No. 839,304. PATENTED DEC. 25, 1906.

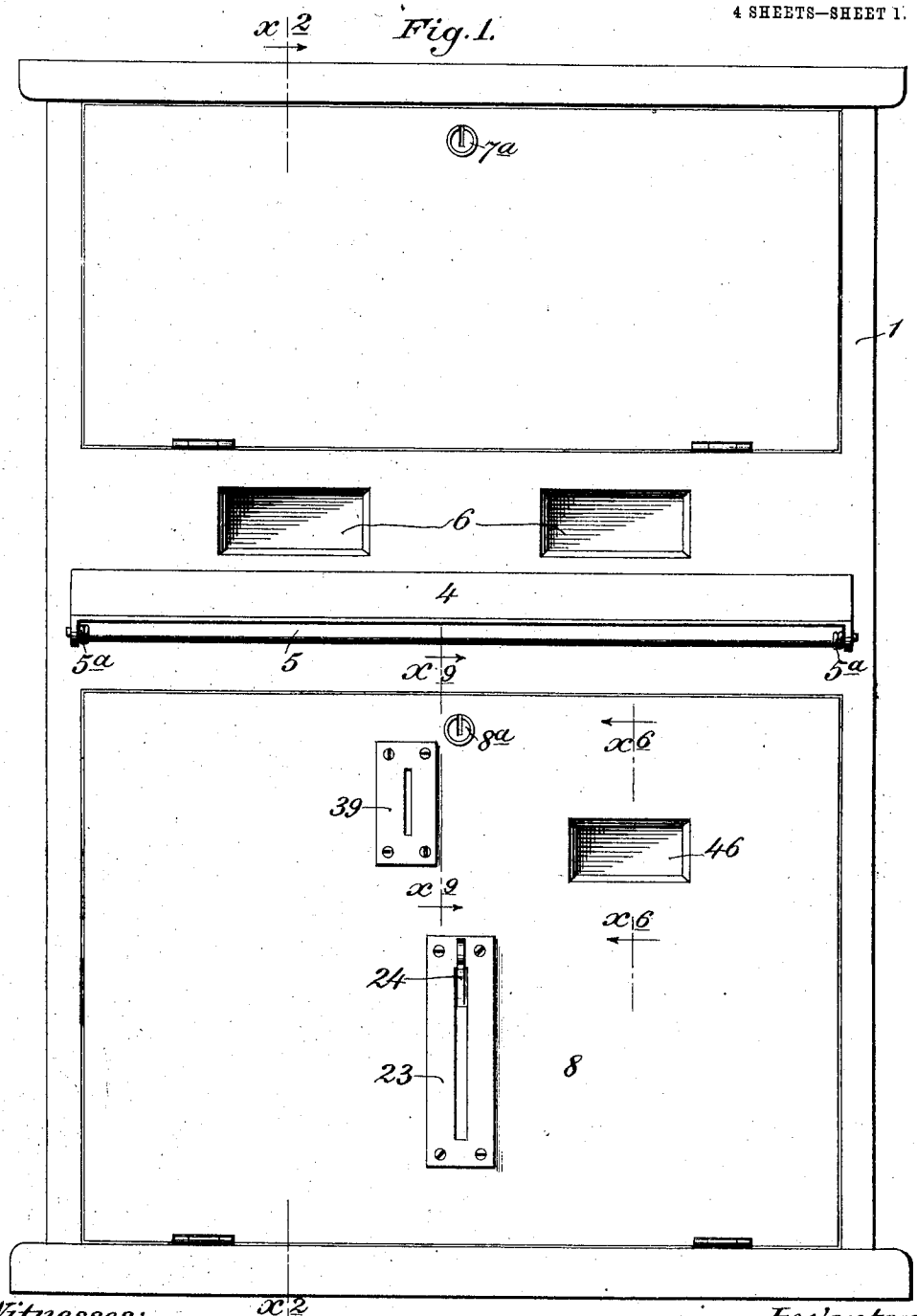
S. L. LONG.

NEWSPAPER VENDING MACHINE.

APPLICATION FILED JUNE 26, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

E. W. Jeppesen.

A. H. Opsahl.

Inventor:

Sydney L. Long.

By his Attorneys.

Williamson & Merchant

No. 839,304. PATENTED DEC. 25, 1906.

