New Inventions.

Adjustable Drop-Motion for Steam Valves.

A motion for a preliminary injunction applied for by William B. Sickles against various steamers using Allen & Wells cut-off was granted on the 13th inst. by the U. S. Circuit Court, Judge Ingersoll delivering an elaborate opinion on the question. Permission was asked to run the *Augusta*, one of the ships using the offending invention, offering to give security to respond in damages if a final injunction should be ordered; but the plaintiff's counsel refused to consent, except on the payment of $12 per day.

Fogs, Fogs.

By late news from Europe, it appears that Constantinople and various other cities in the East, have also been favored this winter with with heavy fogs. A correspondent of the Boston *Journal*, writing from Constantinople Jan. 8th, says:—

"For nearly one week the streets of our city have been choked by a filthy fog, in opacty rivalling its cockney cotemporaries. Add to this the thick mantle of mud, of about the consistency of an inchoate hasty pudding, and you can imagine what jolly holidays we have had. Under such penumbrious circumstances, most laughable accidents will occur. One ferry-boat ran full tilt into the Sultan's winter palace, about a mile out of its course, terrifying the royal harem out of all measure of propriety. A friend undertook to cross the Bosphorus in a caique, at the expiration of an hour he found himself on the same continent from which he had started, but some miles further down. The expedition was given up as a bad job."

This description might answer for New York during the past week. The ferry-boats on the Hudson and East Rivers kept playing just such pranks as those on the Bosphorous—one running into a huge ship at one time, and at another running up against a floating hay stack. No very serious accident, so far as we have been able to learn, took place, thus showing that our pilots "have an eye for the weather."

New Pump Boring Machine.

Our engraving illustrates a new Boring Machine, invented by Morrison & Wyckoff, of Elmira, N. Y., and exhibited in operation at the late Fair of the American Institute, Crystal Palace, New York.

The usual method of boring pumps is by means of long augers, of the common form. This plan is slow, and also objectionable, because it is almost impossible to make the aperture straight.

In the present improvement, the boring is done by means of a long hollow tube, A, the extremity of which is furnished with cutters, The chips are thrown into the interior of the tube whence they are withdrawn by the rod, B, whose extremity is spiral-shaped, as seen; rod B turns in a contrary direction to A. The spiral form of B acts like a screw upon the chips, and removes them as fast as produced, towards the opposite end of tube A, where they fall out upon the ground. Rod B revolves somewhat faster than tube A. Separate belts and pulleys, C D, are employed to drive the tube and rod. The tip end of tubes A, on which the cutters are located, can be unscrewed and removed when sharpening is necessary.

The stuff, E, to be bored is clamped upon a carriage, and fed up against the end of tube A, by rack and screw, seen at F. The feeding is self-acting, and so, indeed, is the whole operation; all that is required of the attendant being to put on and take off the stuff. G are crank clamps, by which the stuff is secured to the carriage.

By other tools, not here shown, the ends of the pump stocks are finished in shapes shown in fig. 3, very slightly tapered, so that they may be forced together, and a strong water-tight joint formed.

This machine is adapted to the boring of all kinds of wooden pipes. It bores at the rate of ten feet per minute, does the work beautifully, and with an accuracy that is really wonderful. We saw a stick of wood at the Fair, 4 inches square, and 16 feet long, through which two holes, each of an inch and a quarter diameter, had been bored, side by side, and only 3-16ths of an inch apart. The boring tube, by which this was done, was only 8 feet in length, so that the stuff had to be turned and bored at opposite ends.

The invention is adapted to the boring of chain-pump boxes and wooden pipes of all descriptions and sizes. For conveying water, nothing can be cheaper than pipes of wood,

NEW PUMP BORING MACHINE.

