No. 848,589. PATENTED MAR. 26, 1907.

C. FORTH.

VENDING MACHINE.

APPLICATION FILED JAN. 30, 1906.

2 SHEETS—SHEET 1.

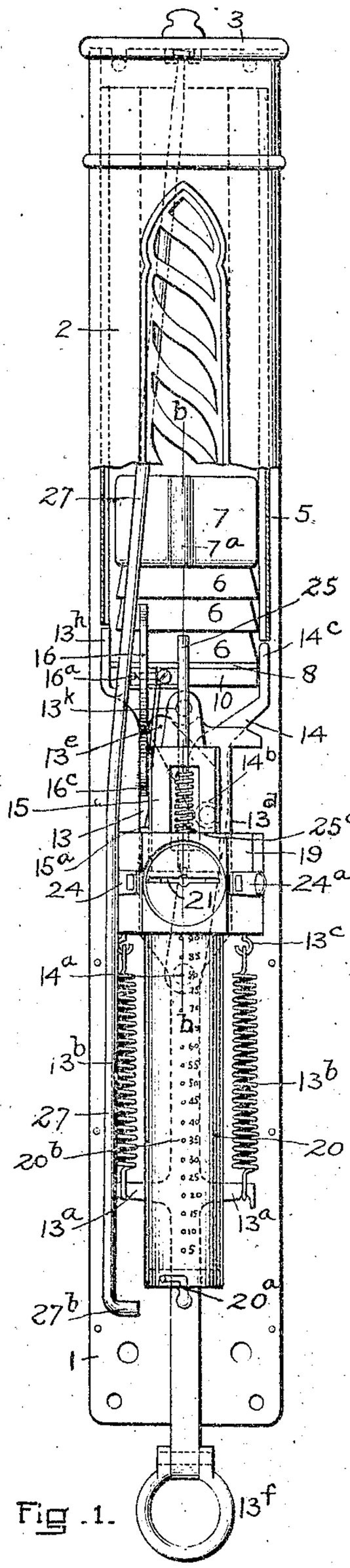


Fig. 1.

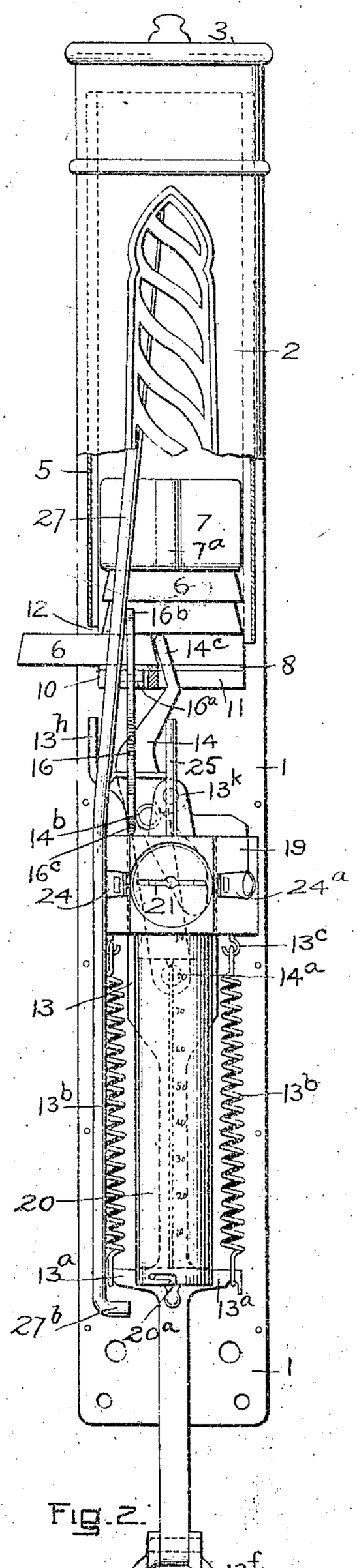


Fig. 2.

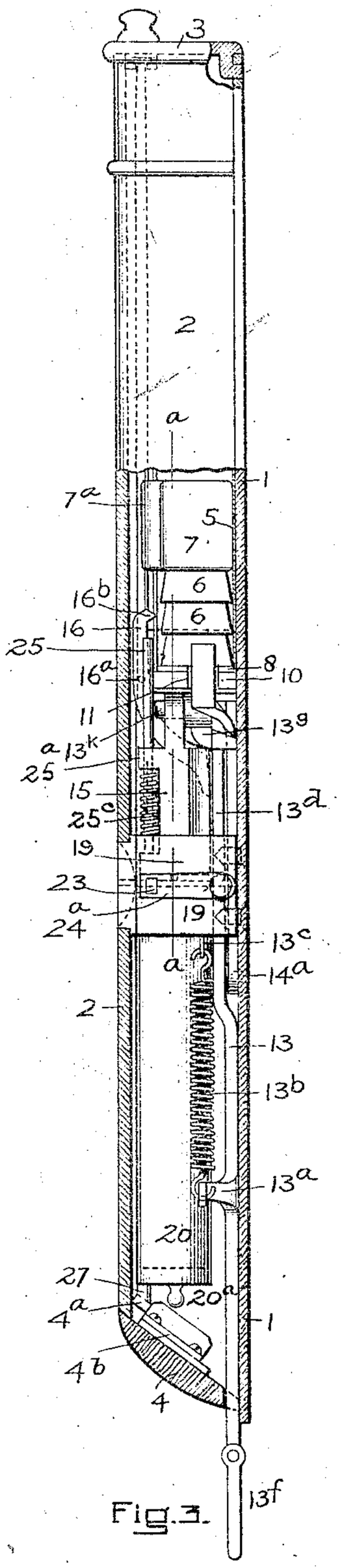


Fig. 3.

