Propellers.

Whittaker's "Improvement in Side Screw Propulsion" has been introduced in a propeller lately launched at Keyport, N. J. The hull is 110 feet in length, 28 in breadth, and six feet deep. The engines are manufacturing in Jersey City, and it is expected the boat will be in running order in one month from the present time. The persons interested in the affair believe that side propellers, with high pressure engines, are much more economical and better than paddle wheels and low pressure engines. The experiment has been previously tried on the Lakes with good results. Capt. Whittaker's invention was illustrated a short time ago in the SCIENTIFIC AMERICAN.

E. Barrows' rotary engine, which has been several years successfully used on small experimental boats, (one of which, the *Rotary*, a side wheel steamer some sixty feet long, was employed last summer in the Coast Survey,) has lately been constructed on a considerably large scale and applied to a propeller intended to form the first of a line of such vessels to ply between this city and New Bedford. She has made several successful trial trips, running under different circumstances, pressures, &c., to test her capacities; and high hopes are entertained that the engine will prove not only more manageable and less troublesome to keep in order than ordinary reciprocating engines, but considerably more economical of fuel. We shall probably recur to this subject when she is regularly running. The American and foreign Patents for Barrows' invention were obtained by us. The engine has been illustrated in the SCIENTIFIC AMERICAN.

The Corliss engine (working very expansively with rotary and very quick-shutting valves) has been for several months performing admirably on the propeller *Curlew*, a large vessel plying between this city and Providence. This vessel is said to make better time with a considerably smaller consumption of fuel than any other vessel of her size and model in these waters. She is the first example of the adaptation of these highly popular engines to marine purposes.

Hewit's Pump.

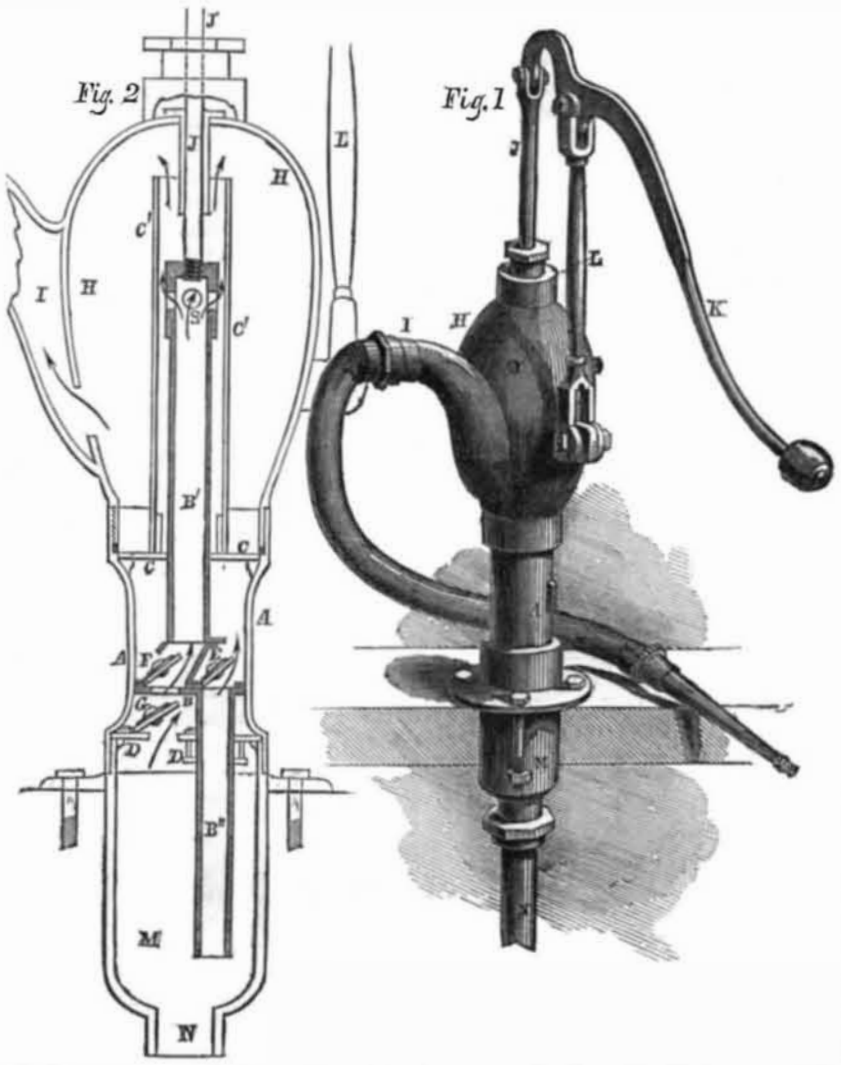
This pump is so constructed that the fluid travels in an almost direct line from the induction to the eduction passage. It is a reciprocating pump, with valves in the bucket, and is, in these principal features, similar to a very large class of pumps in common use.

