

E. COLWELL, JR.  
 COIN CONTROLLED TYPE WRITER LOCKING MECHANISM.  
 APPLICATION FILED OCT. 1, 1908.

923,143.

Patented June 1, 1909.

5 SHEETS—SHEET 1.

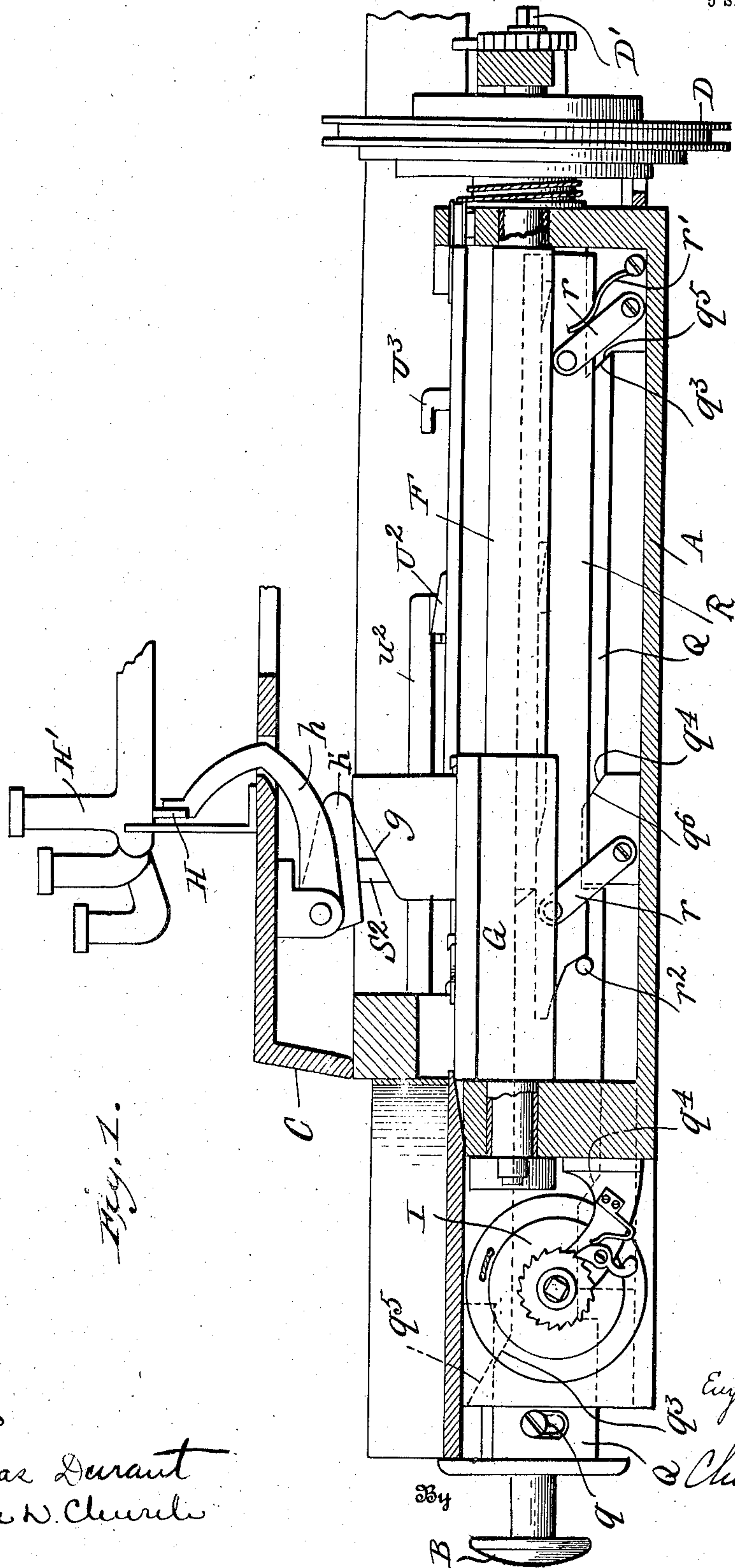


Fig. 1.

Witnesses

Thomas Durant  
 Melville W. Church

Inventor

Eugene Colwell, Jr.

