(No Model.)

F. HEINE & E. BENGEL.

DEVICE FOR OPERATING HATCHWAY GATES.

No. 398,615. Patented Feb. 26, 1889.

FIG. 1.

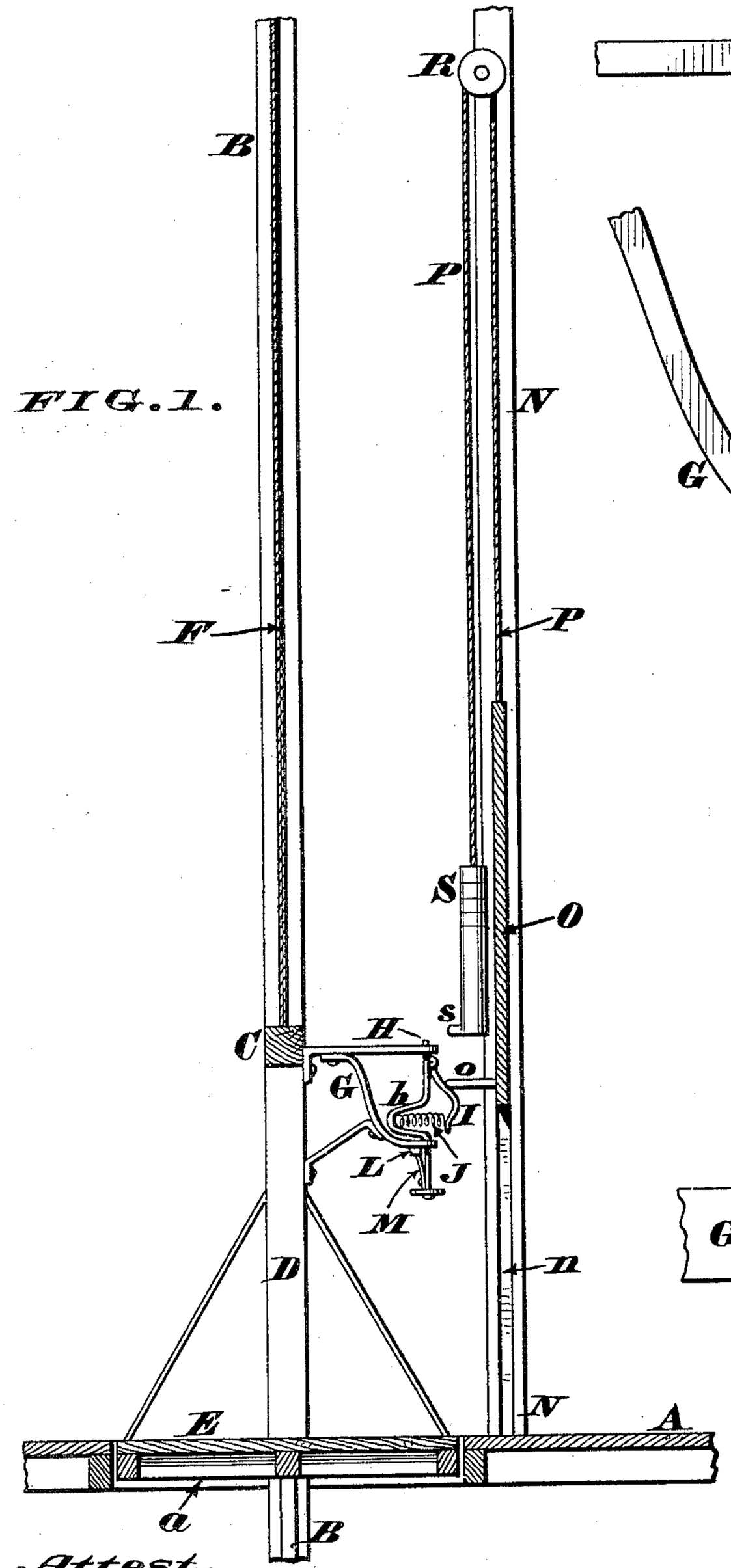


FIG. 2.