Fig. 1 is a perspective view, and Fig. 2 a vertical section of the pump complete. A is the body or barrel. B is the movable bucket, B′ a tube perforated at the top, attached to B, and by which the latter is connected to J, the pump rod. C is a fixed horizontal partition above, through which B′ plays tightly, and C is a tube, larger than B′, and surrounding it. D is a lower or fixed bucket, through which plays tightly a tube, B″, fixed to the lower side of the movable bucket, B. There are two valves, E and F, hinged on the upper side of B. E simply opens and closes the tube B″, but F is faced with leather on both sides, and when it is thrown up into its highest position it meets the ledge represented. On the fixed bucket, D, is also a valve, G, opening upwards. H represents the upper reservoir, receiving vessel, or air chamber, and I the discharging pipe. J is the pump rod, working through suitable packing, and through a long packing tube, as represented, which latter is fitted tightly to the metal of H, so that any leakage through the stuffing box must come from the bottom of said tube thus aiding to retain a little air in the top of the air chamber, even if the stuffing box is quite leaky. K is the lever by which the pump is worked, and L is an upright link, which serves as a fulcrum therefor. M is a lower or receiving chamber, and N is the tube through which the water is received.

Operation.—When, by elevating the loaded extremity of K, the bucket, B, is depressed, the valve, G, shuts, and the pressure of the water below B, forces F to rise, and by meeting tightly the ledge referred to, it prevents the flow of the water into the portion of A above B, and compels it to rise through the tube, B′, and be discharged through the holes, S, near its top. The same movement, by generating a partial vacuum in the upper portion of the cylinder, A, causes the valve, E, to rise, and allow water from M to rise and fill it.

When the motion of K, and consequently of B, is reversed, the valves, F and E, close, and the water in the upper portion of the cylinder or barrel, A, is compressed and compelled to rise through B′, while the partial vacuum formed below B, causes the valve, G, to rise,

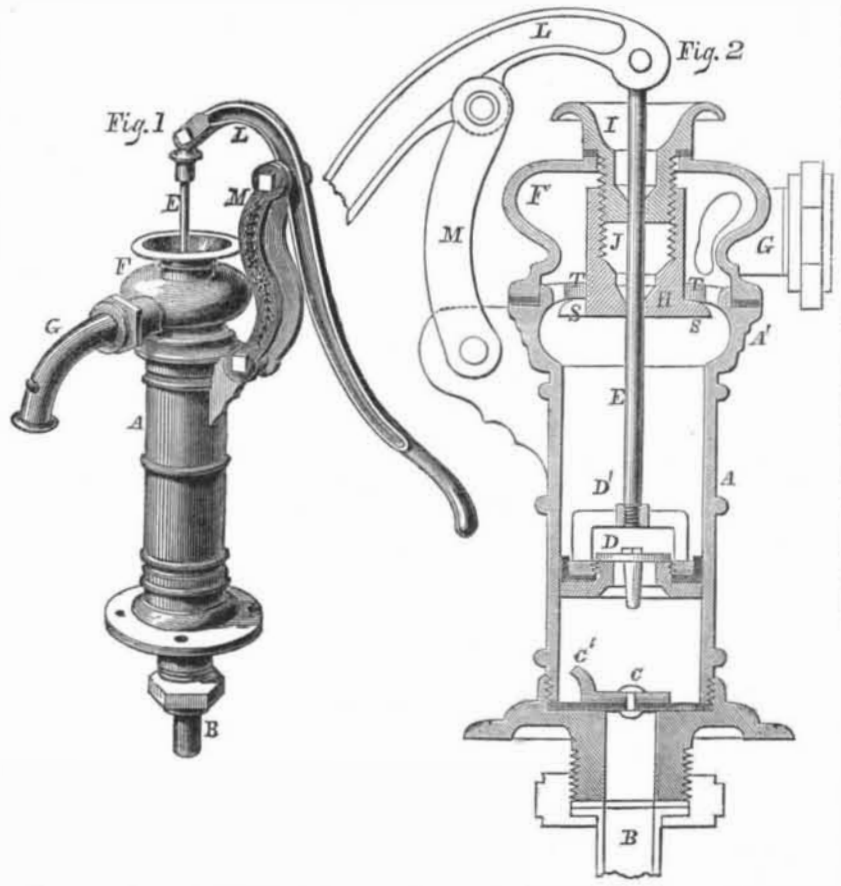
HEWIT'S DIRECT MOTION PUMP.