Church & Church

his Attorneys

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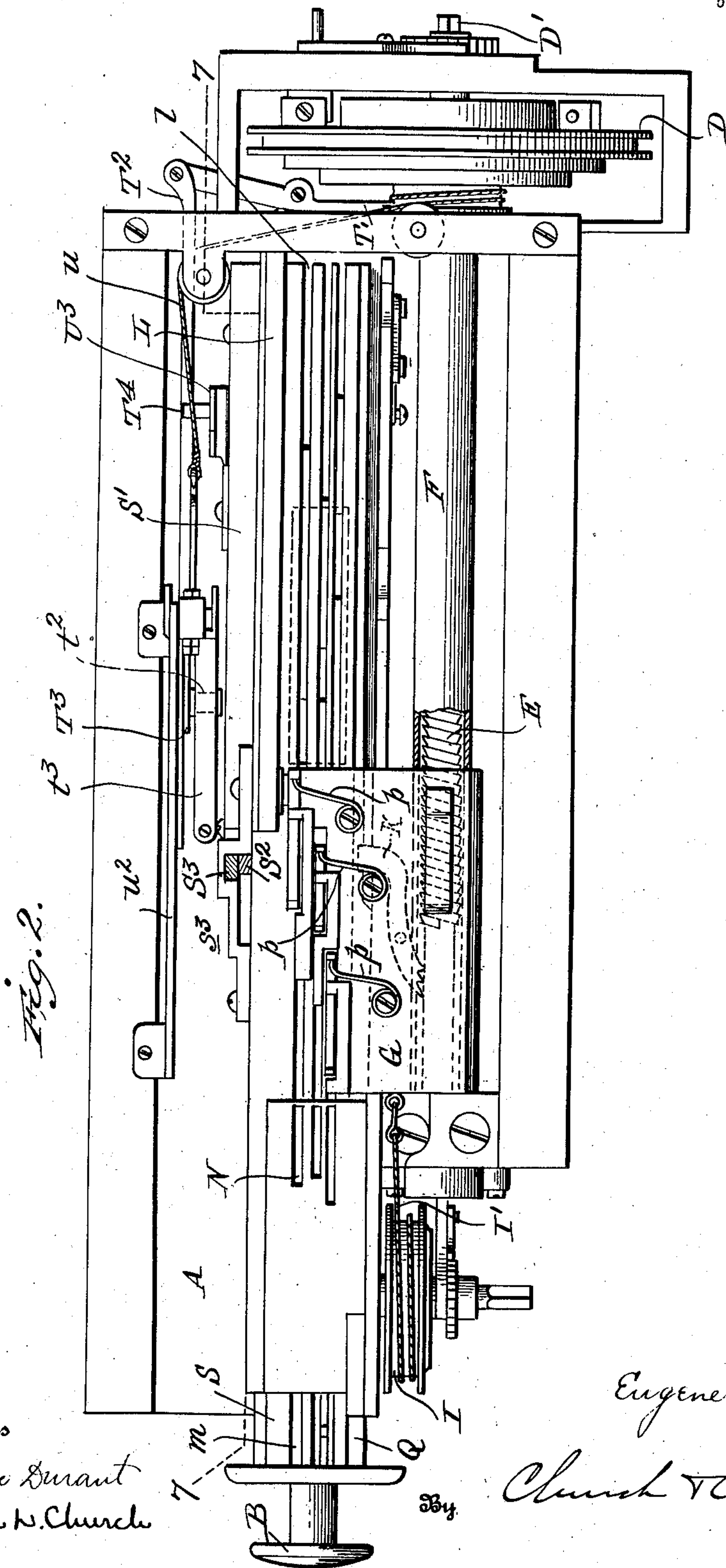


Fig. 2.

Witnesses  
 Thomas Durant  
 Melville W. Church

Inventor  
 Eugene Colwell Jr.