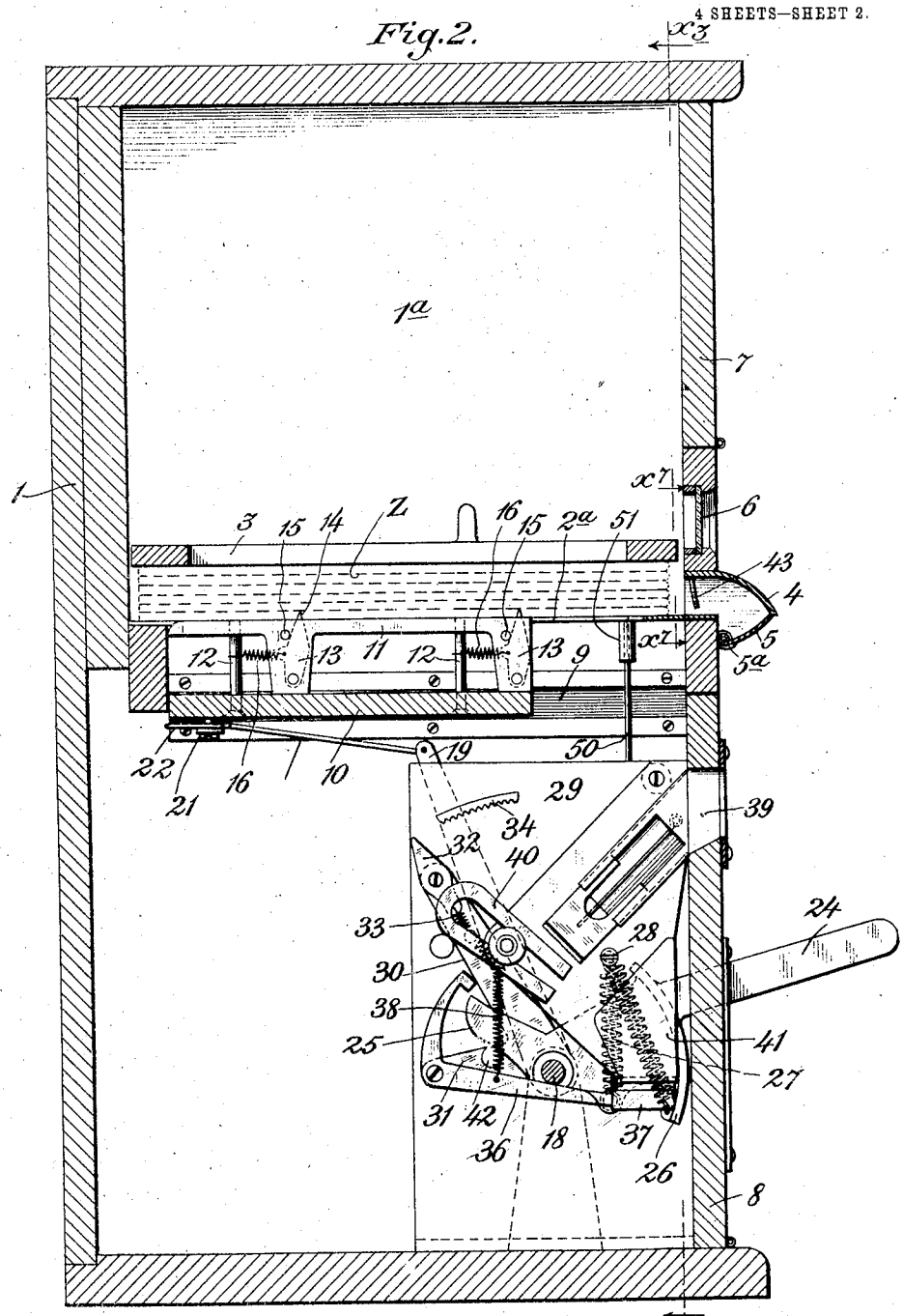
S. L. LONG.

NEWSPAPER VENDING MACHINE.

APPLICATION FILED JUNE 26, 1905.

4 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

E. W. Jeppesen.

A. H. Ophahl.

Inventor:

Sydney L. Long

By his Attorneys

Williamson & Merchant

No. 839,304. PATENTED DEC. 25, 1906.

S. L. LONG.

NEWSPAPER VENDING MACHINE.

APPLICATION FILED JUNE 26, 1905.

4 SHEETS—SHEET 3.

Fig. 3.

