(No Model.) 3 Sheets—Sheet 1.

J. R. GROVE.

SAFE.

No. 333,068. Patented Dec. 22, 1885.

Fig. 1.

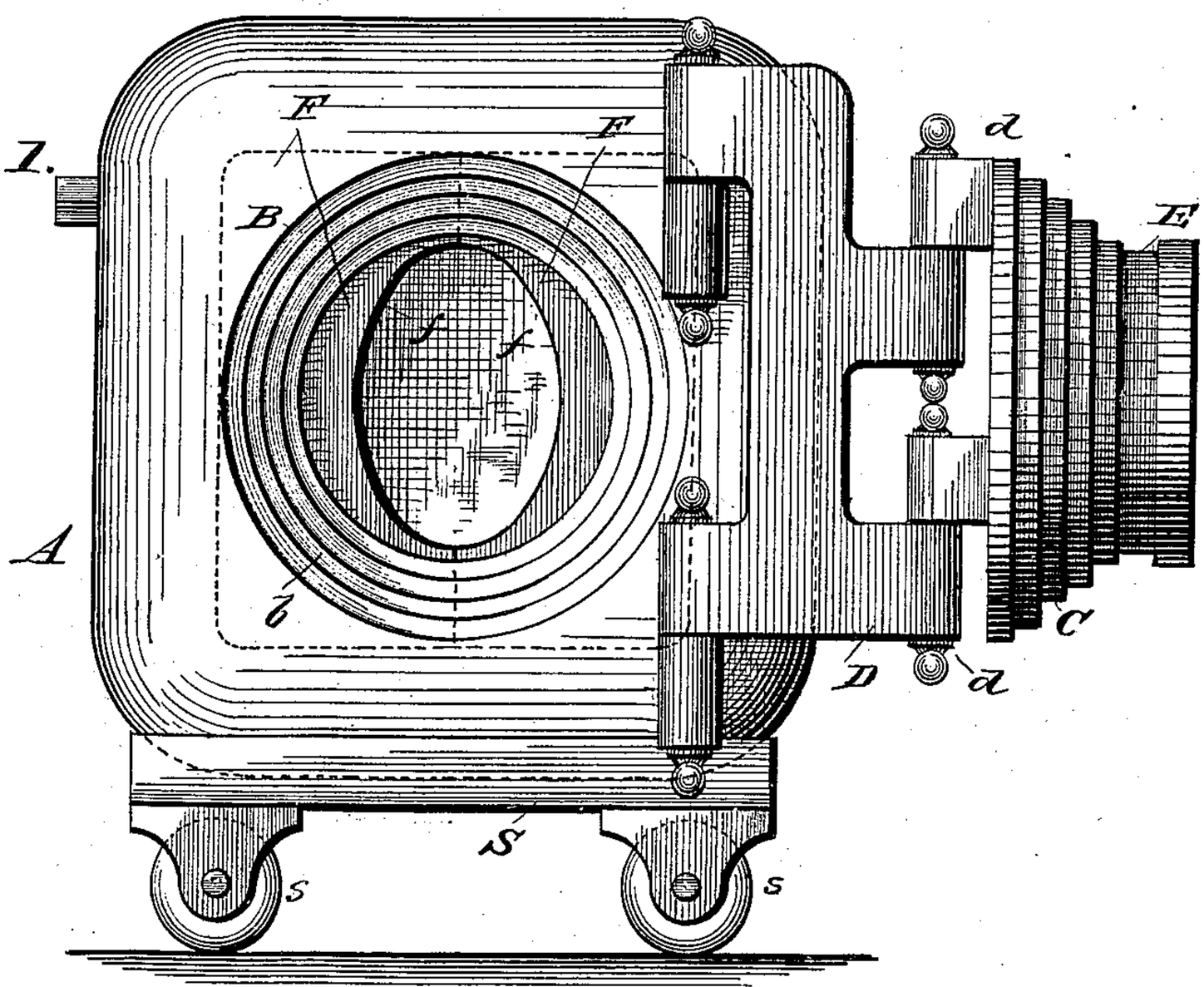
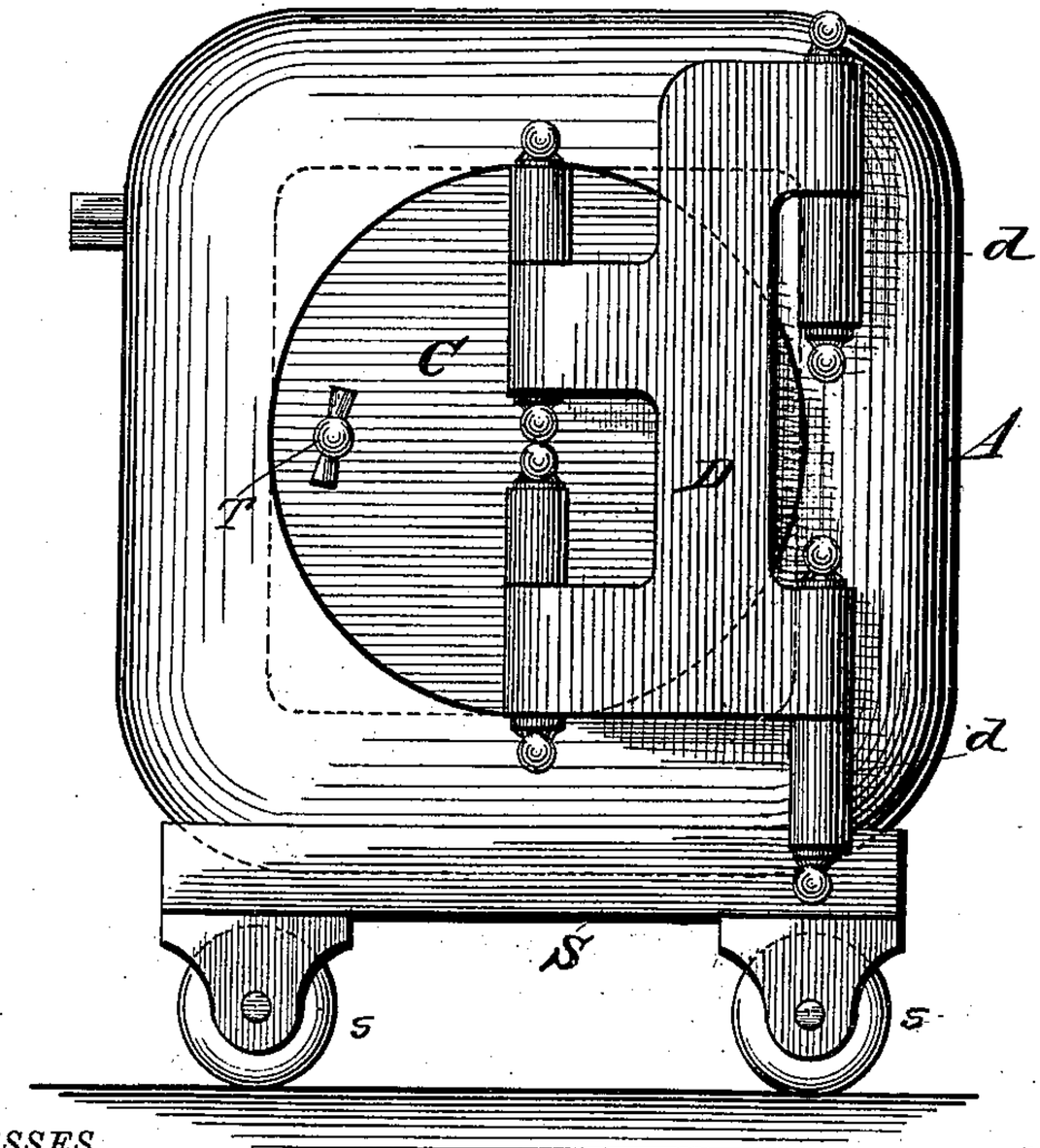


