

J. R. WEBER.

HOISTING AND PUMPING MACHINE.

No. 183,237.

Patented Oct. 10, 1876.

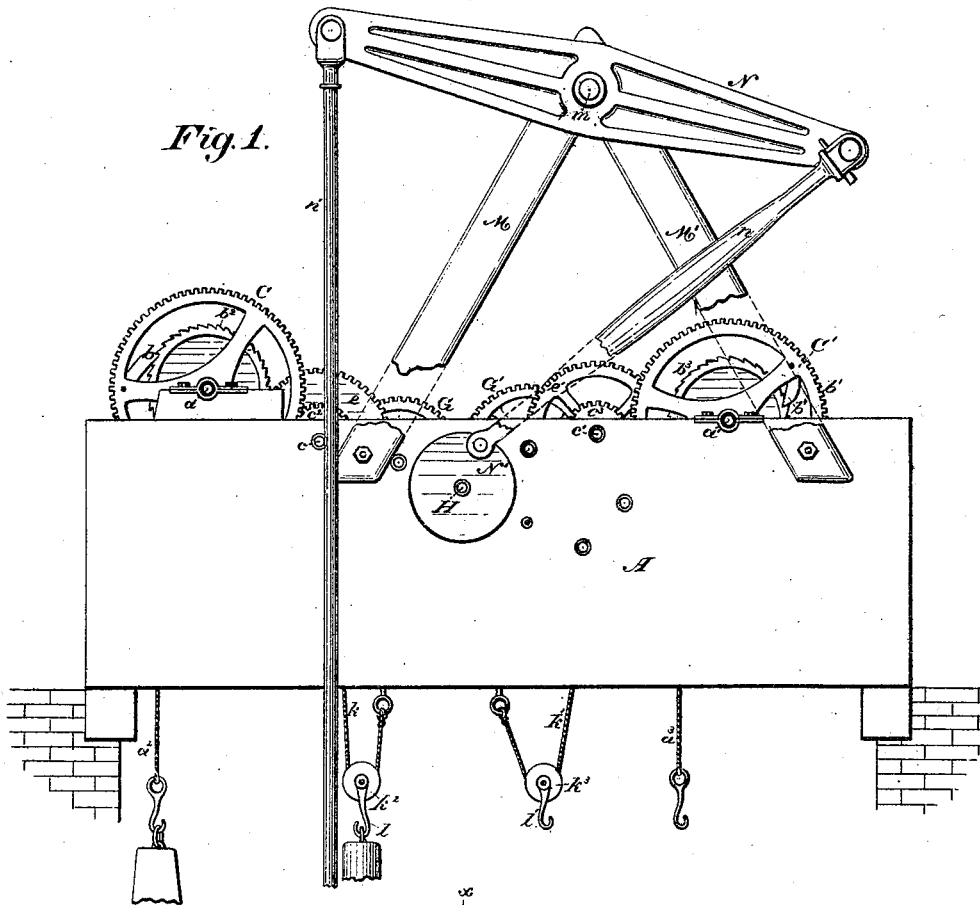


Fig. 1.