Fig. 1

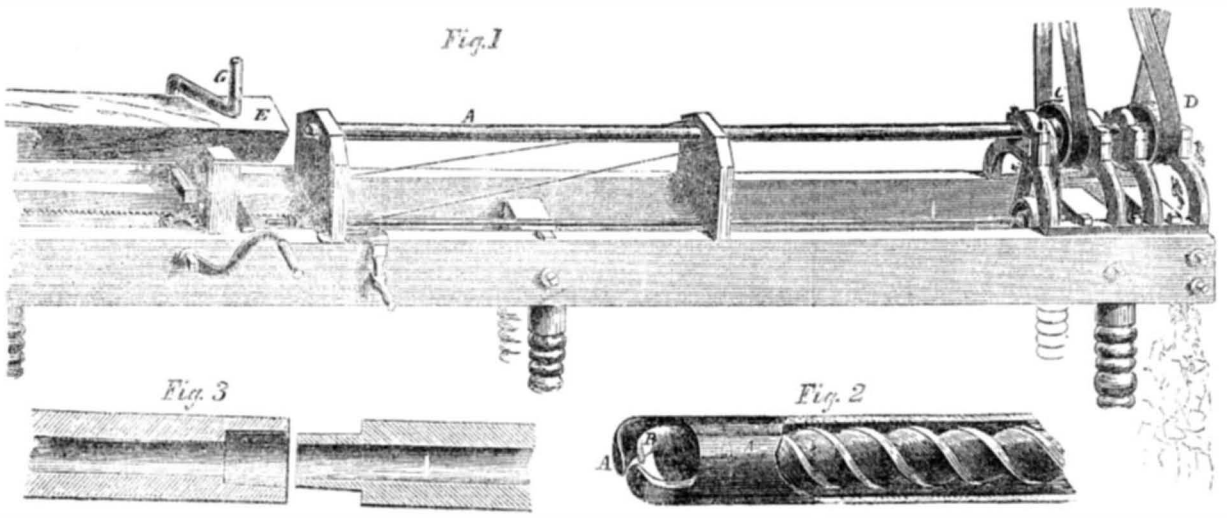


Fig. 3

Fig. 2

since the boring is so easily done that the expense is quite trifling. Very small stuff can be used, for the boring tube does not wrench, or have any tendency to split or burst the material.

The machine, it will be observed, is very simple. The frame is of wood, and the expense of construction is quite small. It is one of the most admirable inventions, for the purposes intended, that we have ever seen.

The above-mentioned boring machines are manufactured in Elmira, Chemung Co., N.Y., and kept for sale by the patentee, A. Wyckoff, to whom all letters of inquiry may be addressed.

A machine is now in operation in Elmira, speeded to bore ten feet a minute, where all who are interested may examine it.

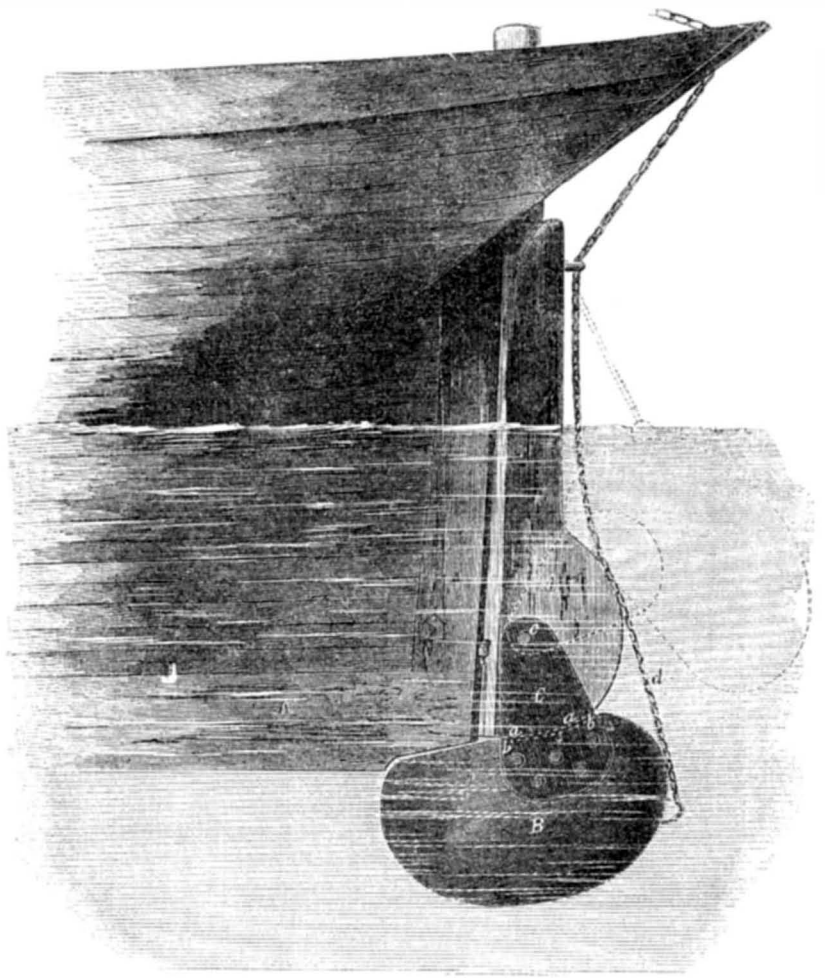
Circulars giving a full description of the machine and its uses will be forwarded by the inventor to all who may apply.

