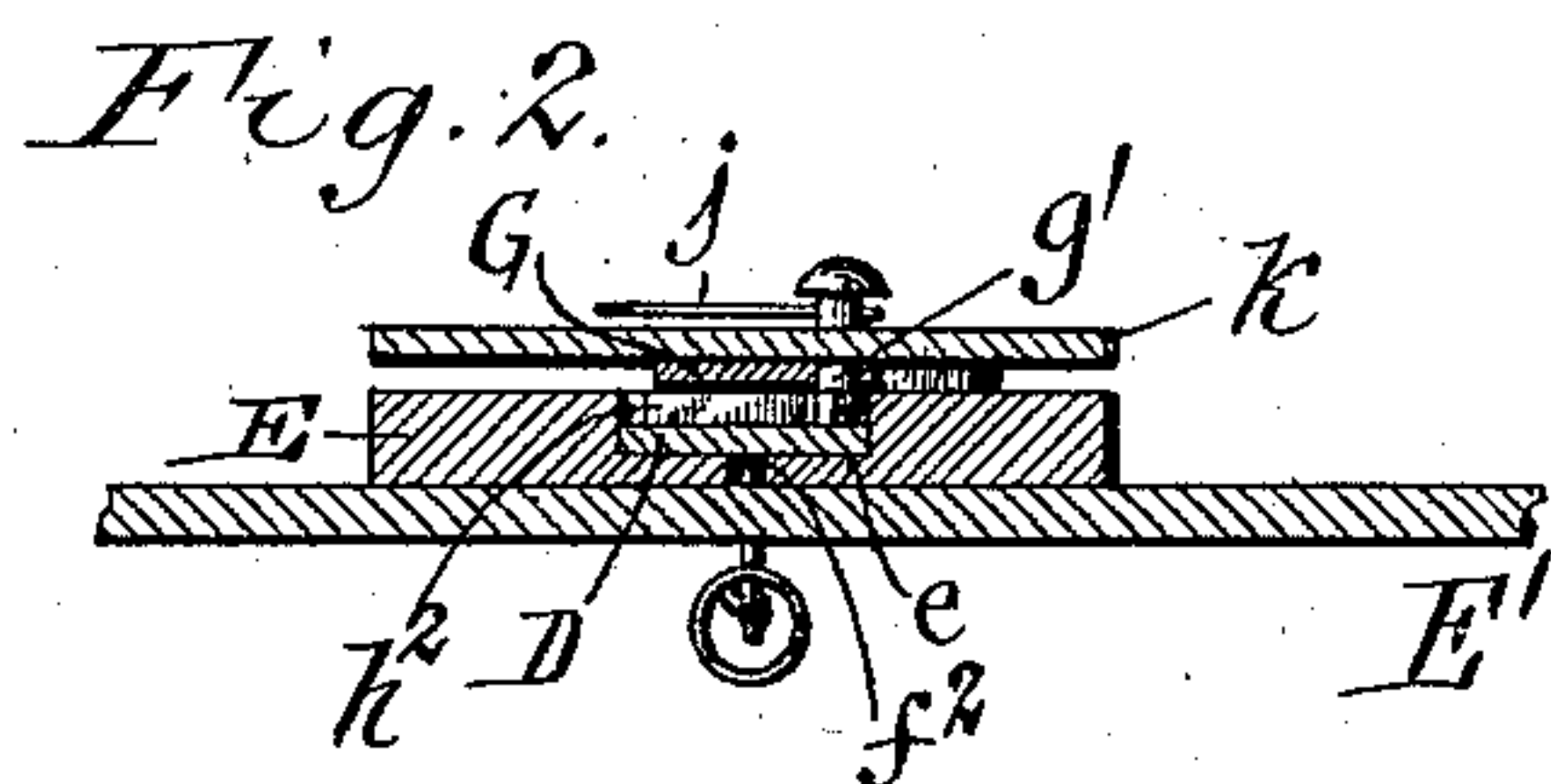