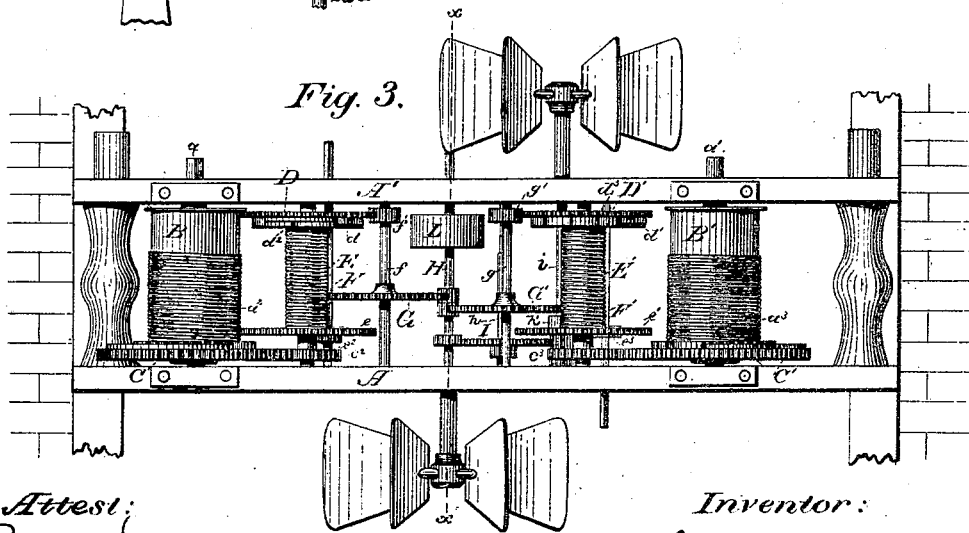


Fig. 3.

Attest:
 R. T. Dyer,
 J. W. Sully

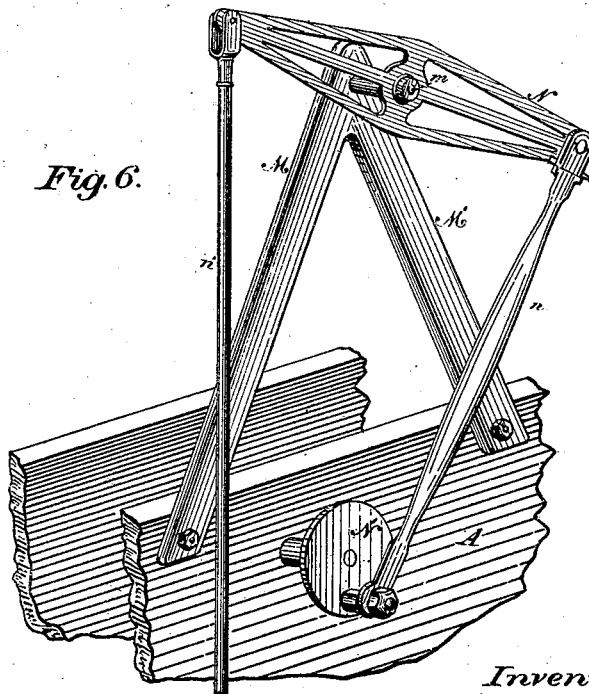
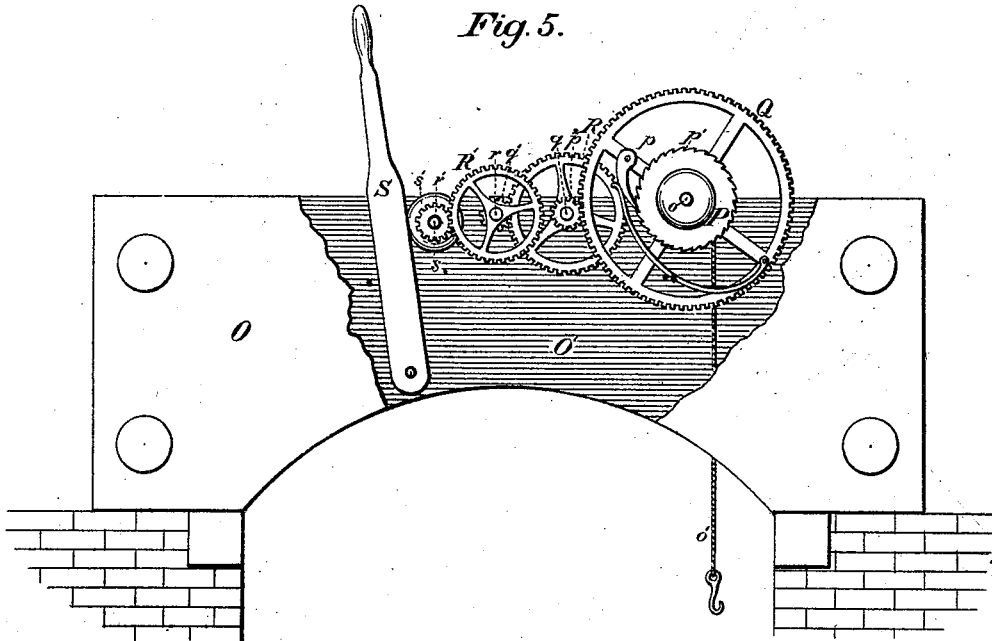
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UNITED STATES PATENT OFFICE.

