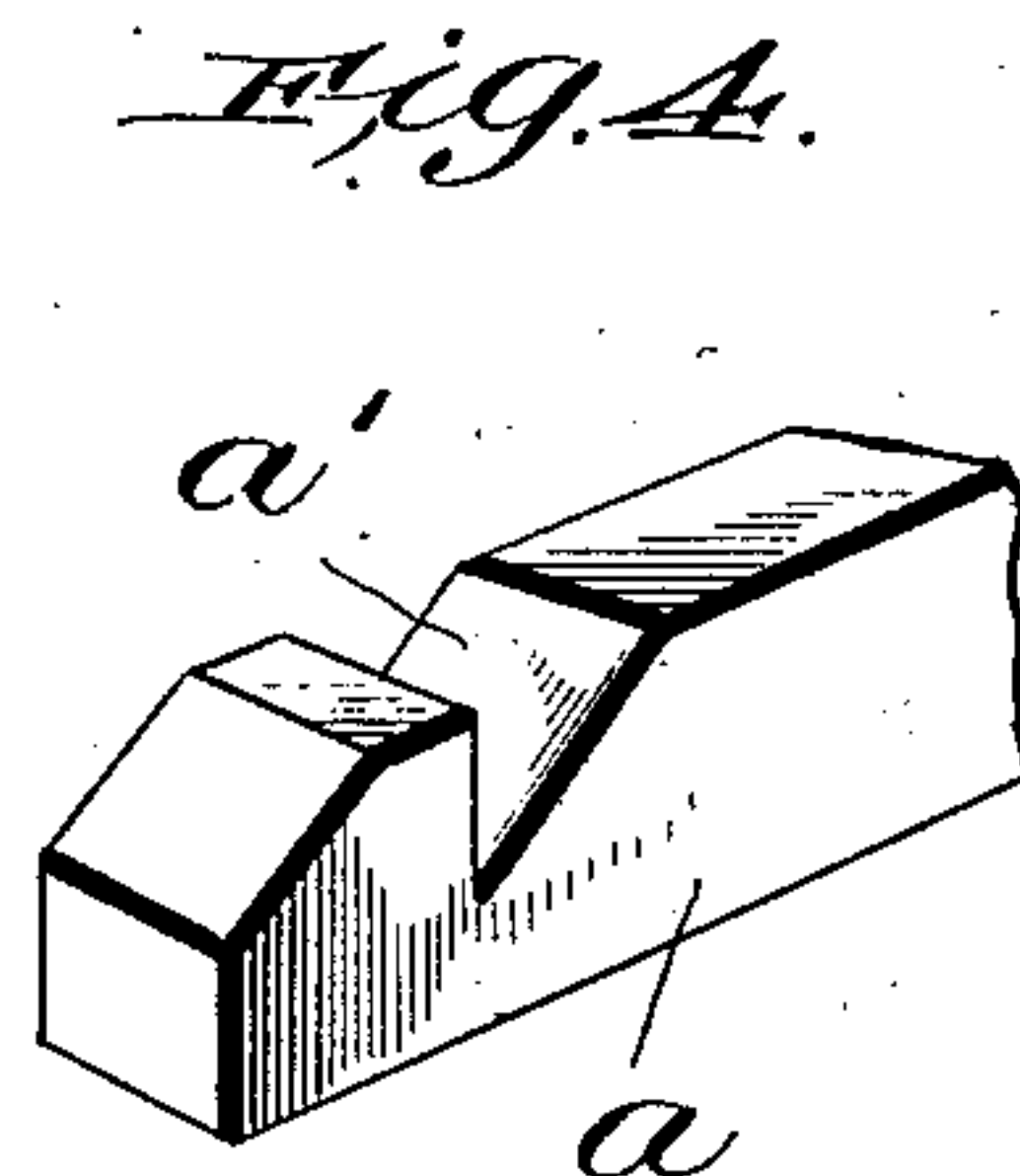
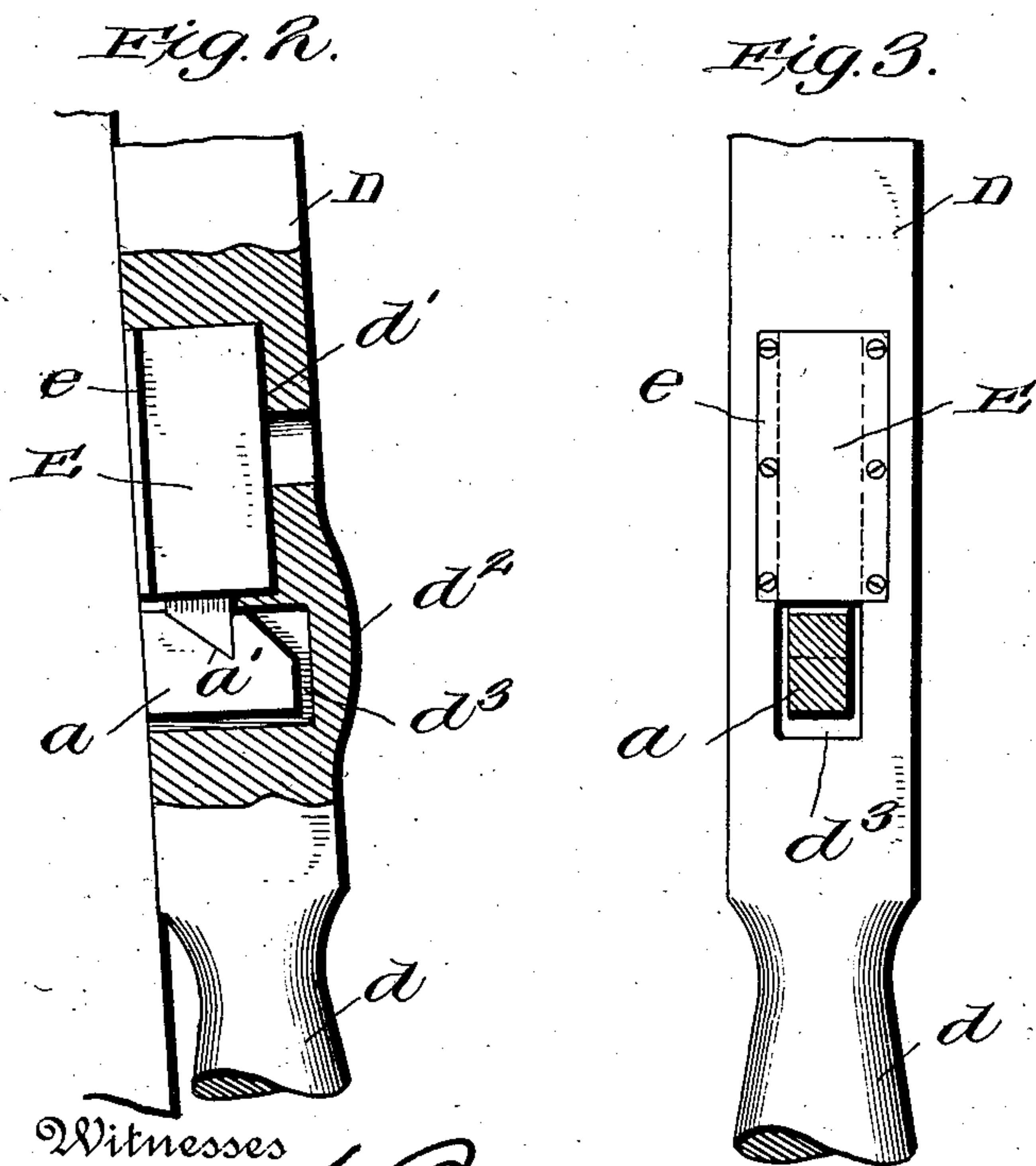