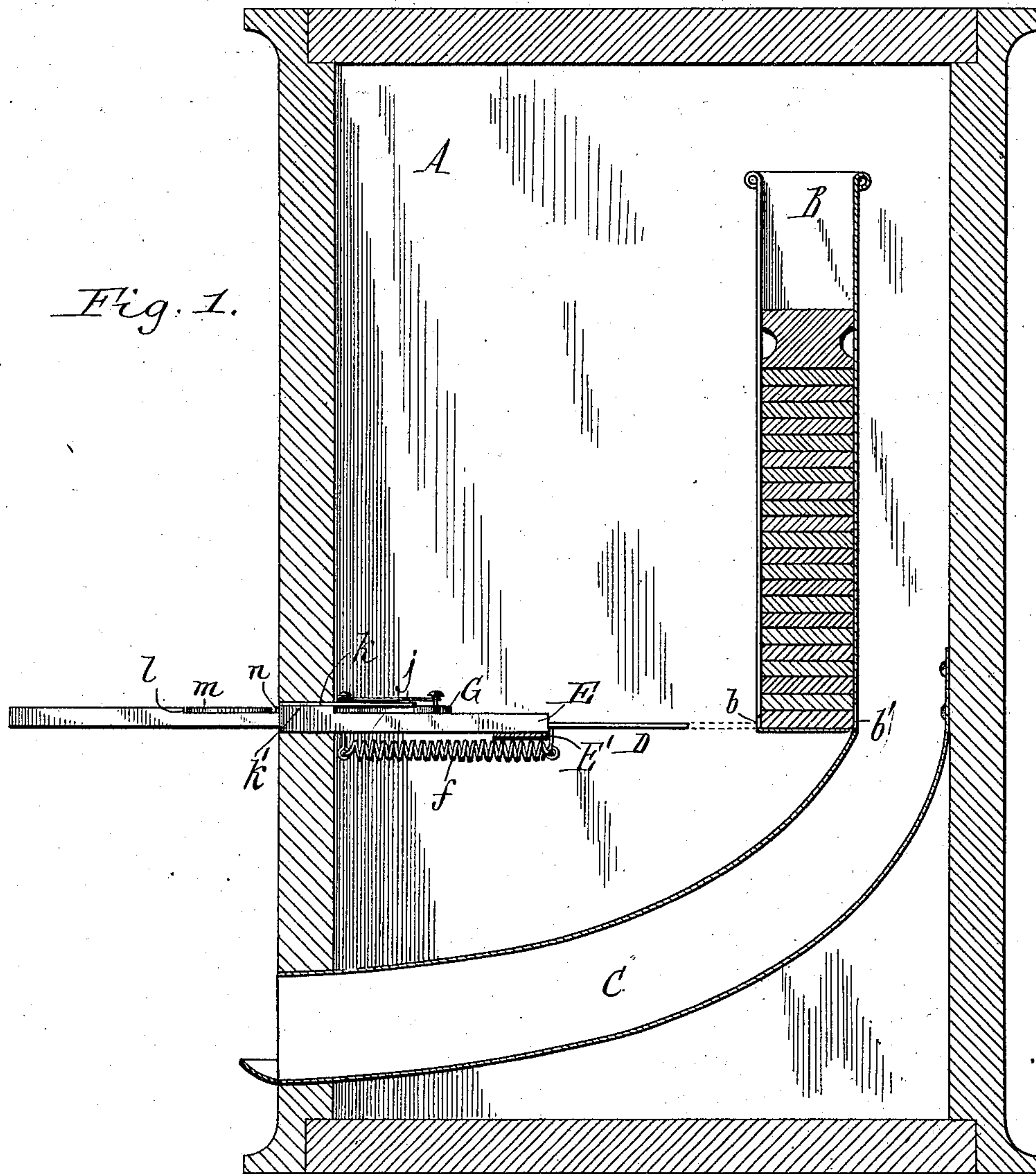


