New Inventions.

Improvement in Rotary Pumps.

The annexed engravings are views of an improvement in rotary pumps, for which a patent was granted to Stephen D. Carpenter, of Madison—proprietor of the *Patriot*—Wisconsin, on the 10th of last October. Fig. 1 represents the pump on the top of a well. A is the globular shell. B is the cap containing the air chamber. C are the flanges to bolt the cap to the globular shell. D is a stuffing box, which is forced up close with a screw cut to the shell. E is the shank of the shaft, which is rotated by the crank handle. F is the discharge pipe; G is the suction pipe, and a set screw forces the cone up to the cap. To screw this up to its cap, is all that is required to keep the pump in order until it wears out. I is an ornamental top, and J is the top of the well curb and platform. K is the pedestal to support the pump on its bed plate, which is bolted to the platform of the well.

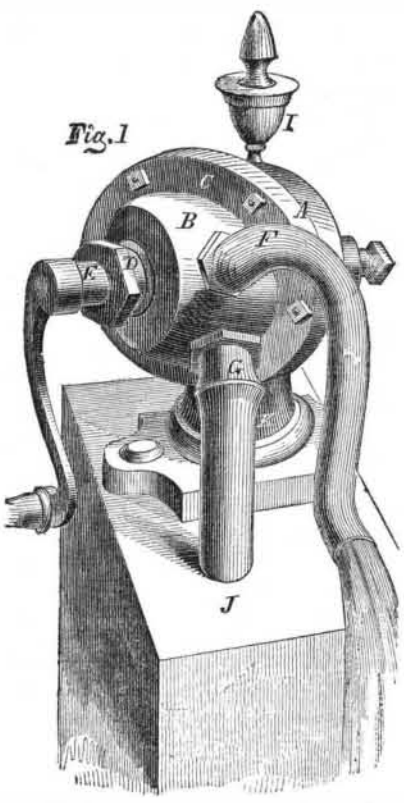
Fig. 2 is a vertical section of a well with the pump placed near the water, and it may be thus worked at any depth below the surface of the ground. L is a frame on the top of the well, to support the crank shaft, M, and bevel pinion, N. O is the pump shaft, with a bevel wheel, N, on it. This shaft may be of wood, with iron couplings and bearings. P is the discharge pipe. Q is the wall of the well. R is the pump case. S the suction pipe. T a plank support, or platform for the pump. U is the water in the well.

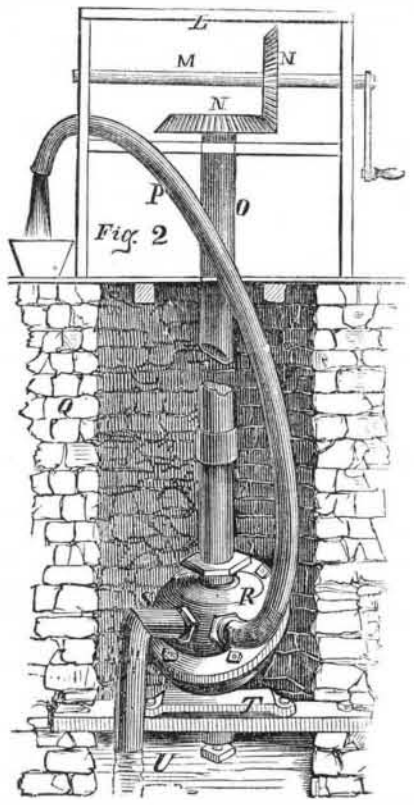
Fig. 3 is a horizontal section of the pump, showing various parts; fig. 4 is a detailed view of the propelling blades or piston, and fig. 5 is a vertical section of the cap of the pump. The outside curved dotted lines, fig. 3, is a diagonally spherical shaped shell. B is a cap bolted to the shell, and enclosing it air tight. C is an air chamber set in the case. D is a partition running midway between the orifices of reception, (E F, fig. 5,) and discharge toward the center of the cap, closing it in near the center. V V are the journals of the rotary shaft, which is globular at one end and conical at the other. A chambered slot is made in this shaft, through the conical end. Another slot is represented by dotted lines to cross this one at right angles, so that when the fan piston or propeller is inserted in its place, through the first described slot, the bar, H, may be driven through its slot to fit it, and come in contact with the boss of the fan at L, so as to prevent the passage of air or water through the body of the shaft. On the outside of the spherical shell and its cap, are flanges, J, for bolting the pump to a frame. The pump may be made of iron, or any other metal.—The inside of the cap, B B', fig. 3, is bored out perfectly smooth, and so is the spherical shell at the points, K K. The shaft is also turned and polished when it comes in contact with the shell at K K. Fig. 4 represents the fan shaped piston or propeller. A A shows its flat surface. This piston or propeller is made to fit closely, and work in the slot in a circle. The propeller or piston vibrates on a pin, Z, passing through the shaft and the center of the boss. A^2, fig. 4, is its longest edge; it is rounded and polished to fit close, so as to work in its chamber air and water tight, between it and the inside surface of the cap. *m m* are the bearings for the shaft. The polished surface of the cone is continually in contact with the inner surface of the cap, between the parts, N N. The boss of the fan propeller has its radius less at O than L, and bears closely on the shank at G, and on the bar at H, and makes a close fit to prevent the passage of air and water. The cap is fitted on over all the machinery, and bolted with packing, perfectly air tight. The journals are packed at P P, and forced close by screws, Q Q, so as to make all air tight. The machine is turned in the direction of the arrows, fig. 5, to draw and discharge, and by reversal, it—the water in the pipe—can be driven back to the cistern, so that this pump will not freeze. B & X, fig. 5, show the opening for the ingress and egress of the water. C in the same chamber shows the position and extent of the air chamber. By making all the interior contact surfaces very smooth, this pump may be employed as an air pump.