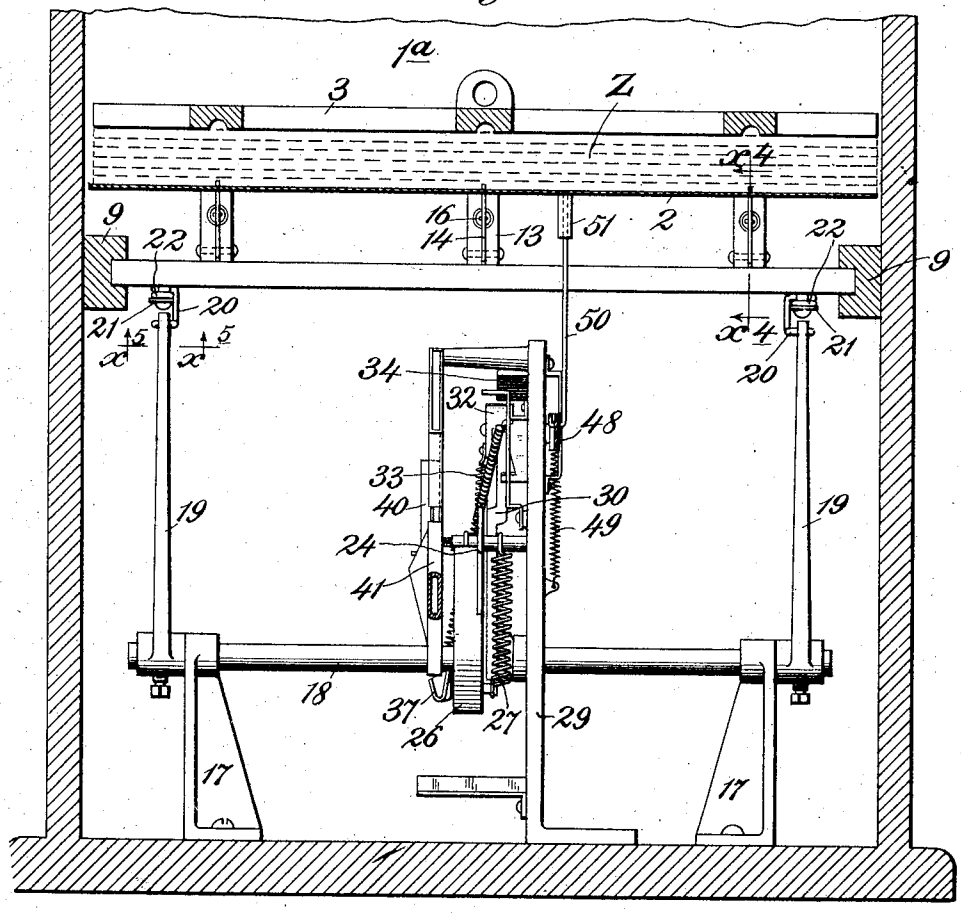


Fig. 5.

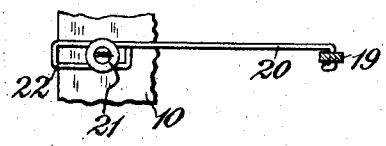
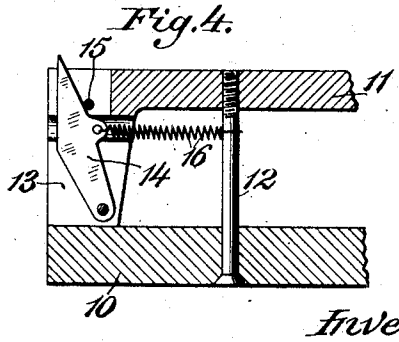


Fig. 4.



Witnesses:

E. W. Jeppesen.

A. H. Opsahl.

Inventor:

Sydney L. Long

By his Attorneys.

Williamson & Merchant

No. 839,304 PATENTED DEC. 25, 1906.

S. L. LONG.

NEWSPAPER VENDING MACHINE.

APPLICATION FILED JUNE 26, 1905.

4 SHEETS—SHEET 4.

Fig. 6.

