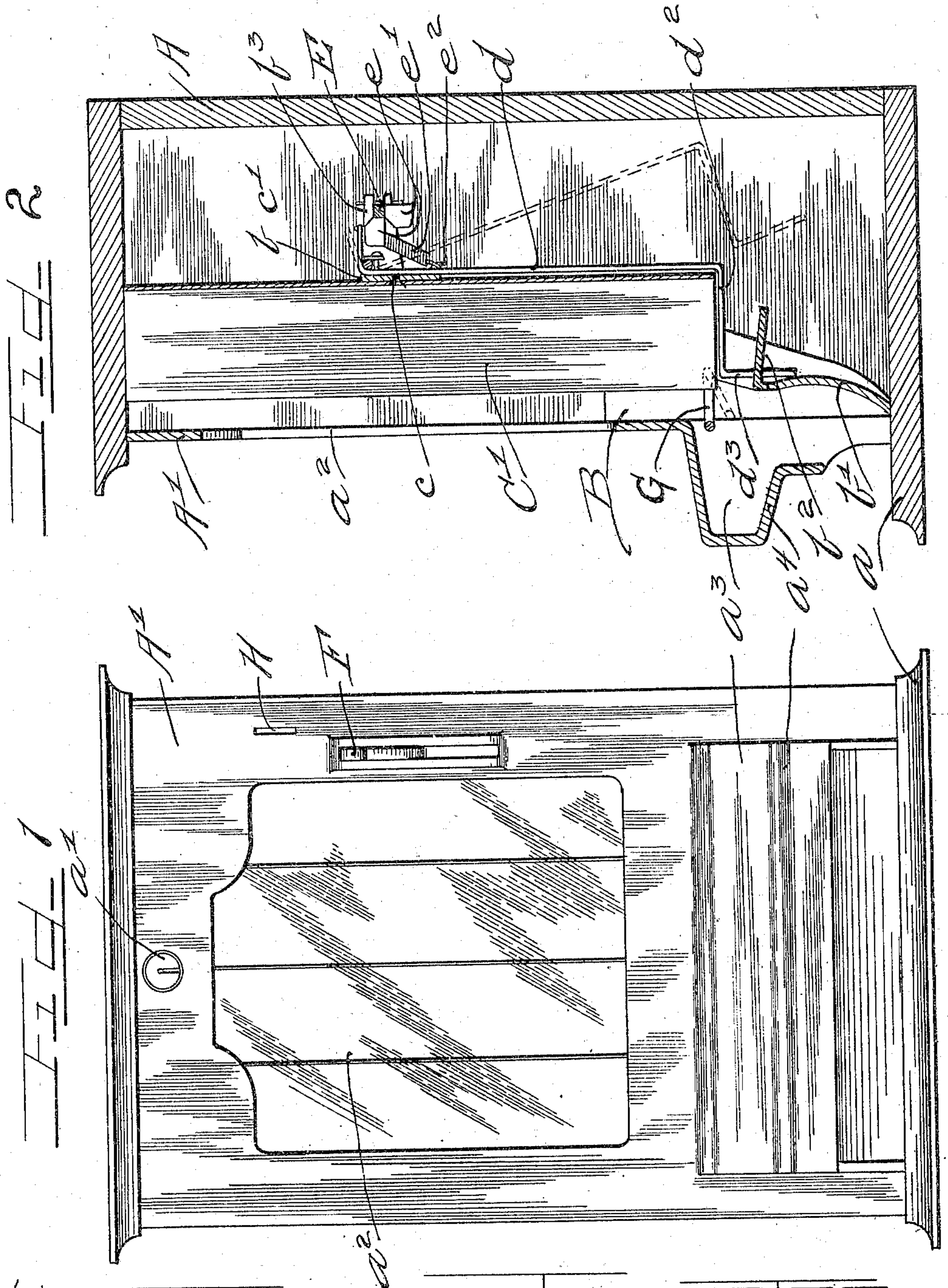


J. F. KRCMA.
 VENDING MACHINE.
 APPLICATION FILED JAN. 27, 1909.

957,971.

Patented May 17, 1910.