WITNESSES

S. R. Kellenquerth

L. E. Morrison

INVENTOR

Charles Forth

By his Atty Robert Fletcher Rogers.

No. 848,589. PATENTED MAR. 26, 1907.

C. FORTH.

VENDING MACHINE.

APPLICATION FILED JAN. 20, 1906.

2 SHEETS—SHEET 2.

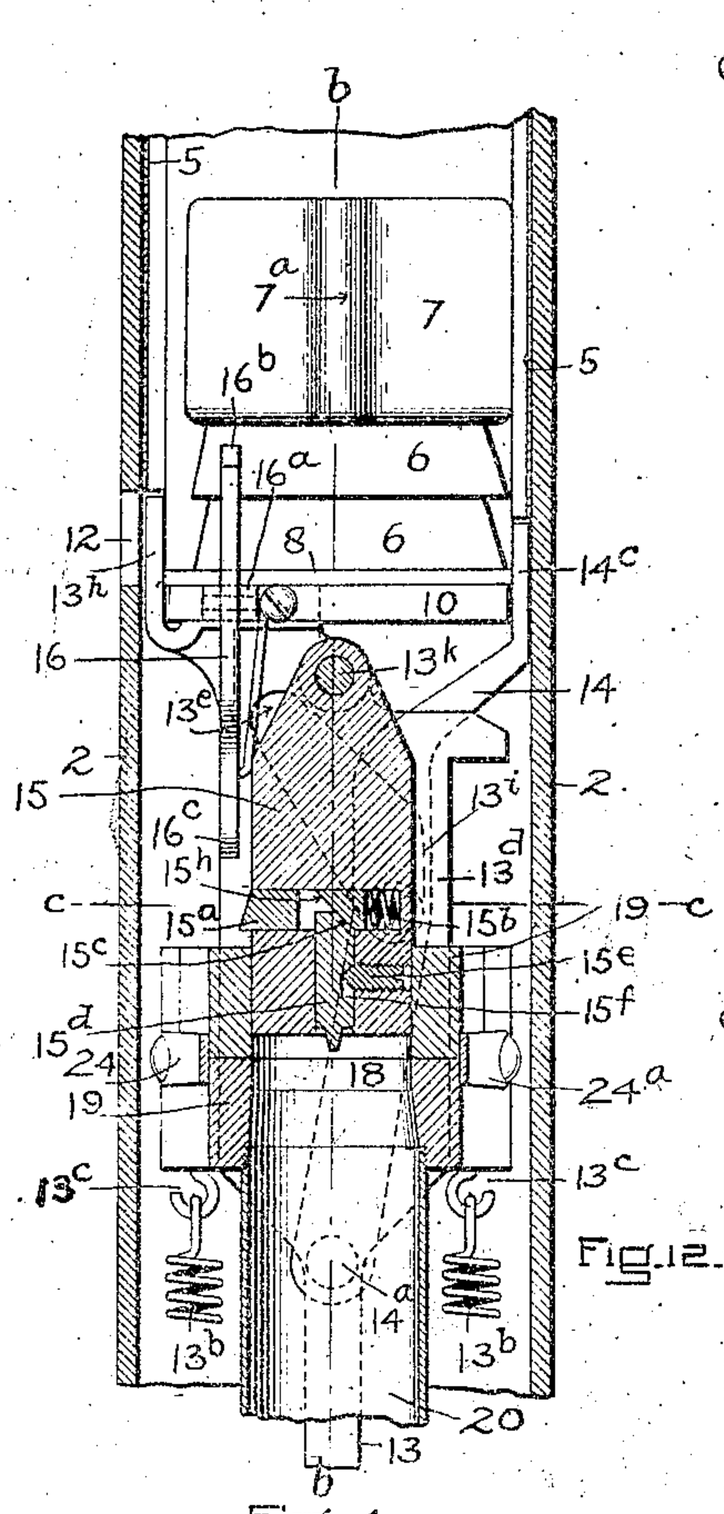


Fig. 12.

Fig. 4.

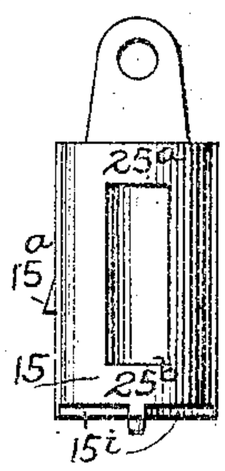


Fig. 13.