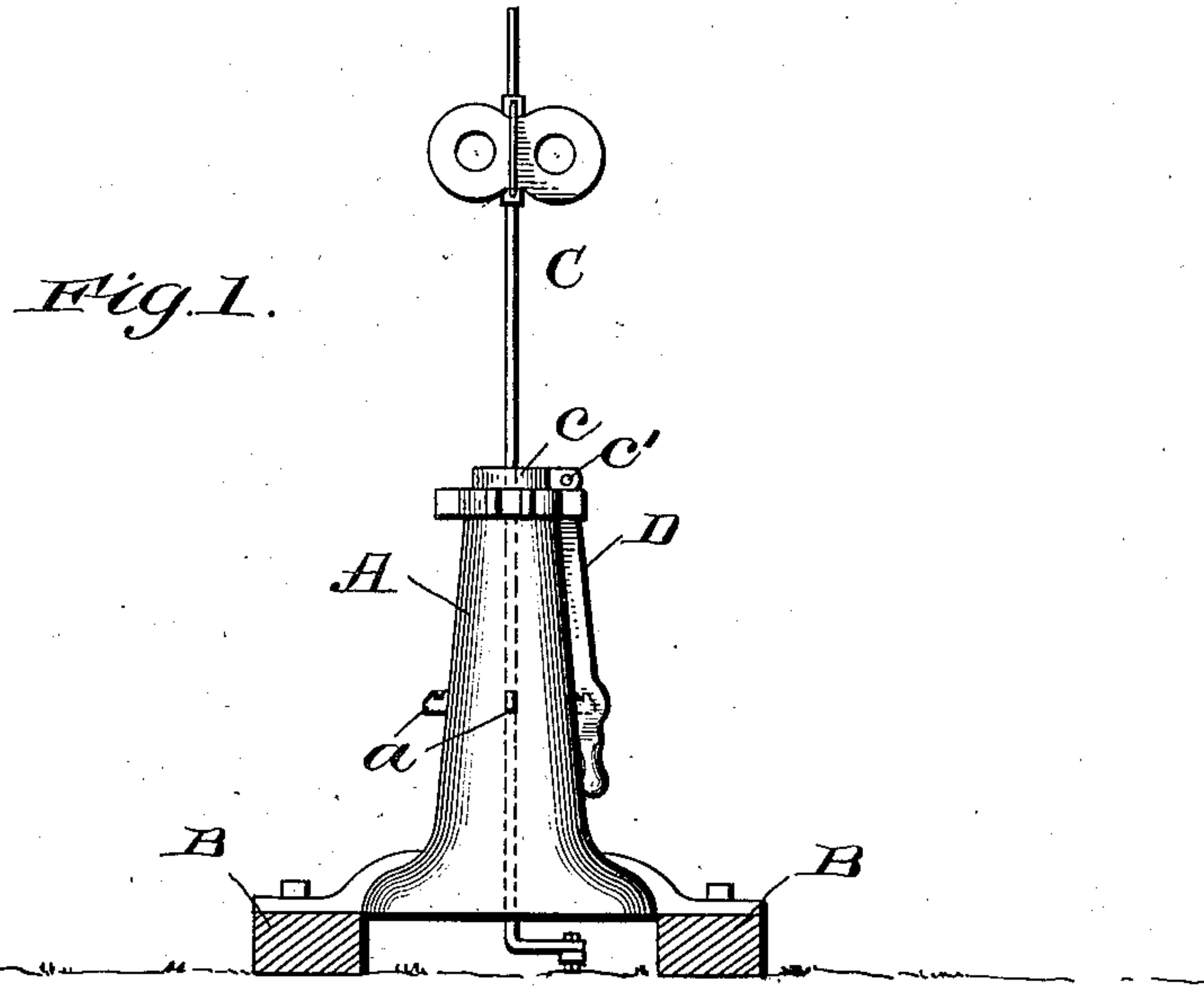