Fig. 2.



WITNESSES

Phil. C. Dieterich.

Wm. O. Smith.

INVENTOR

J. Ross Grove

By F. D. McCleary & Co.

Attorney

(No Model.) 3 Sheets—Sheet 2.

J. R. GROVE.

SAFE.

No. 333,068. Patented Dec. 22, 1885.

Fig. 3.

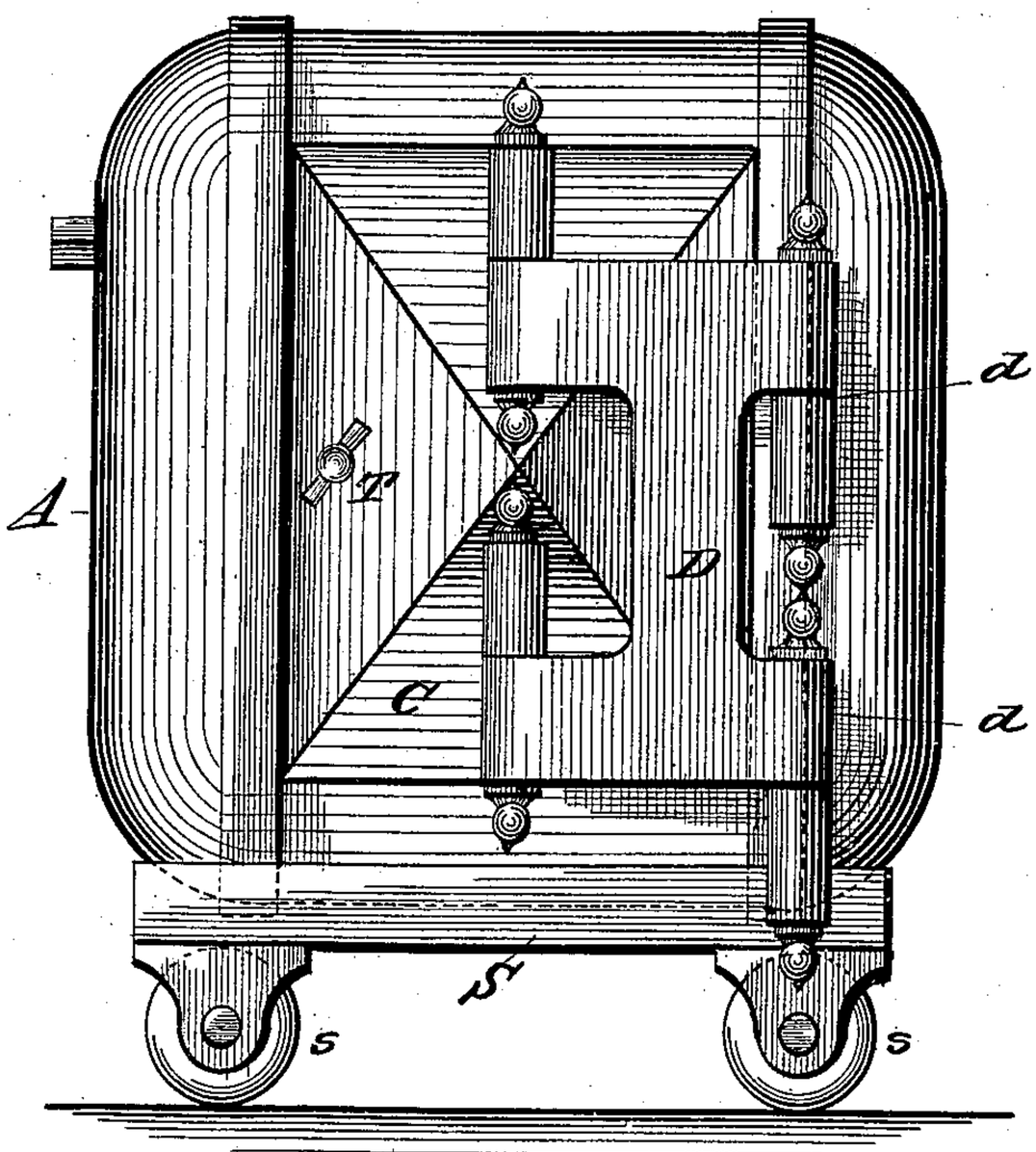
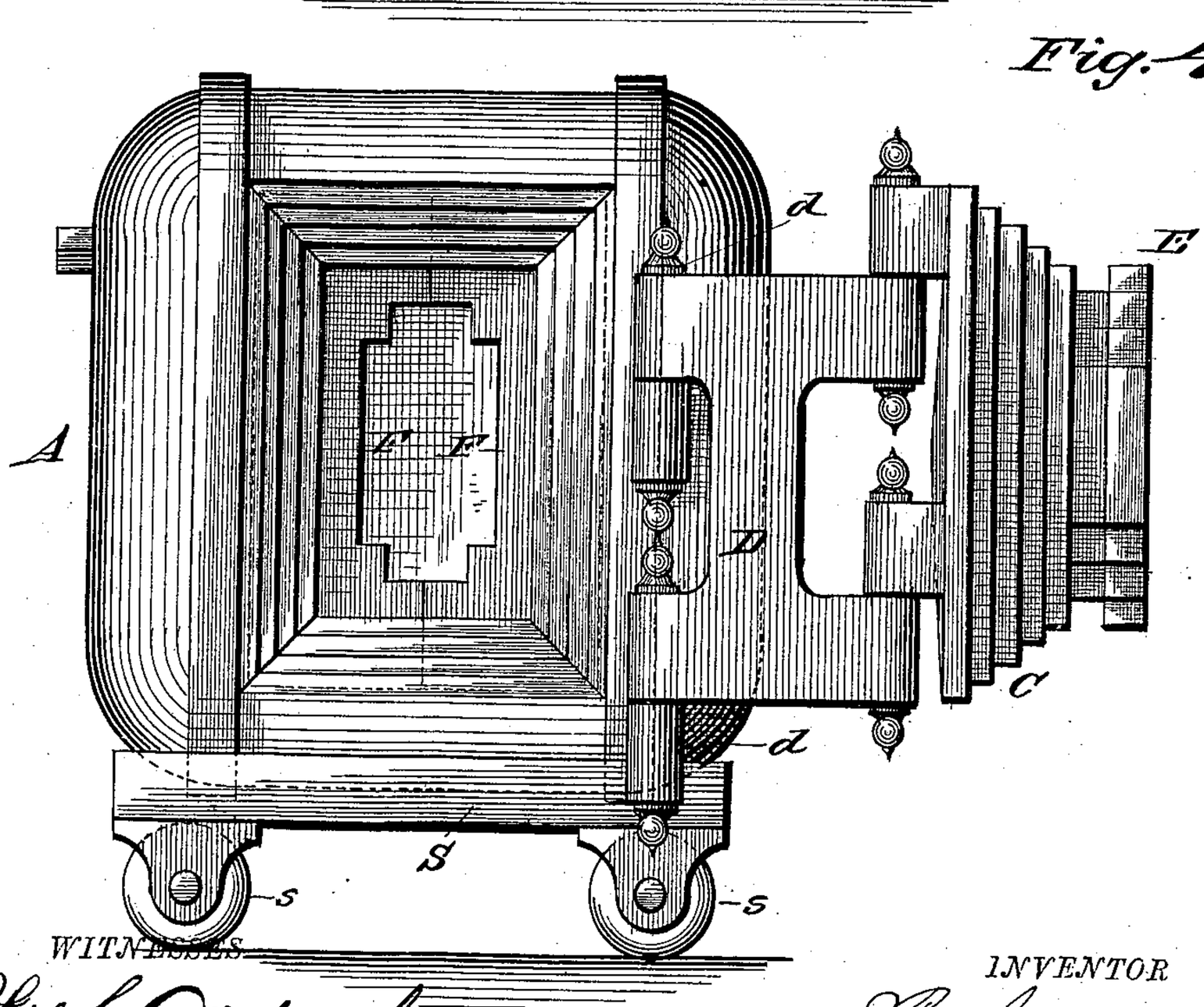