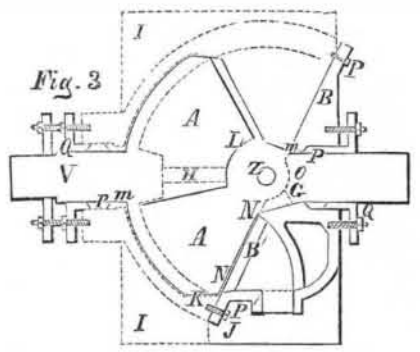
It is a force and suction pump, and is capable of forcing water to any hight, according to the power applied to work it.—It contains no valves, and can be used for forcing water into steam boilers; for extinguishing fires; for lifting water, and for every other useful purpose to which pumps are applied. One of these pumps, ten inches in diameter, is employed on the Madison and Milwaukie Railroad, at Milton, Wisconsin, and is driven by a windmill. With a good breeze, it fills two tanks holding 24,000 gallons of water, in 2½ hours, and this water has to be raised 75 feet. It is a simple and strong pump, not easily injured, and is very durable. For a great number of our railroads it appears to be such a pump as is wanted.

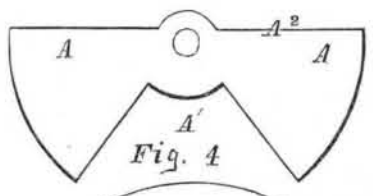
More information may be obtained by letter addressed to Mr. Carpenter.

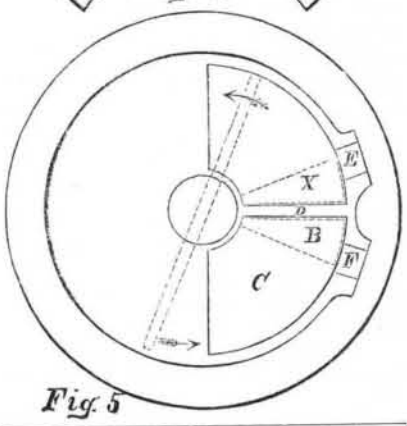
CARPENTER'S UNIVERSAL ROTARY PUMP.











Endless Chain Pump.

The patent granted this week to Arcalous Wyckoff, of Columbus, Ohio, for an improvement on endless chain pumps, embraces providing an elastic valve within the cylinder at a point just above the level of the water in the well, and allows the elevators to pass through it upwards, but not downwards, even though the chain should be suddenly stopped, and thus prevent any waterreturning to the well.

Hand Corn Planter.

The patent granted this week to C. B. and B. S. Borden, and Aaron R. McLean, of West Dresden, N. Y., for improvements in corn and seed planters, relates to the hand implement for this purpose, and is very simple. It consists in attaching to the handle of an ordinary hoe a seed box of sheet metal connected with devices whereby, when the operator makes a hole in the ground for the seed in the usual way, by a pressure of the hand, the seed—exact in quantity—flow down into the hole, and are then covered by a backward movement of the hoe.

