

## MOVABLE FRONTS FOR BUILDINGS.

We illustrate herewith a method of throwing open, if need be, the entire front of an apartment, which, in view of the approaching warm weather, is quite timely, since it is applicable to a number of cases readily suggested. Our artist has represented the device applied to a butcher's store, to which it is especially suited, inasmuch as it allows of doors and windows being slid completely out of sight, leaving nothing but the pillars or other necessary supports of the building above, and so affording thorough ventilation, broad access, and every opportunity of displaying stock. It might also be arranged in the edifices used as summer concert gardens, so as to leave, on warm nights, merely the roof and its sustaining posts: or in country houses, which thus could be opened so as to allow of the thorough circulation of the air. The additional advantage is also presented of doors, framework, and windows being put altogether out of the way, and protected from danger of breakage, while, at the same time, always remaining ready for prompt return to their places.

In Fig. 1 the door and fan light are shown in their usual locations. Both, however, are hung in framework, which traverses guide rails, which extend up and down toward the story above and into the basement or cellar. The frames are suspended by cords which pass over pulleys into the hollow side pillars, and which sustain counterweights, by which the balancing of the frames and their contents is effected. Thus arranged, the door, as shown in Fig. 2, may be pushed downward into the cellar, while the fan light may be raised into the wall of the upper story. When the door frame is down, a foot plate is laid upon the sill, over the opening, so that the latter is covered and concealed. The foot plate is also similarly located when the frame is up, in order to prevent the same being lowered when the doors are shut, except by first removing the plate.

The doors and fan light are hung and may be used in the ordinary manner, and the arrangement of the device for windows or portions of the wooden wall of a light building is precisely similar. If desired, the weights may be omitted, and the raising and lowering effected by suitable gearing. Also any desired locking devices may be added for holding the frames in either position.

The invention was patented January 26, 1875, to Mr. John Murphy, of Fond du Lac, Wis., who may be addressed for further particulars.

## IMPROVED ROTARY PUMP.

In the annexed illustrations we present sectional views of a new rotary pump, in the construction of which there are several novel features which will render it of especial interest to the mechanical reader. Of these perhaps the one most prominent is that of the entire capacity of the pump cylinder being utilizable, instead of merely the annular portion without the eccentric ring, as is commonly the case. Both compartments, exterior to and interior of the ring, are filled and emptied at every revolution, and this whether the speed be fast or slow, as it will be seen, further on, that the motion, and consequently the operation, of the machine is essentially positive. Stuffing boxes are avoided by rendering the apparatus self-packing, and by suitable construction the working parts are balanced, equalizing the pressure on all portions. It is claimed further that the pump delivers a steady stream, forcing the same, without leakage, to any desired height, and this without necessitating the machine being driven at the high velocity peculiar to many rotary pumps. The volume of water discharged under all conditions is stated to be exactly proportionate to the power and speed applied.

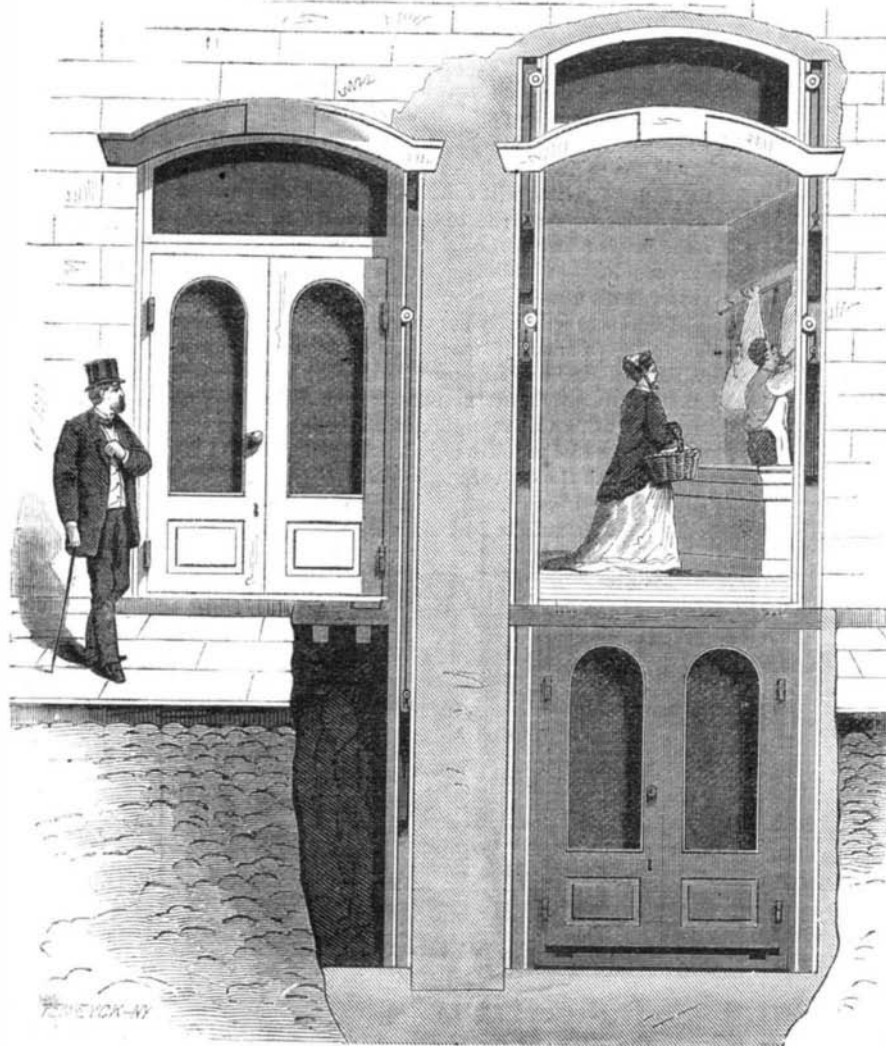
In Fig. 1 is shown a vertical longitudinal, and in Fig. 2 a transverse, section. In the latter illustration, A is a portion of the casing, on the interior of which is cast the ring, B, the depth of which is greater than the outer portion of casing. The other side of the cylinder is formed by the disk, D, Fig. 2, to which the shaft is rigidly attached. To D is attached eccentrically a ring, E, some portion of which is always in contact with the casing, A, and also with the ring, B, at a point exactly opposite, so that the ring is really the piston of the pump, since the whole disk, D, is rotated by the shaft. The equalization of stream is effected by the center ring, B, being deeper than the outside casing, A, so that the cubic contents of annular spaces,