Fig. 4.



WITNESSES

Phil. C. Dieterich.

Wm. A. Smith.

INVENTOR

J. Russ Grove

By F. O'Mcleary

Attorney

(No Model.) 3 Sheets—Sheet 3.

J. R. GROVE.

SAFE.

No. 333,068. Patented Dec. 22, 1885.

Fig. 5.

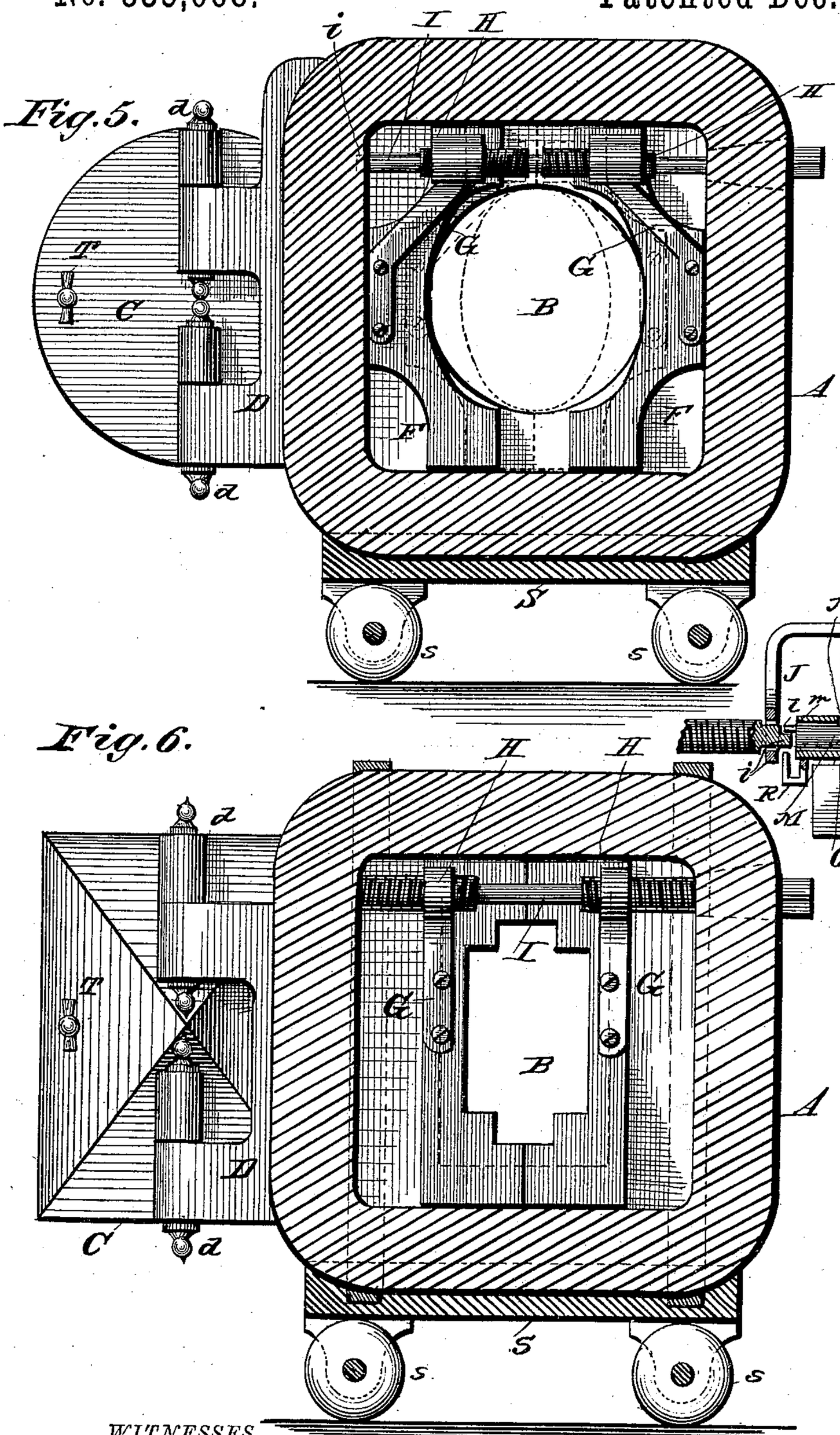


Fig. 7.

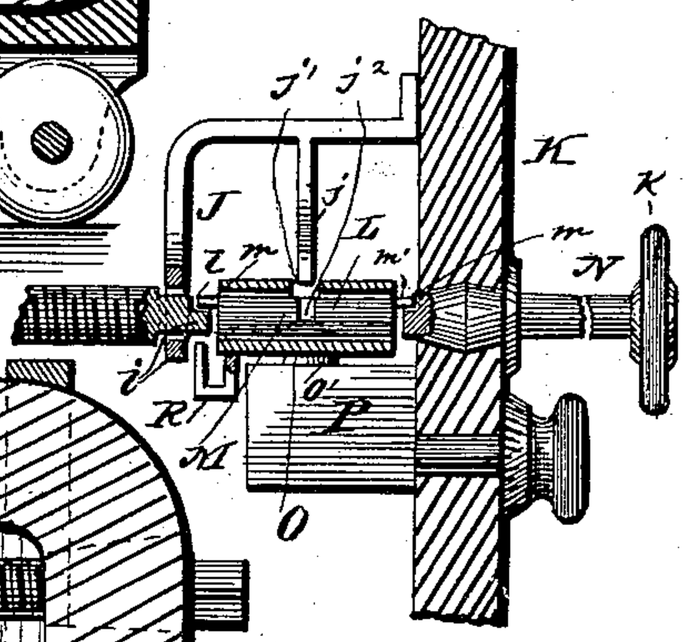


Fig. 6.