4 SHEETS—SHEET 1.



WITNESSES
 J. St. Angell.
 J. F. Krcma

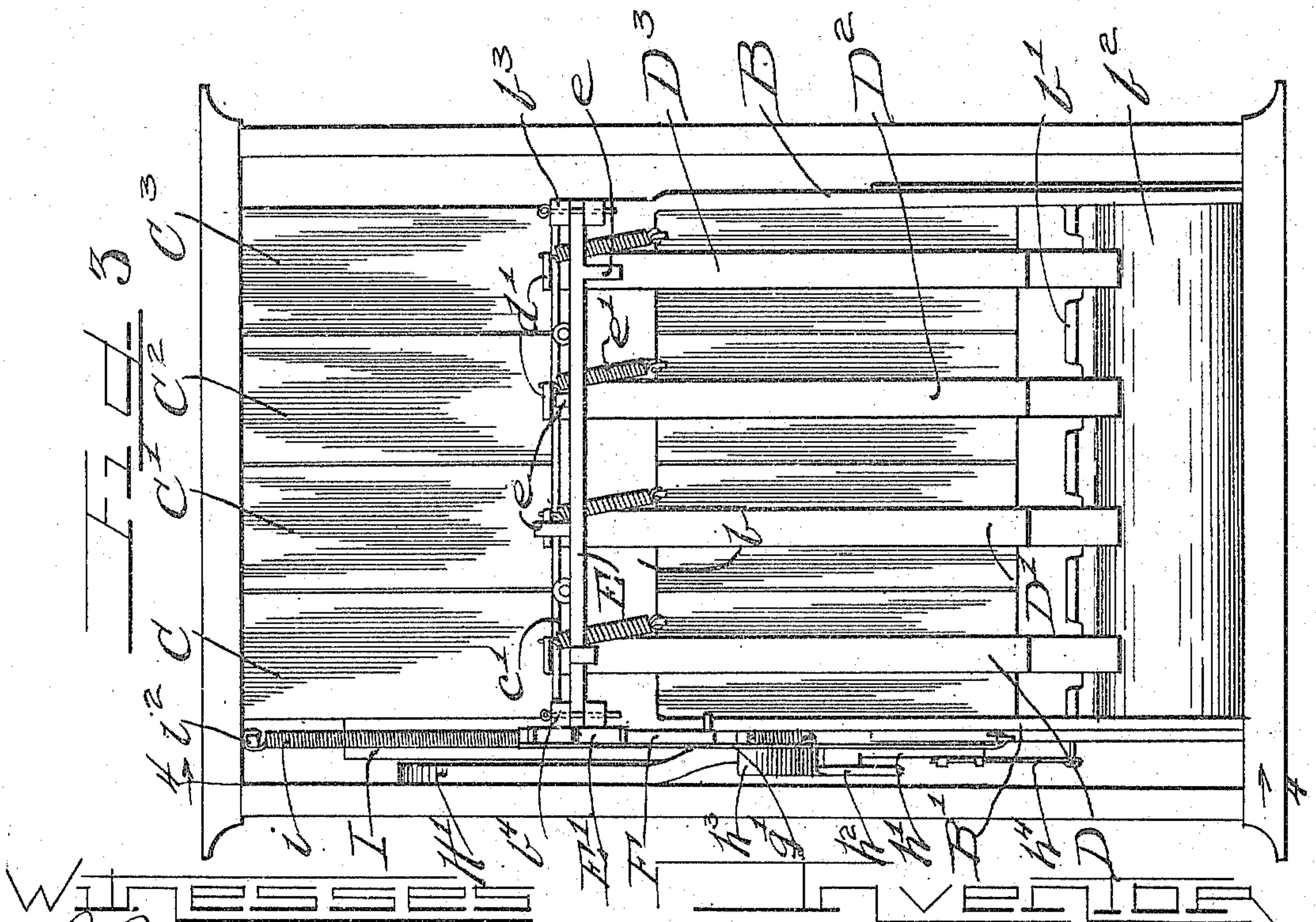
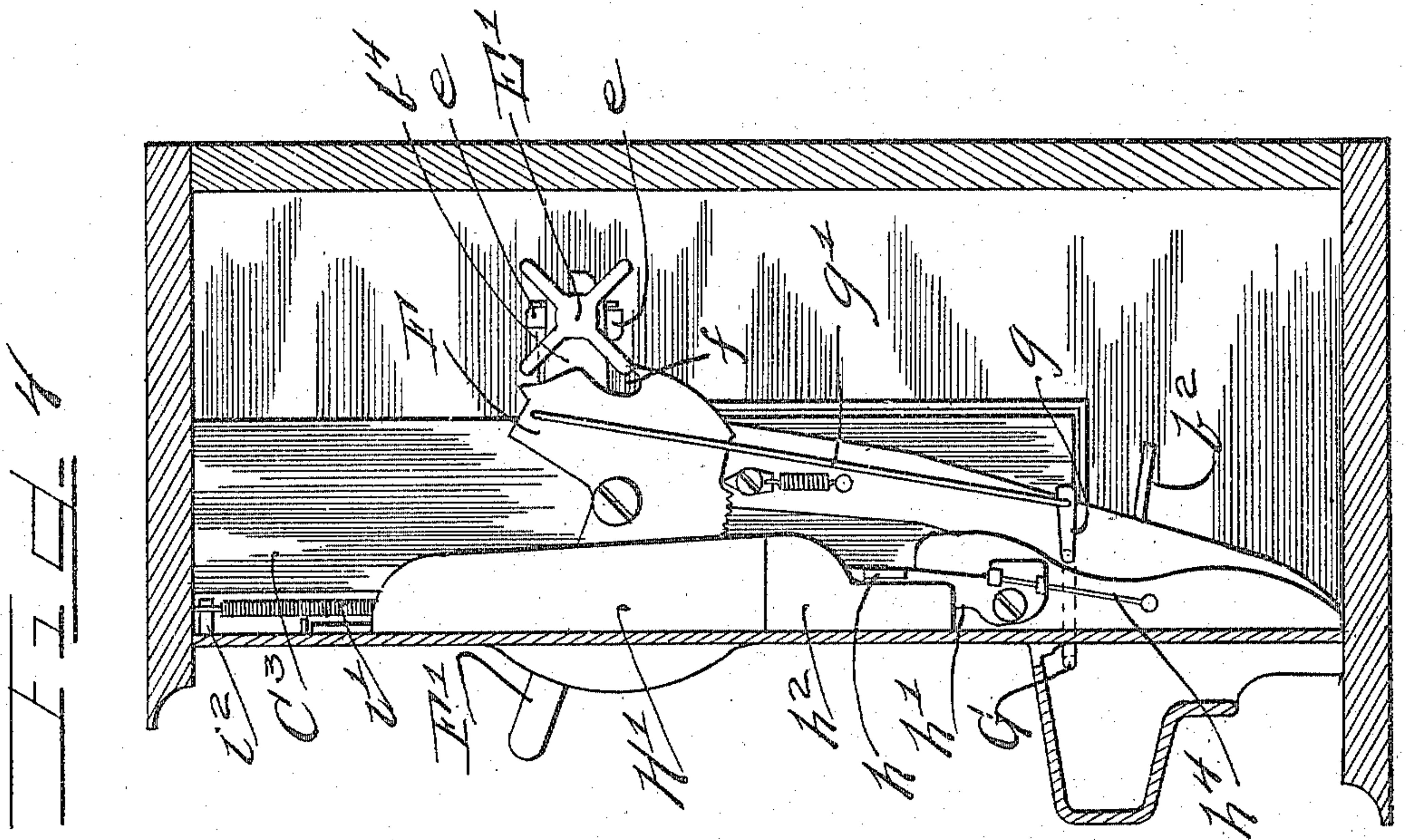
INVENTOR
 John F. Krcma
 Charles W. Hayes

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4 SHEETS—SHEET 2.



