(No Model.)

W. M. FERRY.

APPARATUS FOR PUMPING WATER FROM MINES.

No. 262,754. Patented Aug. 15, 1882.

Fig. 1.

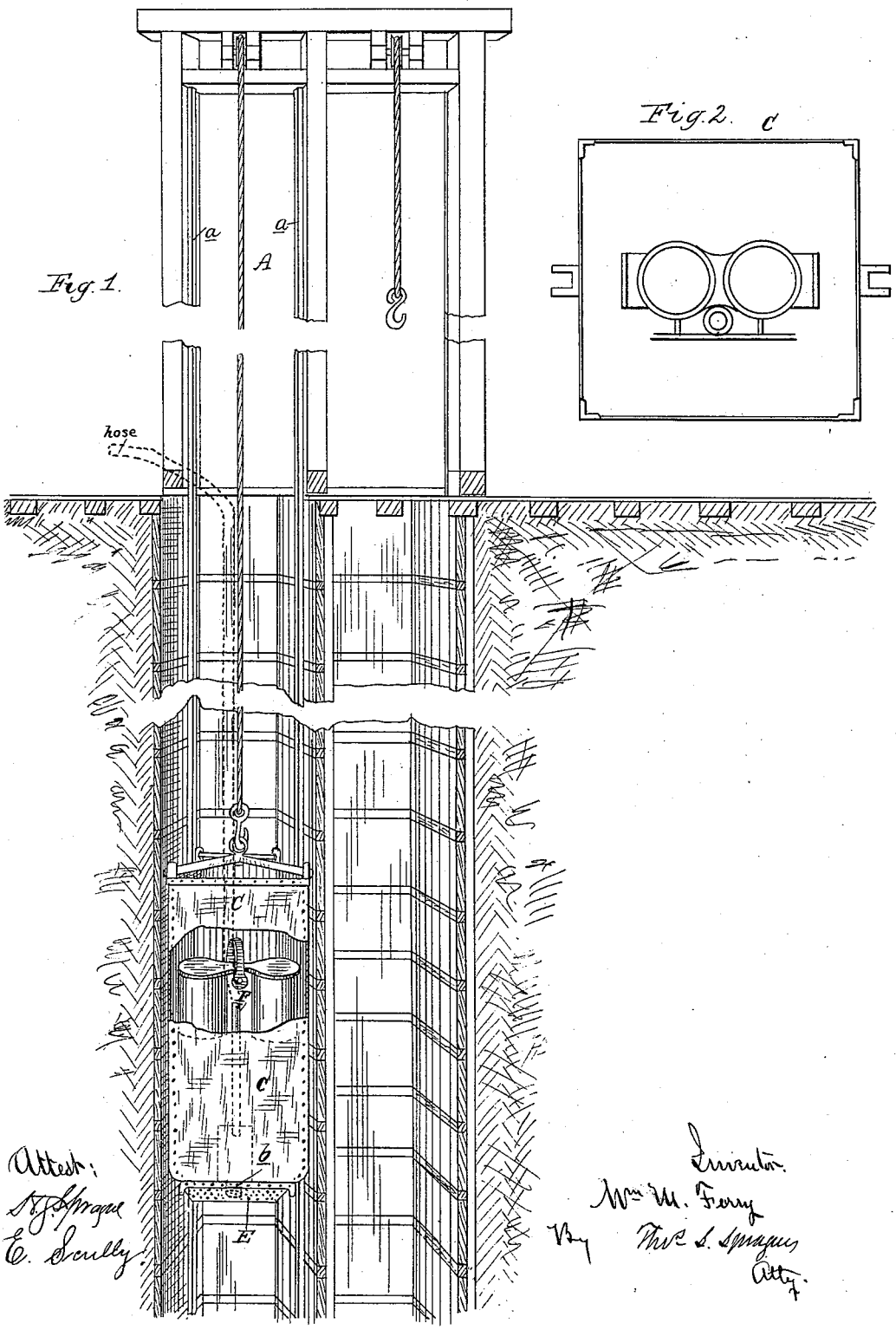

Fig. 2.

Attest:
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PUMPING WATER FROM MINES.