WITNESSES

Phil C. Dieterich.

Wm. E. Smith.

INVENTOR

J. R. Grove

By F. O'M. McCleary

Attorney

UNITED STATES PATENT OFFICE.

J. ROSS GROVE, OF YORK, PENNSYLVANIA.

SAFE.

SPECIFICATION forming part of Letters Patent No. 333,068, dated December 22, 1885.

Application filed April 21, 1885. Serial No. 162,954. (No model.)

To all whom it may concern:

Be it known that I, J. ROSS GROVE, of York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Safes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to burglar-proof safes, the object being to provide a hinged safe or vault door with securing mechanism arranged within the safe and adapted to engage the door after closing, as hereinafter explained, thus avoiding entirely the use of the ordinary lock-bolts and the weakening of the door by boring to accommodate said bolts.

The invention consists, broadly, in the combination, with a safe or vault door, of sliding catches or bolts arranged within the safe or vault and adapted to be operated from without.

The invention further consists in the combination, with the door of a safe or vault, of oppositely-sliding catches or bolts arranged within the safe and adapted to engage the edges of the door.

The invention further consists in the combination, with a safe-door formed with grooves or recesses on its edges, of oppositely-sliding catch devices adapted to engage the door after it is closed.

The invention further consists in the various improvements and combinations of parts hereinafter fully described, and pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 illustrates a front elevation of a safe constructed in accordance with my invention with the safe-door open. Fig. 2 is a view of the safe with the door closed. Fig. 3 represents a safe having a square door-opening and door, the latter being closed. Fig. 4 shows the safe of Fig. 3 with the door open. Fig. 5 illustrates the circular-door safe of Figs. 1 and 2 in section, the section being taken transversely on the center of the safe. Fig. 6 is a similar view in section of the square-door safe shown in Figs. 3 and 4. Fig. 7 shows the mechanism for locking and unlocking the safe, said mechanism being similar to that described and claimed in my Letters Patent No. 307,937, dated November 11, 1884.

In the several figures, A represents the body of the safe, preferably made of a single chilled casting.

B represents a circular door-opening formed with the usual step-recesses, *b*, adapted to receive a correspondingly-stepped circular door, C, which is hinged to the safe by the bracket D and hinges *d*. This door C is constructed to project inwardly beyond the front wall of the safe, and is formed with an annular groove, E.

F F represent counterpart plate bolts or catches oppositely arranged within the safe, and each having a semicircular recess, *f*, to adapt the catches to engage the door by entering the groove of the latter when the door is closed. These plates, bolts, or catches constitute the essence of my invention, in combination with the safe-door, and said plates are adapted to be slid or moved toward each other by any suitable mechanism. They may be arranged to slide in transverse grooves formed in the top and bottom walls of the safe, if desired; or they may be provided on both their upper and lower edges with anti-friction rollers to bear upon the plane surfaces of the top and bottom of the safe. In short, any suitable construction or arrangement to afford an easy-sliding movement of the two plates may be resorted to.

From the description thus far it will be clear that my invention broadly contemplates securing the door by causing the two plates to move toward each other to enter the groove of the projecting portion of the door.

As hereinbefore indicated, any suitable mechanism may be combined with the securing-plates for supporting and moving them. I have shown in the drawings a form of mechanism which is well adapted for the purpose, said mechanism being similar to that shown and described in my Letters Patent No. 307,937. Upon the rear or inner side of each plate F is secured a bracket, G, formed or provided at its upper end with a horizontal interiorly-threaded sleeve, H. Through these threaded sleeves H H extend a double

screw-shaft, I, having right and left hand threads, as shown. One end of this screw-shaft I is supported in a bearing, *i*, at one side of the safe, Fig. 5, while the other end of said shaft is supported in a bracket-bearing, J, secured to the opposite side of the safe.

I have shown the parts now being described in detail (for the sake of clearness) in Fig. 7.