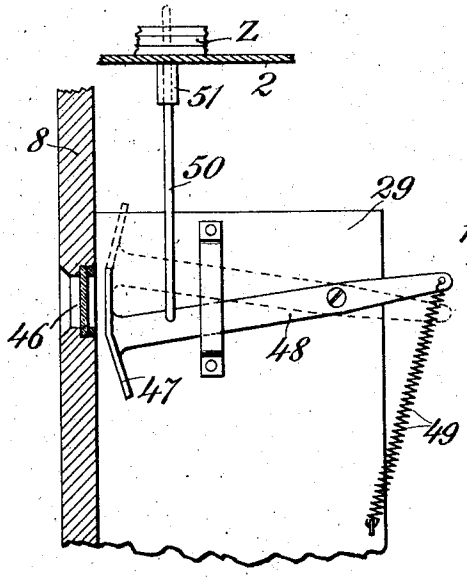


Fig. 7.

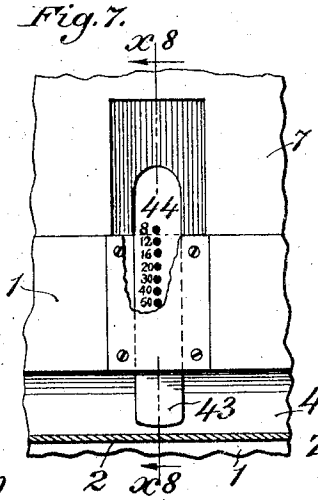


Fig. 8.

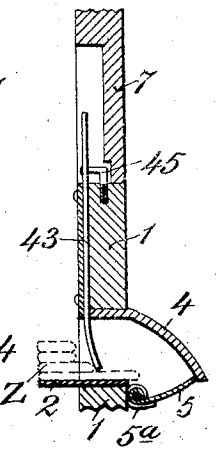
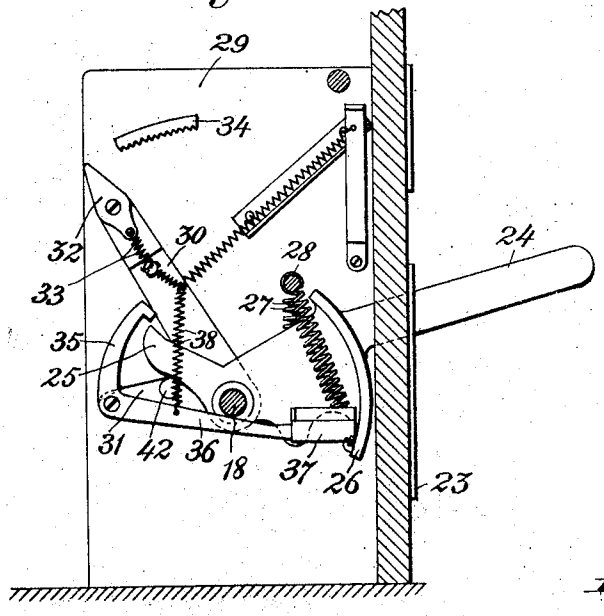


Fig. 9.



Witnesses:

E. W. Jeppesen.

A. H. Opsahl.

Inventor:

Sydney L. Long.

By his Attorneys,

Williamson & Merchant

UNITED STATES PATENT OFFICE.

SIDNEY L. LONG, OF MINNEAPOLIS, MINNESOTA.

NEWSPAPER-VENDING MACHINE.

No. 839,304. Specification of Letters Patent. Patented Dec. 25, 1906.

Application filed June 26, 1905. Serial No. 266,985.

To all whom it may concern:

Be it known that I, SIDNEY L. LONG, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Newspaper-Vending Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to coin-controlled vending-machines, and has for its especial object to provide improved mechanism for effecting the delivery of newspapers, magazines, photographs, and similar flat articles from an inclosed magazine containing the same.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in front elevation, showing the improved machine. Fig. 2 is a vertical section taken on the line x^2 x^2 of Fig. 1. Fig. 3 is a transverse vertical section taken on the line x^3 x^3 of Fig. 2, some parts being broken away. Fig. 4 is a detail in section on the line x^4 x^4 of Fig. 3, some parts being broken away. Fig. 5 is a detail in horizontal section on the line x^5 x^5 of Fig. 3 looking upward and some parts being broken away. Fig. 6 is a detail in section on the line x^6 x^6 of Fig. 1, some parts being broken away. Fig. 7 is a detail in section, taken approximately on the line x^7 x^7 of Fig. 2. Fig. 8 is a section on the line x^8 x^8 of Fig. 7, and Fig. 9 is a detail in section, taken on the line x^9 x^9 of Fig. 1.