JOHN R. WEBER, OF BOURBON, INDIANA.

IMPROVEMENT IN HOISTING AND PUMPING MACHINES.

Specification forming part of Letters Patent No. 183,237, dated October 10, 1876; application filed July 23, 1876.

To all whom it may concern:

Be it known that I, JOHN R. WEBER, of Bourbon, in the county of Marshall and State of Indiana, have invented a new and useful Improvement in Machines for Hoisting and Pumping; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to certain improvements upon the machine for which Letters Patent numbered 173,580 were granted February 15, 1876, to myself and Philip Binkley; and its object is to provide a machine which will do much heavier work, have a simple and effective means for pumping and mechanism for elevating very heavy weights.

My invention therein consists in the combination, construction, and arrangement of the parts composing my machine, as fully hereinafter explained.

To enable others skilled in the art to manufacture and use my machine, I now describe the same in connection with the drawings, in which—

Figure 1 is a side elevation of the hoisting and pumping machine, with the pumping mechanism attached; Fig. 2, a view from the opposite side, the frame being partly broken away; Fig. 3, a top view of the machine, with the parts arranged for hoisting; Fig. 4, a section on the line $x x$ in Fig. 3; Fig. 5, a side elevation of the auxiliary machine for elevating heavy weights, with the frame partly removed; and Fig. 6, a separate view of the pumping mechanism detached from the machine.

Like letters denote corresponding parts in each figure.

A A' represent the sides of the machine, in which are journaled the shafts of the operating mechanism. B B' are two winding-drums, mounted on shafts $a a'$ at opposite ends of the frame. These shafts project through the side A' of the machine, and have their ends squared to receive a crank, by which the ropes or chains $a^2 a^3$ are wound and unwound thereon. Large cog-wheels C C' are loosely mounted on the shafts $a a'$, and turn in one direction with the winding-drums B B' by means of the

spring pawls $b b^1$ engaging with ratchets $b^2 b^3$ on the drums. Inwardly from each of the winding-drums are journaled two shafts, $c c^1$, having pinions $c^2 c^3$ keyed thereon, which mesh with the large cog-wheels C C'. Cog-wheels D D' are keyed on the opposite ends of the shafts $c c^1$ within the frame. Winding-drums E E' are sleeved on the shafts $c c^1$, between the pinions $c^2 c^3$ and the cog-wheels D D'. These drums revolve in one direction with their shafts through the spring-pawls $d d^1$ and ratchets $d^2 d^3$. These drums E E' are provided with cog-wheels $e e^1$, which mesh with pinions $e^2 e^3$ on winding-shaft F F', projecting through the sides A' and A of the machine, and having their ends squared to receive suitable winding-cranks. The cog-wheel D of the shaft c meshes with a pinion, f' , on a shaft, f , and a cog-wheel, G, on the said shaft f engages with a pinion on the driving-shaft H, thus transmitting the power from the winding-drum B to the said driving-shaft. The cog-wheel D' on the shaft c^1 is connected to shaft, g , through a pinion, g' , and a cog-wheel, G', on the shaft g engages with a pinion on the driving-shaft H. A cog-wheel, I, mounted on a shaft, h , also engages with a pinion on the driving-shaft H, and with a pinion, h' , on the regulator-shaft i . The regulator-shaft i is extended through the side A' of the machine, and has on its outer end a pin-wheel, i' , working in connection with a removable regulator arm and pendulum, K K', as described in the before-mentioned Letters Patent 173,580. Ropes or chains $k k^1$ are secured at one end to the drums E E', pass around pulleys $k^2 k^3$ in the shanks of hooks $l l'$, and are secured at the other end to the frame of the machine. The driving-shaft H is provided, within the frame, with an elevating-drum, L, having a rope wound thereon, or a pulley may be used in its place connecting by an endless belt with another shaft provided with the elevating-drum. The driving-shaft is also extended through the side A of the machine, and its end adapted to be attached to the pumping mechanism, or to have a regulating-fan placed thereon when the machine is used for elevating.