Church & Church

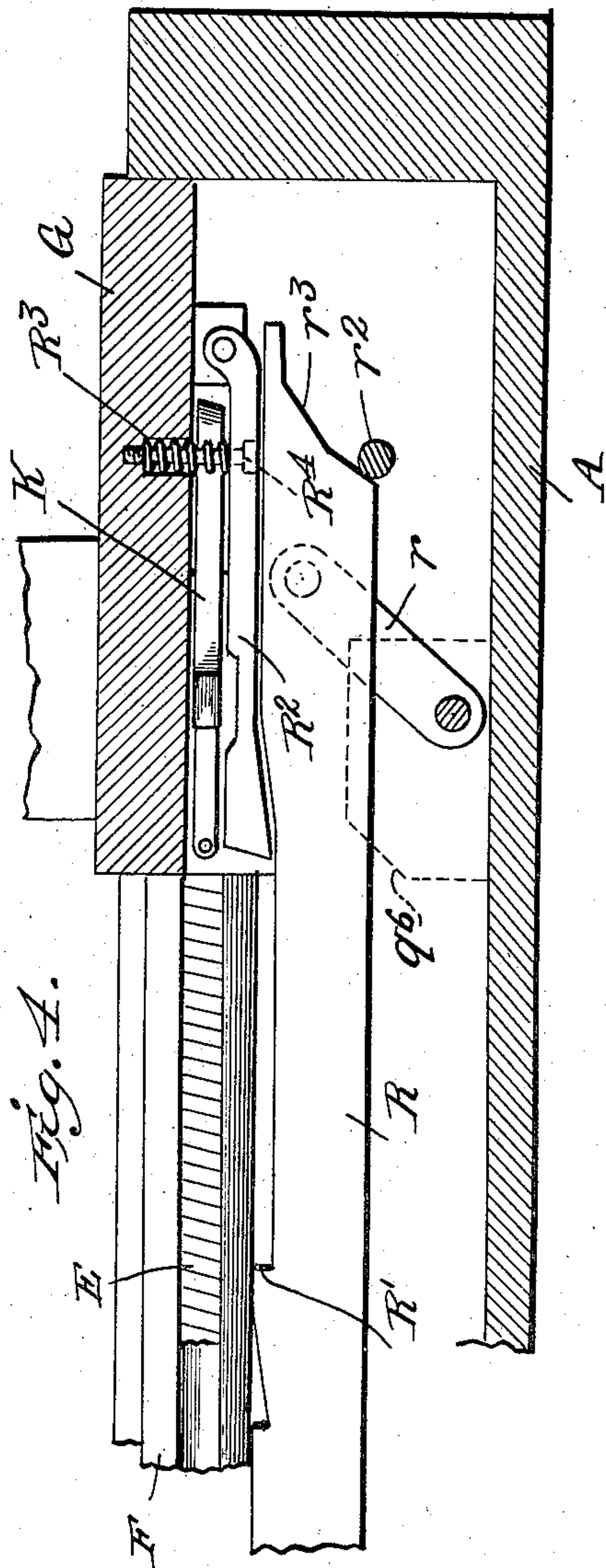
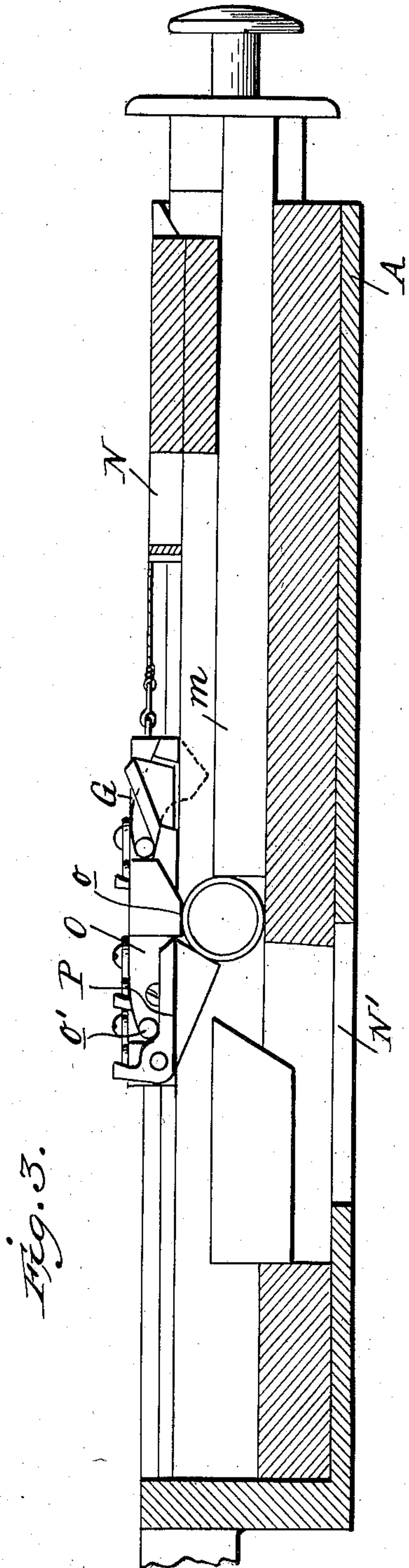
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 Melville W. Church

Inventor

Eugene Colwell Jr.

By

Church & Church

his Attorneys



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Thomas Durant  
Melville W. Church

Eugene Colwell Jr.

