

(No Model.)

2 Sheets—Sheet 1.

H. J. SHAW.

MECHANISM FOR OPERATING DOORS OF BUILDINGS.

No. 294,917.

Patented Mar. 11, 1884.

Fig: 1.

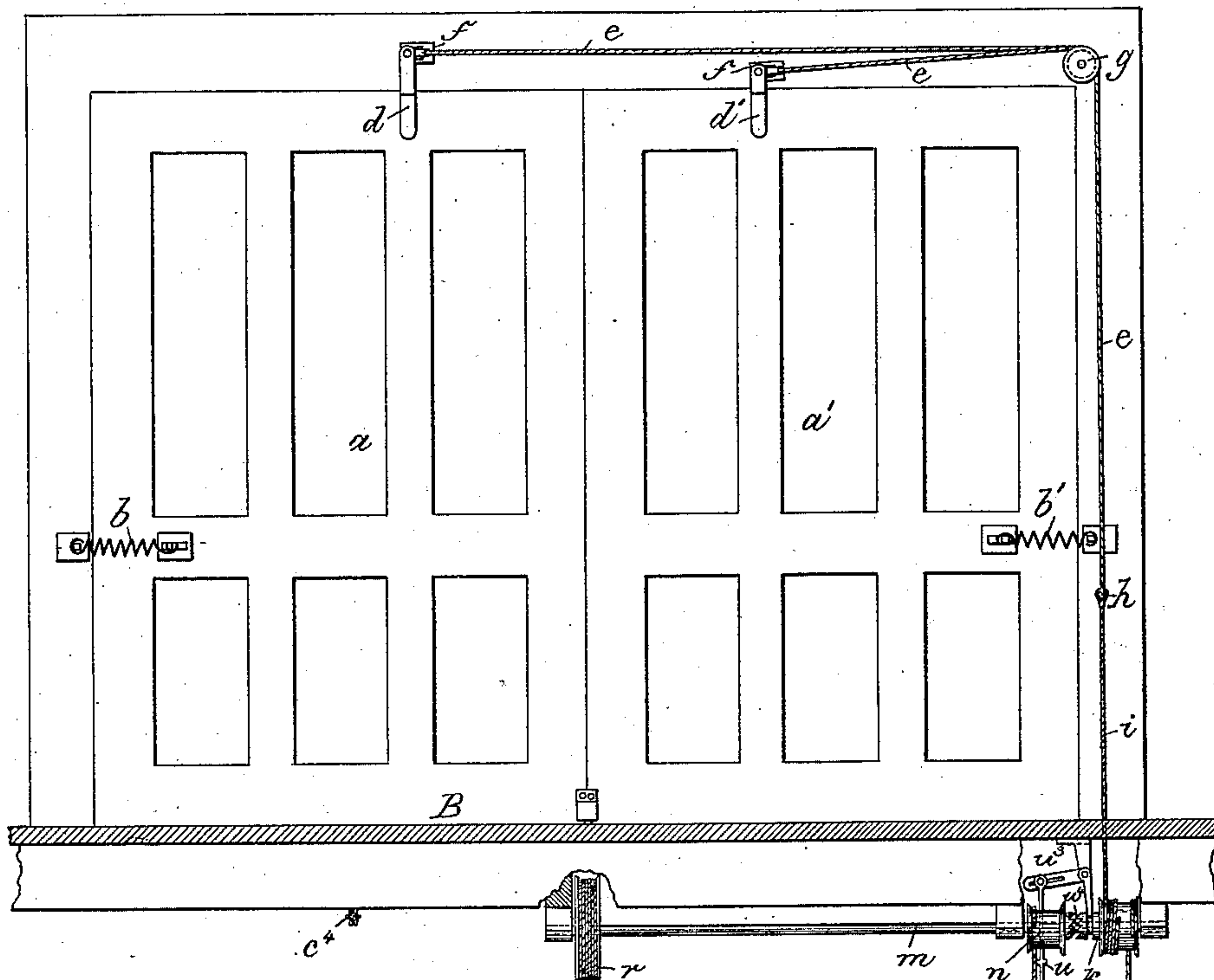
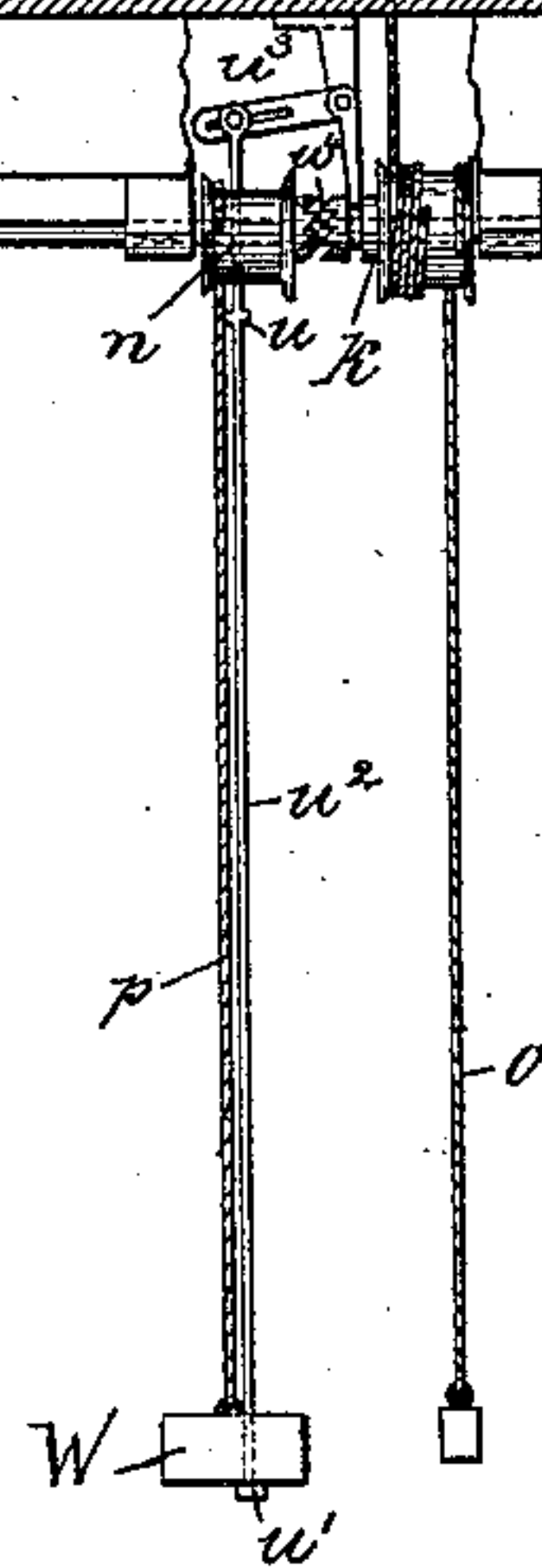
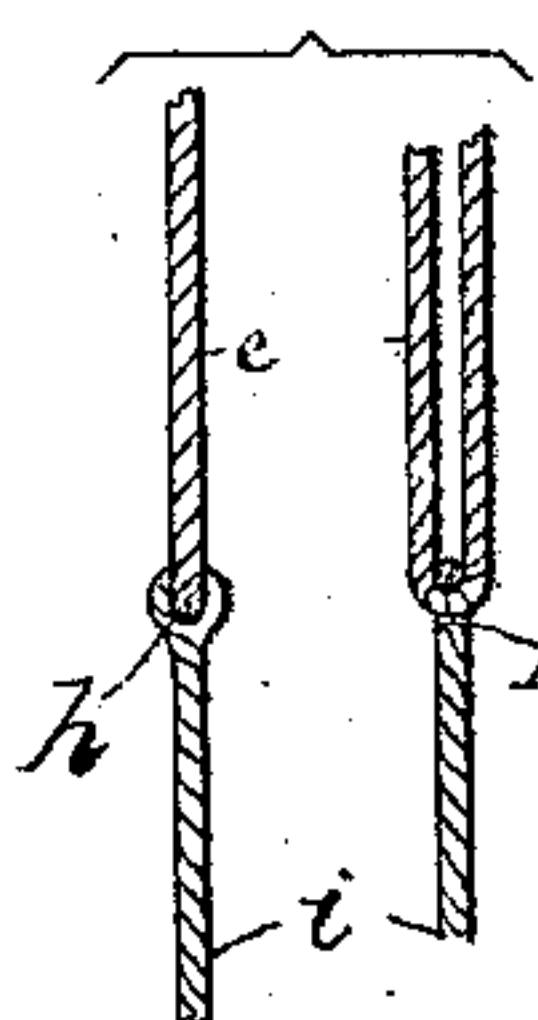


Fig: 3.



Witnesses.