No. 865,904.

PATENTED SEPT. 10, 1907.

R. F. JACOB.
SAFETY LOCK FOR SWITCH STANDS.
APPLICATION FILED JUNE 17, 1907.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

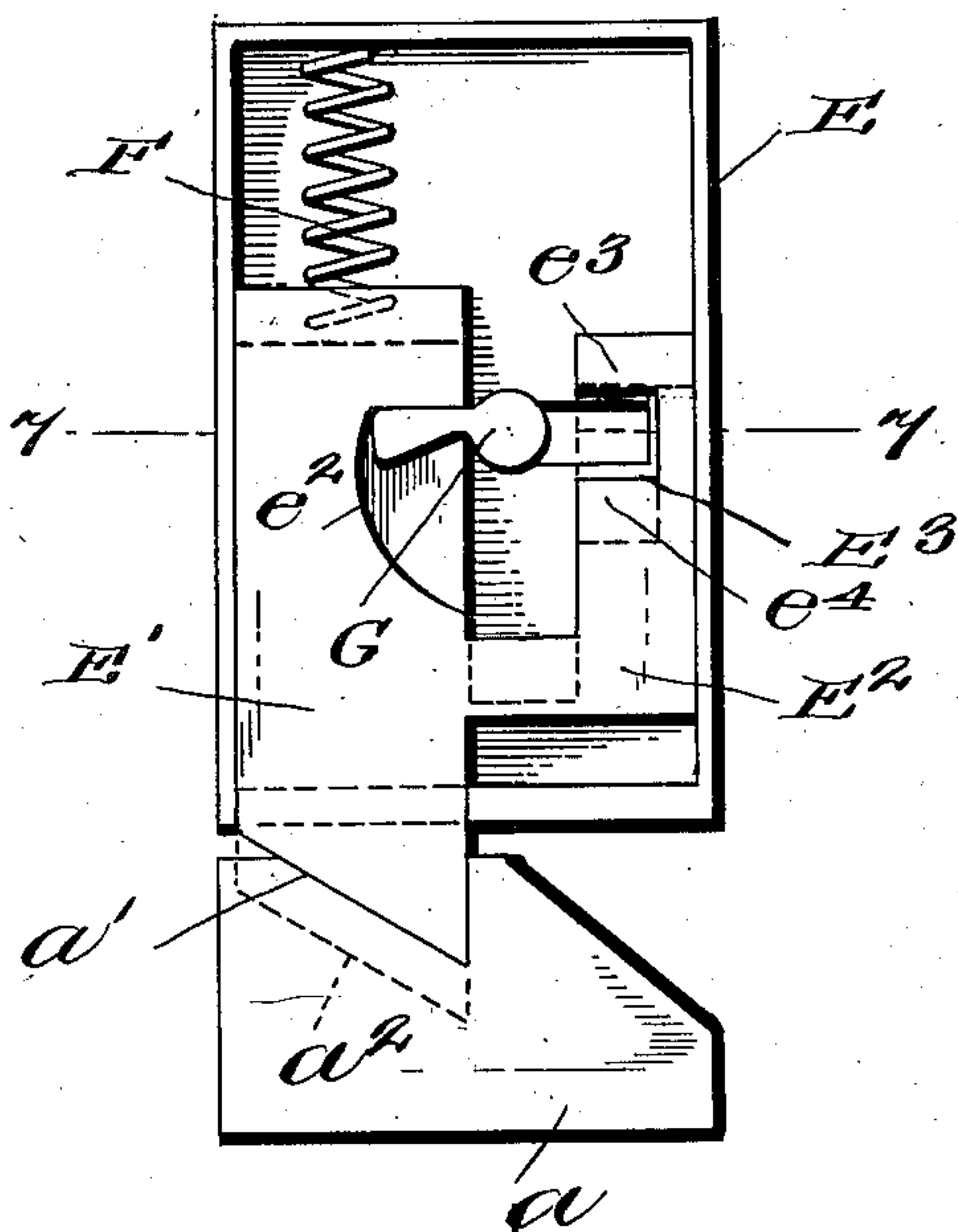


Fig. 6.