334 Church & Church

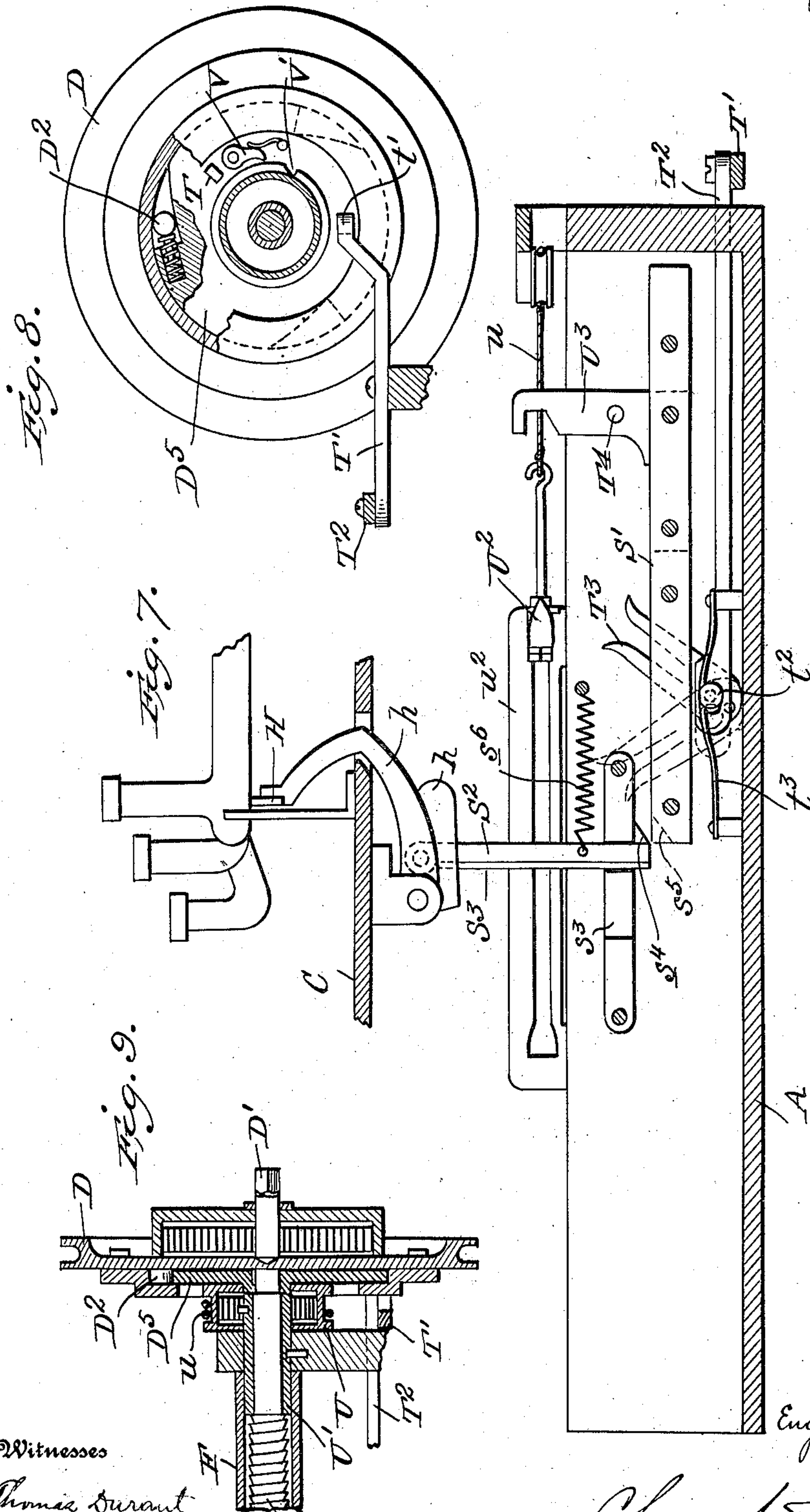
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5 SHEETS—SHEET 5.



Witnesses  
 Thomas Durant  
 Melville W. Church

Inventor  
 Eugene Colwell Jr.

By *Church & Church*

Attorneys



# UNITED STATES PATENT OFFICE.

EUGENE COLWELL, JR., OF GREENSBORO, NORTH CAROLINA.

## COIN-CONTROLLED TYPE-WRITER LOCKING MECHANISM.

No. 923,143.

Specification of Letters Patent.

Patented June 1, 1909.

Application filed October 1, 1908. Serial No. 455,632.

*To all whom it may concern:*

Be it known that I, EUGENE COLWELL, Jr., a citizen of the United States, residing at Greensboro, in the county of Guilford, State of North Carolina, have invented certain new and useful Improvements in Coin-Controlled Type-Writer Locking Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the characters of reference marked thereon.

The present invention relates to coin controlled or actuated mechanism for locking a typewriter against operation until released by the deposit of a coin of proper denomination, and the objects of the invention are to provide a simple arrangement which may be applied to typewriters of ordinary construction, when so desired, and in which the resetting of the lock is dependent upon the actuation of the printing mechanism of the typewriter.

A further object of the invention is to provide a mechanism adapted to receive coins of different denominations and to hold the locking devices out of engagement during the operation of the printing mechanism during the printing of a greater or less length of composition determined by the value of the coin deposited.

A further object of the invention is to provide justification and safety devices whereby the parts will be restored to a definite starting position to insure the relocking of the printing mechanism when a predetermined length of composition has been printed and whereby danger of the parts being set or held in unlocked position during the printing of a greater length of composition than that for which payment has been made, is eliminated.

Referring to the accompanying drawings: Figure 1 is a sectional elevation of an apparatus embodying the present invention, only a portion of some of the key levers of the printing mechanism being shown. Fig. 2 is a plan view of that part of the apparatus which is adapted to be located below the ordinary base of the typewriter. Fig. 3 is a longitudinal section in a vertical plane and showing the coin slides and coin engaging tripping levers. Fig. 4 is a detail section looking at the opposite side of the overthrow check bar shown in Fig. 1. Fig. 5 is a transverse section in a vertical plane indicated by

the line 5—5 in Fig. 6. Fig. 6 is a detail section in a horizontal plane indicated generally by the dotted line 6 of Fig. 5. Fig. 7 is a vertical section on the line 7—7, Fig. 2. Fig. 8 is a view looking at the inner side of the disks and drums at the rear end of the screw shaft, parts being shown broken away and in section. Fig. 9 is a sectional view of the parts shown in Fig. 8, taken in a plane longitudinally of the axis.

Like characters of reference in the several figures indicate the same parts.