J. H. Angell.
 R. E. Krcma

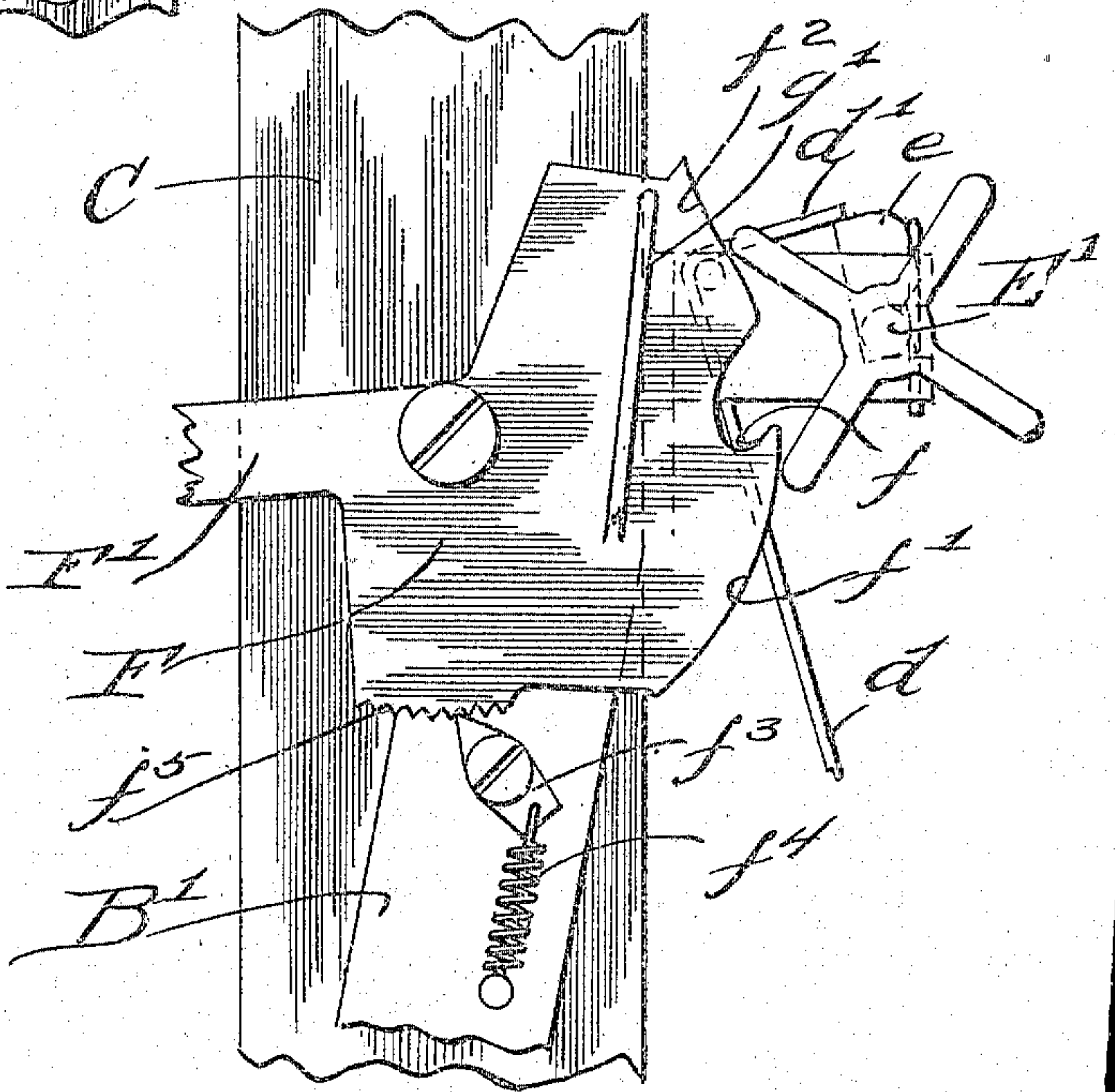
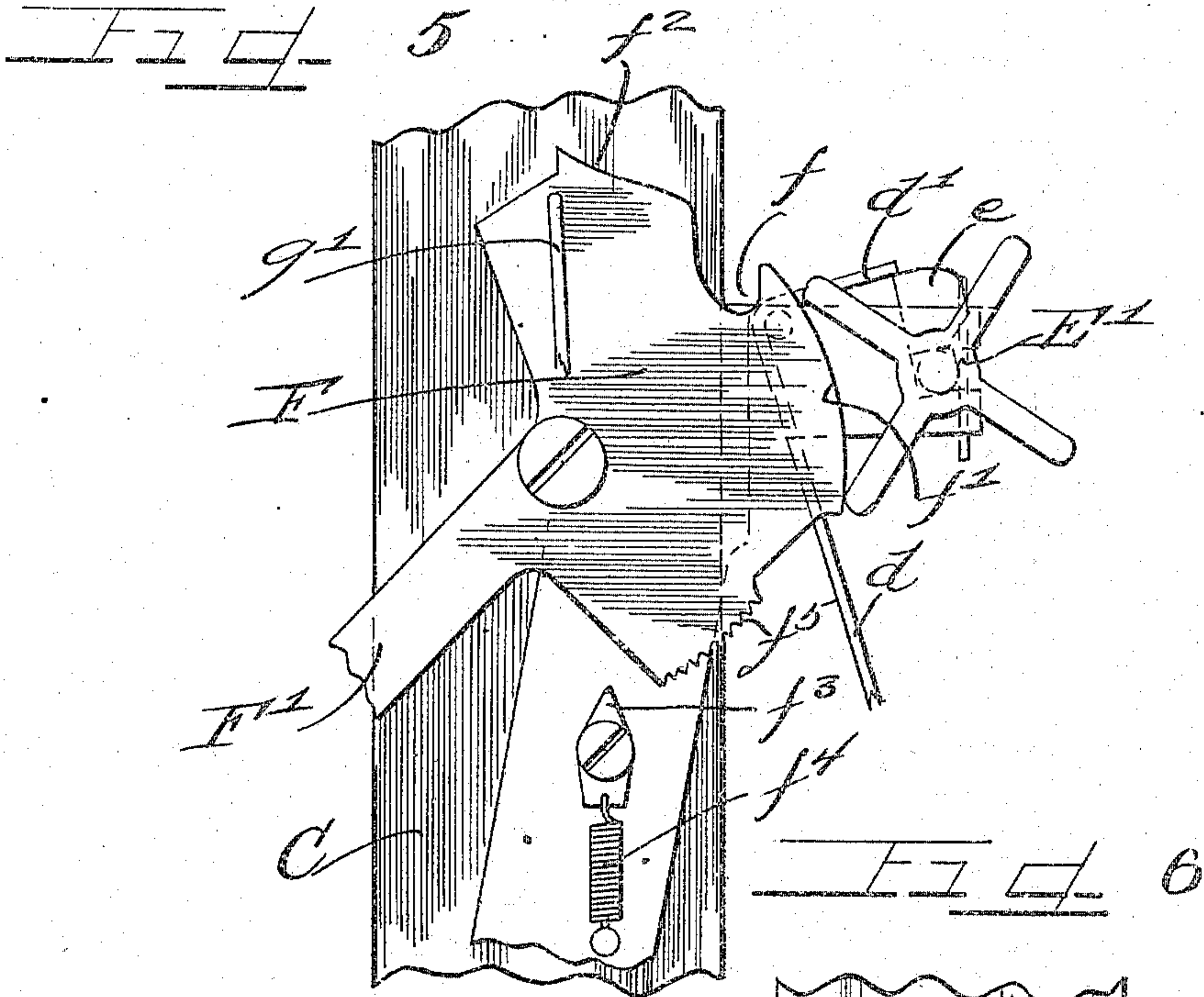
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4 SHEETS-SHEET 3.