Arthur Lippert.

John P. C. Trunkert

Inventor.

Hamlin J. Shaw

by Corby & Gregory attys.

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Fig:2.

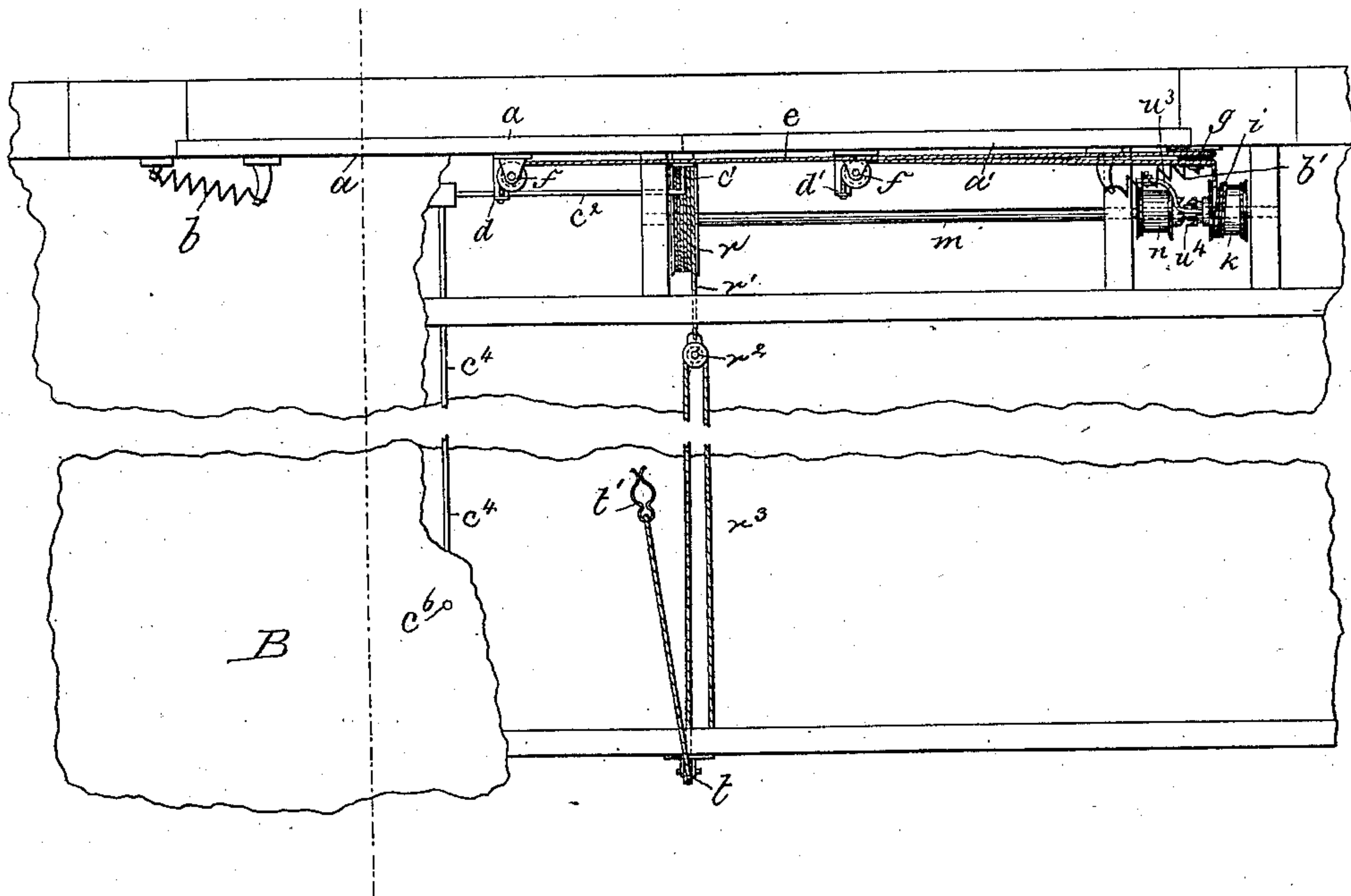
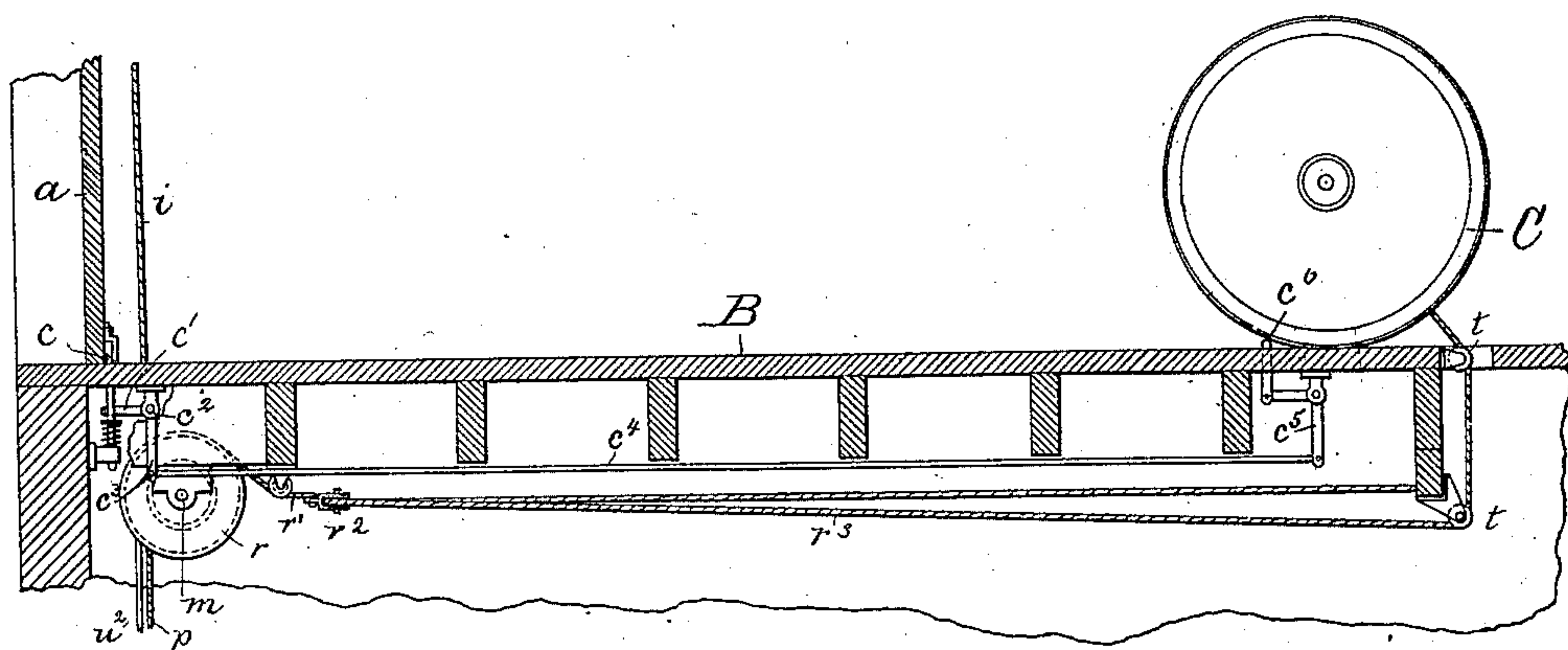