In order that the locking mechanism may be applied to a typewriting machine of standard manufacture, the coin controlled and primary parts of the locking mechanism are preferably mounted in a housing A, of substantially rectangular form. The casing is adapted to be located beneath the ordinary base C of a typewriter, and the mechanism of the present invention is connected with the printing mechanism through the typewriter carriage connections, whereby upon the advance of the carriage as the successive characters are printed and after a predetermined number of characters have been printed, the lock will be released to lock the printing mechanism against further operation.

In the preferred arrangement, a spring drum D is journaled at the back of the housing A and is adapted to receive the flexible connection leading to the paper carriage of the typewriter, the said spring drum D, together with the winding arbor D' for increasing the tension of the spring being similar in all essential respects to the ordinary spring drum in common use on typewriters. Journaled, preferably, in line with the axis of the spring drum D, is a screw shaft E, the connection between the shaft E and spring drum being formed by a clutch connection D<sup>2</sup>, (Figs. 8 and 9), whereby the screw shaft will be advanced during the advance movement of the carriage mechanism, but will not be moved during the return movement of the carriage.

A sleeve F, having a longitudinal slot *f* in one side, surrounds the shaft E between its bearings. Slidably mounted on this sleeve F is a lock carriage G, provided with a nose *g* adapted to pass in beneath a pivotally mounted locking bar H when the carriage G is at the left hand extreme of its movement, as illustrated in Fig. 1. The locking bar H is preferably mounted on a rocking member



$h$  hinged beneath the base of the typewriter and having a projection  $h'$  with which the locking nose  $g$  directly engages, whereby the bar is forced up under the key levers  $H'$  of the typewriter to prevent their depression and lock the printing mechanism against further operation.

A spring drum  $I$  is connected with the carriage by a flexible connection  $I'$  and furnishes the power for advancing the carriage  $G$  toward the left, while a coin control mechanism to be presently described effects the movement of the carriage in the opposite direction or toward the right a distance dependent upon the value of the coin deposited. When moved toward the right, the carriage is adapted to be connected with the screw shaft  $E$  by a spring-pressed pivotal pawl  $K$ , (Fig. 6), adapted to cooperate with the screw threads  $e$  of the said shaft. The teeth of the pawl and the screw threads are preferably formed with inclined and abrupt faces, whereby the movement toward the right will be free, but the rotation of the shaft  $E$  is necessary to permit movement of the carriage toward the left. The pawl is conveniently mounted on the carriage in position to work through the slot  $f$  in the sleeve  $F$ , and, in the preferred construction, provision is made for permitting the pawl to run out of the screw thread just prior to the instant when the lock is to become effective, and provision is also made for disengaging or holding the pawl out of engagement during the movement of the carriage to set the lock when a coin has been inserted.

By reference to Figs. 1, 2, 3 and 5 it will be seen that a slide guide  $L$  is located in the casing  $A$ , said slide guide having longitudinal slots  $l$  therein for the reception of slides or push-bars  $m$ , the number of slots and push-bars corresponding to the number of coins of different denominations adapted to be received by the apparatus. The depth of the slots and width and thickness of the push-bars approximate the dimensions of the coin to be received. To insert a coin in any one of the slots, the push-bars are drawn out until the coin apertures  $N$  (Figs. 2 and 3) are open, a coin is inserted, and the bars again pushed in, carrying the coin along the slot toward the discharge opening  $N'$ . Mounted on the carriage  $G$  in alinement with and immediately above each of the slots  $l$  is a tripping lever  $O$ , having a projection  $o$  adapted to extend down into the slot and to be elevated by the advancing coin. Also pivotally mounted on the carriage in alinement with each of the slots, is an actuating lever or pawl  $P$  with which the end or projecting nose  $o'$  of the tripping lever  $O$  is adapted to engage when its forward end is elevated by a coin, thereby depressing the actuating lever or pawl in front of the coin, and in effect locking the coin between the actuating lever or pawl and

the push-bar. With the coin in this position (see Fig. 3) inward movement of the push-bar of necessity carries the carriage with it.

By locating the tripping lever and actuating pawls at different points longitudinally of the screw  $F$ , as shown in Fig. 2, it is obvious that a coin inserted in one slot will advance the carriage  $G$  farther than would a coin inserted in another slot.

For holding the pawl  $K$  out of engagement with the screw shaft  $E$ , when the push-bars are drawn outwardly, a pawl release bar  $Q$  is mounted parallel with the push-bars  $M$  and connected therewith by a pin and slot connection  $q$  (Fig. 1), whereby the bar  $Q$  may be given both longitudinal and vertical movements in the same plane. The upper edge of the release bar  $Q$  is provided with an incline or pawl engaging face  $q^2$ , Figs. 5 and 6, adapted, when the bar  $Q$  is elevated, to cooperate with the ends  $k^3$  of the pawl  $K$ , and lift the pawl out of engagement with the threads of the screw shaft  $F$ . The release bar  $Q$  is provided on its bottom edges with inclines  $q^3$ ,  $q^4$ , adapted to cooperate with similar fixed inclines  $q^5$ ,  $q^6$ , on the casing for elevating and depressing the said bar when it is moved longitudinally. Said inclines cause the elevation of the bar except when in its innermost position, and hence the pawl  $K$  can only be engaged with the threads of the screw-shaft when the push-bars have been pushed in and the bar is in its lower position.