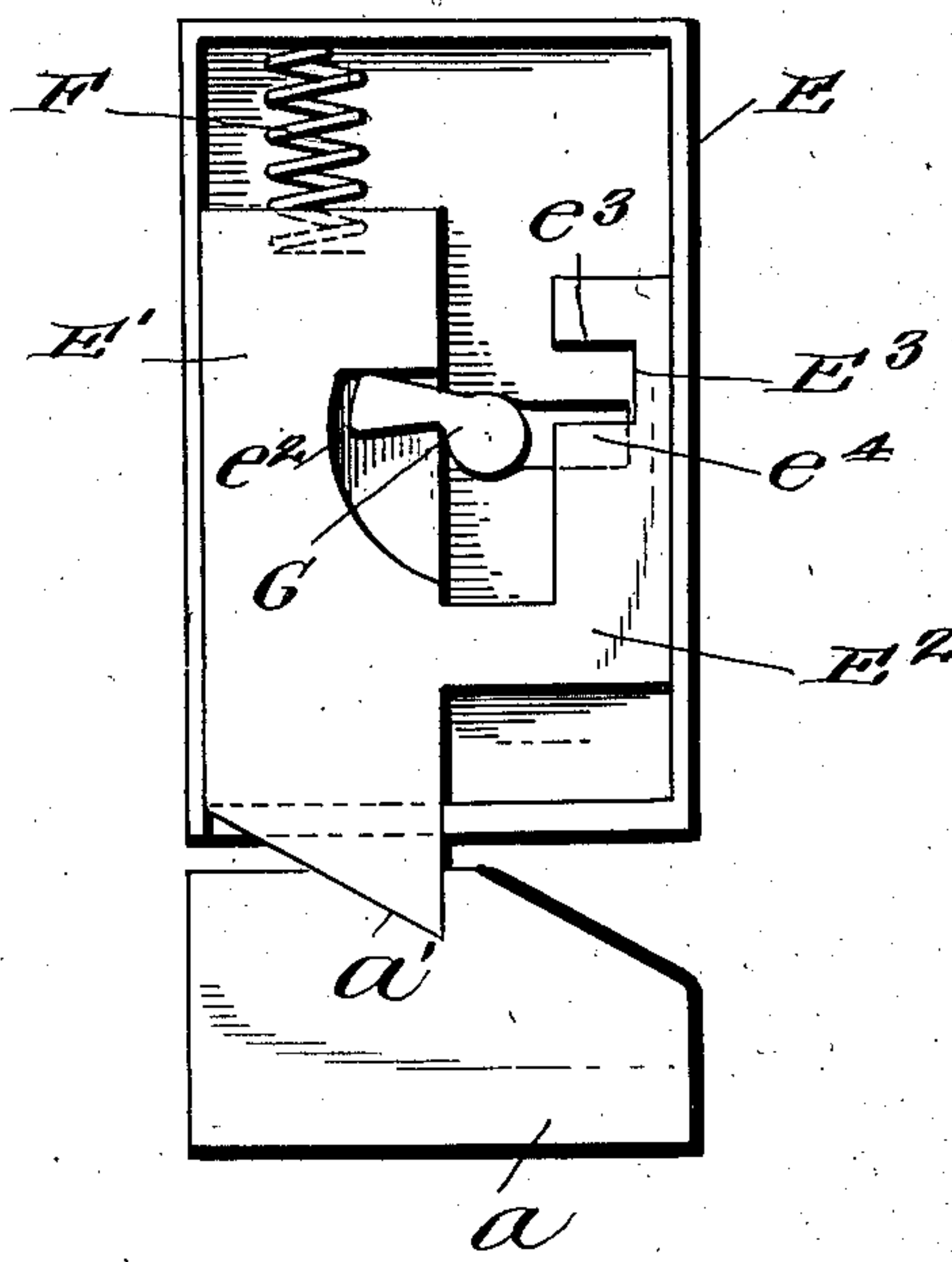
