

(No Model.)

A. B. PULLMAN.
SLIDING DOOR LOCK.

No. 483,326

Patented Sept. 27, 1892.

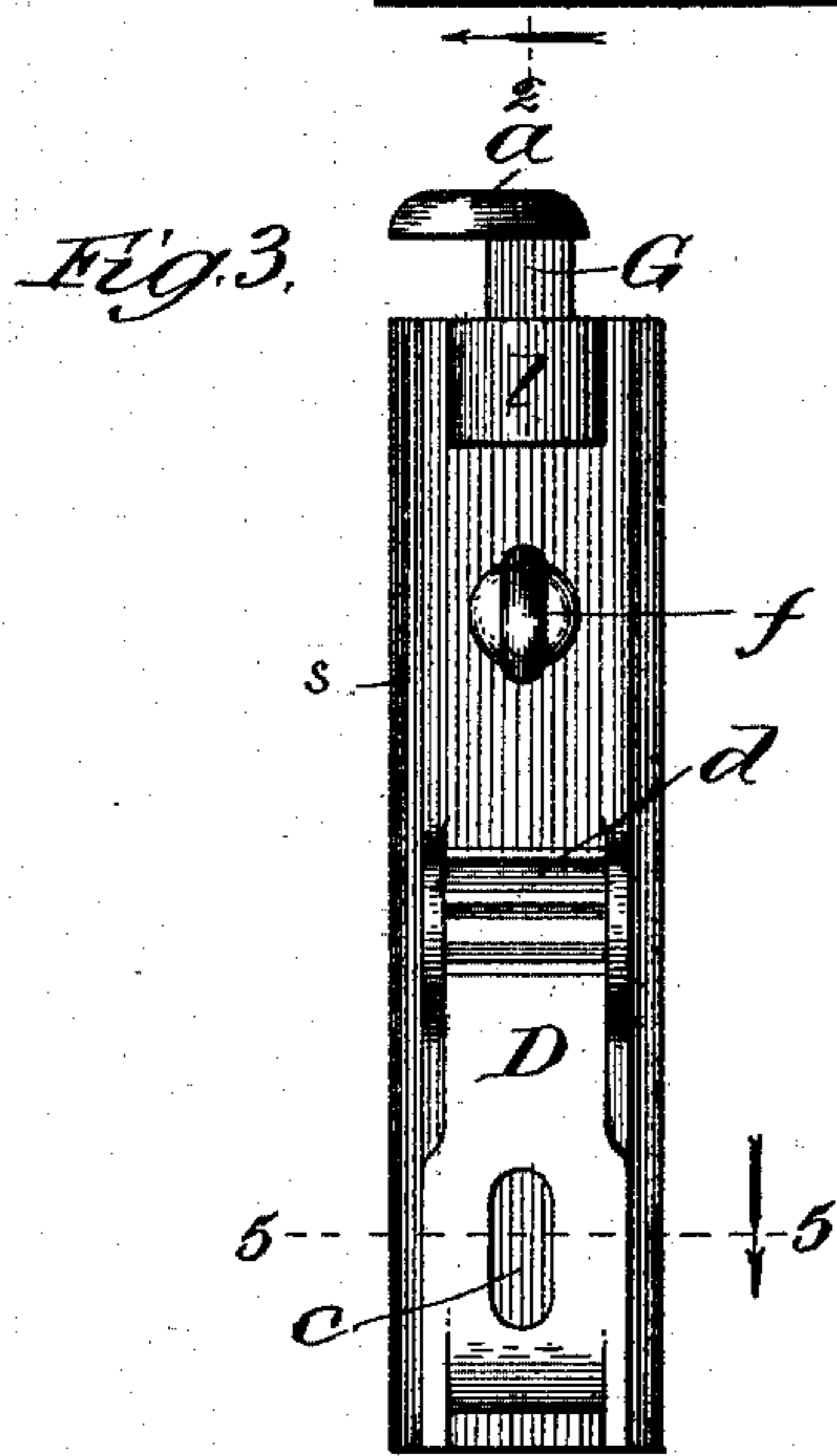