C and L, on inside and outside of the eccentric ring, E, are the same. Bolted to casing, A, and covering, D, is an outer case, F, in a socket in which the shaft end abuts. Holes, G, through portion, D, allow the water to fill the space between D and F, thus balancing the movable portion by equalizing the pressure on both of its sides.

Referring next to Fig. 1, it will be observed that the piston ring, E, is held in the sliding abutment, H. A perspective view of the latter is given in Fig. 3, from which it will be readily understood that the movable tumblers adjust themselves to the eccentric ring, as the revolution of the

ability of the various portions. The pump is further stated to be especially useful for thick liquids, and to be adapted to brewing, tanning, wrecking, and a large number of other purposes. The wear, we are informed, is very slight; and as it takes place on the surfaces in such a manner that abrasion from one compensates for the same on another, the parts always maintain their relative positions.

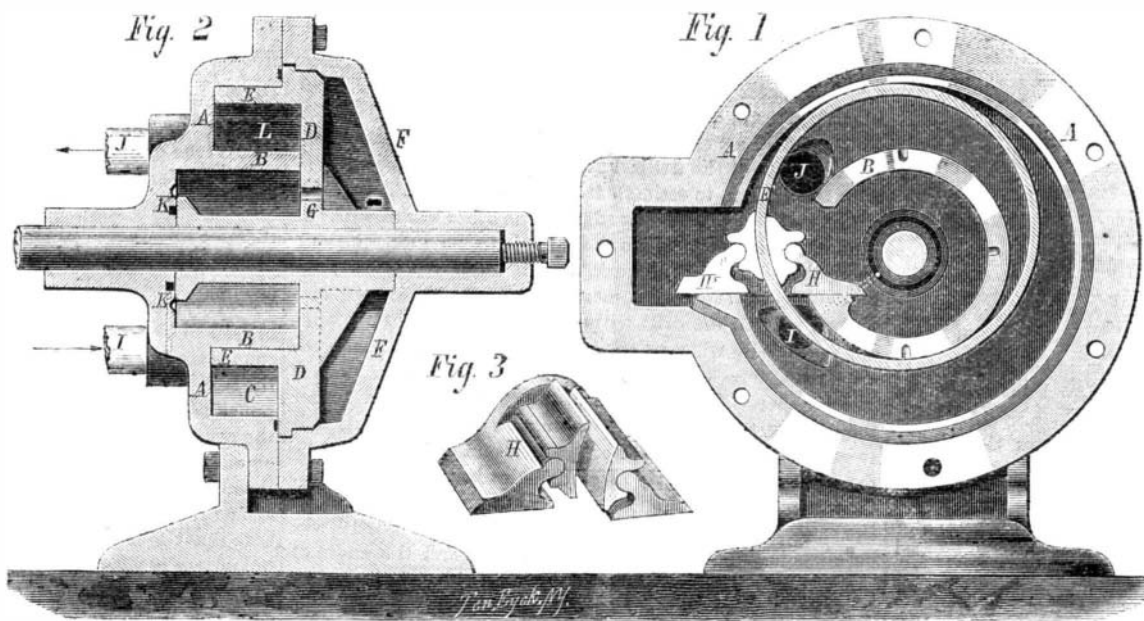
Patented October 6, 1874, to L. D. Green. For further particulars address the manufacturers, Messrs. Bagley & Sewall, Watertown, N. Y.