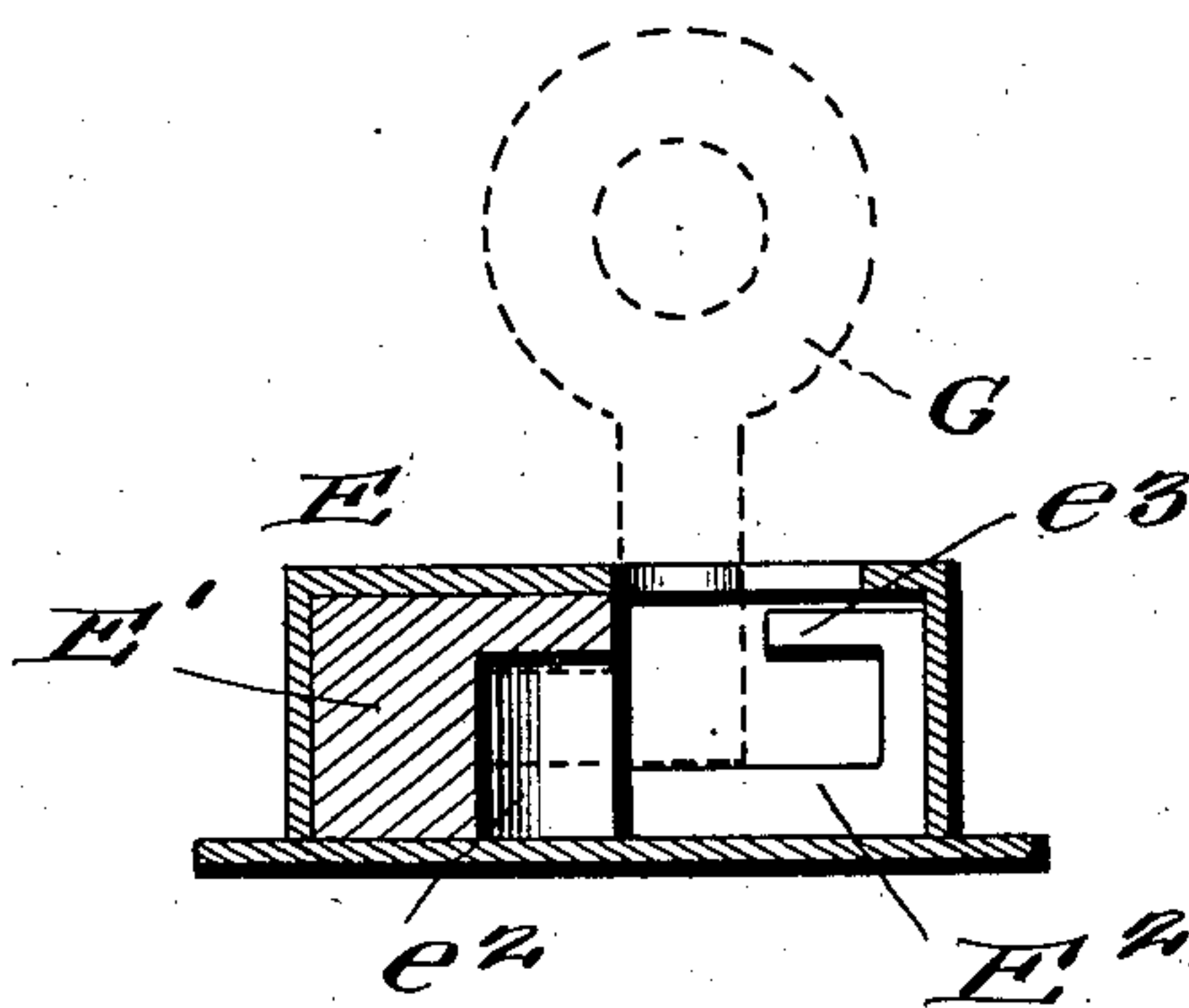


