

(No Model.)

2 Sheets—Sheet 1.

A. VON BRANDIS & H. DAVIDSON.

DOOR OPERATING DEVICE.

No. 447,090.

Patented Feb. 24, 1891.

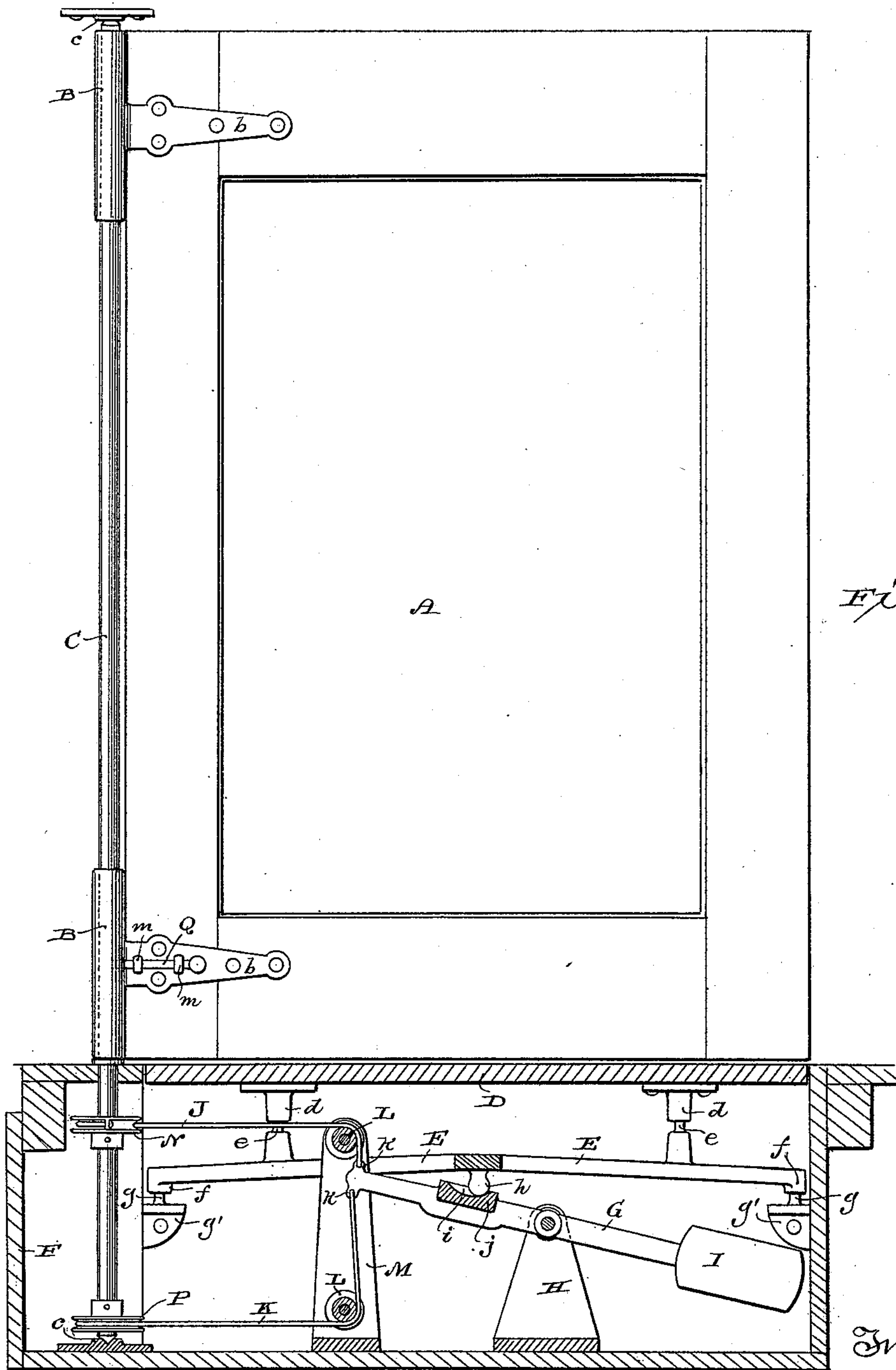


Fig. 1.

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Fig. 2.