B. HOLZ, JR.
COIN CONTROLLED MACHINE.

APPLICATION FILED OCT. 7, 1901. RENEWED OCT. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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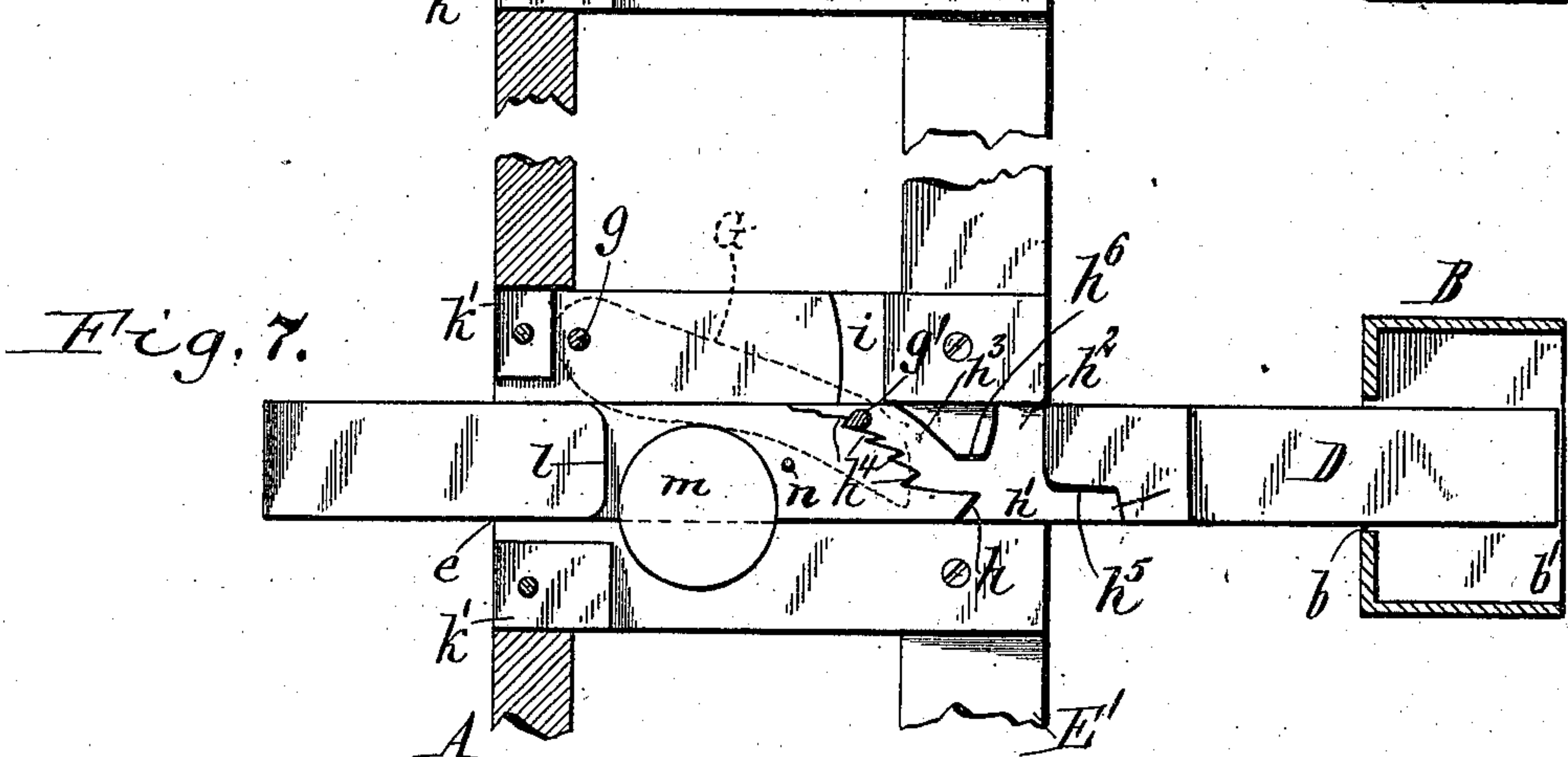