SPECIFICATION forming part of Letters Patent No. 262,754, dated August 15, 1882.

Application filed March 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. FERRY, of Park City, in the county of Summit and Territory of Utah, have invented new and useful Improvements in Apparatus for Pumping Water from Mines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of this invention relates to certain new and useful improvements in apparatus for pumping water from mines.

Mines are generally provided with means for pumping the water from them, which means are, under ordinary circumstances, sufficient to keep the mines free from water; but it frequently happens, in the exigencies of mining, that water bursts into the shafts in such quantities as to render it entirely impossible for the ordinary means employed to discharge such water.

The object of this invention is to relieve the mine from such sudden and overwhelming influxes of water as entirely render useless the ordinary appliances for keeping the mine free from water; and it is designed to remove such flood of water until the ordinary appliances can again control it.

The invention consists, in combination with the shaft of the mine and the appliances within such shaft for regulating the travel of the cage, of a floating pump, which, when an accident such as has been referred to occurs, may be sent down the shaft, and, floating upon the top of the water with flexible connections, may at once be put to work to relieve the mine of the overflow, which, as it is exhausted, allows the float carrying the pump to follow such exhaustion of the water, as more fully hereinafter described.

In the accompanying drawings my invention is shown in Figure 1 in a shaft in elevation, the section of the mine allowing this to be seen its whole length. Fig. 2 is a cross-section of the tank.

A represents a double-compartment shaft provided with the usual hoisting-works, which it is unnecessary to describe. These compartments are provided with the ways or guides *a*, which regulate, with the hoisting-works, the travel of a cage.

C represents a metal tank so constructed that it may be readily attached to the hoisting apparatus and travel up and down the shaft in the same manner as does the cage. This tank is water-tight, except that it is open at top, and is provided in its bottom with a suction-opening, *b*, which communicates with a pump of any suitable construction, while its lower end communicates with the water. In other words, this suction-opening *b* allows the water, when the tank is in operation, to pass to the pump, which rests upon the floor of said tank, and immediately below this suction-opening I arrange and attach to the bottom of the tank a screened chamber, E, which prevents any of the débris in the water from entering the pump. The pump is provided with a flexible or adjustable discharge hose or piping, F, to lead the water to the surface. Upon an emergency arising by the sudden and unexpected inflow of water or otherwise, whereby the ordinary means for keeping the mine free from water are rendered useless or unaccessible, this tank is sent down in place of the cage, its bottom end entering the water, and is buoyed therein by its displacement. Of course the steam-connections by means of which steam is supplied to the pump must be of a flexible character or so readily adjustable as to be instantaneously applied.

In practice as the pump discharges water to the surface the tank which forms the bed-plate of the pump follows the lower surface of the water so that the suction will act until nearly or quite all the water has been pumped out, when the ordinary appliances for keeping the mine free may be again put in operation, and the tank with its appliances withdrawn and laid aside until another emergency arises requiring its use.

This construction of a float-bed for a pump and the method herein described will be found very effective in keeping shafts free, in the ordinary process of sinking them, by extending the suction-hose into a proper well or pump.

I do not intend to confine my invention to pumping out mines, as described, as there are many other places and under different circumstances where the same may be employed.

I am aware of the pneumatic water-elevator patented by S. W. Hudson, October 25, 1881, No. 248,749, in which a tank resting on the

water alternately rises and falls as it fills with water and discharges; and I do not claim such invention, my invention differing therefrom in the use of a floating bed supporting a pump and adapted to steadily fall as the water from the mine is discharged.

What I claim is—

1. In an apparatus for emptying mines of water, an air and water tight floating bed supporting mechanism for raising water, and adapted to steadily descend the shaft of the mine as the water is discharged, substantially as described.

2. The combination, with an air and water tight floating bed, of a pump supported thereon, and suitable means for discharging water from the pump, whereby the bed and pump will steadily fall as the level of the water supporting the bed is lowered by the pump, substantially as described.

3. In combination with a tank which forms the floating bed of a steam-pump, a screen-chamber below and protecting the suction-opening in said tank, through which the water is admitted to the pump, substantially as described.

WM. M. FERRY.

Witnesses:
H. S. SPRAGUE,
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