MURPHY'S MOVABLE FRONTS FOR BUILDINGS.

same imparts to the abutment a to-and-fro motion on its seat. The water enters at the port, I, and, as the piston ring rotates, is forced before and between the same and the casing, around to the upper portion of the latter, and finally out of the port, J. As the piston ring rotates, it soon forms a space between its inner periphery and the fixed ring, B, into which the water from port, I, freely enters, filling the interior of the piston, finally to be forced out by compression between said piston and the fixed ring. In Fig. 1, it will be seen that the port, I, is half open to the space outside of the piston ring, and at the same time is also opening into the inside

of an hour, the whole of the interior was perfectly dry, and no trace of moisture could be detected, a circumstance which may be easily explained, and one of great importance to machinery in rooms where steam has been used as an extinguisher. When we say moisture, we exclude one or two pools of water in a low part of the floor. An artificial wooden floor upon which the fire had been placed was very slightly charred in one place, and the quantity of firewood burned was very small. The trial was so far a success, both as regards the apparatus and the agency of steam as an extinguisher.—*Engineer.*



BAGLEY &amp; SEWALL'S ROTARY PUMP.

space. The shaft, as shown in Fig. 2, abuts in a socket within which its extremity comes in contact with a set screw, by means of which the bearing against the casing at K is brought up to compensate for wear. At this bearing, it is claimed, all leakage is prevented by a circular groove in the seat, which groove, by a channel, communicates with the suction port. Any escape is thus drawn into the last mentioned orifice.

Among the other advantages claimed may be noted simplicity, ready accessibility of parts without necessitating breaking connection with any of the pipes, and interchange-

decks or bulkheads in case of need. It is asserted that \$4 or \$5 worth of brimstone would be sufficient to stifle and annihilate all traces of combustion in an air space of 35,000 cubic feet

## New Property of Glycerin.

R. Godeffroy, on examining a chemically pure glycerin, found that when heated to 302° Fah. it took fire, and burnt with a steady, blue, non-luminous flame, without diffusing any odor or leaving a residue. The glycerin had the specific gravity 1.2609. This property enables glycerin of lower specific gravity to be burnt by means of a lamp wick.

## Steam as a Fire Extinguisher.

An interesting experiment with Sander-son and Proctor's patent fire extinguisher was recently made in Lower Aspley Old Mill, Huddersfield. The apparatus depends for its effectiveness on the efficiency of steam as a medium for extinguishing fire; and although this is used in many mills, there are some people who doubt its suitability for this purpose. Therefore both points came to the test in the trial. The self-acting arrangement consists of a number of thermometers, which serve as contact makers in an electric circuit, and the apparatus proper, which turns on the steam valve by releasing a pin on the wheel, and permitting the weight attached to the same to turn it round. Contact can be made at any given temperature, the fire simply raising the mercury in the thermometer to the desired point. Lower Aspley Old Mill, which has been used in the woolen trade, is at present empty, and in a condition highly favorable to be burned down from the quantity of oil, grease, and dust deposited on the floors, walls, pillars, and elsewhere. A quantity of firewood and shavings had been placed on the floor of the bottom room, which measures 75 feet x 22 feet x 14 feet high. The fire was lit exactly at half past three, producing immediately a large body of flame, and not quite a minute elapsed before the apparatus turned on the steam. For the next two minutes the fire continued to burn unchecked, but then it became less, and in another two minutes no more flame could be seen. When the steam, which was 40 lbs. in the boiler, had been going into the room for fifteen minutes, it was turned off and the door opened; but a well known crackling inside told that the fire was burning up again, so the door was closed, and steam turned on for twenty minutes longer; this was quite sufficient to remove every trace of fire, and, after the room had been aired for about half

## Sulphur as a Fire Extinguisher.

*Les Mondes* suggests that brimstone should be carried on board every ship for use in case of fire. Half a hundredweight (30 kilos.) of brimstone would be sufficient to abstract the whole of the oxygen from 3,531 cubic feet of air, thus rendering it unfitted to support combustion. In a closed space, like a ship's hold, the sulphurous gas produced by the burning of the brimstone would penetrate where water from the decks could not be brought to bear, and the density of the gas would prevent its rising or spreading if care were taken to close the hatches carefully with wet sails, etc. It is suggested that the brimstone should be made up in the form of large matches, the ends of which could be passed through scuttles prepared for them in the