WITNESSES

J. H. Angell.
 J. H. Angell.

INVENTOR

John F. Krcma
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4 SHEETS—SHEET 4.

Fig. 7

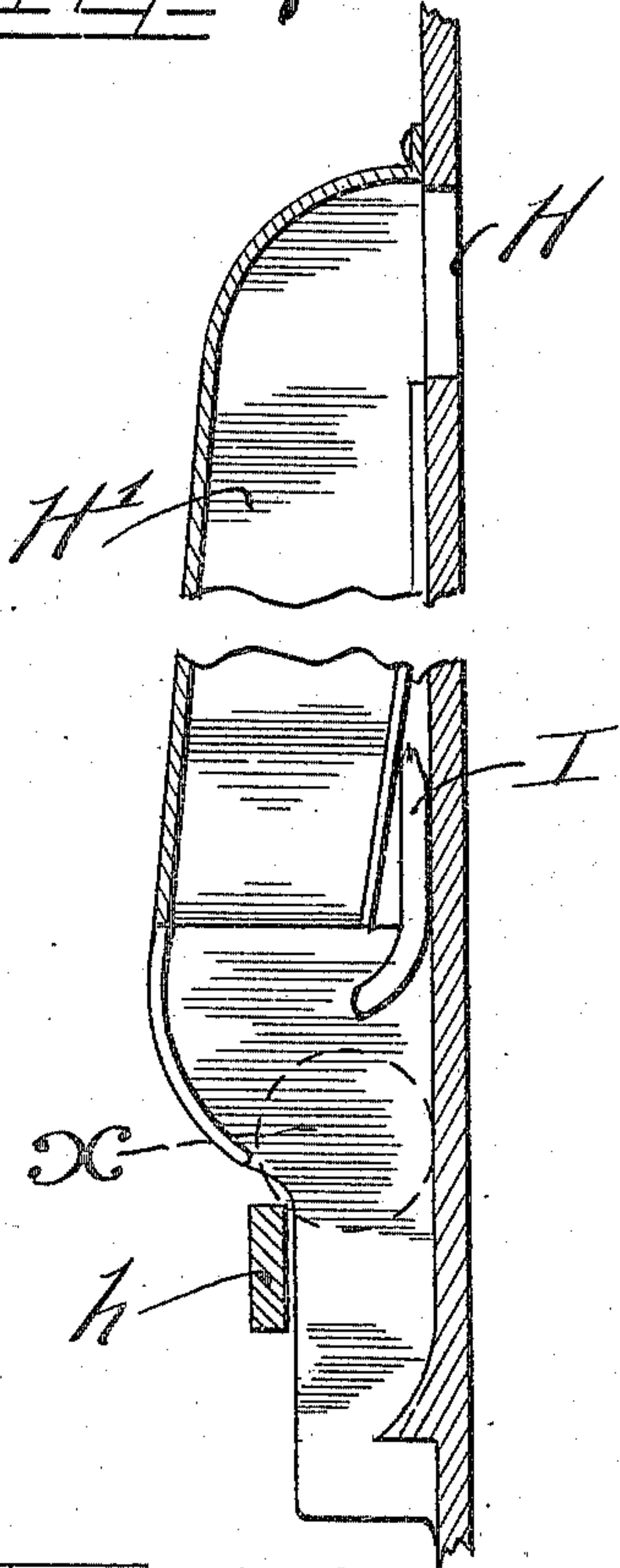


Fig. 9

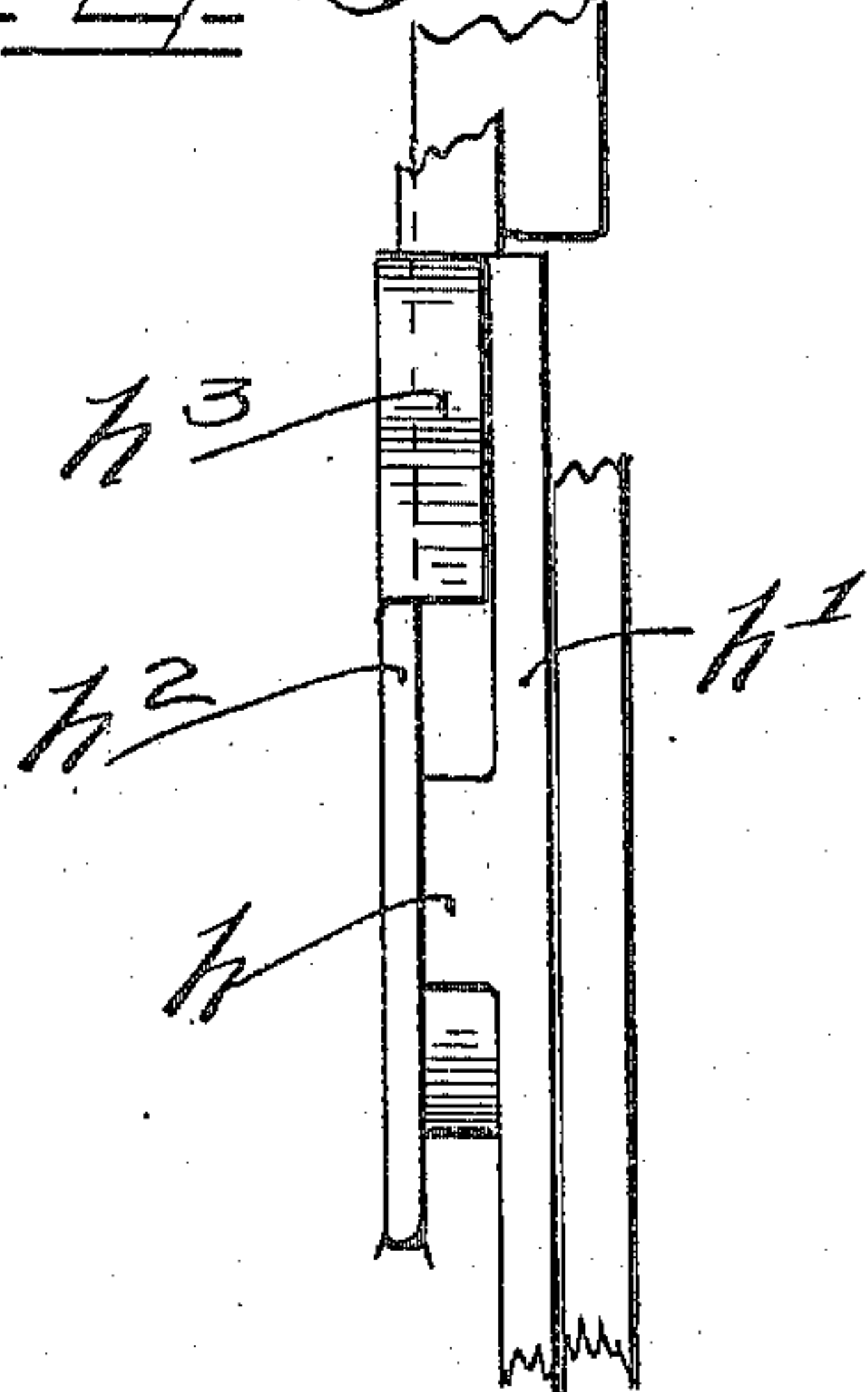
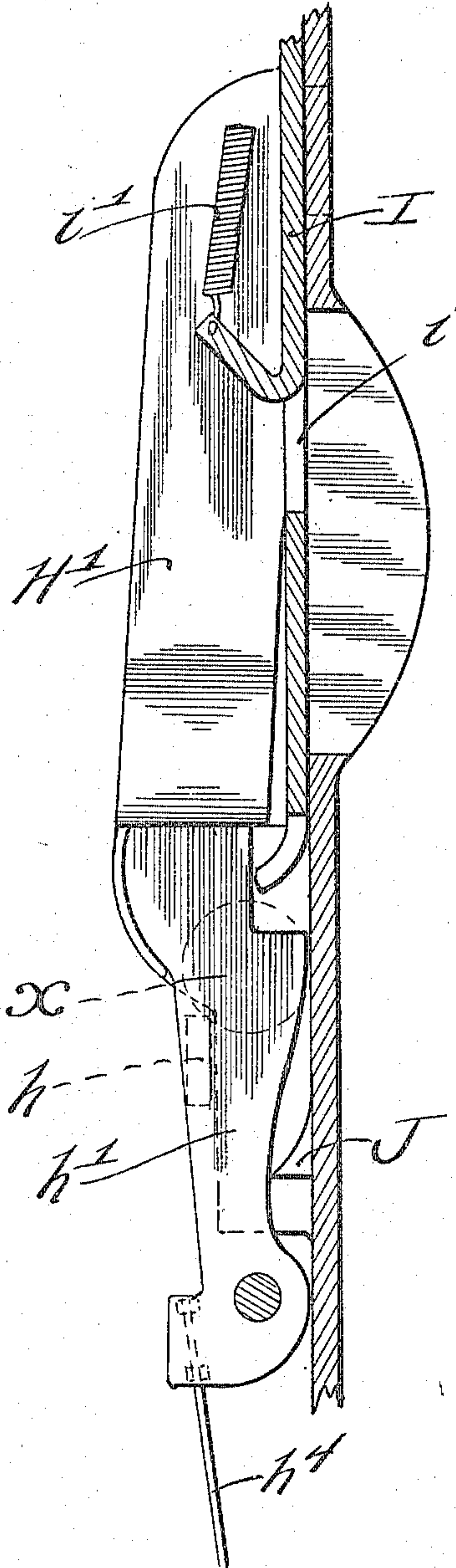


Fig. 8



WITNESSES

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Att'y

UNITED STATES PATENT OFFICE.

JOHN F. KRCMA, OF CHICAGO, ILLINOIS.

VENDING-MACHINE.

957,971.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed January 27, 1909. Serial No. 474,377.

To all whom it may concern:

Be it known that I, JOHN F. KRCMA, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vending-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in vending machines and more particularly to a machine for vending small boxes of matches or any other article sold in small packages or boxes.