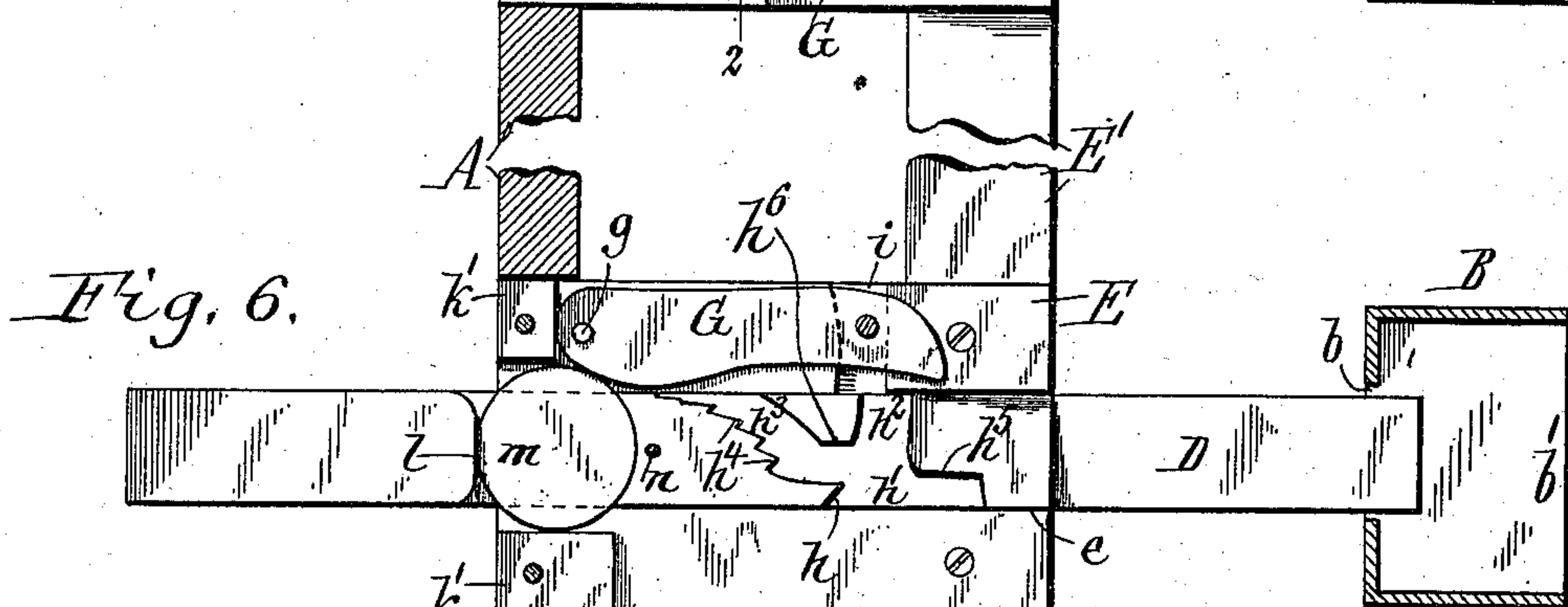
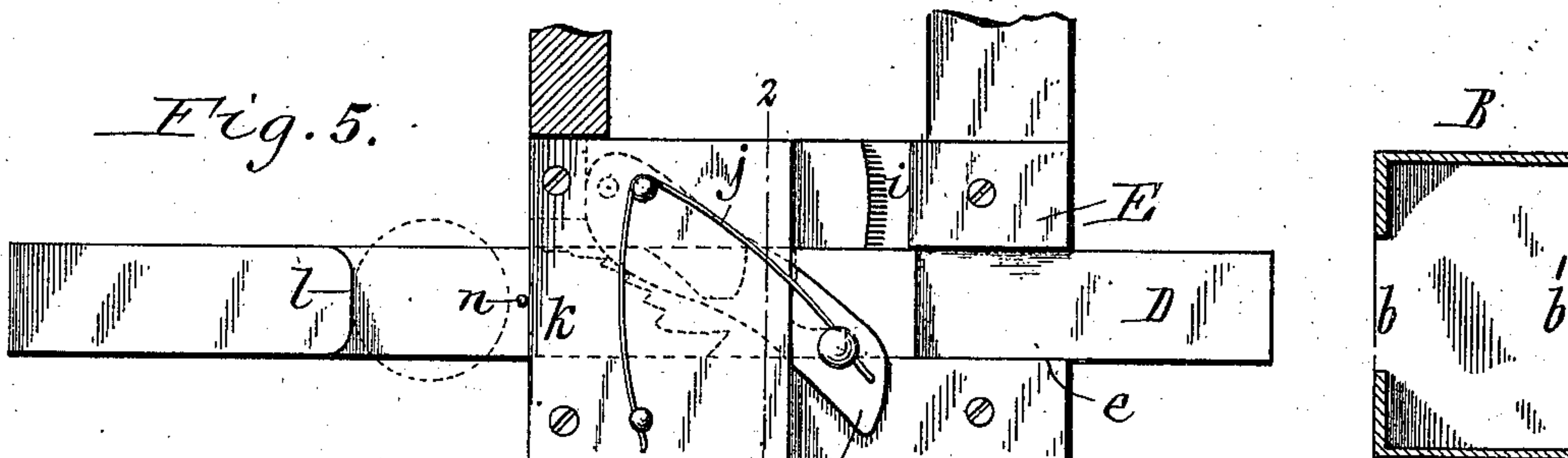
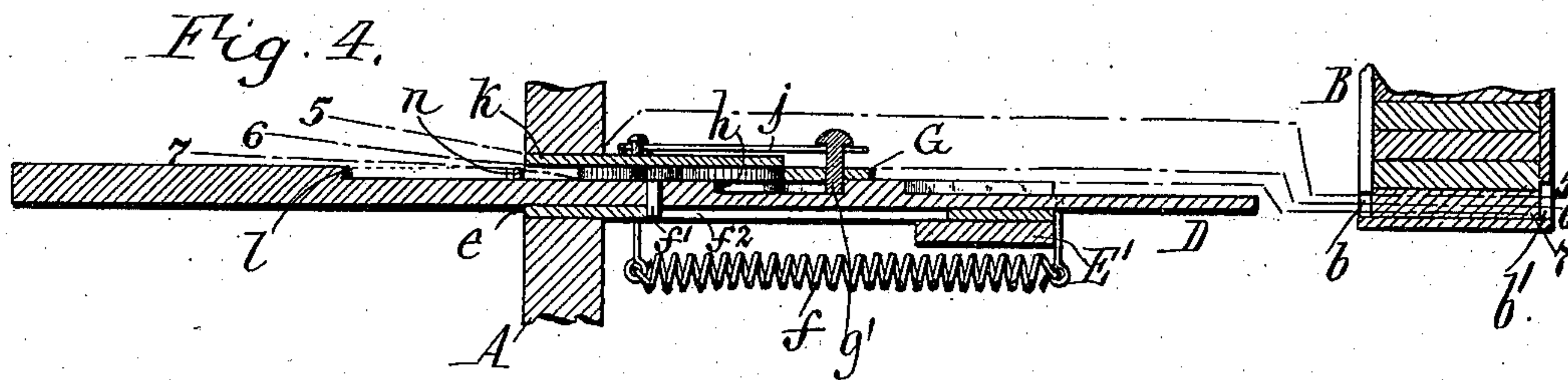
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UNITED STATES PATENT OFFICE.

