NEW INVENTIONS.

Improvements in Locomotives.

Henry R. Remsen, and P. M. Hutton, of Troy, N. Y., have taken measures to secure a patent for improvements in Locomotives. The steam is admitted to the cylinders on one side of the pistons only, so that the cylinders are single-acting—the piston rod only acts upon the crank and driving-wheel during one half of the revolution, and that while the crank pin is above the axis. To insure a constant application of power, three cylinders are employed, with their pistons acting upon cranks placed at an angle of 120°, to each other. Each cylinder, however, is so constructed, that the pistons can be operated in both directions, for reversing the motion. One immovable eccentric for each cylinder is made to work the engine both ways, and thus the complicated mechanism of the ordinary reversing gear is dispensed with. Each cylinder is furnished with two valve boxes and two valves, one valve opening and closing the steam and exhaust passages leading to and from one end of the cylinder, and the other, those leading to and from the other end of the cylinder. Both valves are attached to the same rod, and both are always moved when the engine is working, but the steam is only admitted to one valve box at a time. Two steam pipes and two exhaust pipes are thus rendered necessary to each cylinder, one steam and one exhaust communicating with either end. Two main steam pipes only are required, each branching to the separate cylinders, and each provided with a valve for opening and closing its communication with the boiler. By simply opening one valve, and closing the other, the engine may be worked in either direction, according to which valve is opened and closed.

Improved Grain Separator.

J. Hindman, of Philipsburg, Ohio, has taken measures to secure a patent for an improved grain separator. It might be supposed that improvements on grain separators were at an end, but still they come. This improvement consists in having a vertical trunk divided by a partition which extends all across from the bottom nearly to the top, so that a current of air may be drawn through it up one side and passing over it and then down the other side, the said current being produced by a fan beneath one side, which forms a partial vacuum in the trunk. In the descending side of the trunk over the fan, there is a small passage through which a small stream of air is admitted upwards from the outside of the trunk; this passage is furnished with a valve to control the width of the opening. The grain is admitted near the bottom of the ascending side of the trunk, and the chute down which it passes enters a little way into the trunk and rises, so as to give the grain a tendency to rise when it first enters before it falls to the bottom. The chess and light wheat, together with the chaff and dust, are carried up the ascending side of the trunk and over the partition into the descending side and they have a tendency, from the direction of their flight, to pass out at the small air passage spoken of, but that tendency of the chaff, &c., is overcome by the small stream of air which does not affect the *light wheat* and *chess*, but keeps the chaff and light dust on the opposite side of the passage, and causes it to take the direction of the larger current and pass down through the fan and out of a windspout. The improvement is for separating in a *superior* manner.

Improvement in Boxes for Mill Dams and Breakwaters.

James P. Duffey, of Philadelphia, has taken measures to secure a patent for an improved mode of bracing and securing together metallic boxes to be used in the construction of piers, breakwaters, mill dams, levels, &c. &c. The metallic boxes are braced together by a series of diagonal braces meeting at a point about the centre of the box and connecting the braces by rods, having flanges upon each end, and so attached to the braces that they form a continuous rod, passing through the centre of the boxes and the plate where the braces meet, thus strengthening the braces and forming strong and durable boxes to be used for the purposes mentioned.

PATENT CIRCLE PLATE FOR DOORS.

The annexed engravings represent the improvements in Circle Plates invented by Nathan Mathews, of Pittsburg, Pa., and which was patented on the 6th ult. (April, 1852).

Fig. 1 shows the inner face of a circle plate. Fig. 2 is a section taken in the line, * * fig. 1. Fig. 3 shows the outside of the dovetail plate by which the circle plate is held. The same letters refer to like parts. The improvement is applicable, more particularly to circle plates of glass, stone-ware, and like materials which are in danger of being broken by ordinary means of attachment; it is, however, also applicable to metal circle plates. The improvement consists in forming the circle plate with a recess on its inner face, having tapering dovetail sides, which fit to two small dovetails on the door or lock, or on a plate secured to the door or lock; the circle plate is merely placed up against the door or lock and dropped in the dovetails, and when the spindle or knob is put in its place, it holds the circle plate secure.

Figure 1.