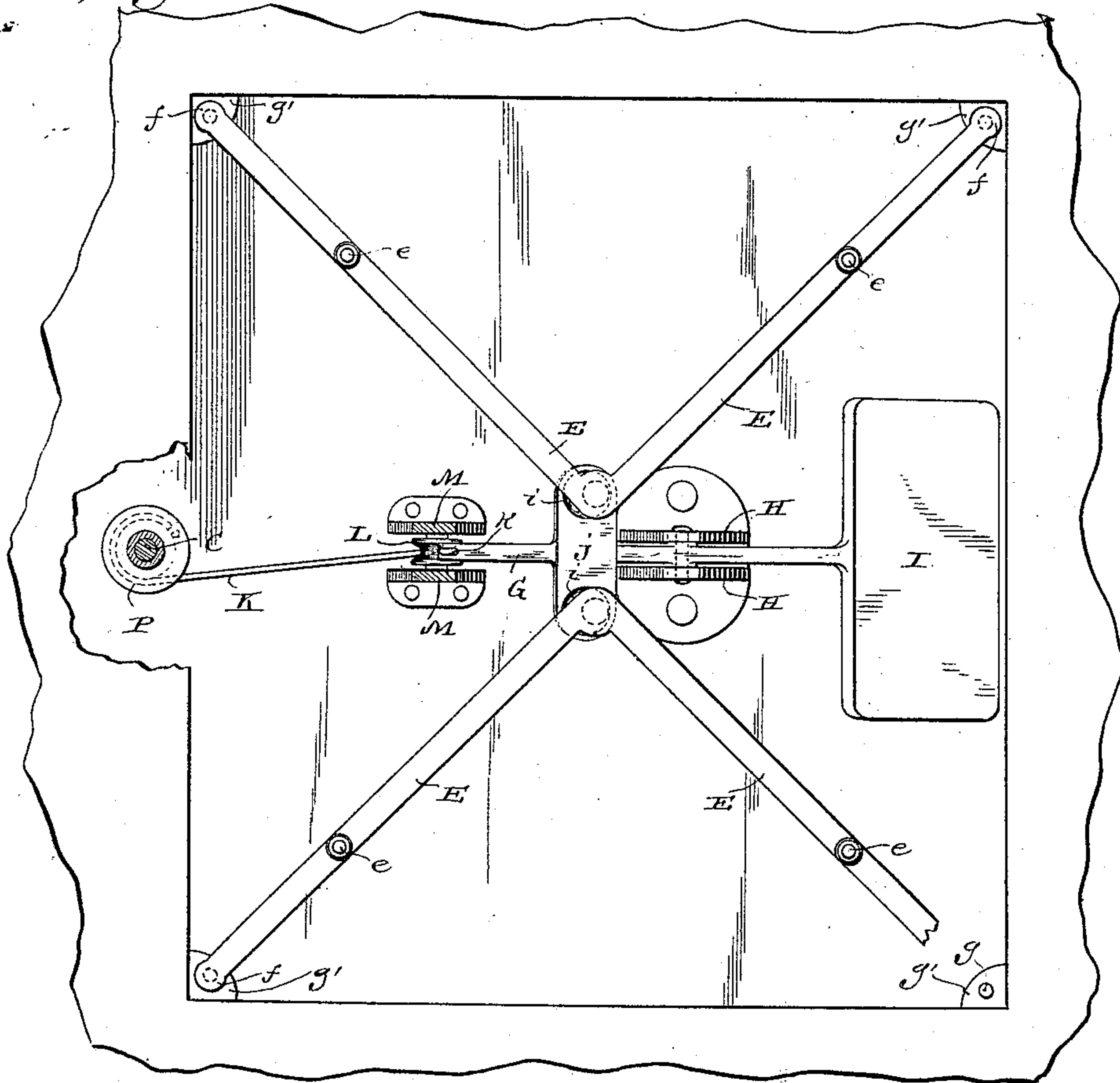


Fig. 3.