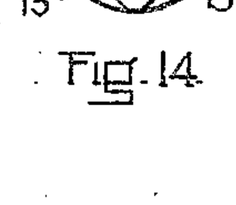


Fig. 14

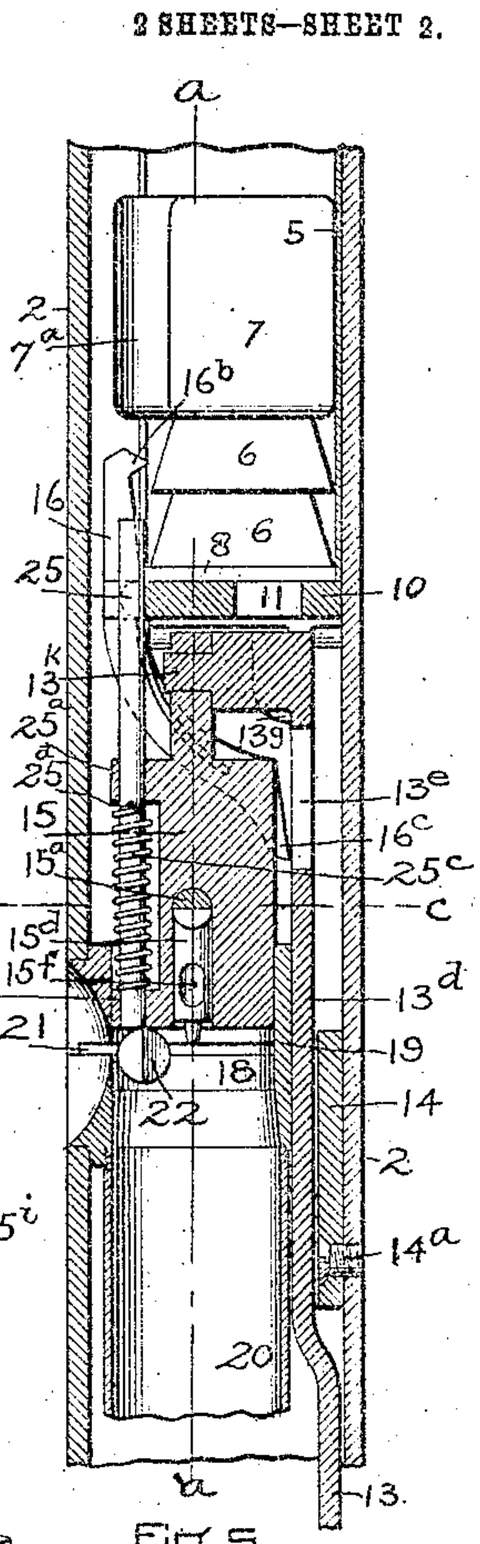


Fig. 5.

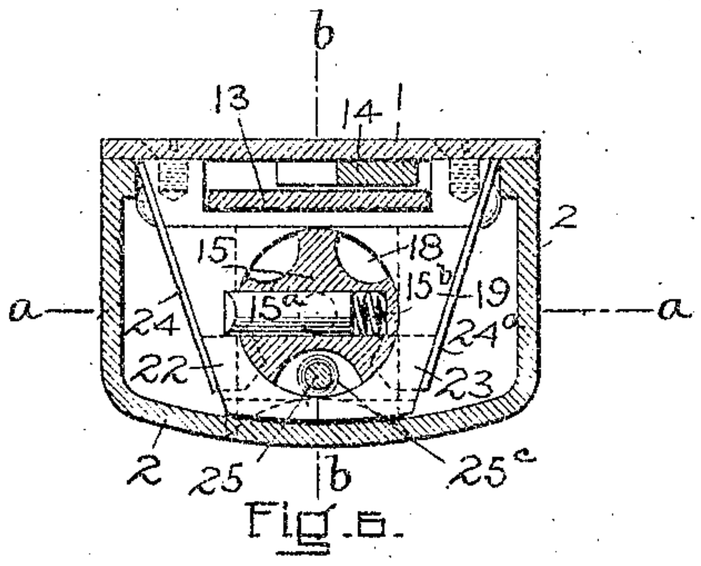
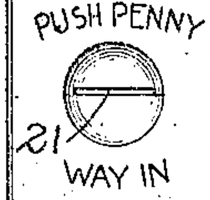


Fig. 6.



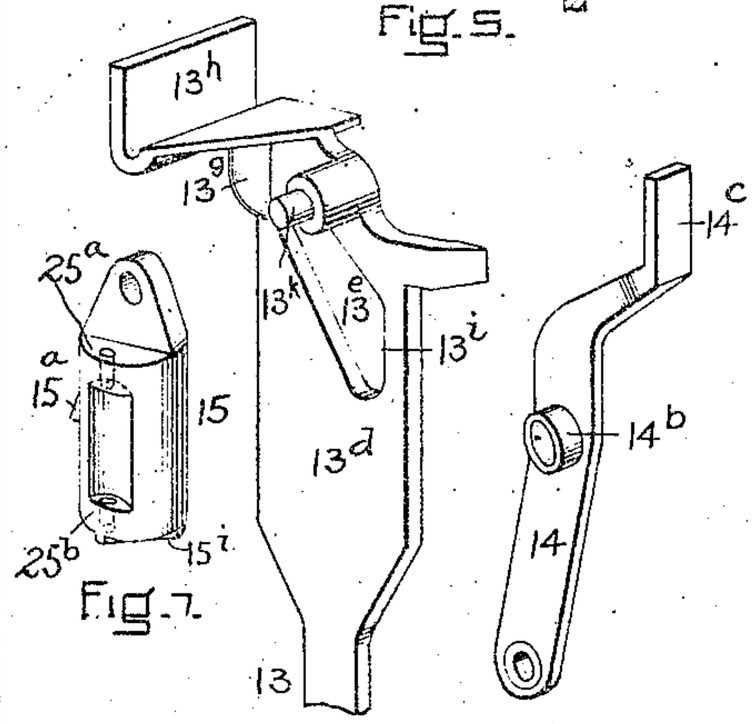


Fig. 7.