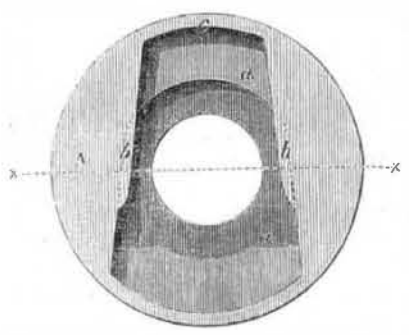
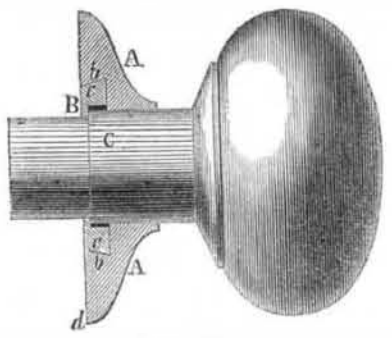
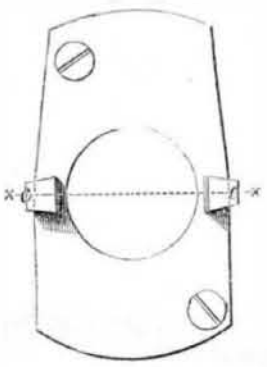


Figure 2.



The circle plate, A, may be of any form. The recess, *a*, on its inner face extends nearly from top to bottom, and is rather deeper near the centre, to allow depth to the dovetails; it tapers from the bottom to the top. *b b* are the dovetails in the sides. The dovetails, *c c*, to which the dovetails, *b b*, fit, are shown attached to plate B, which is to be secured on the door. The plate, B, is of such a size that it will lie within the shallower part of the recess, *a* and allow it to close up to the door, the face of which is represented by the line, *d*, in fig. 2. The taper of the sides of the recess and of the dovetails allow the circle plate to be put up against the door just above its place, and dropped into its seat, the dovetails fitting each other tightly when the holes in the plates are opposite each other. The upper shoulder, *e*, of the recess rests upon the top edge of the plate, B. When the shank, C, is put in its place, it holds the circle plate secure to the door, as it prevents its movement upwards, downwards, and sideways; the dovetails prevent its being drawn from the door, and keeps it from being moved. The circle plate not only obviates the danger of breaking when made of brittle material, but it is exceedingly easy of attachment; it only requires to be dropped in its place, and can be taken off the instant the knob or spindle is taken out. This improvement is equally applicable to handles and spindles of bell-pulls, &c. It is a good improvement, and should arrest the attention of those engaged in the manufacture and use of these articles.

Fig. 3.



More information about rights, &c., may be obtained by letter addressed to the assignees, Edwards, Morris & Co., at Pittsburg.

BARKER'S DOUBLE-ACTING FORCING AND LIFTING PUMP.

Figure 1.

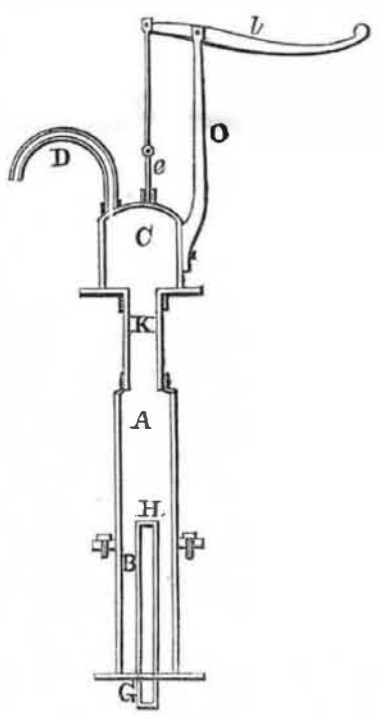
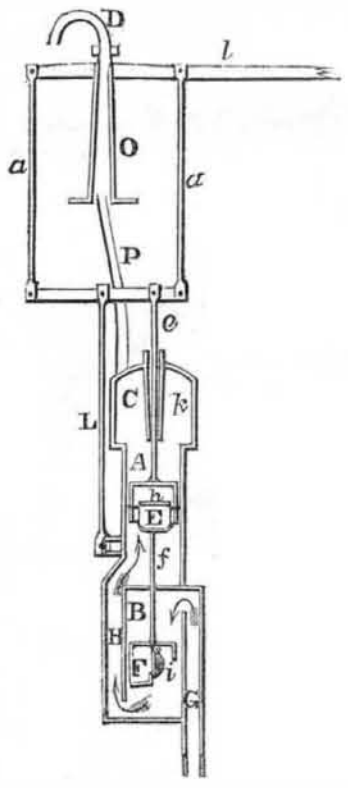


Figure 2.