Fig. 7.



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UNITED STATES PATENT OFFICE.

RICHARD FELDER JACOB, OF BESSEMER, ALABAMA.

SAFETY-LOCK FOR SWITCH-STANDS.

No. 865,904.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 17, 1907. Serial No. 379,468.

To all whom it may concern:

Be it known that I, RICHARD FELDER JACOB, a citizen of the United States, residing at Bessemer, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Safety-Locks for Switch-Stands; 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 appertains to make and use the same.

My invention consists in a safety lock for switch stands, of any kind whatsoever.

The object of my invention is to provide a safety lock for the switch stands which shall be simple and certain in operation, easy to manufacture, and with slight alterations may be put on or attached to those switch stands which are now in use.

To these ends my invention consists in the lock, and combination of parts hereinafter more fully described, and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification; Figure 1 represents an elevation of a switch stand provided with my improved safety lock. Fig. 2 is a view, partly in section, showing the device in locked position on the lever. Fig. 3 is a view of a portion of the lever looking from the inside outward, showing how the lock is attached to the lever, and also the lug on the stand in section. Fig. 4 is a perspective view of one of the lugs that are readily attached to the stand. Fig. 5 is an elevational view of a lock detached, and showing the bolt engaging the lug on the stand, which belongs to the main line of the railroad track. Fig. 6 is a similar view showing the position of the bolt of the lock when engaging a lug belonging to one of the side tracks, and Fig. 7 is a sectional view, taken on the line 7—7 of Fig. 5.

Like letters of reference indicate like parts in all the views.

A represents the body of the switch stand, B its base, C the semaphore belonging to the said stand, and D a lever or other suitable controlling device for said semaphore, which is adapted to be locked to the stand A. In my invention, I provide this lever, or other suitable locking device, with a recess, as shown in Figs. 2 and 3, and slip thereinto a lock E, of any suitable and approved construction. Said lock is provided with a key G. This key, of course, may be of any kind whatsoever approved by the road, and the proper employees thereof are provided with the usual duplicates.

On the stand A, I provide any number of lugs *a*, which may be integrally cast with the body A of the stand, or otherwise secured thereto. Each of these lugs *a* is provided with notches *a'*, or other suitable means, by which the lock E may engage the same. The notch *a'* for the lug *a*, which controls the main line switch, is deeper than the notch *a'* in the lug *a*, which

controls a side track switch. This is clearly shown in Figs. 5 and 6.

The lock E is provided with a suitable device, in this instance shown as a bolt *E'* adapted to engage the notch *a'*, in any of the lugs *a* located on the switch stand. This bolt *E'* is of a peculiar construction, and forms an important feature of my invention. Integrally attached to said bolt, or otherwise permanently fastened thereto, is the extension *E²* provided with the notch *E³*, and which notch has the edges *e³* and *e⁴*, as shown in Fig. 6. These edges are so spaced apart that the distance between the same is slightly greater than the width of the key hole slot, as clearly shown in Fig. 5. Of course this said distance is also so selected that it will allow for the operation of any key that may be used in connection with the lock, and in the case of a key, which has a crooked shape, it would have to be made wider, or narrower, or even made crooked to accommodate the operation of the particular key selected.