To prevent possible overthrow of the carriage  $G$  when the push bars are pushed inwardly after a coin has been inserted, an overthrow check bar  $R$  is mounted at one side of and parallel with the bar  $Q$ , and so as to have a vertical movement parallel with said bar. The preferred means for mounting the overthrow check bar consists of a pair of links  $r$ , Figs. 1 and 4, pivotally connected at one end with the bar and at the opposite end with the casing  $A$  or projections thereon. The bar is adapted to be depressed by a spring  $r'$  at one end and to be raised into its elevated position by a pin  $r^2$ , projecting from the side of the bar  $Q$ , whereby, when the push bars and bar  $Q$  are in their innermost position, the overthrow check bar  $R$  is elevated and held in its elevated position. The upper edge of the overthrow check bar is provided with shoulders or notches  $R'$ , corresponding in number to the different positions to be occupied by the carriage when pushed inwardly by coins of different denominations, and for cooperation with these shoulders  $R'$  the carriage  $G$  is provided with an overthrow pawl  $R^2$  (Fig. 4) adapted to be held downwardly by a spring  $R^3$ , and to have its downward movement limited by a stop such, for instance, as the headed screw  $R^4$  which passes up through the spring  $R^3$ . In the operation of this portion of the device when the push bars are drawn outwardly by



the handle B the overthrow check bar drops away from the carriage in which position it remains until the push bars are approaching their innermost position, when the pin  $r^2$  striking the inclined end  $r^3$  of the bar R elevates the latter into position for one of its shoulders  $R'$  to cooperate with the pawl  $R^2$ . If the carriage has been advanced by a coin of large denomination the pawl  $R^2$  will have passed beyond the first and second shoulders  $R'$  and will be in position to engage the third shoulder, and it will be understood that the shoulders are positioned to cooperate with the pawl  $R^2$  in accordance with the movement of the carriage, which latter is dependent upon the value of the coin inserted.

To prevent any possibility of an unscrupulous person holding or setting the apparatus in such manner that the printing of composition may be continued indefinitely, provision is made whereby the locking bar H is held up in its locking position until the push bars have been pushed in to a point where the coin is discharged, and provision is further made for insuring the return of the locking bar to its locking position whenever an attempt is made to draw the push bars outwardly, thus checking any attempt on the part of the user to first unlock the machine and then while holding it unlocked, by depressing one of the typewriter keys, to set the parts in an unlocked position.

As a most convenient means for accomplishing the above mentioned ends, an additional push bar S is provided, extending parallel with the push bars  $m$  and adapted to be moved in unison therewith. This push bar S is provided with a longitudinally extending projection or way  $S'$  on one side, best seen in Figs. 2, 5 and 7, said way  $S'$  being of a length practically coincident with the range of movement of the push bars and having its upper surface in position to pass beneath the lower ends of two links  $S^2, S^3$ , depending from the support  $h$  of the locking bar H. These links  $S^2, S^3$  are guided at their lower ends by a guide piece  $s^3$ , the link  $S^3$  being confined to a substantially vertical movement, while the link  $S^2$  moves vertically and may swing to a limited extent in the direction of the initial movement of the way  $S'$ . The link  $S^3$  is provided on its lower end with an incline  $s^4$  adapted to cooperate with a similar incline  $S^5$  (dotted lines, Fig. 7), whereby the link is forced upwardly, lifting the locking bar by the initial movement of the said way  $S'$ . The link  $S^2$  and the end of the way  $S'$  are so positioned with relation to each other that when the link is elevated any movement at all of the way causes it to pass under the link, and it is because of this close adjustment that the link is permitted to have a slight swinging movement, inasmuch as the way may, under some circumstances, begin its movement before the links are fully elevated, but the adjustment

of the parts is such that when elevated the link  $S^2$  immediately swings back to its vertical position, its movement into its vertical position being aided by the spring  $s^6$ .

Inasmuch as the present apparatus is designed to permit of the printing of a certain definite length of composition by successive impressions of the printing mechanism, and in order that the length of composition permitted to be printed by the insertion of succeeding coins may not vary, even within small limits, provision is made whereby the gearing or screw which controls the amount of printing permitted to be done shall always be brought to an initial or starting point. The bringing of the gearing or screw to an initial or starting point may be conveniently termed a justification of the parts, inasmuch as it always insures the starting of the printing at a certain definite point with relation to the screw, and through the operation of the screw and connections heretofore described the printing operation can only be continued during the movement of the gearing or screw for a definite distance. Various mechanical appliances for accomplishing this end will at once suggest themselves to those skilled in the art, but in the preferred mechanism means are provided for turning the screw shaft to a certain initial or starting point whenever the push bars are drawn out for the insertion of a coin, although it is obvious that a similar justification of the screw may be effected at the beginning or ending of each line of composition.