The pumping mechanism shown in detail in Fig. 6 is composed of two uprights, M M', con-

ected together at the top, and adapted to be removably secured to the side A of the machine by bolts passed through their lower ends. In the top of these uprights is a shaft, *m*, upon which is mounted the walking-beam N. The walking-beam is connected, through a pitman, *n*, with a crank-wheel, N', adapted to be removably secured to the end of the driving-shaft, from which it is oscillated. This walking-beam is adapted to operate, through a connecting-rod, *n'*, the plunger of a pump.

When it is desired to do ordinary pumping the pumping mechanism described is mounted upon the side of the machine, and the pendulum placed in position. The weights by which the machine is operated are attached to the hooks *l l'*, which are lowered for that purpose. The winding-shafts F F' are turned by cranks and the weight raised. The drums B B' are then turned, and the ropes or chains *a² a³* wound up without weights till they reach the height of the weights on the hooks *l l'*, when the weights are changed to the said ropes or chains *a² a³*. The lowering of the weights operates the pumping mechanism through the gearing.

For light elevating, in which operation a greater velocity is required than in pumping, the pendulum is removed and a fan placed on the regulator-shaft, and the pumping mechanism replaced by a fan on the driving-shaft. The rope or chain *m* is passed around an elevated pulley and lowered to the article to be elevated. The weights are raised and the machine operated the same as in pumping. When it is desired to elevate grain or other very heavy articles, or to pump water to a great height, I find the weights necessary to be used are too heavy to be raised on the machine, and for this purpose an auxiliary machine is provided, which is shown in Fig. 5. This machine is placed to one side of the main machine, and is provided with a frame, O O', in which is mounted a winding-drum, P, having a rope or chain, *o'*. This drum is keyed

to a shaft, *o*, journaled in the frame O O', which shaft has its end squared to receive a turning-crank. A large cog-wheel, Q, is mounted loosely upon the shaft *o*, and revolves, in one direction, with the winding-drum by means of a spring-pawl, *p*, and ratchet *p¹*. This large cog-wheel meshes with a pinion, *p²*, on a shaft, *q*. A cog-wheel, R, on the shaft *q* meshes with a pinion, *q'*, on another shaft, *r*, which is provided with a cog-wheel, R', engaging with a pinion, *r'*, on a shaft, *s*. This last shaft is extended through the side of the machine, and has a square end to receive a crank. The shaft *s* is also provided with a friction-wheel, *s'*, upon which bears a brake, S, for holding the weight when being raised at any point. The rope or chain *o'* is passed over an elevated pulley and lowered to the weight. The shaft *s* is then turned by the crank, and the weight raised to the desired height. The rope or chain on the main machine is wound up without a weight, and the weight on the rope *o'* changed to the rope on the main machine.

Having thus fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination, with the winding-drums B B' and weights for operating the machine, of the shafts *c c'* for transmitting the power to the driving-shaft, and the drums E E' for elevating the weights, substantially as described and shown.

2. The combination of the weights and gearing, the regulating pendulum and fans, and the removable pumping mechanism, constructed and arranged substantially as described and shown.

This specification signed and witnessed this 17th day of July, 1876.

JOHN R. WEBER.

Witnesses:

PETER HAHN,
JEROME H. CHAMBERLAIN.