It has heretofore been deemed necessary in cigar stores, restaurants, etc. to keep a supply of matches on the counter accessible to the patrons, who usually liberally help themselves. The large quantity of matches thus used amounts to quite an item of expense to the proprietors of such places. Often too, it is desired to secure a box of matches at times and places where it is inconvenient or impossible to secure the same from a store.

It is an object of this invention to provide a machine of the class specified from which one or more boxes of matches may be obtained.

It is also an object of this invention to provide a machine of the class specified which is operated by the insertion of the proper coin and actuation of a suitable lever and which cannot be operated unless the proper coin has first been inserted in the slot.

It is further an object of this invention to provide a machine in which a plurality of compartments or troughs are provided, each adapted to contain the desired number of boxes and an independent mechanism for each, said mechanisms acting successively to eject a box from each trough.

It is finally an object of this invention to provide a very compact device containing simple operating mechanism which is exceedingly durable and not likely to get out of order.

The invention relates to the matters hereinafter described and more fully pointed out and defined in the appended claims.

On the drawings: Figure 1 is a front ele-

vation of a device embodying my invention. Fig. 2 is a transverse vertical section thereof. Fig. 3 is a rear elevation of the machine with the rear wall of the casing removed. Fig. 4 is a section taken on line 4-4 of Fig. 3. Fig. 5 is an enlarged fragmentary detail of the actuating mechanism with the actuating lever fully depressed. Fig. 6 is a similar view with the actuating lever partly returned to normal. Fig. 7 is an enlarged fragmentary detail taken through the coin chute. Fig. 8 is an enlarged fragmentary detail of the locking mechanism with the parts in side elevation. Fig. 9 is a fragmentary rear elevation of the locking mechanism.

As shown in the drawings: A, indicates a casing or housing constructed of suitable material which is oblong or any other preferred shape and open at the front. The bottom a , of said casing projects sufficiently outwardly to provide a rest for the box when ejected from the machine. A closure or cover A' , is secured to the casing in any convenient manner at the bottom, and at the top by means of a lock a' , adapting the closure to be removed for replenishing the machine with boxes of material and said cover is provided with a glass or other transparent section a^2 , whereby the supply in the machine is readily ascertained. The closure at its lower end is provided with a channel a^3 , which receives the ejected box and the wall a^4 , forming the bottom of the channel is inclined downwardly to direct the box from the machine.

Rigidly secured in the casing A, adjacent the cover A' , is a frame comprising side members B-B', rigidly connected at their upper ends by a bar b , and at their lower ends by a bar b' , which is slightly concaved to deflect or direct the box outwardly through the aperture in the cover below the channel. Integral with the top of the bar b' , is a rearwardly directed flange b^2 , affording a table or support for the box as during the ejecting operation.

Troughs or compartments C-C'-C²-C³, are provided for receiving boxes therein. As shown, said troughs are positioned directly above the flange and extend downwardly from the top of the casing to within a short distance above the support b^2 , allowing sufficient space therebetween for the ejecting means to freely operate. Each

trough is rigidly secured to the bar b , by means of a screw c , or in any other preferred manner.

Rigidly secured to the bar b , in any suitable manner is a shaft c' , upon which are pivoted the ejecting and supporting members or triggers $D-D'-D^2-D^3$, one for each compartment. Each of said members comprises a strip or bar of metal d , having its upper end d' , rearwardly directed at approximately a right angle and which pivotally supports the member on the shaft. The lower end d^2 , of each member is directed forwardly at approximately a right angle and fits closely beneath the respective compartment, affording a rest upon which the boxes in the compartment are normally supported and the extremity or ejecting end d^3 , of each bar is directed downwardly and is freely movable in a suitable slot in the flange or supporting table b^2 . For the purpose of actuating the ejecting members successively a cam bar E , is journaled at its ends in rearwardly directed brackets b^3-b^4 , secured to the frame and integral therewith are cams e , arranged at 90° apart, one for each ejecting member adapted to engage under the end d' , of the respective ejecting member and swing the same rearwardly in its pivot to the position shown in dotted lines in Fig. 2. After the cam has been adjusted to clear the end d' , the ejecting member is quickly snapped forward by means of the springs e' , one of which is secured to the end d' , of each ejector and is connected at its opposite end to a lug e^2 , integral with the bar b .

Rigidly secured on the end of the cam shaft E , is a star wheel E' , which is operated by means of a cam member F , pivoted to the side B' , of the frame, and a lever F' , integral with the cam member extends forwardly and projects through a suitable slot in the closure A' , in position to be manually operated. Said cam member is provided with a notch f , adapted to engage one tooth of the star wheel E' , therein and rotate the same by depression of the lever F' . From the notch f , downwardly the cam member is rounded at f' , adapted to engage between adjacent teeth of the star wheel when the lever is fully depressed and lock said wheel from further rotation. From the upper edge of the notch f , the cam member is curved slightly inwardly then outwardly to provide an inclined cam face f^2 , which is adapted to engage one of the teeth of the star wheel E' , and rotate the cam bar E , slightly as the lever returns to normal position, to release the end d' , of the ejector from the cam e , as shown in Fig. 6, whereby the spring e' , for the respective ejector actuates the same to remove the lower box from its compartment. In order to necessitate the actuating lever F' , being thrown to each limit of movement before reversal, a dog f^3 ,

is pivoted to the side member B' , of the frame, which at one end is adapted to engage the teeth f^5 , integral with the cam member F , and a spring f^4 , normally holds the dog in position to engage the teeth.

For the purpose of preventing displacement of a box from the lower end of any of the compartments, a guard rod G , is pivoted at its ends to the side member $B-B'$, of the frame. Said guard G , at the end adjacent the actuating mechanism is shaped to provide a crank arm g , and a rod g' , connects said crank arm g , and cam member F , whereby the guard is adjusted by movement of the cam member.

