

(No Model.)

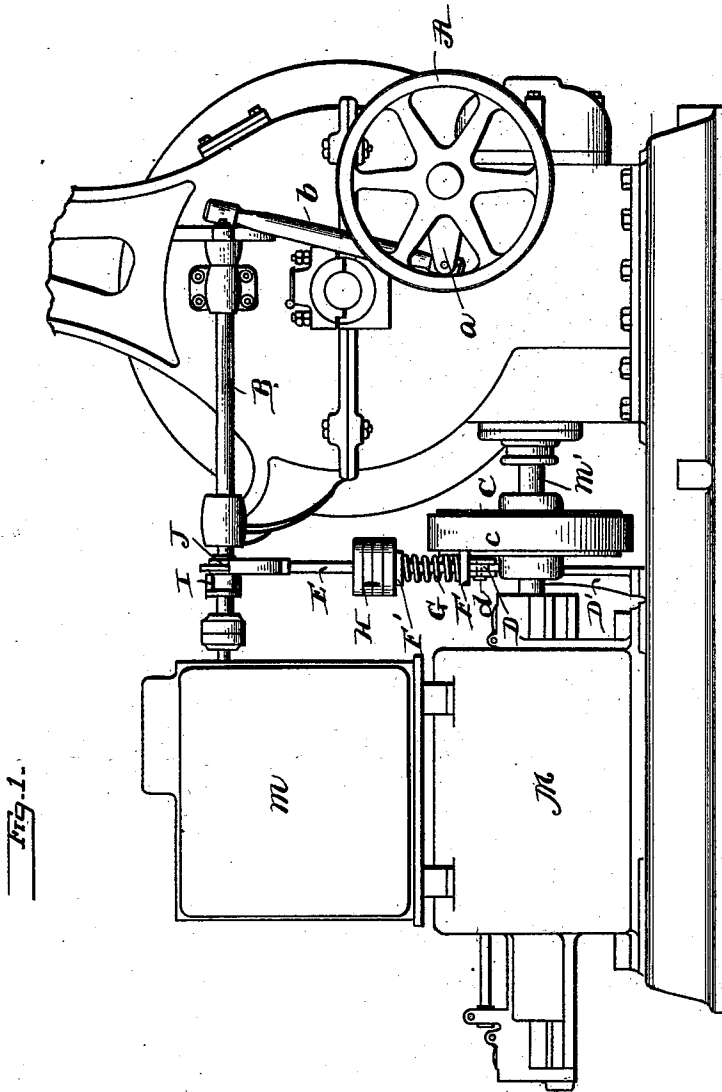
2 Sheets—Sheet 1.

F. E. HERDMAN.

BRAKE DEVICE.

No. 548,828.

Patented Oct. 29, 1895.



Witnesses.

Jesse B. Heller?
Philip Boutelle

Inventor.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

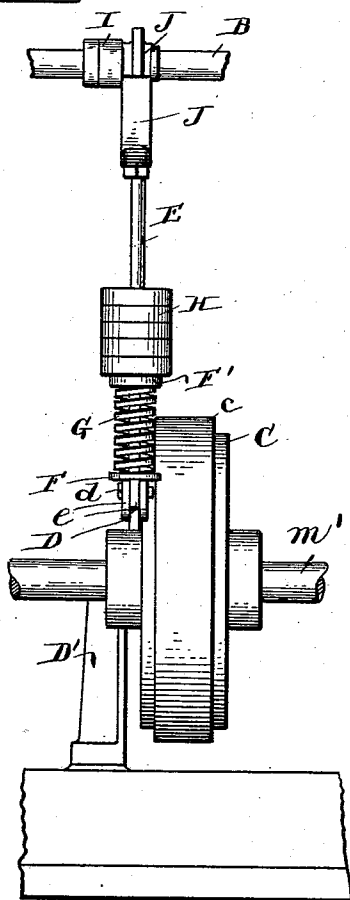


Fig. 3.