F represents a spring controlling the bolt *E'*, which also forms an important feature of my invention. This spring is secured in the lock in any desired manner, for example, as by fitting in the top of the bolt *E'* and against the inside of the top wall of the lock E, as shown; or it may be a spring of any other shape, found desirable, and suitably attached in the lock. The important feature of this spring is to have its tension such that when the key is out of the lock and the bolt *E'* is not in contact with any lug *a*, the said spring will cause the lower edge of the said bolt to occupy the position shown in dotted lines *a²* in Fig. 5, in which position the edges *e³*, *e⁴* of the said slot *E³*, will occupy the positions also shown in dotted lines in Fig. 5, and in which positions, as will be observed, they partially close the key hole slot, and therefore prevent a key from entering the lock. Of course the degree of closing the said slot may be regulated at will, and the bolt *E'* may be given any length of travel desired, according to the key used, and in many cases it will be desirable to allow enough space between the lower edge of the extension *E²* and the inner surface of the lower wall of the lock E, to permit the said edge *e³* to entirely close the key hole slot. In addition to the action of the edges *e³*, *e⁴*, just described, if the bolt *E'* is in the notch *a'* of the lug *a* having the deepest notch, and therefore controlling the main line switch, as shown in Fig. 5, the edges *e³*, *e⁴* will occupy the positions shown in full lines in Fig. 5, and the key can be readily entered and withdrawn. When, however, the end of the bolt *e'* occupies the position in Fig. 6, in which position it is in contact with the notch *a'* belonging to a lug *a* controlling a side switch, then the said edges *e³*, *e⁴* occupy the position shown in Fig. 6, and partially or entirely close, as the case may be, the key hole slot, and thereby prevent the removal

of the key from said slot. It results directly from this action that when the switchman unlocks the lock and throws the switch from the main line position to a side track position, that he cannot take his key out of the lock until he has thrown the switch back to the main line position. This is a most important result in rail-
 5 roading, because many of the accidents resulting from open switches occur through the forgetfulness of the switchman, after having thrown the switch from a main line to a side track position, to lock the said switch to the said main line position. Or, in other words, he leaves the switch open and the train coming in the opposite direction is derailed or collides with any train that might be on the side track. By my invention, it
 10 will be seen that it is practically impossible for him to forget to do this, because his key is left in the lock, and he therefore cannot omit this most important duty without also leaving his key behind, and thereby depriving him of the power to open any other switches along the
 15 line. He cannot well leave his key behind without immediately missing the same, because it being his duty to control the switches he has this key constantly in mind, and it would be the first thing he would miss. Should he be so entirely forgetful, however, to not immediately miss his key, he would have to remember it at the very next switch to be operated by him, because he could not operate the same at all without the key. To give a specific instance of how these accidents occur, I will state that it sometimes happens, that two trains
 20 may be on the side track, and one may wish to go ahead. Then the head brakeman of the rear train, although without authority to do so, may, and generally does, tell the flagman of the first train to go ahead, and to leave the switch in the side track position, as they are to follow at once. The said brakeman on the second train may then be called back from a hot box, or other cause, or to perform some other duties, and thus leave the head end of his train exposed to all dangers. And, in addition to this, the conductor of the second train, who may
 25 not, and generally does not, know that the flagman of the first train left the side track switch thrown to the side track position, when his train pulled out, decides to back his train back on the main line, instead of going ahead as the brakeman of his train supposed he would do. He accordingly backs his train back, takes the main line up to the switch in question, and if it is an improved split switch now generally used, he runs through the same, generally without injury to his train, but in doing so, he so injures his switch that the next
 30 train coming in an opposite direction is derailed.

