(No Model.)

S. A. MORSE.

POWER ELEVATOR.

No. 261,377. Patented July 18, 1882.

Fig. 1

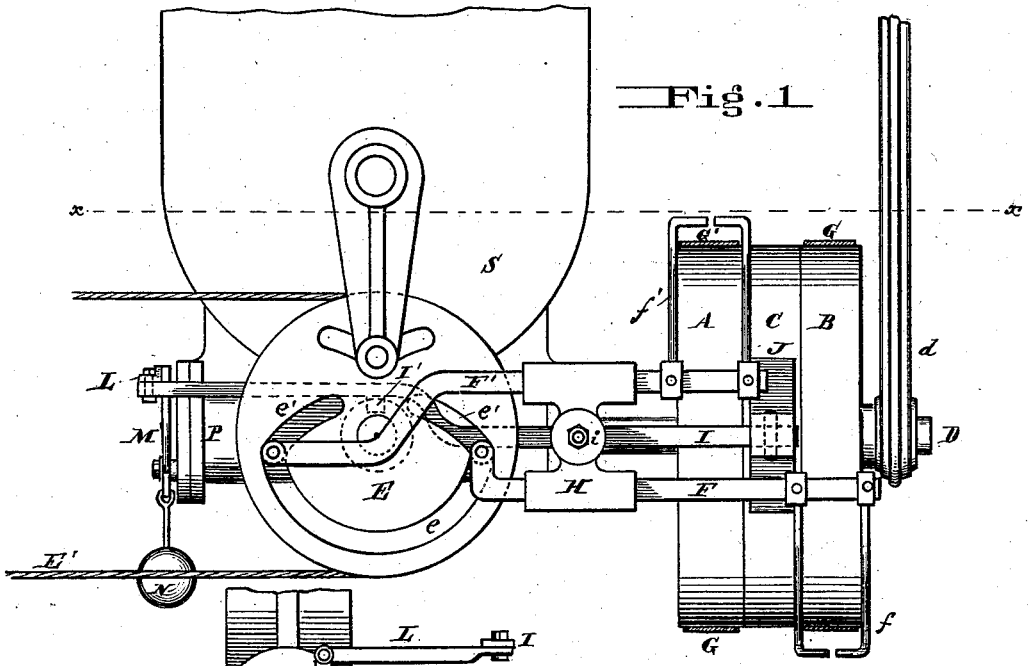


Fig. 3

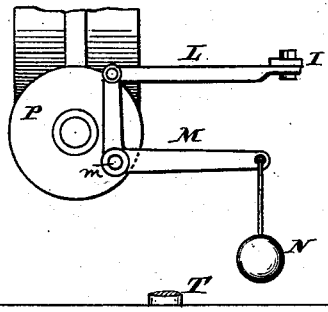
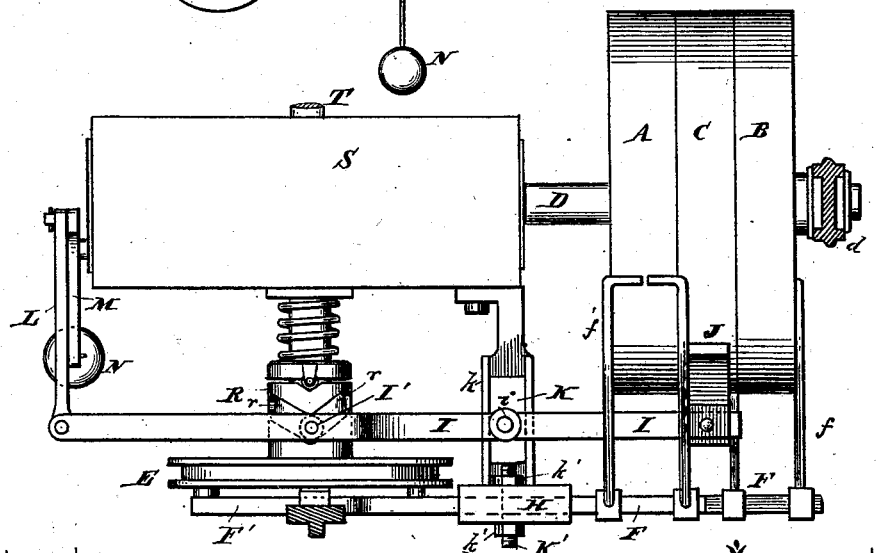


Fig. 2



Attests

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UNITED STATES PATENT OFFICE.

STEPHEN A. MORSE, OF PHILADELPHIA, PENNSYLVANIA.

POWER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 261,377, dated July 18, 1882.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN A. MORSE, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Power-Elevators, of which the following is a specification.