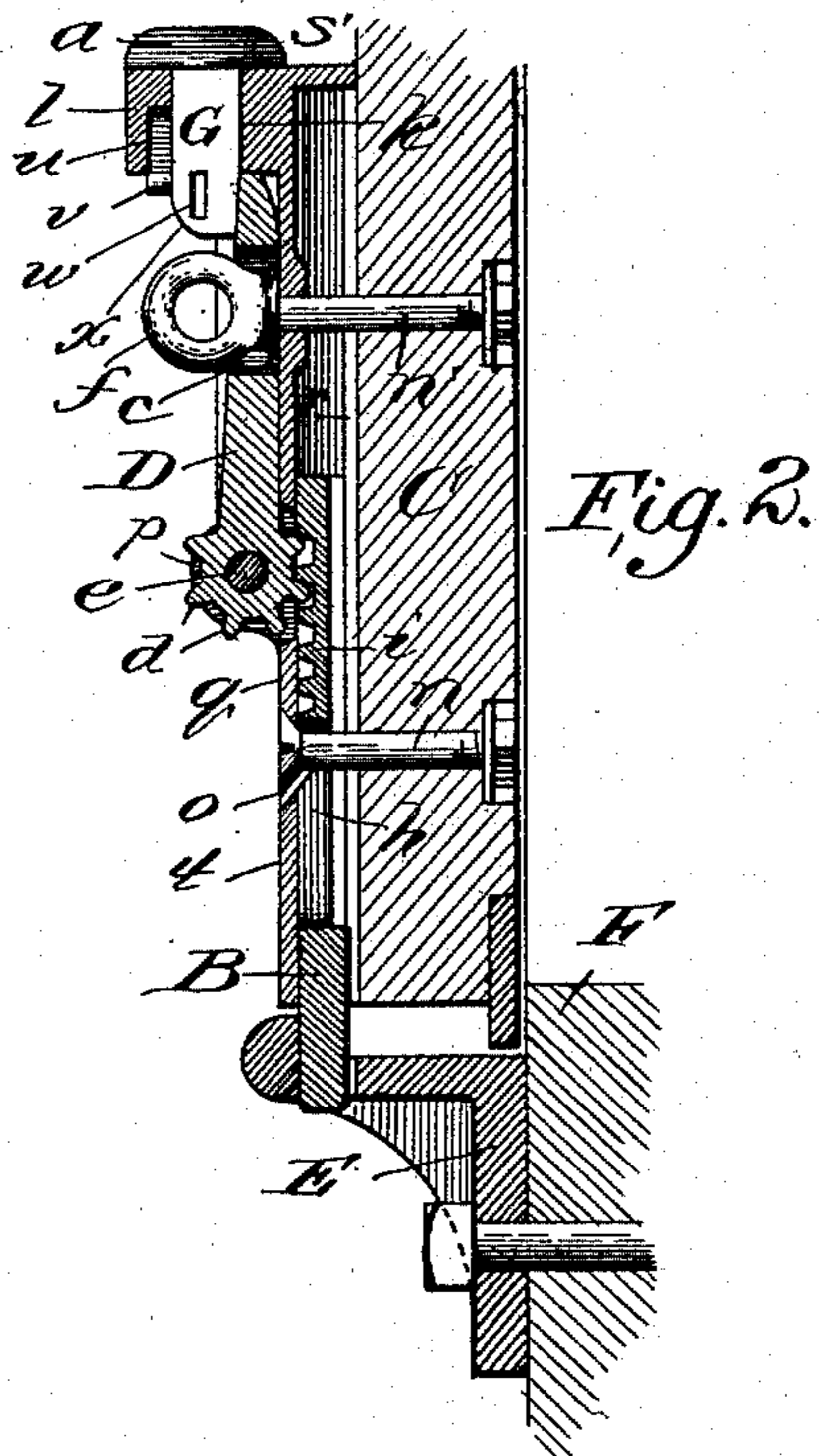
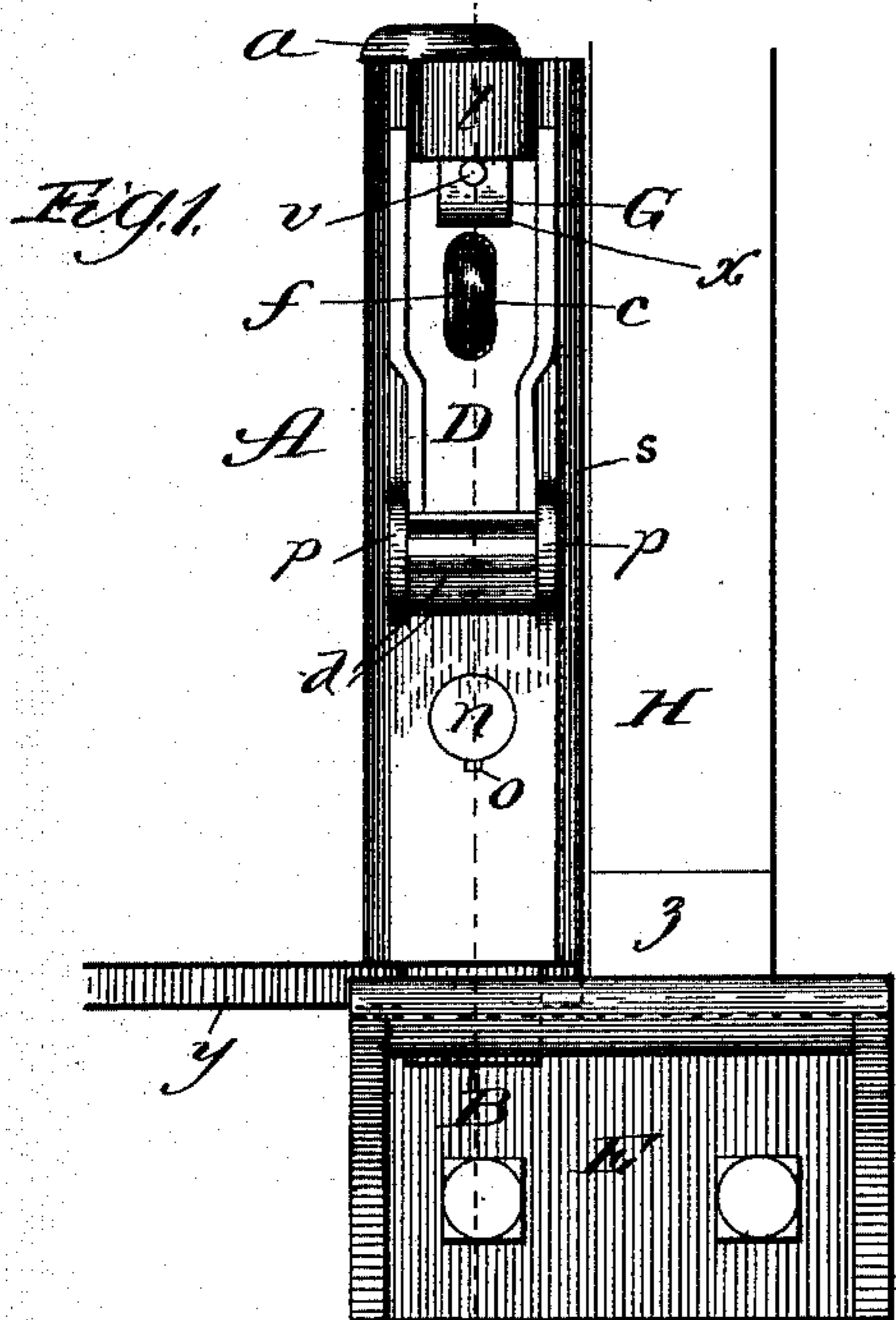