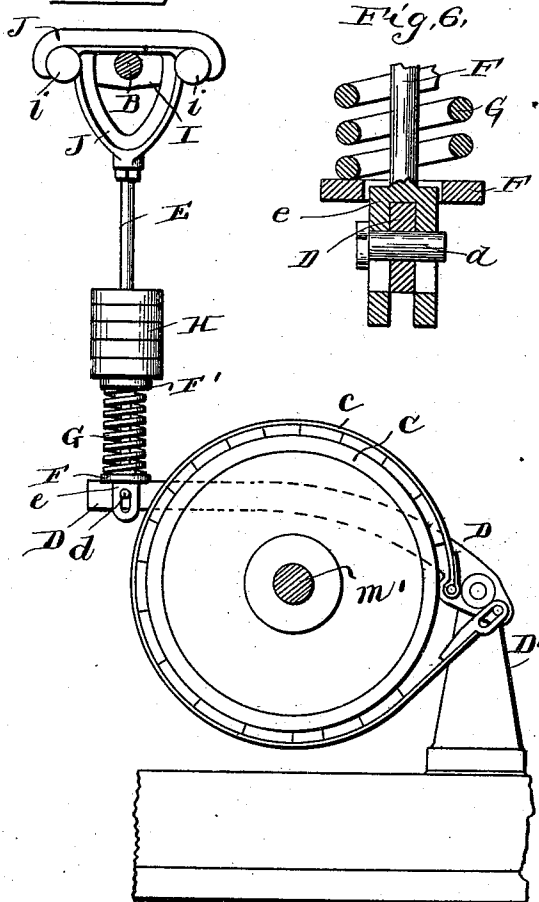


Fig. 6.

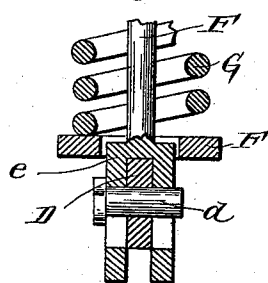


Fig. 4.

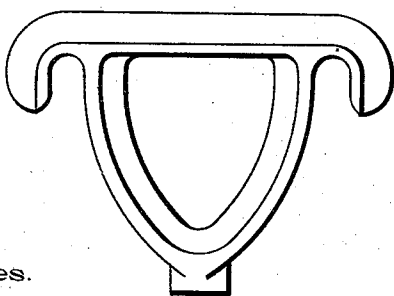
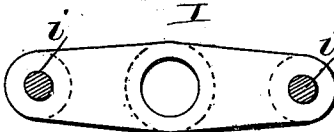


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK E. HERDMAN, OF WINNETKA, ILLINOIS.

BRAKE DEVICE.

SPECIFICATION forming part of Letters Patent No. 548,828, dated October 29, 1895.

Application filed March 2, 1895. Serial No. 540,297. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. HERDMAN, a citizen of the United States, residing at Winnetka, county of Cook, and State of Illinois, have invented a new and useful Improvement in Brake Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

I will first describe my improvement as illustrated in the accompanying drawings, and then specifically point out the invention in the claims.

In the drawings, Figure 1 is a front view of an electric elevating-machine with my improved brake mechanism attached. Fig. 2 is a front view of the brake mechanism. Fig. 3 is a side elevation of the same. Fig. 4 is a front view of the T bar or arm for raising the brake-rod. Fig. 5 is a front view of the rocker for operating the T arm or bar. Fig. 6 is a section of forked end of brake-rod E and washer F.

A is an operating-sheave; B, the operating-bar, connected with the sheave A by means of the connecting-rod b, connected to the crank a.

M is the motor; m, the switch-box, in which are the switches, &c., regulating the admission of current to the motor. The operating-bar B controls the switch by means of which current is admitted to the motor, and is thus the motor-controlling bar.

C is the brake-wheel, which is keyed or otherwise secured to the motor-shaft m', c the brake-strap, and D the brake-lever, pivoted at one end to the standard D' and provided at the other end with a pin d.

E is the brake-rod. The brake-rod and brake-lever are connected together by a loose connection. By "loose connection" I mean and intend to cover any connection whereby the lever and rod may, with relation to each other, have independent restricted movements. The particular loose connection in the drawings consists of the following: The brake-rod has a slotted forked end e, through the slotted end of which passes the pin d, attached to lever D.

F is a washer loose upon the rod E, to which one end of a coiled spring G surrounding rod E is connected. The washer F rests against the lever D.

H is a weight loose upon rod E and resting

upon the washer F', secured to the rod E, to which the other end of spring G is connected. The washer F' is connected to rod E. The cross-section of orifice of washer F is slightly greater than cross-section of forked end e.

Upon the operating-bar B is the rocker I, carrying the pins i i.