Mechanism is provided for locking the lever and actuating mechanism from operation until the proper coin has been fed to the machine. For this purpose, a coin slot H , is provided in the closure from which leads a coin chute H' , to direct the coin against a cam bar h , integral with a pivotally supported locking bar h' , and a spring h^4 , is secured at one end to the locking bar and at its opposite end to the cover and acts to hold the locking bar in normal position. A guard h^2 , is rigidly secured to the cover adapted to confine the coin to rest on the cam bar h , between the same and locking bar h' , and a flange b^3 , integral with the guard h^2 , precludes the possibility of the coin rolling over the top of the cam bar.

A reciprocating bar I , is secured to slide against the cover and a notch i , is formed in said bar, as shown, by striking the metal upwardly through which the lever F' , extends. The lower end of said reciprocating bar I , is curved to provide a cam surface which engages in a notch in the upper part of the pivotal locking bar h' . A spring i' , is secured at one end to the struck up metal of the reciprocating bar and at its opposite end is secured to any rigid part but, as shown, in Fig. 4, is engaged to a pin i^2 , secured to the cover.

A deflector J , is secured to the cover adapted to direct the coin to the rear of the box to clear the actuating mechanism.

The operation is as follows: A suitable coin X , is inserted in the coin slot and is directed by the chute H' , and guards h^2-h^3 , to rest between the cam bar h , and the cover. The lever F' , is next depressed and the lower cam end of the reciprocating bar presses the coin downwardly which in turn forces the locking bar h' , outwardly, permitting the lower end of the reciprocating bar clearing said locking bar. While the foregoing operations are taking place, during the depression of the lever, the notch f , in the cam member F , has engaged the appropriate tooth of the star wheel E' , and rotated the same to the position shown in Fig. 5, in which position the cam e , has almost released the end d' , of the ejector. The direction of

movement of the lever is now reversed returning the reciprocating bar I, to normal and the locking bar h' , is returned to locking position by the spring h^4 , at the same time the locking face f' , of the cam member has rotated from between the teeth and the upper tooth of the star wheel is engaged by the inclined face f^2 , of the cam member, which rotates the star wheel E' , and consequently the cam shaft E, just sufficiently for the cam e , to clear the end d' , of the ejecting member, permitting the spring e' , to snap said member or trigger to normal ejecting the lowest box in the proper compartment, which is guided by the wall a^4 , of the cover and b' , of the frame upon the platform a .

It is seen that when the respective ejector has been retracted the boxes in its compartment fall by gravity and are supported by the rest or flange b^2 , but at all other times the boxes are supported on the end e^2 , of the ejecting members. Also, as the lever is depressed the guard G, is shifted to the position shown in dotted lines in Fig. 2, in which adjustment it engages in front of the lowest box resting on the flange b^2 , and prevents displacement thereof from any cause. As the lever returns to normal and before the ejecting member is released, the guard G, has returned to its normal position permitting free egress of the box. In its normal position the guard G, prevents a box from being removed from the rest d^2 , thereby making it impossible for anyone to fraudulently remove a box from the machine. As is obvious, the ejectors act successively to remove the lower boxes from the succeeding compartments and each ejecting mechanism is independent of the operation of any other. This is of great importance for if the mechanism for one compartment should from any reason become inoperative the mechanism for the other three compartments will continue to operate. For instance, if one compartment was emptied at a time, it is obvious that should the ejecting mechanism for the first compartment become inoperative before said compartment was emptied, the boxes from the other compartments could not be removed, thus rendering the whole machine inoperative whereas in this construction the inoperativeness of the mechanism for any one compartment does not affect the operating of the mechanism for the other compartments. It is also seen that should the lever be actuated without first inserting a coin the lower end of the reciprocating bar, moving with the lever, engages against the notched edge of the locking bar which blocks further movement of the lever and prevents rotation of the cam shaft.

In refilling the machine the front cover is unlocked and lifted out, exposing the trough or compartments.

The spring i' , secured to the reciprocating

bar, may be strong enough to automatically return the same and lever to normal position or the lever may be manually returned, as is preferred.

Many details of construction may be changed and I therefore do not desire to limit this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. In a machine of the class described a casing, compartments therein for receiving boxes, means for supporting the boxes and ejecting the same singly from the machine, mechanism adapted to retract said means and then release the same and a lever adapted on one stroke to actuate the mechanism to retract said means and on the return stroke to actuate the mechanism to release said means to eject the box.

2. In a machine of the class described a casing, compartments therein for receiving boxes, means for supporting the boxes and ejecting the same singly from the machine, actuating mechanism for adjusting said means, a lever for actuating said mechanism, a locking bar pivoted to the casing and a reciprocating bar having a slot through which the lever extends normally held from movement by the locking bar.

3. In a vending machine a casing, a plurality of troughs or compartments therein, independent ejecting mechanisms, one for each compartment acting successively to eject the articles therefrom, and a guard connected to simultaneously operate with the actuation of the ejecting mechanisms to hold all articles in place except the one to be ejected.

4. In a vending machine a casing, a plurality of troughs or compartments therein, independent ejecting mechanism one for each compartment acting successively to eject the articles therefrom, a guard for preventing accidental displacement of the articles from all of the compartments and means for simultaneously operating the appropriate ejecting mechanism and the guard.

5. In a vending machine a casing, a plurality of troughs or compartments therein, oscillating ejecting members, one for each compartment adapted to support the articles in the respective compartment, and to successively oscillate to eject the articles singly from the machine, means for successively oscillating the ejecting members, and a support upon which the articles rest when the ejecting member for any compartment is actuated.

6. In a vending machine a casing, a plurality of troughs or compartments therein, ejecting members, one for each compartment adapted to support the articles in the respective compartment, and to eject the articles singly from the machine, means for successively actuating the ejecting members, a

support upon which the articles rest when the ejecting member for any compartment is actuated, a pivotal guard actuated to prevent displacement of the lowest article on said support and elevated to permit ejection of said lowest article prior to the ejecting means engaging the article.

