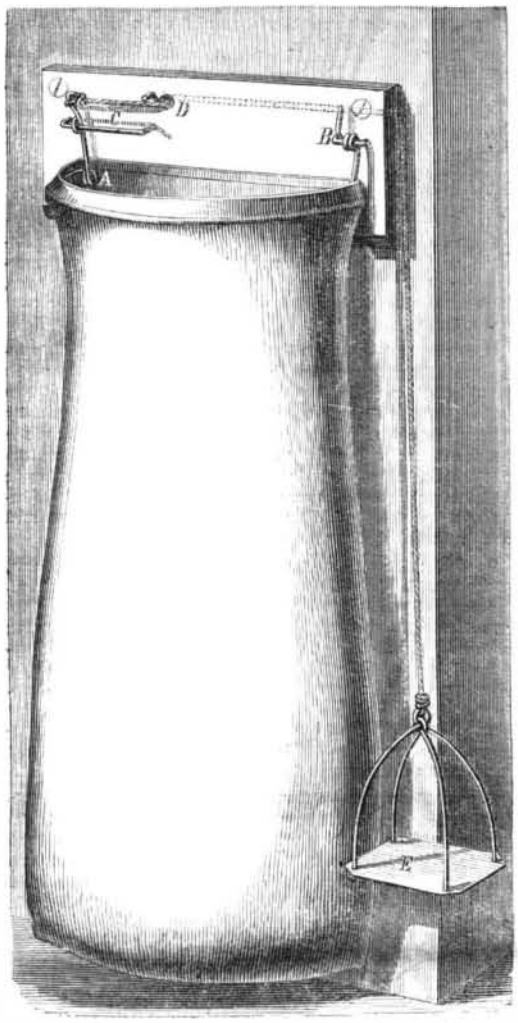
CORBIN'S PATENT BAG HOLDER.

This bag holder is one of the simplest conceivable appliances for stretching the mouth of bags and facilitating their filling with grain, plaster, or any other substance, we have ever seen. It is merely a semicircular rod of heavy wire, or small round iron, secured by the ends to staples, fastened into a board, which may be secured to the side of a



room or hung on nails to any upright—a wall, tree, etc. The corners of the wire are twisted, as at A, which gives a spring to the hoop, and while one end merely turns on the staple at B, the other has a sliding motion, also, on the long staple, C. To this end is attached a line which passes through the board at D, and along the back, as shown by the dotted lines, depending from the other end, and being furnished with a stirrup, E, for the foot.

The operation is simple. The stirrup being depressed by the foot, brings the ends of the hoop nearer together, when the bag can be slipped on. The foot being removed, the spring of the wire allows the hoop to expand, distending the mouth of the bag and holding it securely. By again depressing the stirrup the bag is released. The device is equally well adapted to loading from an inclined position, as at the end of a chute. Its advantages can be readily comprehended.

This improvement was patented through the Scientific American Patent Agency Sept. 4, 1866. All communications relating to rights to manufacture, sell, or for territory, should be addressed to the patentee, Dr. C. E. Corbin, St. John's, Mich.

NITRO-GLYCERIN AS A SUBSTITUTE FOR GUNPOWDER.

A correspondent in the London *Mining Journal* of Oct. 13th, gives an account of two accidents from the use of nitro-glycerin, which seem to show a demand for a more thorough knowledge of its attributes and of the proper mode of its management.

At Llanberis, Wales, in the quarries of the Glynrhonwy Slate Company, a series of holes had been drilled and charged with this compound, which were to be fired simultaneously by electricity. From some cause one of the charges was not ignited, and another hole was bored in close proximity. The workman had been employed at his task but a short time when the charge exploded, killing him on the spot. It is believed that the concussion produced by the blows was the cause of the explosion. No attempt was made to withdraw the unexploded charge, as the directions of the manufacturers of the nitro-glycerin characterized the attempt as highly dangerous.

The other case was that of some workmen who had tried to ignite some nitro-glycerin in a tin vessel, but failing, one of them thoughtlessly gave the vessel a kick, when, although the quantity was small, an explosion occurred shattering the vessel and the man's foot.

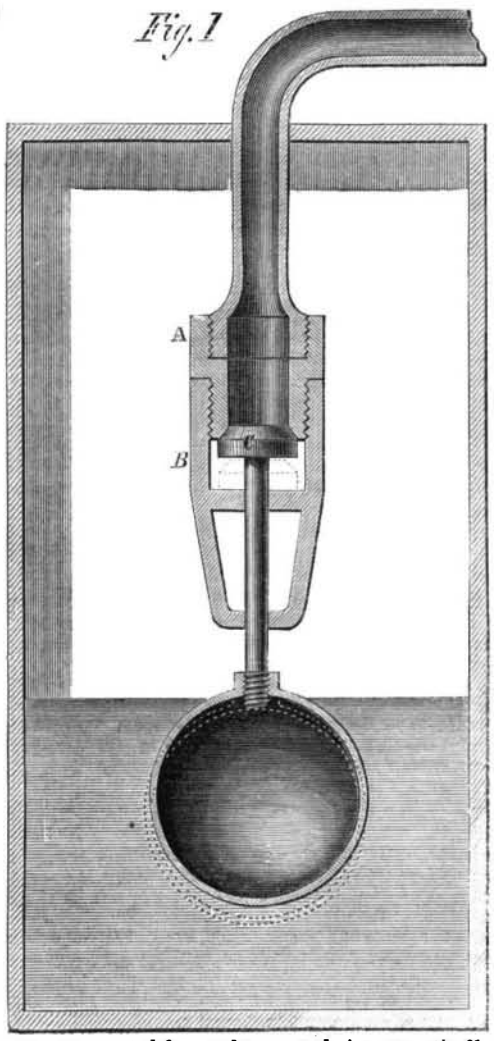
The correspondent correctly adds, that "accidents from powder or gun-cotton are generally occasioned by some want of ordinary care; but in that at Llanberis every precaution which would have insured perfect safety, had powder or gun-cotton been used, appears to have been taken, and the rules issued by the manufacturers of the nitro-glycerin were carefully observed. The inference, therefore, is that, though a charge of this powerful explosive may remove more rock at each blast than powder, or even gun-cotton, and may consequently effect a saving in the cost of blasting operations, its use will have to be prevented, or, at all events, much delayed, by the owners of quarries, who prefer the safety of their men to any pecuniary benefit obtainable from an economy in labor and material."