J is a T-bar which is connected with or forms the upper part of the brake-rod E, the pins i i resting against the T-bar J, so that in whichever direction the operating-bar is moved from the center (starting the machine) one or the other pin i acts on the T-bar to elevate the brake-rod E and in the movement of the bar toward the center (stopping machine) depresses rod E. When the brake is released from the wheel, the pin d rests in the bottom of the slot in the end of brake-rod E. The first movement of operating-bar to the center moves the rod E downward, and therefore moves the slotted end downward. This allows the brake-lever D to follow down and the brake is first applied with a power equal to the weight of the lever D. When this is expended, the further movement of the operating-bar allows the brake-rod E to drop downward, due to the weight H, thus compressing more and more the spring G, and an additional strength of brake is applied, due to this compression. The construction is so arranged that when the bar B is brought central the pin d is at the top of the slot and the spring fully compressed, so that at this point the full weight of the weight H is upon the lever D and the brake is applied with its full strength.

In moving the bar B in either direction from the center (starting machine) the lifting of the rod E first releases the weight upon the pin, also gradually lifting the forked slotted end, causing the pin to pass down in the slot, or, to put it in another way, the slot to pass upon the pin. During this the spring force is gradually decreased, and when the pin reaches the bottom of the slot the further movement of rod E lifts the lever D and releases the brake. The strength of the brake is gradually released while the pin d is passing to the lower end of the slot in the forked end of rod E, and the brake is not released until after the pin reaches the bottom of the slot, and between the initial moving of bar B

from central position and this point the strength of brake is lessened proportionately to the throw of the operating-bar.

The object of the construction forming the subject of this application is to give a greater range of application of the brake and within such range to enable the operator to adjust the strength as is best suited for the operation, always being sure of a strength of brake equal to the brake-weight when the mechanism is central. The range can be adjusted by varying the length of the slot in the end of lever E, and the strength can be adjusted by varying the power of the spring G.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, motor controlling mechanism adapted in its movement in either direction from the center to start the motor, a pin in the brake lever, a rod provided with a slotted end through which said pin projects, and connection between said rod and the motor controlling mechanism whereby a movement of the motor controlling mechanism in either direction from the center elevates said rod, and a movement toward the center depresses said rod, a spring one end connected with said rod and the other end resting upon said lever, and a weight upon said rod resting against said spring.

2. The combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, the operating bar of the motor, a pin in the brake lever, a rod provided with a slotted end through which said pin projects, a T bar connected to said brake rod, and a rocker upon said operating bar provided with pins resting against said T bar whereby a movement of the bar in either direction from the center elevates said rod and a movement toward the center depresses it, the arrangement being such that the pin is at the bottom of the slot when the brake is released and at the top when the brake is fully set.

3. In combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, the operating bar of the motor, a pin in the brake lever, a rod provided with a slotted end through which said pin projects, a T bar connected to said brake rod, a rocker upon said operating bar provided with pins resting against said T bar whereby a move-

ment of the bar in either direction from the center elevates said rod and a movement toward the center depresses it, a spring one end connected to said rod, the other end resting upon said lever, and a weight connected with said rod and resting against said spring.

4. In combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, a motor controlling mechanism adapted in its movement in either direction from the center to start the motor, a rod, a connection between the rod and the motor controlling mechanism whereby a movement of the motor controlling mechanism in either direction from the center elevates said rod, and a movement toward the center depresses said rod, a loose connection between the rod and the brake lever, a spring one end connected with said rod and the other end resting upon said lever, and a weight upon said rod resting against said spring.

5. In combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, a motor controlling mechanism adapted in its movement in either direction from the center to start the motor, a rod, a connection between the rod and the motor controlling mechanism whereby a movement of the motor controlling mechanism in either direction from the center elevates said rod, and a movement toward the center depresses said rod, and a loose connection between the rod and the brake lever.

6. In combination with a motor and driving shaft for the same, a brake wheel upon said shaft, a brake, a brake lever to operate said brake, a motor controlling mechanism adapted in its movement in either direction from the center to start the motor, a rod, a connection between said rod and the motor controlling mechanism whereby a movement of the motor controlling mechanism in either direction from the center elevates said rod, and a movement toward the center depresses said rod, a pin and slot connection substantially as described between the rod and the brake lever, a spring one end connected with said rod and the other end resting upon said lever, and a weight upon said rod resting against said spring.

In testimony of which invention I have hereunto set my hand.

FRANK E. HERDMAN.

Witnesses:

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MINNIE F. ELLIS.