The letter K in Fig. 7 indicates the side wall of the safe, and it will be understood that all of the mechanism excepting the handle-knobs is arranged within the safe.

The mechanism for turning the screw-shaft I consists of a two-part rod, L. The end *i* of the shaft I projects through and slightly beyond its bearing J, and is formed with a recess, *l*, into which fits a corresponding lug, *m*, on the adjacent end of the inner section, M, of the two-part rod L. The opposite end of said section M is formed with a lug, *m'*, to fit into a recess, *m*, formed in the inner end of the outer section, N, of the two-part rod L. This outer section, N, projects through the side wall, K, of the safe, and is provided with a hand-wheel, *k*. The inner section, M, of the two-part rod is supported loosely in a sleeve, O, which is rigidly secured to a bolt, *o'*, which is provided with a casing, P, and may be of any preferred construction, and provided with means to effect various combinations. The bracket J is provided with a downwardly-projecting forked arm, *j*, adapted to enter the slots *j'* and *j²*, formed respectively in the section M and its supporting-sleeve O, to prevent the turning of the section M when it is raised by the bolt *o'* out of engagement with the shaft I.

R represents a forked bracket depending from the inner end of the sleeve O, and adapted (when said sleeve is raised to disengage the two-part rod and shaft I) to embrace the adjacent end *i* of the shaft to prevent its turning while out of engagement with the rod L.

The operation of the mechanism above described is as follows: To lock the safe the door C is first closed, the rod L is then turned to operate the screw-shaft I, whose revolution will, through the medium of the right and left hand screws and sleeves H H, slide the bolt-plates F F toward each other until they firmly grasp the projecting portion of the door. The bolt *o* is then raised to lift the inner section, M, of the rod L out of engagement with the shaft and the outer section, N. To unlock the safe it is only necessary to lower the sleeve O by dropping the bolt *o*, (which, as above suggested, is to be controlled by a combination,) and then operate the shaft I to release the door.

Figs. 3, 4, and 6 illustrate a safe having a square door-opening and door. In these figures the essential elements of my invention are substantially similar to those illustrated in the other figures, it being within the purview of my invention to form the door-opening and door of any convenient shape.

The safe-body A is represented as supported upon a truck, S, having casters *s*.

The door-handle piece T is shown as stationary.

There being no bolt-work arranged within the door, the office of said handle-piece is simply to facilitate the opening of the door after the safe is unlocked.

I do not limit myself to the mechanism herein shown for revolving the screw-shaft I, nor to other details of construction and form, as my invention contemplates the right to all such forms and constructions as fall within the scope of the following claims.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a safe-door, of securing plates or bolts arranged within the safe, and mechanism for sliding said plates or bolts toward each other to embrace the inwardly-projecting portion of the door after it is closed, substantially as set forth.

2. The combination, with a safe-door, formed with a groove or grooves or recesses on two or more sides of its inwardly-projecting portion, of sliding plates or bolts arranged within the safe to enter said grooves or recesses, and mechanism for operating said plates or bolts, substantially as set forth.

3. The combination, with a safe-door, of locking devices arranged within the safe, and mechanism for simultaneously moving said locking devices toward each other to engage and lock the door after it is closed, and away from each other to release the door, substantially as set forth.

4. The combination, with a safe-door, of transversely-sliding plates arranged within the safe and independent of the door, to grasp the inwardly-projecting portion of the door on two opposite sides, or on all sides, and mechanism for operating said plates, substantially as set forth.

5. The combination, with a safe-door formed without the usual locking-bolts, of locking mechanism arranged within the safe and consisting of two transversely-movable sections, which embrace the inwardly-projecting portion of the door entirely around the latter when the door is closed, to lock the safe, said sections being adapted to be simultaneously slid apart to unlock the door, substantially as set forth.

6. The combination, with a safe, of a sliding locking device or devices transversely arranged within the safe to engage the door and to break the joint made by the door and the front wall of the safe either partly or entirely around the said joint, and mechanism for operating said locking devices, substantially as set forth.

7. The combination, with a safe, of a cir-

cular door projecting inwardly beyond the front wall of the safe when closed, and formed with an edge groove to receive a locking device arranged within the safe, and mechanism for operating said locking device, substantially as set forth.

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

J. ROSS GROVE.

Witnesses:
WALTER B. WHITE,
CHAS. S. LONG.