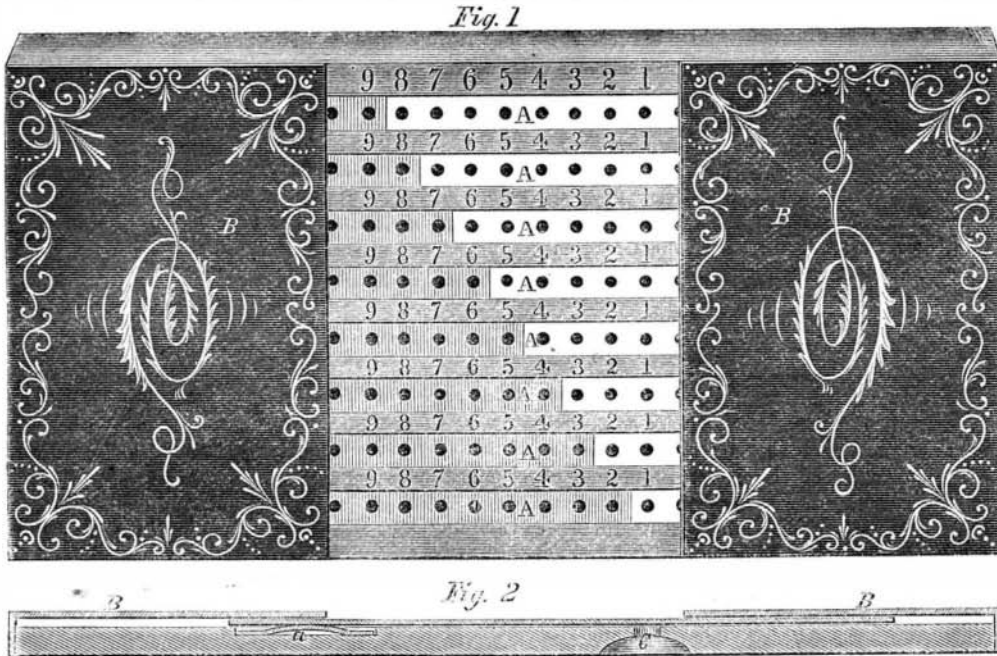


**Improved Adding Machine.**

In all business transactions figures are indisputable; and as the magnitude of the operations increases, to ascertain the correct amounts of the several sums added is of the first importance; this is ordinarily done by the well-known rule, which, however, is comparatively slow (depending upon the ability of the accountant), and always tedious. In order to facilitate the adding of many numbers, machines

any steamships built in this manner, nor do we see the utility of them. It is stated that, tried in a sea way, the plan worked well, and the *Illustrated News* has an engraving representing this kind of ship straddling the waves in the most terrific manner.

in all stages of worth and worthlessness; from the old worn out affair with three teeth and no spring, to the brand new one, so stiff that it takes a man's strength to pull it around. We have inspected a great many different sorts of pall wrenches in our time, some of which have been improvements upon the old style commonly used, while others have not. The wrench illustrated in the accompanying engraving commends itself to us, especially by reason of its



**FOWLER'S PATENT ADDING MACHINE.**

have been invented, which, depending upon absolute mechanical motions and changes, produce the result of a sum much quicker than it could be done mentally. Such an one is herewith illustrated. It is eminently convenient; light, portable; has no machinery whatever about it, and is always accurate—the last is of course the principal feature.

It has been remarked in many cases that "figures can't lie," but experience proves that this maxim, like some others, is more trite than true. The very best accountants will, at times, commit serious errors, which result in much future trouble; but with this tablet the result can always be warranted correct, provided the directions on the machine are observed in working it. Simplifying and shortening the vexatious process of adding sums, will be, or should be, welcomed cordially by all persons who have occasion to use figures; and the adoption of this adding tablet will tend materially to the result set forth. Very many eminent business firms in this city and elsewhere testify to its usefulness, and acknowledge the value of it in economizing time. The apparatus itself is merely a handsomely finished wooden tablet, as shown in Fig. 1, having brass slides, A, let into grooves in its face. These slides have small holes in them, opposite the numerals on the tablet itself, in which a pencil is to be inserted for the purpose of moving the slide back and forth to perform the operation. On the back of these strips there is another set of figures, which can be read through the counter-sunk holes, C (Figs. 2 and 3); small spring, a, under the slide keeps it snugly against the metallic cap, B, on either end of the tablet, so that the slides cannot move spontaneously, or at any time except at the will of the operator.

This is, in brief, the whole machine, and it will be easily seen that it comprises the features most desirable in such an apparatus; being readily operated by any one, having no complicated parts to disarrange, and afforded at a low price. These qualities, together with its accuracy, should render it one of the most popular inventions of this class. Patented through the Scientific American Patent Agency, on July 14, 1863, by Mr. George B. Fowler. Further information can be had by addressing G. B. Fowler & Co., Box 3,213, Chicago, Ill., or George B. Fowler at Rice & Co.'s, 37 Park Row, New York.

**INGERSOLL'S PATENT FRICTION WRENCH.**

For drilling holes in massive castings, in work which cannot be moved under a drilling machine, or



for perforating plates in places almost inaccessible, there is no tool more useful than the common pall wrench. This is to be found in every machine shop,

simplicity, its efficiency and durability; all cardinal virtues in a tool of this class, that has to encounter so much rough usage. In the ordinary wrench it is well known that the handle must move a certain distance, far enough to take one tooth, before the drill can be turned, and that in some situations this feature becomes a serious objection—the longer the handle the greater the difficulty. Particularly in drilling large holes is this trouble manifested; for then the handle must be shortened, and the power of the lever is lost. This wrench is liable to no such objection, and the drill can be moved any distance required, either a portion, or half of its revolution, as may be necessary. This assertion will be fully understood by referring to the description of the tool. The socket, A, has a bevelled flange, B, turned on its exterior, to which is accurately fitted, at a certain angle, the cup, C; the upper part of this cup which is broken out to show the interior, has an inclined plane, D, worked on it, and is further furnished with the shoulder, E. The handle of the wrench is in all respects a counterpart of the upper end of the cup, and fits it as a coupling does a clutch. In the upper end of the drill socket, which is continued through the wrench, there is a thread cut which is fitted with a nut, F; this nut has a round shoulder which sets up against the handle, and regulates the bite of the cup against the bevelled flange. The object of the screw, G, is to feed the drill up to its work. It will be seen that, by turning the handle, the cup is forced by the inclined plane hard down upon the drill socket, and consequently turns the drill; on the return the handle runs upon the plane, releases the cup, and lets it turn freely, so as to renew the stroke; this operation is kept up until the hole is finished. The small channel, a, in the flange, allows any dirt or grit that may work in, to be thrown out; so that the friction surfaces may be at all times clean and in good order for work; there are three of these channels. The advantages of this wrench are many, and apparent to all who have occasion to use it. It cannot get out of order with decent usage, can be made as strong as required, takes up very little room on the work—much less than the ordinary wrench—and is perfectly noiseless. This last feature is an extraordinary one. If it proves on trial all it appears to be in the office, it will be one of the best wrenches we have ever seen; the principle is certainly a good one. Patented by S. Ingersoll, May 12, 1863; for further information address the manufacturers, Betts & Ingersoll, Stamford, Conn.

**JOINTED STEAMSHIPS.**—Experiments have been recently made in England with a new iron steamship, built in sections and connected by strong working