Conveniently, the disk  $D^5$  which is keyed to the end of the shaft E and between which and the spring drum D the clutches  $D^2$  are interposed (Figs. 8 and 9) is provided with a stop projection T, which stop T is adapted to be brought into engagement or arrested by the end  $t'$  of a lever  $T'$ , when the screw is in its initial or starting position. The lever  $T'$  is drawn into position to engage the stop T by a link  $T^2$ , Figs. 2, 7 and 8, cooperating at its forward end through a slot and pin connection  $t^2$  with a forked lever  $T^3$  adapted to cooperate with a pin or projection  $T^4$  carried by the way  $S'$  and push bar S. In operation the pin  $T^4$  passes in between the arms of the lever  $T^3$ , moving the same from the position indicated in full lines in Fig. 7 to the position indicated in dotted lines whenever the push-bars are drawn outwardly, the inward movement of the push-bars restoring the lever to the position indicated in full lines. A spring  $t^3$  serves to hold the lever  $T^3$  in one position or the other, and it will be understood that when the lever is in the position indicated in dotted lines the nose  $t'$  of the stop lever  $T'$  is in position to cooperate with the stop T, and in order to bring the stop T around in position to engage the nose of the stop lever a spring drum U (Fig. 9) is mounted on a sleeve  $U'$  surrounding the end of the



shaft E and connected by a flexible connection  $u$  with a hook  $U^2$  supported in a fixed guide way  $u^2$  and held in position to cooperate with a projecting arm  $U^3$  mounted on the way  $S'$  and push-bar S. A pawl V is mounted on the disk  $D^5$  in position to cooperate with a single notch or shoulder  $V'$  in the spring drum U, and the parts are so positioned and proportioned that a sufficient movement shall be imparted to the spring drum to pick up the disk  $D^5$  and screw shaft, regardless of the position in which these parts may have been left by a previous operation, and to move the same around until the stop T will contact with the nose  $t'$  of the lever  $T'$  just as the push bars reach the outer extreme limit of their movement.

In operation, the push-bars are drawn outwardly by the handle B and a coin of the desired denomination is dropped into the proper slot. As the push-bars are drawn outwardly through the connections last above described, the screw is restored to its initial or starting position, thereby justifying it, and if an attempt has been made to hold the locking bar down, the incline  $s^5$  cooperating with the incline  $s^4$  has returned the locking bar to its elevated position. The push bars are then moved inwardly, pushing the coin in front of them, and the coin striking the trip lever O elevates its forward end and depresses its rear end, thereby causing the pawl P to swing downwardly against the tension of its spring  $p^4$  and into position to be engaged by the coin. Farther inward movement of the push-bars through the interposition of the coin moves the carriage G rearwardly, releasing the printing mechanism of the typewriter, and as the push-bars reach their innermost position the coin is discharged and the pawl K moves into engagement with the threads of the screw shaft to hold the carriage in its retracted position. The inward movement of the parts has released the nose  $t'$  from the stop T and the way  $S'$  has moved beyond the ends of the links  $S^2, S^3$ , whereby the printing mechanism is left entirely free for manipulation, but it will be noted that the locking bar H is not released owing to the action of the links  $S^2$  and way  $S'$  until the push bars have reached a position where the coin has been discharged from in front of the push-bars and is deposited in a receptacle provided for the purpose. As the printing progresses, the screw shaft is rotated, permitting the carriage to advance under the influence of its spring drum I, and finally the pawl K rides out of the thread on the screw shaft and the spring drum I asserting itself drives the carriage forwardly with a sufficient impetus to insure the locking of the printing mechanism by elevating the locking bar H.

The mechanism herein described does not retard or interfere in any way with the nor-

mal operation of the printing mechanism, save to lock the same when the proper moment arrives. In the ordinary operation of the printing mechanism the presence of the locking mechanism is not manifest at all, nor is wear or strain on the machine increased in any respect.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In an apparatus such as described, the combination with the lock carriage, and means for advancing said carriage into locking position, adapted to be controlled by the printing mechanism of a typewriter, of a guide way forming a slot, a push-bar working in said slot, and a projection carried by the carriage and adapted to extend into the slot whereby inward movement of the push bar retracts the carriage; substantially as described.

2. In an apparatus such as described, the combination with the lock carriage, screw for controlling the advance movement of the carriage, and pawl connections between the screw and carriage, of the guide-ways forming slots, push-bars mounted in said guide-ways, and projections on the carriage adapted to pass into the slots for cooperation with an interposed means advanced in one of said slots by the push-bar; substantially as described.

3. In an apparatus such as described, the combination with the lock carriage and a manually operated check control retracting mechanism for the carriage embodying a guide way forming a slot and push-bar working therein, of a ratchet pawl mounted on the carriage, and a screw with the threads of which the said pawl engages to control the reverse movement of the carriage.