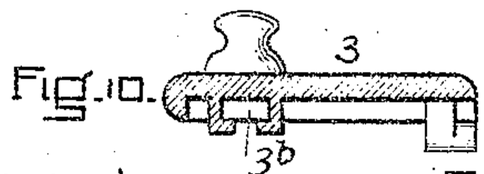


Fig. 10.

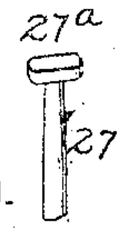


Fig. 11.

Fig. 8. Fig. 9.

WITNESSES

S. P. Hollingsworth

L. E. Morrison

INVENTOR

Charles Forth

By his Atty. Robert Fletcher Rogers

UNITED STATES PATENT OFFICE.

CHARLES FORTH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WALTER S. DAVIS, OF MALDEN, MASSACHUSETTS.

VENDING-MACHINE.

No. 848,589. Specification of Letters Patent. Patented March 26, 1907.

Application filed January 30, 1906. Serial No. 298,583.

To all whom it may concern:

Be it known that I, CHARLES FORTH, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Vending-Machines, of which the following is a specification.

This invention relates to vending-machines of the type in which the articles to be vended are stored in a magazine or holder from which they are delivered by ejecting or discharging mechanism controlled in its operation by the insertion of a coin.

The aims of the present invention are to produce a device of this character comprising comparatively few operative parts, of strong and durable construction and arranged in compact convenient form, in order to adapt the device for use in localities where little space is usually available.

The invention consists of various improved features of construction and novel arrangement of parts, designed with the special view of adapting the operative parts to be inclosed in an elongated casing of small diameter, whereby the device as a whole will take up little room and may be employed in interior locations, such as in street-cars, railway-cars, offices, hallways, and the like, where the space which may be devoted to such uses is necessarily limited.

In the accompanying drawings, Figure 1 is a front elevation of my improved machine with the lower part of the front casing broken away to expose the operative mechanism to view. Fig. 2 is a similar view with the parts in the position they occupy when one of the articles is being delivered. Fig. 3 is a sectional elevation of my improved device and with the operative parts in the position shown in Fig. 1. Fig. 4 is a vertical sectional elevation, on an enlarged scale, on the line *a a* of Figs. 3 and 5. Fig. 5 is a similar view on the line *b b* of Figs. 1, 2, 4, and 6. Fig. 6 is a horizontal sectional elevation looking downward on the line *c c* of the preceding figures. Fig. 7 is a perspective view of the plunger for controlling the action of the ejecting mechanism. Fig. 8 is a perspective view of the upper end of the ejector-actuating slide. Fig. 9 is a perspective view of the ejector-finger operated by the slide. Fig. 10 is a vertical sectional elevation through the lid for closing the upper end of the casing. Fig. 11 is a perspective view of the upper end of the lid-locking rod. Fig. 12 is a front elevation of the entire device as it appears when installed for use. Fig. 13 is a front elevation of the plunger. Fig. 14 is a bottom plan view of the same.

The operative parts of the mechanism are inclosed in an elongated slender casing comprising a flat back plate 1, by which the device may be fastened in place, and a front curved inclosing hood 2, which casing is closed at its upper end by a removable lid 3, for permitting access to the article-storing portion of the casing, and at its lower end by a removable door or bottom 4, permitting access to the coin-receiving portion of the casing.

In the upper part of the casing is seated a removable tubular holder or magazine 5, in which the articles 6 to be vended are stored, one upon the other in column, and which column is acted on by a weight 7, resting on the uppermost article and acting to urge them downward with a constant pressure. The tubular holder is closed at its lower end by a slotted plate 8, forming a bottom on which the lowermost article rests, and when the holder is in position in the casing it rests on a horizontal plate 10, fixed within the casing about midway of its length and containing slot 11, alining with the slot in the plate 8, through which slots the ejecting mechanism acts on the lowermost article and delivers it through a delivery-opening 12 in the side of the casing, as shown in Fig. 4.

The ejecting mechanism comprises as its main features a vertically-movable actuating-slide 13, (see Fig. 8,) adapted to be manually operated, an ejecting-finger 14, actuated by the slide and adapted to engage behind the lowermost article and push it laterally from the casing, and a guiding and controlling plunger 15, carried by the slide and adapted to coöperate with the inserted coin in such manner as to normally lock the parts against action and to unlock said parts and permit their action when the proper coin is inserted.

The actuating-slide is in the form of a flat plate mounted to reciprocate vertically within the casing at the back of the same and below the slotted plate 10. The slide about

midway of its length is provided with laterally-extending arms 13^a, to which are connected the lower ends of spiral springs 13^d, having their upper ends fixed to a relatively fixed portion of the casing, as at 13^c, which springs tend to hold the slide yieldingly in an elevated position, as shown in Figs. 1 and 3, but which will permit the slide to be drawn downward to the position represented in Fig. 2 when the articles are to be ejected. Near its upper end the slide is widened, as at 13^d, and offset in a forward direction, leaving a space between it and the back plate of the casing, in which space the ejector-finger 14 extends and is pivoted at its lower end, as at 14^a, to the back plate of the casing. The finger is provided on its side with a stud or roller 14^b, engaging in an inclined slot 13^e in the actuating-slide, the arrangement being such that normally and when the slide is in its elevated position the roller will extend in the lower end of the slot; but when the slide is lowered the slot will act on the roller and will move the ejector-finger laterally from the position represented in Fig. 1 to that represented in Fig. 2, this movement of the finger effecting the delivery of the article.