It is evident that all the complicated conditions which give cause to railroad switch accidents cannot be here stated, but that by employing my simple device it renders the same practically impossible, because if a flagman is so forgetful that he cannot miss his key upon leaving a switch stand, it is probable he would not be competent to hold his position. On the other hand, if he attempts to violate orders and leave the switch in the manner just indicated, he cannot
 35 carry his key with him, if my improved device is used, and therefore it is not possible for him to make the errors that are now so costly to railroads. The only other way in which a violation of orders could occur in the manner I have stated above, would be for the
 40 flagman to unlock my device from one of the positions

disclosed, and then without throwing the switch to a final position in any direction, insert his finger, or a suitable instrument, into the recess in the lever occupied by one of the lugs a , press the bolt E' up, withdraw his key from the lock, carry it with him, and then
 45 throw the switch back to a side track position, and lock it there, get on his train and leave. In this position, the side track is left open and since accidents will be sure to occur, he would not dare to act so. But if he should, however, and any one now attempts to insert a key in the lock to remove the switch to the main line position, he will find the key hole closed by the edges e^3 , e^4 , as shown in Fig. 6; and the switch can only be moved back to the main line position by breaking the lock, and thereby the flagman who thus
 50 violated the orders would be detected.

The lock E being inserted from the inner side of the lever D , and securely fastened to the said lever by the flange e or by other suitable means, the said lock cannot be removed when the said lever is in locked position, without breaking the apparatus; and, at the same time, the said lock is completely hidden and protected from all intermeddlers, or evil disposed people. It, however, is most easily and readily removed by those in authority for repairs, or renewal, or for any other
 55 purposes.

Another important feature of my invention over all others, with which I am acquainted, is that with my device the switch is never left unlocked, as the key cannot be removed without the switch being securely
 60 locked in the main line position. Although there are padlocks now in use, which profess to prevent the removal of the key from the same when not in locking position, yet, it often happens in practice, that the bows of these locks are pushed home and the spring pressed bolts fail to enter the eyes of the said bows, and in this position the keys can be removed, although the locks are not locked. This is due to a faulty construction of said locks. My integral part E^2 construction makes this
 65 impossible.

It will thus be seen that my device is very simple, is cheap, can be easily applied to existing switch stands, or can be manufactured in one with new switch stands, at a trifling cost or even cheaper than the locking devices now in use on such stands.

Of course I do not limit myself to the exact details of construction herein disclosed, as the same may be considerably varied without departing from the spirit of my invention, but

What I claim and desire to secure by Letters Patent, is:

1. In a safety lock for switch stands, the combination with the body of a stand having different means for the main line and side track positions with which the bolt of a lock may engage, a part attached to said stand and carrying a lock adapted to be operated by a key and having a bolt adapted to engage any one of said means, and means rigidly attached to said bolt and adapted to prevent the entrance or withdrawal of said key except when the switch is locked in the main line position, substantially as described.

2. In a safety lock for a switch stand, the combination with the body of a stand provided with a plurality of lugs provided with lock engaging means and permanently attached to said stand, one for the main line and for each of the side track switches to be operated at said stand, and said lock engaging means of said side track lugs being different from that of the main line lug, a lever perma-

5 nently attached to said stand, a key operated lock permanently attached to said lever and having a bolt to engage the said means on the said lugs, and means rigidly attached to said bolt whereby said key cannot enter said lock or be withdrawn therefrom except when the switch is locked in the main line position, substantially as described.

10 3. In a safety lock for a switch stand, the combination with the body of a stand, provided with lugs having notches permanently attached to said stand, one lug for each side track and one for the main line position, the notch on the lug for the main line position being deeper than that on the lugs controlling the side track position, a pivoted lever provided with a key operated lock having 15 a bolt engaging said notches, and an extension rigidly attached to said bolt and provided with means whereby the said key cannot enter said lock or be withdrawn therefrom except when the switch is locked in the main line position, substantially as described.

20 4. In a safety lock for a switch stand, the combination with the body A of the stand, the lugs *a* rigid therewith,

and provided with bolt engaging notches *a'* of different depths and adapted to control the main line and side track positions of the switch, the notch on the lug for the main line position being the deepest, a lever pivoted to said stand A and provided with a recess, a lock E secured in said recess on the side of said lever that contacts with or lies near said stand A, said lock provided with a key and a bolt E' adapted to engage said notches, an extension E² rigid with said bolt and having a recess E³ provided with edges *e*³ *e*⁴, and a spring for pressing said bolt outward, whereby said edges *e*³ or *e*⁴ will prevent the insertion of a key into or its withdrawal from said lock at all times except when the switch is locked in the main line position, substantially as described. 25 30 35

In testimony whereof, I affix my signature, in presence of two witnesses.

RICHARD FELDER JACOB.

Witnesses:

D. H. SALOMON,

WILLIAM F. POWELL.