IMPROVEMENT IN RUDDERS OF VESSELS.

This figure represents the improvement in rudders of vessels for which a patent was issued to A. B. Crossman, of Huntington, Long Island, N. Y., on the 6th of January, 1857.

This is an important improvement in rudders, by which all tendency to press on the tiller may be easily removed or graduated to suit the helmsman; and the worst steering vessel can, without gearing of any kind, except the tiller, be very easily controlled. It consists of a movable attachment, termed an extension piece, so connected with a portion of the ordinary rudder as to admit of being held exactly in rear, or will swing underneath the rudder and partly beneath the keel, where it acts in undisturbed water with great force and effect, and by its position renders the rudder self-balancing; or it may be graduated to any desired pressure on the tiller by merely drawing back the extension-piece. When drawn entirely up, it constitutes a rudder of the usual width and effect, adapted to shoal water.

The invention in this figure is represented of a form applicable to shoal vessels, such as sloops, schooners, &c., but the same principle



is applicable for vessels of all sizes, with a slight modification of form.

A represents the rudder, and B the extension piece, which is also an auxiliary rudder. K is the keel of the vessel. C is a metal plate—there is one on each side—which is secured by bolts to B, and by an axis pin, *c*, they unite the extension piece with the main rudder, A.

The chain, *d*, is secured to an eye in the piece, B, and passes up, by which the extension piece can be elevated to the positions shown by the dotted lines. The curve, *a a* of the heel of the rudder is convex, that of the extension piece at *b b* is concave, so that the latter coincides with the form of the former to match it, and so slide up and down upon it, preventing all lateral play, sitting snug in its position under the rudder, and resting snug when raised upon the rudder. The extension piece, B, is heavier at the back end, as shown on the under side, to counteract the resistance and friction of the water when it is lowered.

When the vessel to which this improved rudder is attached is about to enter shoal water, the extension piece, B, is raised to the position shown in dotted lines; when it enters deep water the extension piece is lowered to the position which it is represented to be in—part of it under the keel, K, acting as a balance to the main rudder, A, which is hung entirely on one side of the pintles.

If the piece, B, should touch the bottom as the vessel passes over a shoal, no injury will be done, because it will swing backwards and upwards as the vessel moves onwards.

The advantages of this balanced rudder are numerous. Collisions at sea often take place during foggy weather, and sails, spars, and men are often lost overboard in squalls for want of that ready control, that instantaneous movement of the helm which it is the design of the extension piece, B, to give. The form of this rudder is such that the surging of the sea can have very little effect upon it; and there is no danger of twisting off the rudder head, or breaking the tiller.

In steering ships, especially during storms and in rough seas, it requires an immense power to control the helm, because of the great pressure exerted on the common unbalanced rudder. In such circumstances, double, and sometimes quadruple the number of hands are appointed to the steering wheel.

The ease with which this rudder can be controlled will allow of a ship to which it is applied being steered as easily by one man as with four by the common rudder. When a vessel cannot be controlled by its helm, it ceases to be safe—danger is apparent. Every improvement in rendering vessels more susceptible of control is not only an economical, but a humane invention; and, beyond a doubt, this self-balancing rudder enables a vessel to be more easily steered in all kinds of weather, in rough seas and rapid currents.

It is well adapted for flat-bottomed vessels, which are so difficult to steer before the wind. During a hurricane on Long Island Sound in the early part of this winter, when the large steamer *Connecticut* was disabled, and had to throw overboard her cargo, the flat-bottomed schooner *Flying Fish*, with one of these balanced rudders on, run one hundred miles before the gale, under the easy control of one man, without tiller ropes or gearing of any kind. The captain (E. P. Downing,) of this schooner has stated that but for this rudder, he believes the *Flying Fish* in that storm would have been unmanageable with all hands on board at the helm. It has been applied to four vessels, and has given great satisfaction in each case.

More information may be obtained respecting this invention by addressing Mr. Crossman.