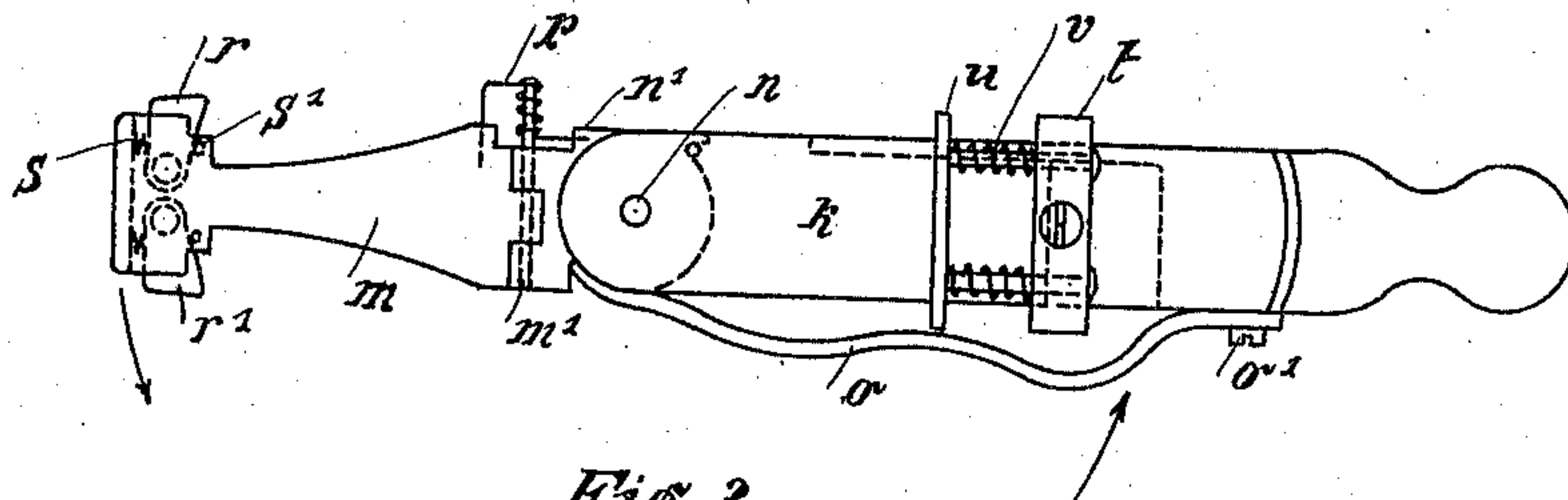
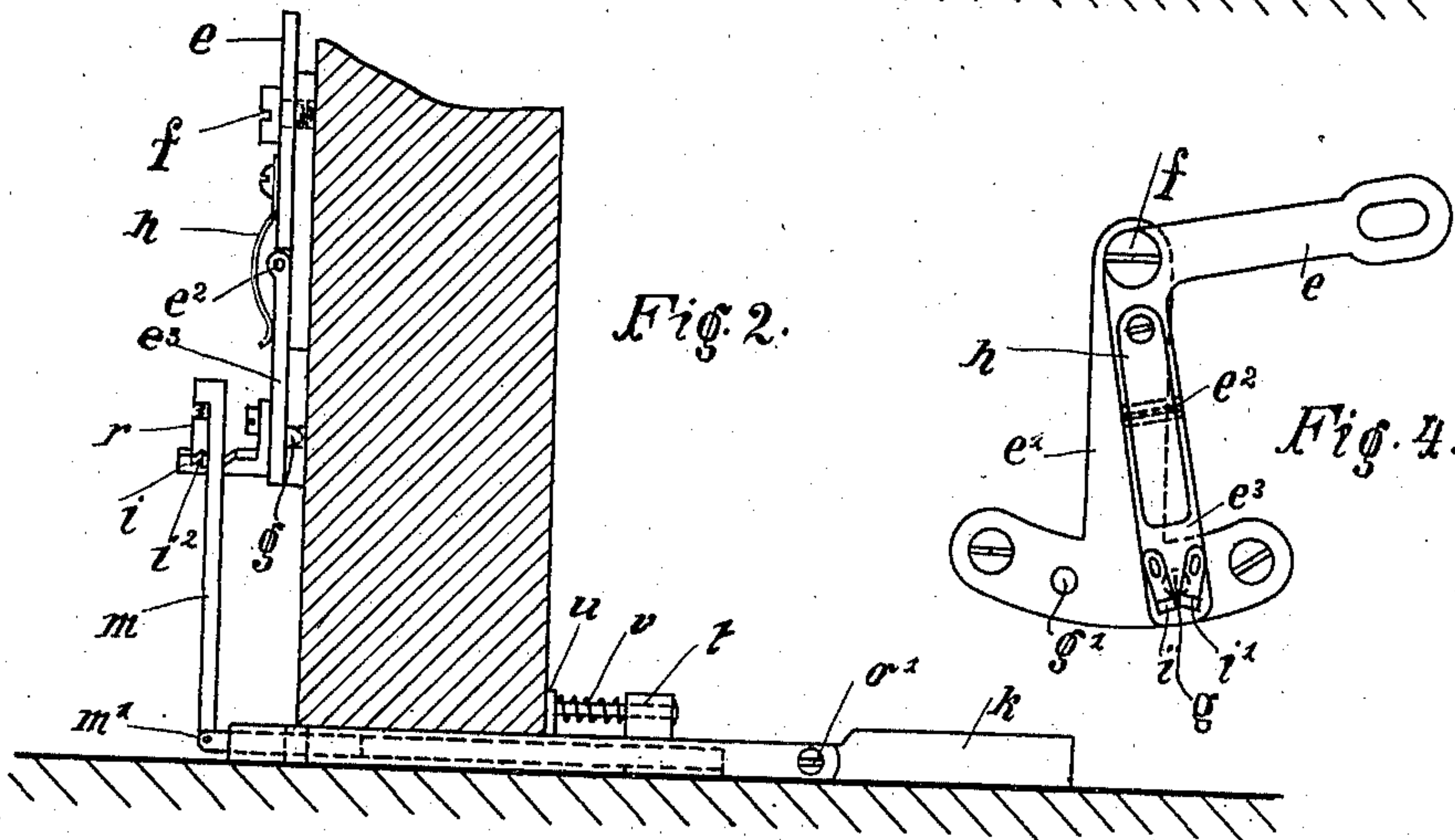