BERNHARD HOLZ, JR., OF BUFFALO, NEW YORK, ASSIGNOR TO DAMASE J. CADOTTE, OF BUFFALO, NEW YORK.

COIN-CONTROLLED MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,184, dated March 31, 1903.

Application filed October 7, 1901. Renewed October 4, 1902. Serial No. 125,990. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD HOLZ, Jr., a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Coin-Controlled Machines, of which the following is a specification.

This invention relates to that class of coin-controlled vending and similar machines in which the coin is carried into the machine by the plunger and utilized for retracting the locking device of the plunger, as distinguished from machines of this character in which the weight or impact of the deposited coin is utilized for withdrawing or tripping the locking device of the plunger.

One of the objects of my invention is to provide the machine with a simple and reliable device for preventing defrauding of the machine by attempts to operate the same repeatedly with the same coin.

Another object of the invention is to so construct the mechanism that the plunger will be unlocked only by the use of a coin of the proper predetermined size.

In the accompanying drawings, consisting of two sheets, Figure 1 is a sectional elevation of a coin-controlled vending-machine embodying my invention. Fig. 2 is a transverse vertical section in line 2 2, Fig. 5. Fig. 3 is a detached bottom plan view of the locking-latch of the plunger. Fig. 4 is a fragmentary vertical longitudinal section of the plunger and cooperating parts, showing the plunger locked. Fig. 5 is a horizontal section in line 5 5, Fig. 4, showing the plunger in its locked position. Fig. 6 is a similar horizontal section in line 6 6, Fig. 4, showing the plunger pushed inward to the position in which its latch is retracted for unlocking the plunger. Fig. 7 is a similar horizontal section in line 7 7, Fig. 4, showing the position of the parts at the moment that the coin is being ejected from the plunger.