The numeral 1 indicates a case or cabinet which is divided into two compartments by a horizontal partition 2. The upper compartment 1^a of the case affords a magazine or chamber for supporting the newspapers, (indicated by the character *z*,) said papers being folded flat. The partition 2 affords a table for supporting the stack of newspapers, and to press the newspapers closer together a skeleton weight 3 is loosely placed on top thereof. Leading outward from the magazine 1^a in line with the table 2 is a discharge-chute 4, that extends entirely across the machine and is provided with a hinged trap-door 5, that is normally closed, preferably by a spring 5^a. In the front wall of said case, just above the chute 4, is one or more glass-closed sight-openings 6, which enable the person in front of the machine to see whether or not there are newspapers on the table 2, or, in other words, to determine whether or not the machine is empty. In the front wall of the case are two hinged doors 7 and 8, that are preferably provided with locks 7^a and 8^a for securing them in their closed positions. The door 7 when open affords access to the magazine 1^a and permits the same to be filled with papers. The lower door 8 when open affords access to the lower compartment of the case, in which the operative mechanism of the machine is located.

Secured on the sides of the case below the table 2 are channeled guides 9, in which the ends of a horizontally-movable push-plate 10 are mounted to slide from front toward the rear of the machine, and vice versa. To this reciprocatory push-plate 10 is rigidly secured a plurality (as shown three) of push-bars 11, that work in slots 2^a, cut in the table 2. As shown, these push-bars 11 are secured to the push-plate 10 by screws 12 and are provided with bifurcated or split leg portions 13. In the seats formed between the sides of the said split legs 13 are mounted "ejecting-barbs," so called, 14, which barbs are pivoted to said legs at their lower ends and the upper ends of which are sharpened or brought to points that normally project slightly above the upper surface of the feed-table 2, so that they will engage with the lowermost paper of the stack. As best shown in Figs. 2 and 4, these ejector-barbs 14 are yieldingly held in normal positions against stop-pins 15 on the leg portions 13 by means of light coiled springs 16 attached thereto and to the adjacent screws 12. By reference to Fig. 2 it will be seen that these ejector-barbs are so mounted that they will act positively on the papers when they are moved forward or toward the discharge-chute 4, but will yield and move into operative positions when moved rearward. Hence under forward movements of the push-plate 10, push-bars 11, and ejector-barbs 14 the lowermost paper will be positively forced from the bottom of the stack forward and outward through the discharge-chute 4.

Extending transversely of the lower compartment of the case and journaled in bearings 17, secured on the bottom of the case, is

a rock-shaft 18, which is provided at its ends with long upwardly-extended arms 19. The upper ends of these arms are pivotally connected to the forward ends of the links 20, which links at their rear ends are connected to the push-plate 10, with freedom for limited sliding movements, such connection being preferably made by depending headed projections 21, that work in loops 22, formed on the rear ends of said links, as best shown in Figs. 2 and 5. The purpose of the sliding movement between the links 20 and the push-plate 10 will be brought out later on. Loosely mounted on the intermediate portion of the rock-shaft 18 and extended outward through a slotted plate 23 on the door 8 is an operating-lever 24, which is provided with a rear end extension 25 and with a guard-segment 26, which latter extends always in front of the slot in the plate 23 and prevents the insertion of a tool or instrument into the lower compartment of the case. This operating-lever 24 is yieldingly held upward in its normal position, indicated in the drawings, as shown, by means of a pair of coiled springs 27, attached thereto and to a pin 28, which latter is rigidly secured on a vertical bearing-plate 29, which in turn is rigidly secured to the bottom of the case.

Rigidly secured on the rock-shaft 18 adjacent to the operating-lever 24 is a long arm 30 and a short arm 31, the former of which extends above the latter. To the free end of the arm 30 is pivoted a toggle-acting retaining-dog 32, which is yieldingly held by a spring 33 in the extended position. (Shown in Figs. 2 and 9.) On the upper portion of the bearing-plate 29 is rigidly secured a segmental ratchet-bar 34, that is so located that when the arm 30 is moved forward the retaining-dog 32 will be moved pivotally backward and will engage the teeth of said ratchet-bar 34 and prevent a return movement of said arm, and hence of the rock-shaft 18 and other parts carried thereby, unless the said arm be first moved far enough to carry the free end of said dog forward of and out of engagment with said ratchet-bar 30, in which case the said dog will be moved pivotally in a reverse direction and will permit the return movement of said arm and other parts carried by the shaft 18.