Fig: 4.



Witnesses.

Arthur Lippert.
John F. C. Trunkert

Inventor.

Hamlin J. Shaw
by Crosby & Gregory attys

UNITED STATES PATENT OFFICE.

HAMLIN J. SHAW, OF SOMERVILLE, MASSACHUSETTS.

MECHANISM FOR OPERATING DOORS OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 294,917, dated March 11, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, HAMLIN J. SHAW, of Somerville, county of Middlesex, State of Massachusetts, have invented an Improvement in Mechanism for Operating Doors of Buildings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is embodied in an apparatus for operating the doors of a building, it being specially intended for use in fire-engine houses, and having for its object to enable the doors to be automatically opened when the engine is to be drawn out, and closed after the engine has passed out from the building, thus obviating the necessity of any one remaining behind to close the door. The apparatus consists, essentially, of cords or chains applied to the door in such a manner that by pulling on the said cords the doors will be closed, in combination with a weight of sufficient amount to move the doors, and mechanism whereby the said weight is raised or wound up by the engine or other vehicle leaving the building. The doors are preferably retained closed by a suitable latch, and have springs or weights applied to them of sufficient power to open the doors when unlatched, and the said latching device is also controlled by the vehicle, it being released the moment the vehicle starts to leave the building, to thus permit the doors to open, after which they are closed by the weight, which is wound up or raised by the vehicle in running out of the building, and is of sufficient amount to overcome the springs which tend to open the door.