Fig. 4.

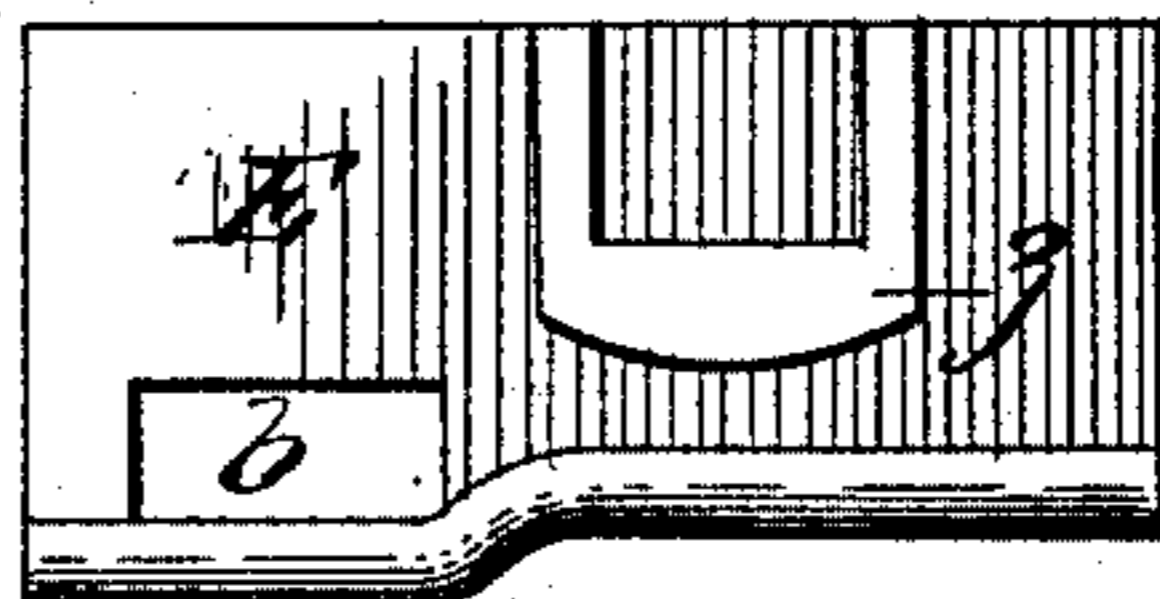
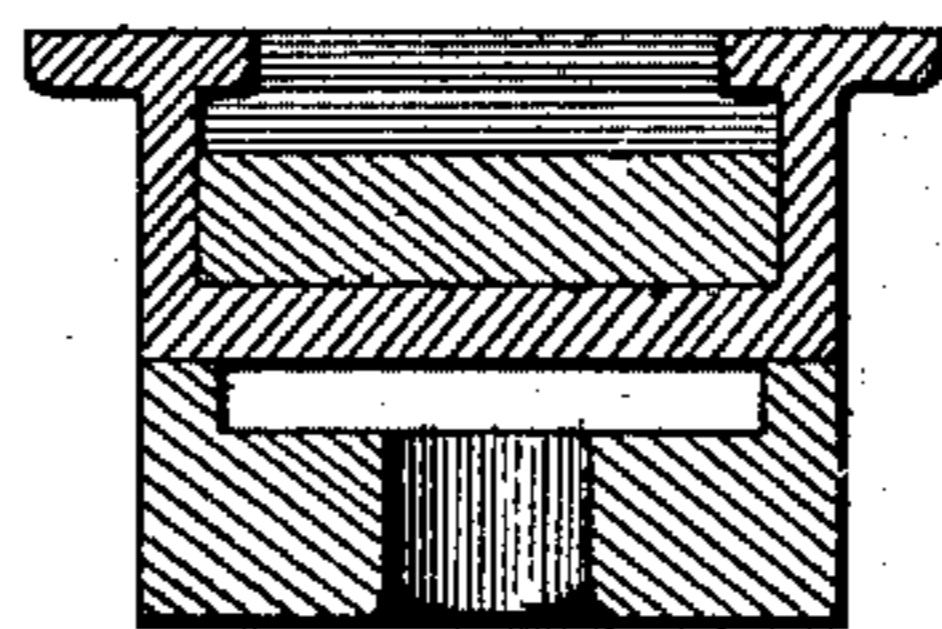


Fig. 5.