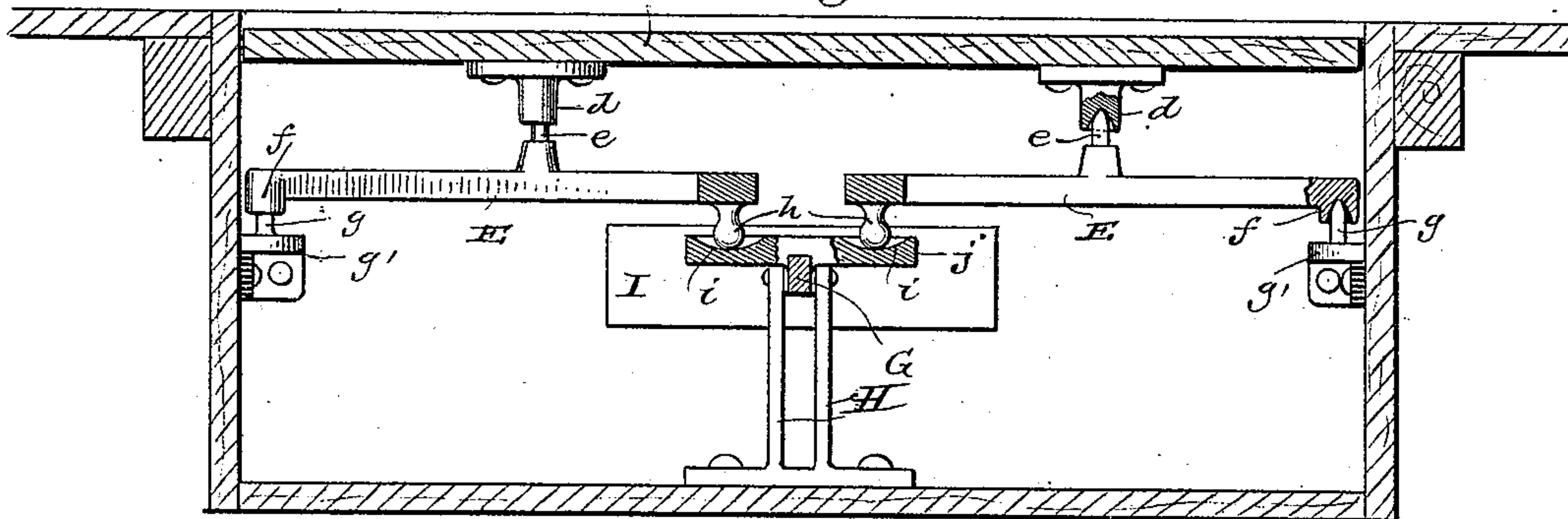
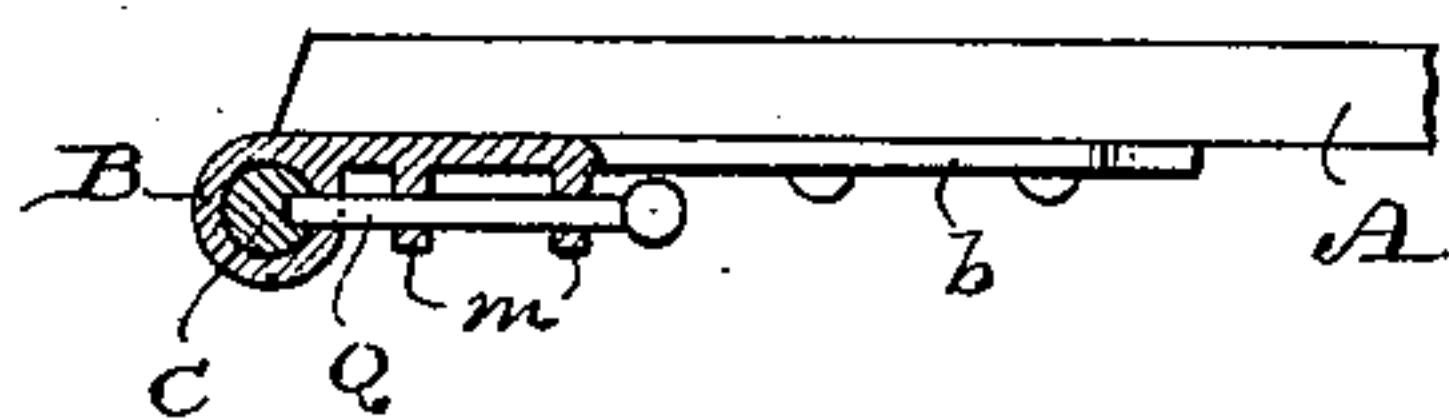


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADOLPH VON BRANDIS AND HERMAN DAVIDSON, OF MILWAUKEE, WISCONSIN; SAID VON BRANDIS ASSIGNOR TO SAID DAVIDSON.