It is to be hoped that the experiments and investigations now being made in this country and Europe, by Col. Shaffner and others, will result in such reliable facts as shall enable this valuable and powerful agent to become the obedient servant of man and not his remorseless tyrant.

HEALD'S FLOAT VALVE.

It is not unfrequent that the common lever float and valve, for regulating the hight of water in a cistern, from one cause or another, refuses to work automatically. The cock, having a large amount of bearing surface, presents too much friction for the floating power of the lever ball. The valve here shown is an ordinary plug valve, which is the form presenting the least resistance, the friction,

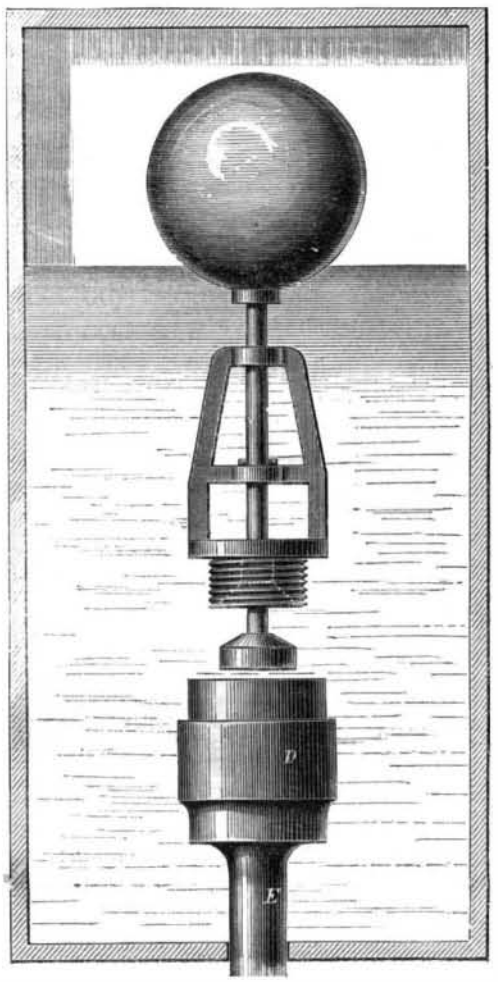
Fig. 1



soon as separated from the seat, being practically nothing. Its action is also direct, and the float can always exert power enough to close the pipe.

The valves are made in two forms—one intended for situations where the water is introduced above the seat, and the other for its introduction from below the seat. Fig. 1 represents the valve and float in section. The pipe is brought in at the top, or side of the tank, and screws into the top of the valve at A, which is a nipple screwing into the frame, B. The lower part of this nipple is a seat for the plug valve, C. The stem of the float is guided by the yoke of B, through which it slides freely.

Fig. 2



As the water falls, the float opens the valve and permits the further introduction of water through the pipe. So, as it rises, the valve is closed, the application of the power being direct.

Fig. 2 is a modification of the valve, designed for pipes which introduce the water through the bottom of the tank. In this case the seat of the valve is in the yoke portion of the frame. The nipple, D, is represented detached to show the valve. The lower portion of the nipple is furnished with an inside thread to receive the pipe, E. It will be seen that as the water falls the weight of the float, with its attachments, allows the valve to open, and as it rises the float closes the valve on its seat.

The inventor claims that this combined float and valve is superior to any other in use; that it is simple in construction, not liable to get out of order, can be easily applied to any cistern or tank, and operates with unfailing accuracy. It is also claimed that it can be usefully applied to regulating the flow of water into steam boilers. If at any time the valve should wear, it can be ground to place without detaching the parts.

It was patented Aug. 21, 1866, by Edwin Heald, Washington, D. C., to whom apply for rights for States and Territories, or for the whole patent, except the right to use in the District of Columbia.

RUSSIA.—A change has been made in the engineering of the Russian lines, and the French engineers have been relieved of their duties. Messrs. Winans have obtained a new contract for working the St. Petersburg and Moscow Railway upon terms still more favorable to them than their present contract. Four hundred locomotives are to be built at the railway works at Alexandrowski, near St. Petersburg, and within the last few days specifications have been received in London for locomotives for the Russian lines