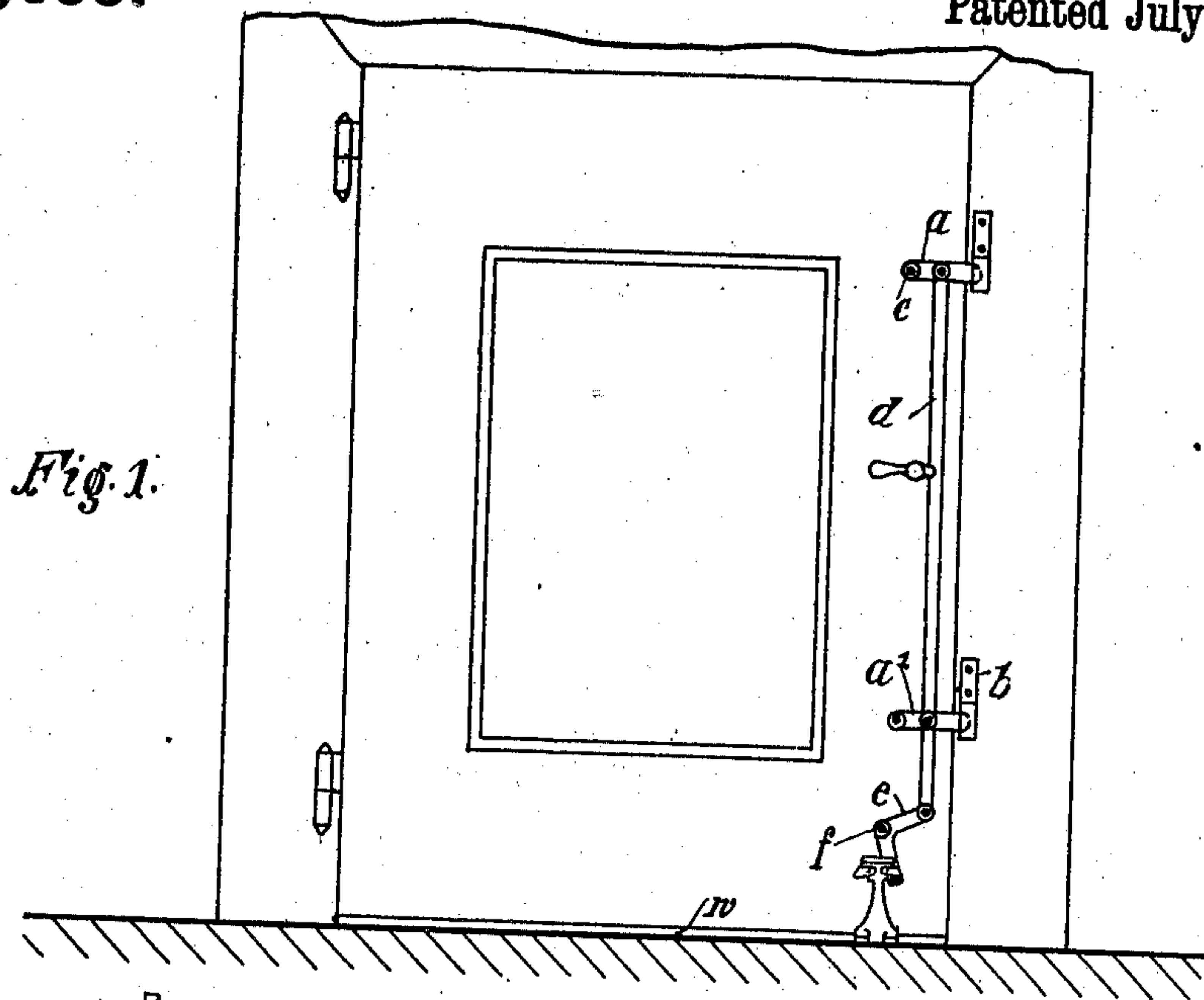