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SLIDING-DOOR LOCK.

SPECIFICATION forming part of Letters Patent No. 483,326, dated September 27, 1892.

Application filed June 16, 1891. Renewed August 15, 1892, Serial No. 443,103. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. PULLMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sliding-Bolt Locks for Car-Doors and for other Purposes, of which the following is a specification.

My invention relates to sliding-bolt locks designed especially for fastening car-doors, but applicable, also, without change, except in the matter of certain omissions and suitable variations in size, to all other situations in which a locking device of the same general character can be applied.

The nature of the invention and the features of construction, general and specific, in which it consists will be clearly understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved locking device as applied to a sliding freight-car door; Fig. 2, a vertical section taken on the line 2 2 of Fig. 1; Fig. 3, a view of the device similar to that shown in Fig. 1, but showing the bolt withdrawn and the keeper raised; Fig. 4, a plan view of the bracket which forms, among other things, a socket for the bolt; and Fig. 5 a section on line 5 5 of Fig. 3.

A is a rectangular metal casing constituting a holder and guide for the bolt and comprising a front plate *t*, sides *s*, top *s'*, and back plate *r*, the lower end being open. Nearly midway of the height of the casing A the plate *t* is provided with a rectangular opening *q*, and upon the sides of this opening it is provided with projections *p*. Below this opening the plate *t* is provided with a countersunk hole *o*, whereby it may be secured to the door by means of a stove-bolt *n*, and the top of the casing A is provided with a projection *l*, extending forward and having vertically through it an opening *k*.

B is the bolt, which fits and slides within the casing, and the outer face of the bolt is recessed transversely at intervals to form a rack *i* in such position that the upper or lower end of the rack will always be within the compass of the opening *q* in the plate *t* in whatever position the bolt may assume

while in operative position. The bolt H is provided with a longitudinal central slot *h* below the rack, through which slot the bolt *n* passes. Above the rack *i* the casing is provided with an opening extending through both the front plate *t* and rear plate *r*, and through these openings a bolt *n'* is passed, which secures the upper part of the casing to the door. The head of this bolt is of the form of a flattened eye *f*, the purpose of which will appear farther on.

D is a lever fulcrumed in the projections *p* by means of trunnions *e* and provided upon its inner end with teeth *d*, constituting a pinion meshing with the rack *i* in the bolt. It will thus be seen that when the handle of the lever D is raised the lower end of the bolt is projected out of the casing and when the handle of the lever is lowered the end of the bolt is withdrawn within the confines of the casing.

Toward its outer end the lever D is provided with a slot *c*, which when the lever is raised passes over the flattened eye *f* of the bolt *n'*, and the latter then projects through and beyond the lever, as shown in Fig. 2, so that it may receive a padlock or other fastening device to maintain the lever in its raised position.

The terms "raised" and "lowered" here used with reference to the bolt and the handle of the operating-lever are employed only in a relative sense, based upon the particular situation which the bolt occupies when applied to a sliding car-door C, as shown in the drawings. In other applications of the device the bolt may be shot either upward or horizontally instead of downward. When applied to sliding freight-car doors, as represented in the drawings, a bracket E, having a socket *b* in proper position to receive the end of the bolt, is secured to the wall F of the car below the doorway.

G is a metal bar sliding freely in the opening *k* through the projection *l* and when in its lowest position extending below the lower side of that projection. It constitutes a keeper to retain the lever D in its raised position when desired, and thus prevent the bolt from being undesignedly withdrawn. It is provided upon its top with a thumb-piece

a , by which it may be easily lifted at will, and to prevent the keeper from being removed from its place in the projection l it is provided with a stud v , entering a groove u at the side of the opening k , but only extending part way through the projection l , so that its upper end serves as a stop for the stud v , limiting the upward movement of the keeper to the required extent. When the device is applied to freight-cars, the keeper G forms a very convenient sealing agent. For this purpose it is provided in that portion which when in its lowest position extends below the projection l with an opening w to receive an ordinary car-seal.