4. In an apparatus such as described, the combination with the lock carriage and a manually operated coin controlled retracting mechanism for the carriage embodying a guide way forming a slot and push-bar working therein, of a pawl mounted on the carriage, a member with which said pawl cooperates to control the advance movement of the carriage and means whereby said pawl is disengaged from said member during the movement of the push-bar to retract the carriage.

5. In an apparatus such as described, the combination with the lock carriage, the screw shaft controlling the advance movement of the carriage, and a spring for advancing the carriage, of a plurality of guide ways forming slots, push-bars in said slots, and projections on the carriage entering said slots at different points longitudinally of the slots; whereby the carriage may be manually retracted different distances by the interposition of coins of different denominations.



6. In a locking mechanism for typewriters, the combination with the lock carriage, screw shaft adapted to be moved in accord with the printing mechanism of the typewriter, pawl connection between the carriage and screw shaft and spring for advancing the carriage, of the guide-ways forming slots, projections on the carriage entering said guide-ways at different points longitudinally of the slots, push-bars working in the slots, and a pawl release member moving in unison with the push-bars for disengaging the carriage and screw-shaft; substantially as described.

7. In a locking mechanism for typewriters, the combination with the lock carriage, spring for advancing the carriage into locking position, and screw shaft for restraining the advance of the carriage adapted to be controlled by the printing mechanism of the typewriter, of the guide ways forming slots, projections on the carriage entering said slots at different points longitudinally of the slots, push-bars working in said slots, and a release bar connected with said push-bars for releasing the connection between the carriage and screw shaft; substantially as described.

8. In a device of the character described, the combination with the carriage and the guide-ways forming a slot, of a push-bar in the slot, a tripping lever mounted on the carriage and projecting into the slot, a connecting pawl also mounted on the carriage and cooperating with the tripping lever to form a connection intermediate the carriage and push-bar when the tripping lever is elevated.

9. In a locking mechanism for typewriters, the combination with the lock carriage, and means for controlling its advance adapted to be moved in accord with the printing mechanism of the typewriter, of a guide-way forming a slot, a push-bar working in said slot, a tripping lever mounted on the carriage and projected into the slot, and a pawl controlled by the tripping lever and moved downwardly when the tripping lever is elevated; substantially as described.

10. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit: a lock carriage, manually operated check controlled means for moving the carriage varying distances embodying push-bars and a guide way having slots in which the same work, and means controlled by said push-bar for arresting the movement of the carriage at the desired point.

11. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit: a lock carriage, means for moving the carriage into unlocked position embodying a push-bar and guide way having a slot in which said push-bar

moves, a pawl mounted on the carriage and a stop-bar moved into position to cooperate with the said pawl by the movement of the push-bar, whereby overthrow of the carriage is prevented.

12. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit:—a lock carriage, manually operated means for moving the carriage into unlock position, an overthrow check embodying an overthrow check bar having a plurality of stop shoulders for the carriage, connections whereby the bar is moved into operative position by the manually operated means for arresting the movement of the carriage and connections whereby the parts are restored to locking position by the operation of the typewriter.

13. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit; a lock carriage, a manually operated carrier for moving the carriage into unlocked position, and a locking mechanism controlled by the carrier independently of the lock carriage and operative for locking the typewriter when the carrier is moved away from its normal position and the lock carriage is in its unlocked position.

14. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit; a lock carriage, a longitudinally movable and manually operated carrier for moving the lock carriage into its unlocked position, a guide way moved by the carrier, and a locking link cooperating with said guide way when the manually operated carrier is moved away from its normal position, whereby the locking mechanism is effective to lock the typewriter, except when the carrier is moved to its innermost position.

15. In a locking mechanism such as described, the combination of the following instrumentalities, to wit: a lock carriage, a manually operated slide bar for moving said carriage into its unlocked position through the interposition of a coin, a guide bar moved by the slide bar, and a link cooperating with the said guide bar to form a lock during the travel of the slide bar from and to its normal position.

16. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit; a lock carriage, a screw gearing for advancing said carriage into locking position, a manually operated slide for moving said carriage into its unlocked position, a guide way movable with said slide, a vertically movable locking link independent of the carriage and adapted to cooperate with said guide way when the slide is withdrawn from its normal position, a second vertically movable locking link and inclined faces on said last mentioned link and



guide-way for moving the locking links vertically into locking position when the slide is withdrawn from its normal position.

17. In a locking mechanism for typewriters, the combination of the following instrumentalities, to wit; a lock carriage, manually operated slide for moving the carriage into unlocked position, gearing for advancing the carriage from its unlocked to its locked position adapted to be operated by the printing mechanism of the typewriter, and a justifying mechanism for said gearing operated by the slide.

18. In a locking mechanism for typewriters, the combination of the following in-

strumentalities, to wit; a lock carriage, manually operated slide for moving the carriage into its unlocked position, a screw operated by the printing mechanism of the typewriter for controlling the movement of said carriage into its locking position, a movable justifying stop for the screw controlled by the slide, and means for turning the screw into its justified position by the movement of the slide.

EUGENE COLWELL, JR.

Witnesses:

M. R. TAYLOR,

D. W. STARBUCK.