The ejecting-finger is formed, as shown, with a vertical pushing-lip 14^c on its upper extremity, which when the actuating-slide is in its normal elevated position will project upwardly and stand behind the lowermost article in the holder and opposite the slots in the bottom plate of the holder and the sustaining-plate 10. When the actuating-slide is lowered, which may be conveniently effected by engaging the finger in a ring 13^f on the lower end of the slide outside the casing, the ejecting-finger will by means of the inclined slot in the slide be rocked laterally on its pivot, and the lip moving through the slots in the plates will engage and push the lowermost article before it laterally through the delivery-opening in the casing. On the release of the slide the springs will elevate it to its former position, thereby moving the pushing-lip back to its original position ready to act on the next article on the bottom of the holder.

In order that when the pushing-lip advances to eject the article the movement of the same will not be interfered with or retarded by the weight of the superposed articles, I provide a retarding-finger 16, adapted, when the slide is drawn downward, to engage the article next above that being ejected and apply sufficient pressure to the same to bind it in the holder and sustain the weight of the articles above. This finger is pivoted to plate 10 on a transverse axis, as at 16^a, its upper end being formed with a sharp point 16^b to engage the article and its lower end being formed with a surface 16^c, adapted to be engaged by an inclined surface 13^g on the actuating-slide, the relation and arrangement of the parts being such that when the slide is lowered the upper end of the retarding-finger will be moved inward against the article next above that being delivered and will tightly bind the same in the holder, thus effectually supporting the weight of the column of articles and preventing the same from interfering with the free movement of the lower article acted on by the pushing-lip. The form of the parts is such that the retarding-finger will hold the column until the pushing-lip on its return movement passes from beneath the articles, whereupon the retarding-finger will release the column, and the latter will descend under the influence of the weight and seat the next article to be discharged on the bottom of the holder.

In order that the delivery-opening in the side of the casing may be closed except when the mechanism is operated to deliver the articles, I provide means for covering and uncovering the said opening, the latter being uncovered when the slide is moved downward to eject the articles and covered on the return movement of the slide. This result may be conveniently effected by forming on the upper extremity of the slide a vertical rectangular lip 13^h, adapted when the slide is in its elevated position to stand in front of and close the delivery-opening 12, as shown in Fig. 4, and to move from in front of said opening when the slide descends to effect the delivery of the articles, as shown in Fig. 2.

To the end that the delivery-opening may be fully uncovered, or nearly so, before the article is advanced by the pushing-lip, so that there will be no danger of injury to the article by coming in contact with the covering-lip 13^h, I so form the end of the slot 13^e that the slide will be permitted a limited vertical movement sufficient to lower the covering-lip from in front of the delivery-opening before the inclined wall of the slot acts on the ejecting-finger. This is effected by widening the lower end of the inclined slot vertically, as at 13^i, and thus permitting of a movement of the slide independently of the ejecting-finger and without affecting the position of the same.

The parts of the mechanism are normally locked against action, as shown in Fig. 4, by the plunger 15 and coöperating devices associated with the coin-receiving slot or opening, the insertion of the proper coin acting to unlock the parts and to permit their manual operation by the purchaser.

The plunger 15 is circular in cross-section and hung at its upper end on a stud 13^k, projecting forwardly from the upper end of the actuating-slide, so that the plunger will move up and down with the slide. In its movements the plunger slides through a vertical circular opening 18, formed in a block 19, fixed within the casing, the lower end of the opening connecting with the upper end of a

tubular coin-receptacle 20—and the movement of the plunger serving to dislodge the inserted coin temporarily held in the path of the plunger and direct the coin into the receptacle, from which the accumulated coins may be removed by opening a cap 20^a at the lower end of the tube.

The coin-tube 20 is detachably fastened at its upper end by screw-threads or other appropriate means to the block 19, so that the tube may be removed bodily from the casing. For convenience in counting the coins in the tube the latter is provided at intervals with holes 20^b, through which the edges of the coins may be viewed, which holes may be numbered or otherwise designated to indicate the number of coins, or instead of holes a continuous slot may be formed in the tube, as shown by dotted lines in Fig. 3, and designating-marks made on the tube alongside the slot to indicate the number of coins.

The plunger is locked against downward movement by means of a horizontal locking-bolt 15^a, mounted in a horizontal opening in the plunger and acted on by a spiral spring 15^b, seated in the end of the opening and bearing against the end of the bolt, the said spring tending to project the end of the bolt outward beyond the surface of the plunger, as shown in Fig. 4, in which position of the parts the downward movement of the plunger will be prevented by the engagement of the projecting end of the bolt with the block through which the plunger slides. The outward movement of the bolt is limited by the upper beveled end 15^c of a vertically-movable releasing-pin 15^d, mounted centrally in the plunger and confined and guided in its movements by a set-screw 15^e, threaded through the side of the plunger, with its inner end engaging in a slot 15^f in the side of the releasing-pin. The lower end of the releasing-pin projects slightly below the surface of the plunger, and the upper beveled end of the pin coöperates with an inclined surface 15^h on the locking-bolt in such manner that when the pin is moved relatively upward it will retract the bolt, thereby unlocking the parts and permitting the plunger to descend. The retraction of the bolt is effected by the contact of the lower extremity of the releasing-pin with the inserted coin held temporarily in the path of the pin, as will be more fully described hereinafter.

The coin is inserted through a horizontal slot 21, extending through the front of the casing and through the front of the block 19 about midway of the height of the block, which slot is of a length corresponding to the exact diameter of the proper coin and of a width corresponding to the exact thickness of the coin, so that it will not be possible to insert in the machine a coin or other object greater in diameter or greater in thickness than the coin which it is designed shall operate the machine.