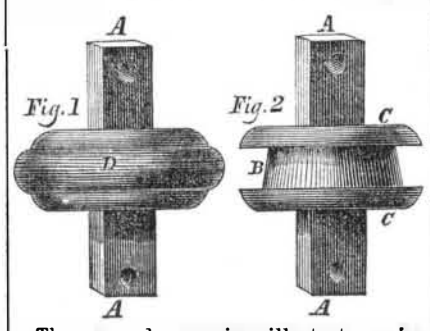
Dumb Waiters.

These apparatuses are hoisting platforms generally used in hotels, &c., to carry up and let down by a vertical passage from story to story, loads of china, eatables, &c. The improvement on this class of machines for which a patent has been granted this week to Andrew Murtagh, of this city has for its object a more perfect control of the platform or dumb waiter by the attendant, and greater convenience and ease in its management, so as to render its action steady and safe at all times. The dumb waiters heretofore used have been so arranged and operated that they were difficult to work and manage. The combination of parts embraced in Mr. Murtaugh's claim on another page remedies these evils, as they render the dumb waiters direct acting, by a crank without intermediate gearing of the windlass character.

Steam Engine Valve.

The claims in this week's list embraced in the patent granted to Thomas Goodrum, of Providence, R. I., cover improvements consisting of a hollow cylindrical or conical valve of novel construction, which receives a rotary motion corresponding with that of the engine shaft, and can control the induction and eduction of steam to and from one or more cylinders. A device is also attached to this rotating valve, making it a variable cut-off. This valve can also be arranged in such a manner that the steam passages leading from it to the cylinder, may be shortened to the greatest degree possible.

Morris' Improved Bucket for Chain Pumps.



The annexed engravings illustrate an improvement in the bucket for the common chain pump, patented by Edmund Morris, of Trenton, N. J., January 3, 1855. This bucket makes an entire change in the chain pump, altering it from a mere lift pump, which loses its water the moment you cease to turn the crank, into a suction pump, that retains the water, and which a single turn of the crank will cause to discharge at the nozzle. Its construction is extremely simple, while its cost is probably no more than the ordinary iron disk, as, no matter how deep the well, only two of these buckets are required to be in the log at the same time, while the iron disks occur every few inches. These numerous disks being dispensed with, the chain is therefore much lighter.

Figure 1 is an iron casting having a shank at A, at each end, by which to rivet it to the chain. It is supplied with two flanches, C C, of equal diameter, and these flanches are connected by a cone, B. A ring (1½ inches in outside diameter) of india rubber, D, figure 2, is stretched over one of the flanches on to the cone, and fills up the space between them, or very nearly so, as seen in figure 2. This figure represents the bucket complete. It must be remembered that the flanches, where they join the cone, are hollowed out, so that the ring, when compressed by the passage up the pump log, can partially contract itself into this hollow space, from which it escapes as soon as the bucket emerges from the log, and recovers its original elasticity. The bucket also, when ascending the log, will force the ring down to the base or thickest part of the cone, thus causing a very trifling amount of expansion of its diameter, or just enough to make a perfect air-tight fit, and a consequent vacuum, like the piston of a syringe. As the upper bucket escapes from the log, another one should enter at the bottom. Water is the lubricator for gum, as oil is for metal; there is, consequently, a very small amount of friction.

This bucket possesses the merit of not wearing out the log, nor itself. They will last many years, and should the rings, from any cause, require renewing, a new set can be put on in five minutes. All the old pumps now in use can have the old buckets replaced with these, the same gearing answering in both cases. The bucket which is to receive the ring can be cast at any country foundry, and the patentee can furnish the rings at a very small price. No change of weather affects the elasticity of the rings, as the gum is vulcanized expressly for the purpose. It would be difficult to construct a pump which would work more accurately.

Particulars may be learned by addressing the patentee.

Plow Improvement.

The claim on another page for a patent to Noah Warlick, of Lafayette, Ala., for an improvement in plows, is designed for increasing their strength without adding to their weight, so as to make them better adapted for operating in rough, stony, and rooty lands. It has a Y-shaped brace, with its point to bear on the ground when required, and to give support to the plow, and enable it to be used as a crowbar or lever with safety, for prying up stones, stumps, roots, &c.

Excavators.

The patent of C. Williams, of Jackson, Tenn., whose claim is in this week's list, relates to the lever scoop excavators. The shaft to which the scoop is attached works upon an upright pole, and is allowed to rotate and work between friction rollers on the pole. This machine can be constructed cheaply and has some excellent points of novelty.