7. In a vending machine a plurality of vertical troughs or compartments for receiving boxes therein, pivotally supported members, one for each compartment adapted to support the boxes, means for actuating the members selectively and adjusting the same to release the boxes, a support upon which the released boxes rest, means for actuating the adjusted pivotally supported member to eject one of the boxes from the support and to support the remaining boxes in the appropriate compartment, and a guard extending across all of the compartments in a plane above the box to be ejected and preventing displacement of all other boxes.

8. In a machine of the class described a casing, a frame thereon, open bottomed vertical compartments or troughs secured to the frame, pivoted ejecting members, one normally forming the bottom for each compartment, means for swinging the appropriate pivoted ejecting member to permit the articles in its compartment dropping by gravity, means for supporting the articles after dropping the appropriate distance, means for actuating the proper ejecting member to eject one of the articles in its compartment from the machine and to again support the remaining articles in its compartment, and means extending across all the compartments for preventing fraudulent removal of any box.

9. In a machine of the class described a casing, a frame therein, means secured to the frame providing a plurality of compartments, pivotally supported ejecting triggers having rearwardly directed upper ends, and cams adapted to successively engage said rearwardly directed ends of the ejecting triggers for actuating the triggers to successively eject articles from the compartments.

10. In a machine of the class described a casing, a frame therein, means secured to the frame providing a plurality of compartments, pivotally supported ejecting triggers, each comprising a bar of metal bent rearwardly at its upper end and bent forwardly at its lower end to provide a support, cams for successively engaging the upper rearwardly directed ends of the triggers for actuating the triggers to successively eject articles from the compartments, mechanism for rotating the cams, and means for locking said mechanism from operation.

11. A vending machine comprising a casing, a frame therein, means secured to the frame providing a plurality of compart-

ments, ejecting triggers, one for each compartment and each adapted to act independently of the others, a shaft journaled to the frame, cams thereon, one for actuating each trigger, actuating means for intermittently rotating the shaft for successively actuating the triggers, and a guard pivotally connected with the actuating means for preventing removal of any article except the one to be ejected.

12. A vending machine comprising a casing, a frame therein, means secured to the frame providing a plurality of compartments, ejecting triggers, one for each compartment and each adapted to act independently of the others, a shaft journaled to the frame, cams thereon, one for actuating each trigger, a toothed wheel secured to the shaft for rotating the same for successively actuating the triggers, and means for actuating the shaft to preliminarily adjust the proper cam to set the trigger and then further actuate the shaft to adjust the cam to release the trigger.

13. In a vending machine a casing, compartments therein, ejecting triggers operating at the lower ends of the compartments, manually actuated mechanism for independently retracting the triggers, means for automatically returning the retracted trigger to eject an article from the proper compartment, a lock adapted to prevent movement of the manually actuated mechanism and a pivoted guard extending across all the compartments.

14. In a device of the class described a casing, compartments therein for holding boxes of articles, an independent ejecting mechanism for each compartment manually operated to permit the boxes in the respective compartment to move to discharge position and automatically operated to discharge one of the boxes, and a cam lever for actuating said ejecting mechanism adapted on one stroke to set the respective trigger and on the return stroke to release the trigger.

15. In a device of the class described a casing, means therein for receiving boxes of articles, means for discharging the boxes singly therefrom, means for setting the discharge means when moved in one direction and adapted to release the discharge means when moved oppositely and means for automatically actuating the discharge means to eject one of the boxes from the receiving means.

16. In a match vending machine, means for receiving boxes of matches, means for both supporting and ejecting the boxes from the machine, manually actuated means for retracting the ejecting means and releasing the same, means for actuating the ejecting means immediately after the same is released to force a box from the machine, and

a guard for preventing removal of any box except when the machine is operated.

17. In a match vending machine compartments for receiving the boxes of matches therein, a discharging member supported at the rear of each compartment having a horizontal end to support the boxes, a cam shaft, cams thereon for engaging the appropriate discharging member, a star wheel on the end of the cam shaft, a cam member for actuating the star wheel to rotate the cam shaft to first retract and then release the appropriate discharging member, and a lever for actuating the cam member.

18. In a match vending machine compartments for receiving the boxes of matches therein, a discharging member supported at the rear of each compartment having a horizontal end to support the boxes, a cam shaft, cams thereon for engaging the appropriate discharging member, a star wheel on the end of the cam shaft, a cam member for actuating the star wheel to rotate the cam shaft to first retract and then release the appropriate discharging member, a lever for actuating the cam member and means for preventing reverse movement of the lever until the same has been adjusted to the limit of its movement.

19. In a match vending machine compartments for receiving the boxes of matches therein, a discharging member supported at the rear of each compartment having a horizontal end to support the boxes, a cam shaft, cams thereon for engaging the appropriate discharging member, a star wheel on the end of the cam shaft, a cam member for actuating the star wheel to rotate the cam shaft to first retract and then release the appropriate discharging member, a lever for actuating the cam member, a pivotally supported locking bar, a reciprocating bar controlling the

movement of the lever and normally locked from movement by said locking bar and means adapted to adjust the locking bar to permit the reciprocating bar moving therepast.

20. In a match vending machine means for receiving boxes of matches, mechanism for ejecting the boxes singly from the machine, a lever for actuating the ejecting mechanism, a reciprocating bar apertured to receive the lever therethrough and pivoted means for normally locking the reciprocating bar from movement.

21. In a machine of the class described a casing, means for receiving boxes of articles therein, means for discharging said boxes singly, actuating mechanism therefor, a lever for operating the actuating mechanism, a locking bar, a cam integral therewith, and means movable with the lever normally locked from movement by the bar.

22. In a machine of the class described a casing, means for receiving boxes of articles therein, means for discharging said boxes singly, actuating mechanism therefor, a lever for operating the actuating mechanism, a locking bar, a cam integral therewith, means movable with the lever normally locked from movement by the bar and adapted to adjust the locking bar to permit movement of the lever, means for automatically returning the lever to normal after each actuation and means for automatically returning the locking bar to normal.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN F. KRCMA.

Witnesses:

C. W. HILLS,
K. E. HANNAH.