The coin-slot communicates with the circular opening in which the plunger slides, the relation of the slot to the plunger being such that when the latter is in its elevated position, as shown in Fig. 4, the lower extremity of the releasing-pin will be on a level with the upper wall of the coin-slot, so that the coin may be inserted in the slot and pushed back beneath the pin in position to be engaged by the same to effect the retraction of the locking-bolt when the plunger is lowered. The locking-bolt stands, as shown in Fig. 4, a sufficient distance above the top of the block 19 to permit the plunger to be moved far enough downward to effect the retraction of the bolt before the latter comes in contact with the block, so that by the time the bolt reaches the level of the block it will have been retracted and will offer no obstruction to the further descent of the plunger.

Projecting into the sides of the coin-slot and in the path of the incoming coin are two tumblers 22 and 23, carried on the front ends of flat horizontal springs 24 and 24^a, fixed to the block 19. These tumblers are in the form of cylindrical pins sliding in holes in the sides of the block 19 and having their ends extending into the vertical circular opening in said block and in the path of the plunger and serving when in this position to prevent the plunger from being moved downward. The tumblers are adapted to be moved out of the path of the plunger in order to permit its descent by means of the coin when the latter is inserted in the slot. For this purpose the tumblers have their inner adjacent surfaces curved to correspond to the edge of the coin, and they are beveled in front of the curved faces, so that as the coin is inserted in the slot it will engage the beveled surfaces and spread the tumblers apart, and after the greatest diameter of the coin has passed between the tumblers the latter will close on the coin and their curved surfaces embracing the coin between them it will be held by the tumblers firmly in position in the path of the plunger, the tumblers being thus held free of said path. When now the actuating-slide is moved downward, the releasing-pin on the plunger will engage the coin held by the tumblers and the pin will be moved relatively upward, thereby retracting the locking-bolt and permitting the continued movement of the plunger, which will force the coin downward and direct it into the coin-receptacle, and the ejecting mechanism will discharge the article through the delivery-opening.

By the provision of the locking-bolt for the plunger operated in the manner described if the coin or object with which it is attempted to operate the machine is thinner than that which it is intended shall operate the device

the releasing-pin will fail to actuate the bolt, for the reason that when the plunger moves downward the relative movement of the pin when it contacts with the thin coin will not be sufficient to retract the locking-bolt far enough to free the upper face of the surrounding block 19 before the bolt contacts with said block and arrests the further movement of the plunger, the parts being so proportioned and formed relatively that only a given movement of the pin relative to a predetermined movement of the plunger will be sufficient to fully and properly retract the bolt.

By the provision of the tumblers operated as described if the coin or other object with which it is attempted to operate the machine is less in diameter than that of the coin which it is intended shall operate the device the spread of the tumblers will not be sufficient to move them out of the path of the plunger, so that the latter will be effectually locked by the tumblers against downward movement. While a washer of the proper diameter when inserted in the coin-slot would spread the tumblers sufficiently to move them out of the path of the plunger, the latter will remain locked by the bolt, for the reason that the bolt-releasing pin being centrally arranged in the plunger will not be moved relatively, the hole in the center of the washer precluding such action. By reason of the dimensions of the coin-slot being of a width and length corresponding, respectively, to the exact diameter and thickness of the proper coin, a larger or thicker coin or other object will be rejected.

In order that in the event of the insertion in the coin-slot of a coin or other object less in diameter than the proper coin or otherwise of a form which will not spread the tumblers far enough apart to allow the plunger to descend this imperfect coin will not block up the coin-slot and interfere with the insertion of the proper coin, I propose to so form the plunger that when an attempt is made to operate it after the insertion of the improper coin it will push the coin a limited distance downward below and from in front of the coin-slot, the further movement of the plunger being prevented by the tumblers projecting in the path of the same. This result is accomplished by forming in the under side of the plunger at opposite sides, as shown in Figs. 7, 13, and 14, two indentations or recesses 15^i, adapted to receive the tumblers as the plunger is moved downward and permitting of a limited movement of the plunger relative to the tumblers, during which limited movement the extreme lower face of the plunger, which projects slightly below the recessed portion, will come in contact with the imperfect coin and will force the same downward below the coin-slot, the further movement of the plunger being prevented by the top of the recesses engaging the tumblers. It is seen, therefore, that although an improper coin may be inserted in the slot and be temporarily held by the tumblers it will when the attempt is made to operate the machine be acted on by the plunger and moved free of the coin-slot, and this without disturbing the obstructing position of the tumblers in the path of the plunger. Consequently there will be no obstruction offered to the insertion of the proper coin and the operation of the machine in the usual manner. It will be seen, therefore, that by the peculiar mechanisms described the fraudulent or improper working of the machine is effectually guarded against.

In order that when the article-holder is exhausted of the supply of goods and the last has been delivered this fact may be indicated and the further insertion of coins prevented, I provide a device adapted to become active when the holder is empty and operating to obstruct the coin-slot, and thereby prevent the insertion of coins until the supply of goods is replenished.