DOOR-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 447,090, dated February 24, 1891.

Application filed July 28, 1890. Serial No. 360,202. (No model.)

To all whom it may concern:

Be it known that we, ADOLPH VON BRANDIS and HERMAN DAVIDSON, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Door-Operating Devices; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to door-operating devices; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a side elevation of one form of our device partly in vertical transverse section; Fig. 2, a detail plan view of the mechanism by which the door is actuated; Fig. 3, a transverse vertical section at right angles to the sectional portion shown in Fig. 1, and Fig. 4 a detail horizontal section illustrating one of the door-hinges provided with a locking device.

Referring by letter to the drawings, A represents a door, and rigidly secured to the same are straps *b*, extended from sleeves B, loose on a vertical rod C, the ends of the latter being arranged in suitable bearings *c*, as best illustrated in Fig. 1. The passage-way leading to the door has a platform-section D, provided with bearings *d* for lugs *e* on the arms of triangular levers E, the latter being best illustrated in Fig. 2. The base ends of the levers E are provided with bearings *f* for engagement with lugs *g* on brackets *g'*, that are secured to the vertical walls of a casing F, and the apexes of said levers are provided with balls *h*, that rest in depressions *i* in lateral lugs *j* on a lever G, the latter being fulcrumed to a standard H, that is fast on the floor of said casing. One end of the lever G is provided with a counter-weight I for the platform-section D, and the other end of said lever has eyes *k* for connection with the inner ends of flexible devices J K, that are extended in opposite directions. The flexible devices are run over guide-pulleys L, that have their bearings in standards M on the floor of the casing F, and the outer ends of

said flexible devices are made fast to winding-pulleys N P, fast on the vertical rod C, as best illustrated in Fig. 1. The sleeves B and their straps *b*, together with the rod C, form hinges for the door A, and at least one of the hinges is provided with guides *m* for a bolt Q, that engages with a socket in said rod to hold the latter and said door in rigid connection. The rod and door being locked together by the bolt, the weight of a person on the platform D will cause the latter to move down to tilt the levers E opposed to the lever G and thus overcome the counter-weight I, whereby the latter lever is moved on its fulcrum to draw on the flexible device J, and thereby rotate said rod C to open said door. As the flexible device J unwinds, the other flexible device K winds, and when said platform is relieved from weight a reverse operation takes place to cause a closure of the door. When it is not desirable to have the door open and close automatically, the bolt Q is drawn back out of the socket in the adjacent rod.

While we have described the yielding lever-controlled and counterweighted platform in connection with a swinging door, it may be as readily connected to a sliding door by certain mechanical changes that do not necessarily depart from the spirit of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a door, a rod secured thereto and arranged in bearings, a lever flexibly connected to the rod, suitable means for automatically returning the lever to its normal position after a movement therefrom, other levers opposed to the first, and a platform mounted on these latter levers in the passage to said door, substantially as set forth.

2. The combination of a door, a rod secured thereto and arranged in bearings, a weighted lever flexibly connected to the rod, other levers opposed to the first, and a platform mounted on these latter levers in the passage to said door, substantially as set forth.

3. The combination of a door, a rod secured thereto and arranged in bearings, pulleys on the rod, a lever, flexible devices connected to the lever and arranged to wind in opposite

directions on the pulleys, suitable means for automatically returning said lever to its normal position after movement therefrom, other levers opposed to the first, and a platform 5 supported on these latter levers in the passage to said door, substantially as set forth.

4. The combination of a door provided with sleeves, a rod engaging the sleeves and arranged in bearings, a bolt for locking the door 10 and rod together, pulleys arranged on the rod, a counterweighted-lever mechanism arranged in the passage to the door, a platform supported by the lever mechanism, and flexible devices extended in opposite directions from 15 the lever mechanism and connected to said pulleys, substantially as set forth.

5. The combination of a door, a rod secured

thereto and arranged in bearings, the weighted lever G, flexibly connected to the rod and provided with the lugs *j*, the triangular levers 20 E, having their base ends arranged on suitable brackets and their apexes supported on said lugs, and a platform mounted on these latter levers in the passage to said door, substantially as set forth. 25

In testimony that we claim the foregoing we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

ADOLPH VON BRANDIS.
HERMAN DAVIDSON.

Witnesses:

N. E. OLIPHANT,
WM. KLUG.