This improved pump was patented by the inventor, A. Barker, on the 17th of last February. Fig. 1 is a view of the pump, adapted to wells that are not so deep as to require the pump to be put far down; and fig. 2 is a vertical section, showing the inside. The same letters refer to like parts.

A and B are the two sections of the barrel separated by a diaphragm or division plate through which the lower part of the piston rod, *f*, passes tightly. In the upper section, A, the piston, E, moves, worked by the handle, *l*, and the rod, *e*; the piston, F, moves in the lower section, B, and is connected with E by the rod, *f*, and is worked by the same power as the said piston. G is a pipe which conducts the water from the well into the upper part of the section, B. A pipe, H, conducts the water from the lower part of the section, B, into the lower part of A, in the direction shown by the arrows. One half of the lower piston, F, descends lower than the other, so as to include the space (in which F is placed) which may allow an aperture to open horizontally or upward, through the partition separating the said space from the part of the section, B, below the other half of the piston. A valve, *i*, closes this aperture, and opens so as to allow the water to pass downward through the piston, while it will close by its own weight; the object of this arrangement is to render the action of the valve prompt and sure, by causing its own weight to assist in its closing. A valve, *h*, opening upward is placed in the piston, E. C is an air chamber. A pipe, *k*, surrounds the piston valve, and reaches from the top to near the bottom of said air chamber, in order that no air may escape by the packing around the piston rod. Fig. 2 represents the fixtures for placing the pump in deep wells. L is a vibrating fulcrum, with a short lever at the top connecting with the piston rod, *e*. O is the standard in which the brake, *l*, works at the top of the well; *a a* are rods connecting the brake with the short lever below. P is a pipe conducting the water from the pump below up through the standard, O, from which it is discharged through the spout, D. In figure 1, K is a conductor, connecting the pump with the air chamber, C, which may be lengthened as circumstances require—the object of this is to allow the working part of the pump to reach below frost, so that by making a small leak, in the winter, the water will fall below frost, and thus secure it against freezing, without any care on the part of the operator, or injuring the operation of the pump—this leak may be stopped in summer. This pump works in the following manner:—the pistons, E and F, being in the upper part of their respective barrels, are forced down, which causes the water to flow up from the well into the upper part of the barrel, B; the piston, F, in descending, forces the water below it, up through the pipe, H, into the upper barrel, A, opens the valve, *h*, in the descending piston, E, and passes into the air chamber, C, to be forced out through the spout, D. On raising the pistons, the upper one, E, having its halve, *h*, closed, lifts the water contained in the barrel, A, into the air chamber, G, at the same time causing the water to flow up from the barrel, B, to fill the vacuum produced in the barrel, A; the water by the same motion opens the valve, *i*, of the piston, F, and flows through the piston to fill the lower part of the barrel, B. Thus a continual flow of water is produced, whether the pistons move up or down, without the assistance of any other valves or contrivance.

We have here a pump superior in several particulars:—its action is such that the water is continually rushing forward in the same direction without re-action in the cylinder, whether the piston rod moves up or down, by which a great amount of power is saved, and more water passed through a cylinder of the same capacity than by those in which the water is drawn first into the cylinder, and then suddenly re-acted and forced out. It is extremely simple, there are but two valves in the pump, both of which are connected with the pistons, which, together with the valves, may be easily removed for repairs, thus we have a double-acting forcing and lifting pump with no more valves or liability to get out of order than the old single acting pump. Another great advantage of this pump is, that the pistons are always under water, so that no air can pass them, it does not depend on a stuffing box to form a vacuum either way, and is, therefore, a good double-acting lifting, as well as forcing pump.

All experience has shown the great difficulty of keeping either stuffing boxes or pistons, which are constantly wearing, so tight as to prevent the admission of air, and it is well known that a leak which will not let out water enough to injure the action of the pump will let in air enough to destroy it; this pump is free from all the difficulties attending double-acting forcing pumps, which depend for their operation on stuffing boxes or on pistons, on plungers exposed to the air, to form a vacuum.

More information about rights, &c., may be obtained by letter addressed to A. Barker or J. M. Brookfield, Hondesdale, Pa.