This device is controlled in its action by the follower-weight 7 and consists of a vertical rod 25, mounted to slide in guiding-openings in upper and lower lugs 25^a and 25^b on the front of the plunger, the said rod being acted on by a spiral spring 25^c, encircling it between the lugs, with its lower end bearing on the lower lug and its upper end bearing against a pin or stop 25^d, carried by the rod and adapted to contact with the upper bearing-lug and limit the upward movement of the rod. The lower end of the rod terminates on a level with the lower end of the plunger, which latter is normally just above the coin-slot, and the upper end of the rod terminates just below the upper surface of the lowermost article in the holder and in the path of a projection 7^a on the follower-weight, the result being that when the last article has been delivered from the holder the projection 7^a, engaging the upper end of the rod, will depress the latter against the resisting action of the spring and the lower end of the rod will be projected beyond the bottom of the plunger and across the coin-slot, thereby obstructing the same. When the weight is lifted to replenish the supply of articles, the spring will return the rod to its former position free of the coin-slot.

The lid 3 of the casing is formed at its rear edge with lugs adapted to enter openings in the back plate 1, so that when the lid is lifted it may be detached from the plate by withdrawing the lugs forward from the openings. The lid is locked in closed position by means of a locking-rod 27, provided on its upper end with an elongated head 27^a, adapted by a quarter-turn of the rod to be interlocked in an undercut groove 3^b on the under face of the lid near its front, the said rod extending

downwardly through the casing at the front of the same and having on its lower end a laterally-bent finger 27^b in position to be engaged by a locking-bolt 4^a of a lock 4^b on the inner side of the bottom 4 of the casing, which lock is adapted to be unlocked from the outside by a key. The bottom 4 when unlocked may be removed by disengaging lugs thereon from openings in the back plate, and when removed access may be had to the lateral finger on the end of the locking-rod, which on being given a quarter-turn may be disengaged from the lid and permit it to be opened.

Having thus described my invention, what I claim is—

1. In a vending-machine, the combination with an ejecting member movable in one direction, of an actuating member operatively connected therewith and movable transversely with reference to the movement of the ejecting member, and a controlling member movable with the actuating member and adapted to coöperate with the inserted coin.

2. In a vending-machine, the combination of means for holding the articles in column, an ejecting member movable transversely with reference to the column of articles and adapted to discharge the lowermost article, an actuating member movable longitudinally with respect to the column of articles, and a controlling member movable with the actuating member and adapted to coöperate with the inserted coin.

3. In a vending-machine, the combination of means for holding the articles in vertical column, an ejecting member movable horizontally beneath the column and adapted to engage and eject the lowermost article, a vertically-movable actuating member operatively connected with the ejecting member, and a controlling member movable vertically with the actuating member and adapted to coöperate with the inserted coin.

4. In a vending-machine, the combination with the ejecting member, of an actuating member operatively connected therewith, a controlling member movable with the actuating member, and a locking mechanism carried by the controlling member and movable relatively to said controlling member and adapted to be unlocked by coöperation with the inserted coin.

5. In a vending-machine, the combination of a frame or casing, an ejecting member, an actuating member operatively connected with the ejecting member, a controlling member movable with the actuating member, and a locking mechanism carried by the controlling member and movable relatively thereto, and adapted to engage the frame or casing and hold the controlling member against movement, said locking mechanism being adapted to be unlocked by coöperation with the inserted coin.

6. In a vending-machine, the combination with an ejecting member, of an actuating member operatively connected therewith, a controlling member movable with the actuating member and normally locking the same against action, means for holding the inserted coin with its side face temporarily in the path of the controlling member, and means controlled by the engagement of said member with the side face of the coin for unlocking the actuating member, said controlling member being adapted when the actuating member is unlocked to engage and push the coin before it.

7. In a vending-machine, the combination with ejecting mechanism, of a controlling member movable therewith, a locking mechanism carried by the controlling member and normally locking the ejecting mechanism against action, and a releasing device carried by the controlling member, and adapted by engagement with the inserted coin to be moved relatively to the controlling member and actuate the locking mechanism.

8. In a vending-machine, the combination of an ejecting mechanism, a controlling-plunger movable therewith, a locking-bolt carried by the plunger and adapted when projected to prevent action of the ejecting mechanism, means for holding the inserted coin temporarily in the path of the plunger, and a releasing-pin carried by the plunger and movable relatively, and adapted when engaged with the inserted coin to retract the locking-bolt.

9. In a vending-machine, the combination with the casing formed with a circular guideway or opening, of means for holding the inserted coin in said opening, a controlling-plunger sliding in said opening, a locking mechanism carried by the plunger, a releasing device disposed centrally in the plunger and adapted by engagement with the inserted coin to actuate the locking mechanism, and an ejecting mechanism op atively connected with the controlling-plunger.

10. In a vending-machine, the combination of a casing provided with a circular guideway or opening, means for holding the coin temporarily in said opening, a controlling-plunger movable in said opening, a transversely-movable locking-bolt mounted in the plunger, and adapted when projected to engage with a fixed portion of the casing when the plunger is moved in the opening, a releasing-pin carried by the plunger and movable relatively to the same, and coöperating with the bolt to retract it, said releasing-pin adapted to engage with the inserted coin and be moved relatively, and an ejecting mechanism operatively connected with the plunger.

11. In a vending-machine, the combination of a casing provided with a coin-slot and with a guiding-opening communicating therewith, a controlling-plunger mounted to move in the guiding-opening, a movable member or tumbler extending in the path of the in-

serted coin and in the path of the plunger, said member adapted when the proper coin is inserted, to be moved out of the path of the plunger, and an ejecting mechanism operatively connected with the plunger.