Like letters of reference refer to like parts in the several figures.

A is the inclosing case of the machine, which may be of any suitable form, and B is an upright goods-magazine of any ordinary and well-known construction arranged in the case.

C is a delivery-chute leading from the lower rear end of the goods-magazine and extending through an opening formed in the front wall of the case in the usual manner. The goods-magazine is provided at the lower end of its front and rear walls with the customary openings or passages *b b'* for the passage of the rear end of the plunger or delivery-slide D. The plunger extends through the front wall of the case and is guided in a groove or way *e*, formed in the upper side of a horizontal supporting-plate E. This plate is secured at its front end in an opening in the front wall of the case and supported at its rear end upon a rigid cross-bar *E'*, suitably secured in place. The plunger is held in its normal projected position by a spring *f*, connected at one end with the plunger and at its opposite end with the guide-plate E or other stationary part. The outward movement of the plunger under the action of this spring is limited by a pin *f'*, projecting downwardly from the plunger into a longitudinal slot *f²* of the guideway and adapted to strike the outer end of said slot.

G is a locking dog or latch which locks the plunger in its projected position. This latch is laterally movable and preferably pivoted at its rear end to the upper side of the guide-plate E by a vertical pin *g*, so as to be capable of swinging horizontally across the upper side of the plunger. The latch is provided on its underside with a locking-pin *g'*, adapted to engage behind a shoulder *h* of the plunger, which shoulder is formed by the front end of a longitudinal groove *h'*, formed in the upper face of the plunger at the side thereof farthest from the pivot of the latch. The groove *h'* is provided on the side facing the latch with lateral or branch grooves *h² h³*, which are arranged one in front of the other and extend to the edge of the plunger. The rear groove *h²* forms an exit-passage which permits the locking-pin *g'* of the latch to move backward out of the main groove *h'* for unlocking the latch, while the front groove *h³* trends obliquely toward the main groove and forms a return-passage which permits the locking-pin to enter the main groove *h'*, when the locking-pin arrives opposite said return-passage and the latch is moved forward for

locking the plunger. The guide-plate E is provided in its upper side with a transverse groove i , with which either the exit-groove h^2 or the return-groove h^3 is adapted to register to allow the pin of the locking-latch to swing backward clear of the exit-groove or forward into the return-groove. The locking-latch is constantly moved toward the plunger and held in engagement therewith by a spring j of any suitable construction. The latch is guided and steadied in its movements by a covering-plate k , secured at its front end to raised portions or bosses k' , rising from the front end of the guide-plate E, as shown in Figs. 1 and 6. The free rear portion of this plate overhangs the latch G. The portion of the plunger adjacent to the front wall of the case is depressed to form a coin abutment or shoulder l , against which the coin m , placed upon the plunger, is adapted to bear, so as to compel the coin to move forward with the plunger.

n is a stop or pin arranged on the upper side of the plunger and located a sufficient distance in rear of the coin-abutment l of the plunger to permit the insertion of a coin of proper size between this abutment and said stop. This stop prevents a coin of smaller size than that intended to be inserted from being pushed into the machine beyond recovery.

In the normal position of the parts the plunger is held in the projected position (shown in Figs. 1, 4, and 5) by its return-spring f' and is locked against inward movement to an extent necessary to deliver goods by the locking-pin g' of the latch G. In this position of the plunger the locking-pin g' occupies the longitudinal groove h' of the plunger and by standing in the path of the shoulder h blocks the inward movement of the plunger. The outward movement of the plunger may be limited by the rear end of the main groove h' abutting against the locking-pin g' of the latch. When it is desired to obtain goods from the machine, a coin of the proper denomination—say a cent—is placed upon the plunger between its shoulder l and the stop-pin n , and the plunger is then pushed in. The coin moves forward idly with the plunger until the exit-groove h^2 arrives opposite the locking-pin g' of the latch G and the groove i of the guide-plate E, when the coin comes in contact with the front edge of the latch in advance of its pivot and swings the same rearwardly far enough to cause its locking-pin to clear the plunger, as shown in Fig. 6. During this unlocking action of the latch the coin is wedged between the latch and the opposing boss k' of the guide-plate E, which boss thus forms a side abutment for the coin. After having retracted the locking-latch the coin by the continued forward movement of the plunger passes beyond said boss or side abutment, and as the resistance to the forward movement of the latch is now removed it swings toward the plunger under the reaction of its spring and ejects the coin laterally