My invention has reference to hoisting-machines, but more specifically to the belt-shifters and pulley-brake, and is an improvement upon Letters Patent No. 214,102, granted to David B. Clem, and dated April 8, 1879; and it consists in the combination of the pulley-brake with a cam to actuate it and means to cause the brake-lever to be moved always by the same faces of the cam and constantly press against said faces and cause the brake to be applied at all times with the same pressure, all of which is more fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

The object of this invention is to so construct the brake and operate it that there shall be no loose motion, and that the brake-shoe shall at all times apply the same force to arrest the rotation of band-wheel upon which it is to act.

In the drawings, Figure 1 is a side elevation of a hoisting-machine embodying my improvements. Fig. 2 is a sectional plan of same on line *x x;* and Fig. 3 is a detailed view of the gravity-brake, looking at one end thereof.

A B are two idler band or belt wheels, arranged one on each side of the driving-belt wheel C, which is secured to the driving-shaft D, supported in the worm and worm-wheel case P S and bracket *d*. This driving-shaft carries the worm in case P, which rotates the worm-wheel in case S, said worm-wheel rotating the cable-drum shaft T. This is clearly set out in the patent referred to.

E is a belt-shifting cam-wheel, and is grooved upon its periphery to receive the reversing cord or chain E′, and is provided with concentric groove or slot *e* and cam grooves or slots *e′*. Working in these slots are rollers on the ends of the shifting rods or bars F F′, which are provided on their ends with shifters *f f′*, and are guided by frame H, secured to the casing S by bracket *k*. The belts G G′, which run in opposite directions, are guided by shifters *f f′* to or from the idler-pulleys B A and the driving-pulley C. By means of the cam-wheel E and its slots both belts may be upon the idler-pulleys or either one may be shifted upon the driving-pulley.

J is the brake-shoe, and is adapted to press upon the face of the pulley C to arrest it after the bands are both shifted to their respective idler-pulleys. This brake-shoe is secured to one end of a lever, I, pivoted at *i* to a sliding box, K, in bracket *k*, which may be adjusted by means of screw K′ and nuts *k′*. This lever is also provided with a pin or friction-roller, I′, which works in a groove or cam-slot, *r*, made V-shaped in the hub R of the cam-wheel E. The end of the lever I is connected to one arm of a bell-crank, M, pivoted to worm-case P at *m* by a rod or bar, L, and to the other leg of the bell-crank is hung the weight N, which may be decreased or increased, as desired, and which weight always tends to press the brake-shoe J against the face of wheel C, and, as it also causes the pin or roller I′ always to work against the same faces of cam-slot *r*, this slot may be made a loose fit, and when in the position shown in Fig. 2 the pin or roller does not touch either side of the cam-slot *r*, as the weight N must have full sway to press the brake-shoe against the band-wheel.

If desired, the weight N may be dispensed with, and in lieu thereof a spring may be used.

I do not confine myself to any particular arrangement of levers.

When in the position shown the brake is on and the belts are running on the idler-pulleys. Now, if the wheel E be turned to the right, the belt from pulley B is moved to drive-pulley C, and the brake-shoe J is raised from its surface. If wheel E is turned in the other direction, the band or belt from pulley A is moved to pulley C and the brake-shoe is raised. The cam *r* only raises the shoe J from the pulley C, and the weight N causes it to press against the said pulley when the cam-slot *r* is in the position shown in Fig. 2.

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

1. In a hoisting-machine, the driving-pulley, in combination with a brake, a weight or its

equivalent to apply said brake, and cam mechanism to cause it to be removed from said driving-pulley, substantially as and for the purpose specified.

2. In a hoisting-machine, two idler-pulleys and a drive-pulley, in combination with belt-shifting mechanism and brake mechanism controlled by said shifting mechanism, a weight or its equivalent to apply said brake, and cam attachment to said shifting mechanism to cause the brake to be removed from the driving-pulley, substantially as set forth.

3. In a hoisting-machine, the drive-pulley C, in combination with brake-shoe J, pivoted lever I, having pin or roller I′, oscillating hub R, having cam-slot *r*, and means adapted at all times to press said brake-shoe toward said drive-pulley, substantially as set forth.

4. In a hoisting-machine, the combination of drive-pulley C, brake-shoe J, lever I, pivoted at *i* to the adjustable block K and provided with pin or roller I′, hub R, having cam-slot *r*, and means adapted at all times to press said shoe-brake toward said drive-pulley, substantially as set forth.

5. In a hoisting-machine, the combination of idler-pulleys A B, drive-pulley C, shifting cam-wheel E, rods or bars F F′, provided with shifters *f f′*, brake-shoe J, lever I, pivoted at *i* and provided with pin or roller I′, hub R, having cam-slot *r*, and means to press said brake-shoe at all times toward said drive-pulley, the cam-slot *r* being actuated by the shifting cam-wheel, substantially as set forth.

6. In a hoisting-machine, the combination of drive-pulley C, brake-shoe J, lever I, pivoted at *i* and having cam-pin or roller I′, hub R, having cam groove or slot *r*, rod L, bell-crank M, and weight N, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

STEPHEN A. MORSE.

Witnesses:
R. A. CAVIN,
R. S. CHILD, Jr.