12. In a vending-machine, the combination with the casing formed with a coin-slot and with a guiding-opening communicating therewith, of a controlling-plunger movable in said opening and controlling the action of the ejecting mechanism, and two yielding tumblers extending in the path of the incoming coin at opposite sides, and projecting in the guiding-opening in the path of the plunger, said tumblers being adapted by the engagement of an inserted coin of the proper diameter, to be moved out of the path of the plunger.

13. In a vending-machine, the combination of a casing provided with a coin-slot and with a circular guiding-opening communicating therewith, a cylindrical controlling-plunger mounted to move in the guiding-opening, means for holding the inserted coin temporarily in the path of the plunger; whereby the latter will coöperate with said coin, an ejecting mechanism and means independent of the coin operatively connecting said ejecting mechanism with the plunger.

14. In a vending-machine, the combination of a casing provided with a coin-slot and with a guiding-opening communicating therewith, means adapted to act on the edge of the coin and serving to hold the same frictionally in the guiding-opening, a plunger movable in said guiding-opening and adapted to coöperate with the side of the coin, an ejecting mechanism and means independent of the coin operatively connecting the ejecting mechanism with the plunger.

15. In a vending-machine, the combination with a casing formed with a coin-slot and adapted to hold a column of articles to be delivered, of a follower-weight acting on said column and adapted to descend as the articles are delivered from the bottom of the column, a vertically-movable rod with its lower end normally free of the coin-slot and its upper end terminating normally below the upper surface of the lowermost article in the column, said upper end of the rod being in the path of the follower-weight; whereby when the last article is delivered, the weight will act on the upper end of the rod and push the same downward in front of the coin-slot.

16. In a vending-machine, the combination of a casing formed with a coin-slot and adapted to hold a column of articles to be delivered, a follower-weight acting on said column and adapted to descend as the articles are delivered, and a vertically-movable rod with its lower end held yieldingly and normally free of the coin-slot and with its upper end in position to be encountered by the weight when the last article is delivered from the holder; whereby the further descent of the weight will project the rod across the coin-slot.

17. In a vending-machine, the combination of an upright casing provided in its side with an article-delivery opening, in its front with a horizontal coin-slot, and on its interior with a vertically-arranged circular guiding-opening communicating with the coin-slot, an article-holder adapted to hold the articles in column form, a transversely-movable ejecting-finger adapted to engage the lowermost article in the column and discharge the same through the delivery-opening, a vertically-movable actuating-slide operatively connected with the ejecting-finger and adapted, when moved downward to operate the ejecting-finger, a controlling-plunger carried by the slide and movable in the circular guiding-opening in the casing, a locking mechanism on the plunger normally holding the parts against action, and adapted to be released by engagement with an inserted coin of the proper thickness, and two yielding tumblers projecting in the path of the incoming coin and in the path of the plunger, and formed with curved surfaces to act on the coin and hold the same frictionally in the path of the plunger, said tumblers adapted, when a coin of the proper diameter is held by them, to be maintained free of the path of the plunger.

18. In a vending-machine, the combination of a casing provided with a coin-slot and with a guiding-opening communicating therewith, a member movable in said opening, a coin-holding device disposed normally in the path of the movable member and adapted to be moved out of its path when a coin of the proper diameter is inserted and held by said device, and means independent of the coin-holding device for locking said member against movement, said means being adapted, by coöperation with the coin, to unlock said member.

19. In a vending-machine, the combination of a casing provided with a coin-slot and with a guiding-opening communicating therewith, a controlling member mounted to move in the guiding-opening, a movable member or tumbler extending normally in the path of the controlling member, and adapted to frictionally hold an inserted coin in the path of the incoming coin, said tumbler arranged to be moved out of the path of the controlling member when a coin of the proper diameter only is inserted in the coin-slot, means controlled by the movement of the controlling member for dislodging a coin of less diameter held by the tumbler, and an ejecting mechanism operatively connected with the controlling member.

20. In a vending-machine, the combination of a casing provided with a coin-slot and

with a guiding-opening communicating therewith, an ejecting mechanism, a controlling-plunger operatively connected with the ejecting mechanism and mounted to move in the guiding-opening, and yielding tumblers extending normally in the path of the plunger, and adapted to frictionally hold an inserted coin in front of the coin-slot, said tumblers arranged to be moved out of the path of the plunger by the insertion of a coin of the proper diameter only, and the said plunger being provided in its under side with recesses adapted to coöperate with the tumblers and permit of a limited movement of the plunger relative to the tumblers; whereby said limited relative movement of the plunger will act to dislodge a coin of smaller diameter held by the tumblers, and this without affecting the obstruction position of the tumblers in the path of the plunger.

21. In a vending-machine, the combination with a casing provided with a coin-slot and guiding-opening communicating therewith, of a member movable in said opening, means for holding the inserted coin in the path of said member, and a locking mechanism adapted to hold said member against movement and adapted by coöperation with the coin to release the member; whereby said member when released will engage and push the coin before it.

22. In a vending-machine, the combination of a casing having a coin-slot and a guiding-opening communicating therewith, a member movable in said guiding-opening, a locking means for normally locking said member against action, and means for holding the inserted coin in the guiding-opening in the path of movement of said member, said locking means being adapted by coöperation with the inserted coin to release the member; whereby the latter when released will engage and push the coin before it.

23. In a vending-machine, the combination with an ejecting mechanism, of a controlling member constructed to normally lock the ejecting mechanism against action, and arranged by coöperation with the inserted coin to release the ejecting mechanism and dislodge the inserted coin.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES FORTH.

Witnesses:
CHARLES H. MATHEWS,
FRANK G. PARKER.