from the plunger and through the space between the guide-plate E and the covering-plate k . The coin drops into a suitable chute or receptacle. (Not shown in the drawings.) At the same time that the coin is ejected from the plunger the rear end of the plunger ejects the lowermost piece of goods from the magazine B in a well-known manner. At about the time that the coin clears the boss k' the return-groove h^3 arrives opposite the locking-pin g' of the latch, and this pin enters said groove in the act of ejecting the coin from the plunger, and upon releasing the latter said locking-pin enters the main locking-groove h' , thereby again locking the plunger.

The main groove h' extends inwardly beyond the exit-groove h^2 to form a stop face or shoulder h^5 , while the portion of the plunger between the exit and return grooves h^2 h^3 is provided at its narrow end with a straight face h^6 , extending lengthwise of the plunger and forming a similar stop-face. By this construction in case a coin of greater size than that intended to be deposited is placed on the plunger the coin or token will begin to retract the latch before the exit-groove h^2 of the plunger registers with the pin g' of the latch, and this pin will encounter the stop-face h^5 , formed by the rearward extension of the main groove, thereby preventing unlocking of the plunger. In case a coin or token should be placed on the plunger which is smaller in size than that intended to be deposited, but larger than a ten-cent piece, the exit-groove will be moved inward beyond the locking-pin g' of the latch, and this pin will strike against the stop-face h^6 between the exit and return grooves, thus again blocking the backward movement of the latch and keeping the plunger locked.

Among the practices resorted to for defrauding machines of this kind is that of attempting to keep the locking-latch in its retracted position by slowly checking the return stroke of the plunger and then quickly moving the plunger forward again for ejecting a second piece of goods without depositing another coin. In order to baffle such attempts, I provide the front wall of the return-groove h^3 with a number of teeth h^4 , preferably of ratchet form. Should it be attempted to retard the return movement of the plunger after having pushed it forward to deliver goods, the locking-pin g' of the latch will interlock with one of the teeth h^4 , as shown in Fig. 7, and thereby prevent inward movement of the plunger, the locking-pin of the latch advancing and taking up another tooth every time the plunger is allowed to move outward another step. The main locking tooth or shoulder h and the auxiliary locking-teeth h^4 are preferably undercut, as shown, and the locking-pin g' of the latch is correspondingly V-shaped, so that the greater the forward pressure upon the plunger the more closely and reliably the latch will be interlocked with the plunger.

The main locking-shoulder *h* of the plunger is preferably made so wide that the latch *G* will not be wholly disengaged from the plunger by a coin or token smaller in diameter than a coin of the proper denomination to operate the machine. This construction foils any attempt to operate the machine with a token of smaller diameter than a proper coin and also prevents unlocking of the plunger by a ten-cent piece or a coin smaller in size but greater in denomination than that required, thus avoiding loss to the purchaser. In case the purchaser should place such a small coin upon the slide or plunger and push the latter the stop *n* compels the coin to return with the plunger, enabling the coin to be removed upon the return stroke of the plunger.

The stop *n* besides having the function just described also serves to prevent the successful use of a captive coin, washer, or token for defrauding the machine. If such a coin should be used, it will upon the return stroke of the plunger be shifted laterally out of center by contact with the latch *G*, which at that time overlies the plunger. This causes the displaced coin to project into the path of the adjacent boss *k'* of the guide-plate *E*, and when the coin strikes the corner of this boss the stop *n* of the plunger impinges against the rear edge of the coin on one side of its center line, thereby crowding the coin off the plunger.

While I have herein shown and described my improvement in connection with a vending-machine, it is also applicable to similar machines, such as coin-controlled musical instruments.