It will be found convenient to round the lower forward edge of the keeper G , as shown at x in the drawings. With this construction care need not be taken to raise the keeper to its full height, since pressure of the lever against the curved surface will tend to force it upward.

The socket z is a socket for a beveled cleat H , operating as a cinder-guard in connection with the car-doors, to which my bolt is commonly applied, and it also operates by serving as a stay for the plate y , projecting downward from the lower inner edge of the door, to prevent the door from swinging in and out when open.

The advantages of my improved bolt for all purposes to which such devices are applicable, but especially in the complete form represented in the drawings as a locking device for freight-cars, are very great. The rack and pinion, operated through the medium of a lever, permit the application of great force with comparatively little exertion of strength, so that the bolt may at all times and under all ordinary conditions be easily operated. In the matter of strength and compactness it answers every requirement, and with the sealing facilities afforded by the sliding keeper and the locking facilities afforded by the bolt n' every requirement for freight-car use is fulfilled. It is to be observed that the device when secured to the door even by ordinary screws cannot be detached without detection when it is sealed, because the upper screw is covered by the handle of the lever D , which in turn is held in place by the keeper, if sealed, or by the lock in the eye f , if employed, or by both in conjunction. However, I deem the stove-bolts shown far preferable to ordinary screws.

My claims are intended to include ordinary mechanical variations in the device and such alterations as may be found advisable to adapt it to the different situations in which it may be used.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sliding-bolt lock, the combination of

a guide for the bolt, adapted to be secured in operative position, a bolt sliding within the guide, a lever fulcrumed upon the guide, intermeshing rack-and-pinion mechanism upon the lever and bolt, a vertically-sliding keeper for securing the lever in place when the bolt is advanced into its locking position, and means for securing the keeper in its retaining position by means of a car-seal or other locking device, substantially as described.

2. In a sliding-bolt lock, the combination of the casing for the bolt, provided with a projection l at its upper end, having an opening k extending vertically through it, a bolt sliding in the casing, a lever D , fulcrumed in bearings upon the casing, intermeshing rack-and-pinion mechanism upon the lever and bolt, and a keeper G , extending loosely through the opening k in the projection l , substantially as described.

3. In a sliding-bolt lock, the combination, with the casing A , having the opening q in its outer plate and bolt-holes o above and below the opening q and provided with bearings p at the sides of the opening q and with the projection l at its top, having the opening k extending through it, of the bolt B , provided with a slot h for the passage of the lower bolt and with a rack i , lever D , fulcrumed in the bearings p and provided with teeth d , meshing with the rack i , and a keeper G , extending loosely through the opening k in the projection l and provided with a stop for preventing its removal therefrom, substantially as described.

4. In a sliding-bolt lock, the combination of a casing for the bolt, adapted to be secured in operative position upon a door, an eye f in fixed relation to the outer surface of the casing when the device is secured to the door, a bolt sliding within the casing, a lever D , fulcrumed upon the casing and provided with a slot c in position to pass over the eye f when the lever is raised, and intermeshing rack-and-pinion mechanism upon the lever and bolt, substantially as described.

5. In a sliding-bolt lock, the combination of the casing for the bolt, provided with a projection l at its upper end, having an opening k extending vertically through it, an eye f , projecting from the outer face of the casing below the projection l , a bolt sliding in the casing, a lever D , fulcrumed in bearings upon the casing and provided with a slot c in position to pass over the eye f when the lever is raised, intermeshing rack-and-pinion mechanism upon the lever and bolt, and a keeper G , extending loosely through the opening k in the projection l , substantially as described.

ALBERT B. PULLMAN.

In presence of—

J. W. DYRENFORTH,
M. J. FROST.