and allow the water to rise from M to fill the space. Whichever direction, therefore, the bucket, B, is moved, the water rises from N into M, and proceeds almost directly therefrom, either through B′ or D, to be discharged from the tube, B″, and finally through the pipe or goose neck, I.

The pump was patented May 19, 1857. For further information address the inventor and patentee, Silas Hewit, Seneca Falls, N. Y.

LEWIS' SUCTION AND FORCE PUMP.



The pump represented in the accompanying engravings is remarkable principally for strength, cheapness and durability. It is a reciprocating pump, with valved bucket, like many of the most successful pumps previously in use, but it is secured together without the necessity for scarcely a single bolt.

Fig. 1 is a perspective view from a daguerreotype. Fig. 2 is a section copied from the Letters Patent. A is the barrel, and A′ an extension which is of larger diameter, and carries a flanch projecting outwards, and a broad horn or flanch, T, extending partially around its interior, and projecting inward. B is the suction pipe secured by a screw coupling. C is the lower valve, hinged with leather, which latter is fastened by screwing down the body upon the flange which forms the base. C′ is a horn which prevents its opening too far. D is the upper valve which guards the opening in the movable bucket. D′ is a guard which prevents D rising too high, and also confines the cup-leather which forms the packing of the bucket. E is the pump rod. F is a top-piece resting on a leather or rubber joint on the flange, A′. This is held down very firmly by the gland, I, which is fitted with a tight joint on the top of G, and which is tapped into H, so as to form the stuffing box, J, as represented. From the lower edge of H extend two stout horns or partial flanges, S S.

On fitting up the pump, the barrel A is secured in place, the bucket D and pump rod E inserted, and the piece, H, slipped over the latter. The piece, H, is turned partly around, so that the parts S catch under the parts, T, and then supporting it by raising the bucket and guard by the rod E to its highest extent, the part F is fitted on, and the part I inserted and screwed into J as tightly as possible. The whole is now firm without other fastenings, the construction being highly ingenious and economical.

G represents the passage through which the water is discharged. L represents the handle, and M the fulcrum. In all points relating to the operation, the pump is identical with all the pumps of this class.

It was patented June 23, 1857, by C. N. Lewis, of Seneca Falls, N. Y. For further particulars, address the assignee, G. C. King, of the same place.

Relation of Inventions.

The London *Critic*, noticing a recent invention of apparently little consequence, uses the following well chosen simile:—

"Let every development of thought, and every adaptation of thought, be encouraged and welcomed, even though its ultimate uses—we mean those uses which the man of the day can see—were as distant as gravitation and lunar distances from the conic sections of the Baconic school of geometers, which were ready to hand when wanted. Those who decry the highest stone because it supports nothing, are fortunate in one point—they will always have something to decry. Those who are busy in raising the next stone, will find them another job at the very instant the old one is finished."

Printing Textile Fabrics by Light.

The chromatic photo-printing process is an ingenious mode of printing textile fabrics, by the chemical action of light. It is designed to employ the chemical agency of light in dyeing or staining textile fabrics; the cloth, whether wool, silk, flax or cotton, being first steeped in a suitable solution, then dried in the dark, and subsequently exposed to the action of light—those parts which are to form the pattern being protected by pieces of darkened paper, or some other suitable material, attached to a plate of glass. When the desired effect is produced—the time for which varies from two to twenty minutes, according to the process, the fabric is removed in order to undergo a fixing operation.

Steam Wagon.

In the course of the present week it is expected that the steam wagon in course of construction at Sacramento City will be ready for the trial trip. As we have already stated, a joint stock company has been organized for the construction of several of these wagons, to be placed on different routes in various parts of the State. Every one who has seen the operations of the model steam wagon must have been convinced of its utility.—*San Francisco Globe, July* 20.

Use of Strychnine in Distilleries.

The physician of the House of Correction, at Lawrence, Mass., reports it almost impossible to treat delirium tremens successfully now, in consequence of the utter prostration of the nervous system of drunkards by the strychnine so generally used in the manufacture of liquors.