I claim as my invention—

1. In a coin-controlled machine, the combination with a plunger or actuator having a coin-abutment, of a laterally-movable latch arranged at one side of the plunger and constructed to interlock therewith, a spring for holding the latch in engagement with the plunger, and a stationary wall or abutment arranged at the opposite side of the plunger and forming with the opposing face of the latch a passage-way for the coin placed on the plunger, said latch extending beyond said stationary wall, whereby the latch is retracted while the coin advances in contact with said wall and released and allowed to eject the coin laterally from the plunger as soon as the coin clears said wall, substantially as set forth.

2. In a coin-controlled machine, the combination with a plunger or actuator having a locking-shoulder and a coin-abutment, of a laterally-swinging locking-latch pivoted at one side of the plunger and constructed to engage with the locking-shoulder thereof, a spring which presses the latch toward the plunger, and a stationary coin abutment or wall arranged opposite the pivoted end of said latch, terminating short of the free end of the latch and separated therefrom by an intervening coin-passage which is narrower

than the diameter of a proper coin, whereby the spring-pressed latch is retracted by the wedging of the coin between the same and said stationary abutment, and the coin is ejected laterally by the latch upon clearing said abutment, substantially as set forth.

3. In a coin-controlled machine, the combination with a plunger provided in its face with a main locking groove or recess having a transverse exit branch which extends to the edge of the plunger, of a locking-latch arranged at one side of the plunger and movable across the grooved face thereof and having a pin or projection arranged to occupy said main groove and break register with said exit branch in the normal outer position of the plunger and to register with said exit branch in the inner position of the plunger, substantially as set forth.

4. In a coin-controlled machine, the combination of a plunger having a locking groove or recess provided with lateral exit and return branches leading from and to the same, and a laterally-movable latch arranged at one side of the plunger and provided with a locking-pin normally arranged in said groove, and adapted to leave and enter said locking-groove through said exit and return branches, substantially as set forth.

5. In a coin-controlled machine, the combination with a plunger provided with a coin-abutment and in rear of said abutment with a longitudinal locking-groove having lateral exit and return branches arranged one in front of the other, of a spring-pressed, laterally-swinging latch provided at one side of the plunger and having a pin which is normally arranged in said longitudinal groove, and a stationary coin abutment or wall located opposite the pivoted end of said latch and separated therefrom by an intervening coin-passage, substantially as set forth.

6. In a coin-controlled machine, the combination of a plunger having a main locking-shoulder and a groove or passage leading to said shoulder and having one of its walls provided with auxiliary locking shoulders or teeth, and a spring-pressed latch having a pin or projection arranged to enter said groove and engage either with said main locking-shoulder or said auxiliary shoulders, substantially as set forth.

7. In a coin-controlled machine, the combination of a plunger provided with a coin shoulder or abutment and in rear of said abutment with a locking groove or recess having lateral branches arranged one in front of the other and forming exit and return passages, said return-passage being arranged obliquely and having its front wall provided with a series of locking-teeth, and a laterally-swinging latch pivoted at one side of the plunger and provided with a locking-pin arranged to engage either in said longitudinal groove or with said locking-teeth, substantially as set forth.

8. In a coin-controlled machine, the combi-

5 nation with a plunger having a main locking-groove extending lengthwise thereof and lateral exit and return grooves leading from and to said main groove, said main groove extending rearwardly beyond said exit-groove, of a laterally-movable latch having a locking pin or projection arranged normally in said main groove, substantially as set forth.

10 9. In a coin-controlled machine, the combination of a plunger, a spring-pressed, laterally-movable locking-latch arranged at one side of the plunger, and a stationary coin-abutment arranged at the opposite side of the plunger, said latch extending inwardly beyond said stationary abutment, and the
15 plunger being provided with a coin-abutment and in rear of said abutment with a coin-stop which is arranged to stand opposite said latch

in the inward position of the plunger, substantially as set forth. 20

10. In a coin-controlled machine, the combination with a case, of a plunger guided thereon and a locking device for the plunger, said plunger having a coin-abutment for causing a coin placed on the plunger to move inward therewith, and provided in rear of said coin-abutment with a stop which limits the inward movement of the coin on the plunger and compels the coin to move outward therewith, substantially as set forth. 25 30

Witness my hand this 26th day of September, 1901.

BERNHARD HOLZ, JR.

Witnesses:

THEO. L. POPP,
CARL F. GEYER.