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LOCKING MEANS FOR DOORS AND THE LIKE.  
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963,655.

Patented July 5, 1910.



Witnesses:  
*Otto Reimer.*  
*Willy Weller.*

Inventor:  
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*by Adamson*  
*Atty*



# UNITED STATES PATENT OFFICE.

PAUL SCHMAHL, OF ELBERFELD, GERMANY.

LOCKING MEANS FOR DOORS AND THE LIKE.

963,655.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed February 26, 1909. Serial No. 480,232.

*To all whom it may concern:*

Be it known that I, PAUL SCHMAHL, residing at Elberfeld, Rhenish Prussia, Germany, a subject of the Emperor of Germany, have invented a new and useful Improvement in Locking Means for Doors and the Like, of which the following is a specification.

My invention has reference to closing means for doors and the like and the object of my invention is to provide bolts connected by a bar at the inside of the door which are raised and lowered by a key, especially constructed for this purpose and adapted to be introduced by a slit on the bottom of the door and to operate the bolts on the inside in such a manner that the same are turned into the locked or unlocked position.

My invention is more fully shown on the accompanying drawing in which—

Figure 1 is a view of a door fitted with the improved locking device, Figs. 2 and 3 illustrate the key for operating the door bolts, Fig. 4 is a detail of construction.

Like letters of reference indicate like parts in the drawing.