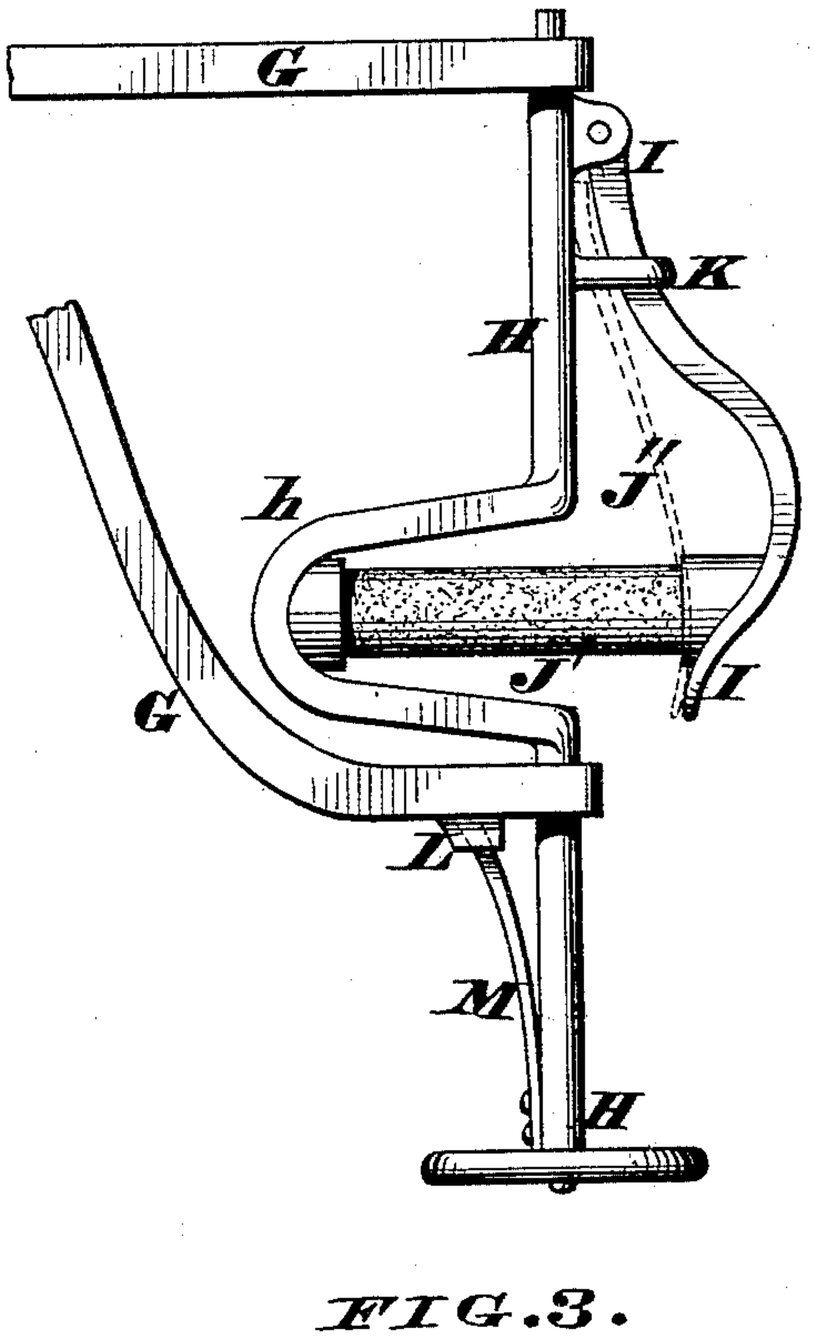
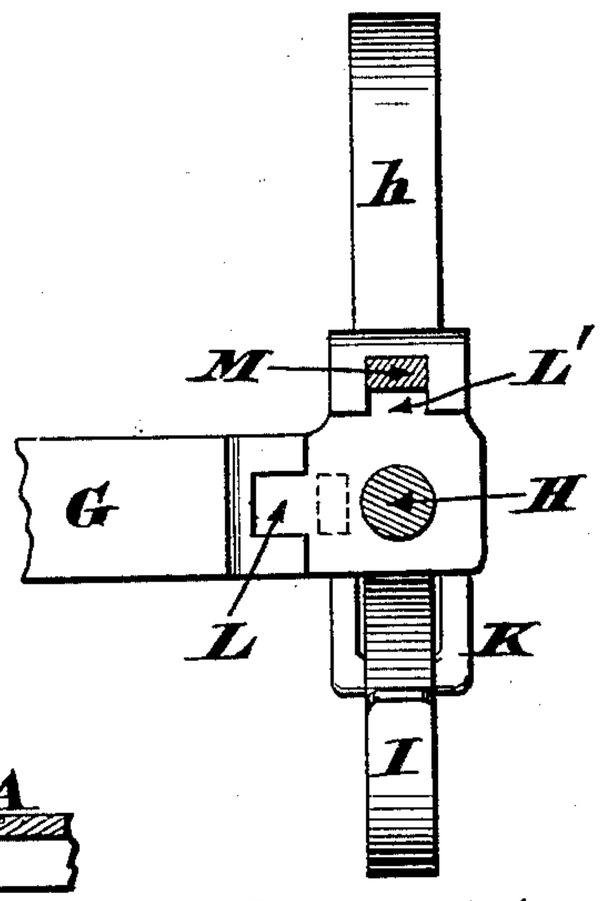


