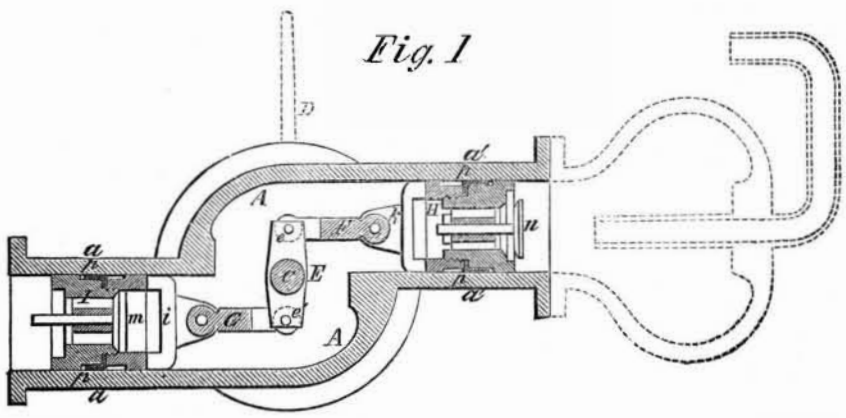
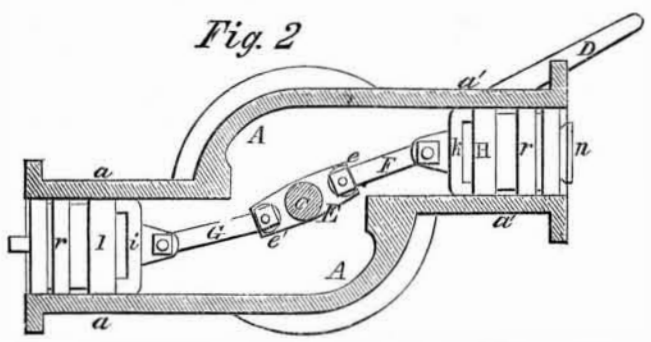


Fig. 2



The great advantage of this pump is that it draws the water directly through itself from the entrance to the exit, and when placed perpendicularly draws the water in a straight column from the bottom to the discharge. It has but two valves, which can be taken out by simply taking the cap off the pump, and as a fire engine for farm houses or manufactories it is admirably adapted. It does not freeze, and is very cheap. The operation is easy and perfect, and it requires little power, as we can testify from a personal trial.

Fig. 1 is a vertical section, showing the buckets at half stroke, and Fig. 2 the same section, with the buckets at the termination of their outward stroke, shown in elevation.

A is the body of the pump, the interior of which forms a chamber, permanently closed on one side, and furnished at the other with a packed cover and stuffing box. Through the stuffing box passes one end of the rock shaft, C, the other being in a bearing on the permanently closed side of A, and the rock shaft has a handle, D, attached to it outside. Secured to the rock shaft is the double lever, E, to one arm of which, *e*, is attached one end of a connecting rod, F, the other arm, *e'*, being jointed to a connecting rod, G, the other end of which is jointed to a bridge, *i*, on the bucket, I, the opposite end of F being also secured to the bridge, *k*, on the bucket, H.

The bucket, I, is arranged to slide in the barrel, *a*, and H in the barrel, *a'*, I, having an ordinary conical valve, *m*, opening inwards, and H a similar valve, *n*, opening outwards, both buckets being formed of two pieces secured together, and furnished with the usual leather packing, *p r*, between.. The interior of the two barrels communicate directly with the chamber, A, and their extreme outer ends are furnished with flanges, to which are secured suitable pipes—the suction pipe to the barrel, *a*, and the force pipe to the barrel, *a'*.

The operation is as follows:—A vibrating motion being imparted to the lever, D, either by hand or power, the buckets, H I, will, through the rock shaft, C, lever, E, rods, F and G, be moved backwards and forwards in their respective barrels, the two buckets invariably moving in contrary directions. Supposing the bucket, I, to be moving inward, and the bucket, H, consequently outward, the valve, *m*, of the former will be closed, and the valve, *n*, of the latter opened, and the water already thrown into the chamber, A, by the previous action of the pump, will be forced through the bucket, H, into the discharge pipe, while the water from the suction pipe is flowing into the barrel, *a*; this is continued until both buckets have reached their extreme inward stroke. The moment the buckets, by the reverse motion of the lever, D, commence their outward stroke, the valve, *m*, will be opened, and the valve, *n*, closed, allowing the water already filling the space in the barrel, *a*, outside its bucket, to rush through the latter into the chamber, A, at the same time, that the water in the barrel, *a'*, outside the bucket, H, is being forced through the discharge pipe.

It will now be seen that in whichever direction the buckets are moved, the water will be directed to the force pipe in a stream, the continuity of which is only momentarily interrupted at the point where the buckets reverse; and even this check may be avoided by attaching the ordinary air vessel shown in dotted lines, Fig. 1. There are no curved passages, so common to double-acting pumps, and all the consequent disadvantages are avoided.

The inventor is W. H. Harrison, of 705 Lodge Alley, Philadelphia, and he may be addressed for further particulars. It was patented June 23, 1857.

Important Surveying Expedition.

A party of United States naval officers have been despatched to the Pacific, to take a survey of the route between San Francisco and China. It is asserted that there are some five hundred islets, shoals, and coral reefs on that route which have never been indicated on a chart; and now that our commerce with China, Japan, and the Indian Archipelago is rapidly increasing, it has become necessary that they should be investigated and delineated. Lieut. Brooke, the inventor of the deep sea sounding lead now in general use in the Navy, is the commander of the expedition, and is accompanied by Lieut. Thorburn, E. M. Kern, the artist who was with the exploring expedition, under Commander Rodgers, to the North Pacific, and several others distinguished for their scientific attainments. After arriving at San Francisco they will proceed in the United States surveying schooner *Fenimore Cooper* to the field of their duties.

ACTIVITY OF INVENTORS.—The warm weather does not depress the genius of our inventors, as we can testify from the business of our own office. During the week ending July 17, we have filed from this office, exclusive of cases filed by our Branch Office at Washington, THIRTY-FIVE applications for patents.

The steamship *Leviathan* has been rebaptized, and is now the *Great Eastern* again.