By  $a, a^1$  are designated two ordinary bolts which are turnable around a pivot pin  $c$  on the inside of the door and adapted to engage the keepers  $b$  in order to lock the door when desired. Said bolts are connected by a bar  $d$  which is reciprocated by an angle lever  $e$  fulcrumed at a fulcrum  $f$  on a supporting plate  $e^1$  which is fastened on the door. To the angle lever  $e$  is pivoted by means of a pin  $e^2$  an arm  $e^3$  carrying at its end a pointed pin  $g$  which due to the pressure of a spring  $h$  on the shank or arm  $e^3$  engages holes  $g^1$  in the plate  $e^1$  securing thus the bolts  $a, a^1$  in the opened or closed position. The shank  $e^3$  is fitted with two angle pieces  $i, i^1$  which are adjustably fixed to  $e^3$  by means of a slot and screw connection as shown.

The locking device described is arranged on the inside of the door and I operate it by means of a key which is illustrated in Figs. 2 and 3. This key consists of a plate or handle  $k$  carrying a piece  $n^1$  which is turnably connected with the handle  $k$  by a vertical pivot  $n$  so that it may be folded like a blade in an ordinary pocket knife. A holder  $o$  which may be turned on a pin  $o^1$  is arranged to lock the piece  $n^1$  in its operating position as shown in Fig. 3. Said piece  $n^1$  is pivotally connected with an arm

$m$  by means of a horizontal pin  $m^1$  on which is wound a spring  $p$  adapted to hold the arm  $m$  in an upright position. The said arm carries on its free end two members  $r, r^1$  which are pressed toward pins  $s'$  by small springs  $s$ . On the handle plate  $k$  closely fits a slide  $t$  surrounding for this purpose the said plate but may be shifted thereon or adjusted respectively according to the thickness of the door. With said plate is connected by springs  $v$  a vertical plate  $u$  having its support on the handle  $k$  and coming in contact with the door as shown.

The operation of the described key is as follows: For opening or closing the door the bolts  $a, a^1$  should be moved accordingly and for this purpose the pin  $g$  must be released from its hole  $g^1$  so that the angle lever  $e$  may be turned. In order to be able to proceed in this manner the arm  $m$  is turned with its piece  $n^1$  around the pivot  $n$  whereupon the piece  $n^1$  is made stationary by the holder  $o$ . Then the arm  $m$  is shifted through the slot  $w$  being generally at the bottom of the door or especially provided for this purpose entering thus the inside of the door and being turned upright by the action of the spring  $p$ . By shifting them the key laterally the member  $r$  or  $r^1$  engages one of the angle pieces  $i$  or  $i^1$  which for a better connection are provided with teeth  $i^2$  as shown, the slide  $t$  which is adjusted according to the thickness of the door permits the engagement of members  $r$  and angle piece  $i$  without search. When thus the angle lever  $e$  is caught by the arm  $m$  it needs only a little forward movement of the handle which is permitted by the springs  $v$  to remove the pin  $g$  from its hole  $g^1$  and then the lever  $e$  may be turned around its fulcrum by shifting it laterally by means of arm  $m$  in one or the other position whereupon the member  $r$  will be disengaged from the angle  $i$ , the arm  $m$  withdrawn and folded like an ordinary pocket knife.

My invention affords a high security against opening of the door by anyone not familiar with the construction and even if familiar it is impossible to operate the device which may be varied in details without the proper key.

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

1. In a door locking and unlocking device the combination of a key, comprising a handle, a slide adjustably connected with said



handle, a piece pivotally attached to the handle, a holder clamping said piece, an arm hinged to the piece, a spring operating said arm and spring actuated members arranged  
5 on the arm, as described and for the purpose set forth.

2. In a door locking and unlocking device the combination of a key, comprising a handle, a foldable piece connected with said  
10 handle, an arm hinged to said piece fitted

with spring actuated members, an angle lever forming part of the locking device, a shank turnably located on said arm, a spring projecting therefrom and angle pieces adjustably connected with said arm as described and for the purpose set forth. 15

PAUL SCHMAHL. [L.S.]

Witnesses:

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