FIG. 3.



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FREDERICK HEINE AND EDWARD BENGEL, OF CINCINNATI, OHIO.

DEVICE FOR OPERATING HATCHWAY-GATES.

SPECIFICATION forming part of Letters Patent No. 398,615, dated February 26, 1889.

Application filed October 4, 1888. Serial No. 287,155. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK HEINE and EDWARD BENGEL, both citizens of the United States of America, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Operating Elevator-Gates, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to those elevators whose platforms or cabs are provided with appliances that automatically open and close vertically-sliding gates or similar barriers guarding the various hatchways traversed by said platforms; and the first part of our improvements comprises a novel construction of gate-lifting device, the details thereof being hereinafter more fully described.

The second part of our improvements comprises a novel combination of devices for temporarily rendering the gate-lifting device inoperative when it is desired to run the elevator without opening the gates, the details of this combination being hereinafter more fully described.

In the annexed drawings, Figure 1 is a vertical section of an elevator embodying our improvements, the platform being on a level with the floor of the building and the gate completely elevated. Fig. 2 is an enlarged side elevation of the gate-lifting device locked in its effective position. Fig. 3 is an enlarged plan showing said device secured in an inoperative position, the shaft and locking-spring being sectioned.

Referring to Fig. 1, A represents the floor of a building, and *a* is a hatchway in the same, which passage is flanked with the customary vertical stanchions or guides, one of the latter being seen at B.

C is the cross-beam, and D one of the uprights of a platform or cab, E, which platform is raised and lowered by the cable F or otherwise. Attached to the upright D is a frame, G, that supports the gate-lifting device, the principal member of the latter being a vertical shaft, H, which is so fitted in said frame as to be readily turned when occasion requires.

I is a curved lever pivoted to the shaft H, and near the upper end thereof, the free end of said lever being normally thrown outward by the stress of a suitable spring, J. An effective length of this spring is obtained by fitting it within a bend, *h*, of the vertical shaft. Furthermore, this spring may be coiled, as seen in Fig. 1, or it may consist of a compressible cushion, as represented at J′ in Fig. 2, or it may be a plate-spring, as indicated by the dotted lines J″ in said illustration.