Figure 1 shows in elevation the doors and operating mechanism therefor embodying this invention as viewed from the inside of the building, the floor of which is shown in section; Fig. 2, a plan view thereof; Fig. 3, a detail to be referred to, and Fig. 4 a longitudinal section of a portion of the building and apparatus for operating the doors.

The doors $a a'$, shown in this instance as hinged to swing inward, are acted upon by springs $b b'$, tending to open them, they being, however, normally retained closed by door-holding device or spring-bolt c . (Best shown in Fig. 4.) The said bolt is automatically op-

erated by an arm, c' , connected with a rock-shaft, c^2 , provided with another arm, c^3 , connected by a rod or link, c^4 , with a bent lever, c^5 , operated by a rod, c^6 , extended up through the floor B of the building, just in front of one of the wheels, C, of the vehicle, so that when the said vehicle starts out from the building it depresses the said rod c^6 , and through the connecting-bolt-actuating mechanism also depresses the bolt c , thus releasing the doors and permitting them to be opened by the springs $b b'$. The said doors have connected with them by suitable arms, $d d'$, the ends of a cord, e , passing over pulleys f upon the frame of the door or building adjacent to the said arms $d d'$ when the doors are closed, and from the pulleys f the said cord e passes over other guide-pulleys, g , and through an eye, h , (see Fig. 3,) at the end of another cord, i , which, as shown in this instance, passes down through the floor of the building and is wound upon a drum, k , loose on a shaft, m , and acted upon by a cord, o , provided with a small weight, which tends to take up slack in the cords $e i$ when the doors are opened and closed, independently of the automatic mechanism. The shaft m has fixed upon it another winding-drum, n , to receive a cord, p , upon which is suspended a heavy weight, W, sufficient, when acting on the doors, as hereinafter described, to close them, overcoming the springs $b b'$; and the shaft m also has another drum, r , upon which is wound a cord, r' , (best shown in Fig. 2,) connected with a pulley, r^2 , operated by cord r^3 , having one end attached to some portion of the building, and its other end passing over suitable guide-pulleys, t , up through the floor of the building, where its extremity is provided with a spring-clamp, t' , adapted to be fastened upon some portion of the vehicle, and having sufficient holding-power to cause the drum r to rotate and wind the cord p on the drum n , raising the weight W, when the vehicle is drawn out, but the said clamp yielding and become detached from the vehicle when the said weight is wholly wound up. The weight W, in its rise and fall, acts upon projections u and u' of a shipper-bar, u^2 , connected with a shipper-lever, u^3 , acting upon a grooved hub of the drum k , and sliding the said drum longitudinally on the shaft m , to en-

gage and disengage a clutch, u^1 , between the said drum k and the drum n or shaft m . Thus, when the weight W is raised by the vehicle passing out of the building, it will at the end of its movement engage the projection u and throw the clutch into engagement, so that the said weight, in running down and rotating the drum n and shaft m , will also rotate the drum k , winding the cord i thereon, which has been previously unwound by opening the door, and thus through the cord e closing the doors, when they will be caught and held by the spring latch or bolt c . When the weight, on its downward movement, has closed the door, it will act upon the projection u' of the shipper-bar, thus disengaging the clutch and leaving the doors free to be again opened by the springs b b' or otherwise without raising the said weight. The bolt c will also be arranged to be operated from the outside of the building, so as to permit the doors to be opened when the engine or vehicle returns.

The springs for opening the doors may be omitted and the doors be opened by hand and closed automatically after the vehicle has passed out, and it is obvious that sliding doors might be operated by the same devices.

I claim—

1. The combination of the door of a building with actuating mechanism operated by

the vehicle leaving the building, whereby the said door is automatically closed after the vehicle has passed out, substantially as described.

2. The combination of the door of a building and a spring or equivalent tending to open it with a door-holding device and actuating mechanism therefor controlled by the vehicle, substantially as described.

3. The door and cord connected therewith and winding-drum for the said cord, combined with an actuating-weight and winding device therefor operated by the vehicle leaving the building, substantially as described.

4. The door and actuating-weight for closing it, combined with the winding device for said weight and clutch, whereby it is engaged with and disengaged from the door, substantially as described.

5. The door and actuating-weight therefor, combined with the winding-cord for said weight, provided with a spring-clamp for engaging a vehicle, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HAMLIN J. SHAW.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.