K is a shackle or other stop that limits the outward swing of lever I. The lower bar of frame G has a pair of sockets, L L′, located at right angles to each other, as seen in Fig. 3, which sockets are adapted to admit the free end of a plate-spring, M, the opposite end thereof being secured to the vertical shaft H.

N is one of a pair of vertical stanchions having a groove or other guide, *n*, that confines the gate or other barrier, O, to a proper path, said gate being suspended from a rope, P, which, after passing over a sheave, R, has a counter-balance, S, attached to it, said weight being provided with a lug, *s*, projecting toward the lever I.

o is a pin projecting from the inner side of gate O, said pin being in the same plane as the lug *s*.

In constructing this elevator care must be taken to apply a sufficient number of weights S to the rope P until the gate O is exactly counterbalanced, and these weights must be so guided as to preserve the lug *s* in a proper position to be operated by the gate-lifting device. These precautions having been taken, and the gate O being in its normal or lowered position, it is evident that when the platform E ascends, the lever I comes in contact with the pin *o* of said gate, and as the spring J will not give until considerable pressure is exerted against said lever it will be seen that the gate must ascend simultaneously with said platform. When the platform is arrested on a level with any floor in the building, the gate is completely raised, thereby affording an unobstructed passage to the elevator; but when said platform is raised a few inches above the floor said gate is stopped by coming in contact with the upper end of a guide. (Not shown.) Consequently the gate can travel no farther, and the continued ascent of the platform causes such a pressure to be exerted against the lever I as to compress the spring J, and thus enable said lever to escape from

contact with the pin *o*. A few inches more travel of the platform brings the lever in contact with the lug *s*, thereby raising the counter-balance S and causing a corresponding descent of the gate O, which latter soon reaches the floor, and as soon as this occurs the dead-weight of said counter-balance suffices to overcome the pressure of spring J. Therefore the spring again compresses and enables the lever I to escape from contact with the lug *s*, which operations are automatically performed every time the platform ascends through a hatchway; but when the platform descends the automatic operations are exactly reversed—that is to say, the lever I first pulls down upon the lug *o*, so as to raise the gate just before said platform reaches the level of the floor. As soon, however, as it descends below this level, the lever disengages itself from the lug *s*, and then, coming in contact with the pin *o*, the gate is immediately pulled down to a closed position. In these ordinary operations of the elevator the spring M is constantly engaged with the socket L, so as to lock the shaft H, and thereby present the lever I in a position where it must come in contact with the lug *s* and pin *o*; but it frequently happens that a platform must make repeated trips from the cellar to the upper floor of a warehouse, in which event there is no need of raising and lowering either of the gates. This unnecessary action of the gates is guarded against by simply compressing the spring M, so as to free it from the socket L, as indicated by the dotted line in Fig. 3, and then turning the shaft H around until said spring is opposite the other socket, L′. The spring is then liberated and allowed to engage with said socket L′, which act locks the lever I in a position at a right angle to its normal position, and thereby prevents said lever coming in contact either with the pin *o* or lug *s*. In this inoperative position of the gate-lifting device the platform can be run indefinitely in either direction without moving the gate or gates of the elevator. By again re-engaging the spring with the notch L the gates will be automatically opened and closed, as previously described. Finally, with some elevators it may be impossible to make a right-angle turn of the lever, in which event said lever may be shifted only sufficient to clear the lug and pin.

We claim as our invention—

1. An elevator-gate-operating device consisting of a frame attached to the platform or cab, a rock-shaft mounted in bearings of said frame, a lever pivoted to the rock-shaft to engage the gate, and a spring-lock adapted to hold said rock-shaft and lever in an operative or in an inoperative position, substantially as described.

2. The combination of rock-shaft H, pivoted lever I, spring J, locking-spring M, and a supporting-frame provided with bearings for the rock-shaft and sockets L L′ for said locking-spring, all substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK HEINE.
EDWARD BENGEL.

Witnesses:
JAMES H. LAYMAN.
SAML. S. CARPENTER.