To the free end of the lower and shorter arm 31 is pivoted a lock-dog 35, the hooked end of which normally stands out of the path of movements of the arm 25 of the operating-lever 24, but is adapted to be engaged therewith. This lock-dog 35 is rigidly secured to a trip-arm 36, having at its forwardly-projecting free end a coin-receiving pocket 37. A coiled spring 38, attached to the trip-arm 36 and to the arm 30, yieldingly holds the said parts 35, 36, and 37 in their normal positions. (Shown in the drawings, and particularly in Figs. 2 and 9.)

When a coin of the proper weight is deposited in the pocket 37 of the trip-arm 36, the said arm will be moved downward against the tension of the spring 38, thereby throwing the hooked end of the lock-dog 35 into the path of movement of the arm 25 of the operating-lever 24, and thus the said dog is caused to lock said lever 24 to the rock-shaft 18. The coin (not shown) is adapted to be delivered into the said pocket 37 through a coin-delivery spout 39, which, as shown, opens through the lower door 8 and delivers the coin against a permanent magnet 40, which magnet will hold an iron slug, but will, in conjunction with a supplemental spout 41, direct the coin into the said pocket 37.

When by a coin deposited in the pocket 37 the operating-lever 24 is locked to the rock-shaft 18, as above described, a downward movement of said lever 24 will positively move forward the arms 19 of said rock-shaft, and these arms will positively draw forward the push-plate 10, bars 11, and the ejecting-barbs 14, thereby ejecting the paper, as already stated. The movement between the links 20 and the push-plate 10 permitted by the lopped ends 22 is such that the said push-plate and parts carried thereby will not be given movement until after the retaining-dog 32 has been moved into engagement with the teeth of the segmental ratchet 34. This arrangement prevents premature feed movements of the paper and positively prevents the operator from securing more than one paper by the deposit of a single coin. Otherwise stated, the coin being deposited in the pocket 37 the paper will not be given movement until after the operating-lever 24 has been locked in such a manner that it can be returned to its normal position only by first giving the same such complete movement that it will tilt downward the pocket 37 and cause the same to drop the deposited coin, thereby again permitting the spring 38 to move the lock-dog 35 into its normal position and release said operating-lever from the rock-shaft 18. On the arm 31 is a stop 42, that engages the arm 25, so that the operating-lever 24 upon returning to normal position will positively force the arms 30 and 31 back to their normal positions.

As a means for preventing two or more papers at the bottom of the stack from being simultaneously fed out through the discharge-chute 4 I provide a yielding stop, preferably in the form of a thin flat spring 43, which is mounted to move vertically in a suitable bearing in the front plate of the case, as best shown in Figs. 7 and 8. The lower end of this stop is made quite thin, so that under all ordinary conditions it will hold back all but the lower paper, but will yield and permit the discharge of two or more papers in case the said papers should be tightly stuck together. I provid this yield-

ing stop because it is much better to give away a paper occasionally than it is to clog the machine in an attempt to hold back papers that happen to be stuck tightly together. This yielding stop is made vertically adjustable, so that it may be set to regulate the discharge of papers of different thickness, and for this purpose it is shown as provided with a plurality of perforations 44, any one of which is adapted to be engaged with a crooked finger 45, secured to the front plate of the case, as best shown in Fig. 8. On the stop 43 in line with the different perforations may be marked numerals that indicate which of the perforations should be engaged with the crooked detaining-finger 45 in order to set the machine to hold papers having different number of pages, as shown in Fig. 7.

In the lower door 8 is a glass-closed sight-opening 46, and working within the case back of this sight-opening is an indicator-head 47, carried by a lever 48, pivoted to the bearing-plate 29. A spring 49, attached to the lever 48 and to said bearing-plate 29, tends to hold the lever 48 and head 47 upward in the positions indicated by dotted lines in Fig. 6. On the upper part of the head 47 may be marked the words "Machine is loaded," and on the lower portion of said head may be marked the words "Machine is empty." A rod 50, attached at its lower end to the lever 48, works through a guide 51 on the table 2 and when no papers are on said table projects upward therethrough. When papers are placed on the table, they act on the upper end of the rod 50 and press the lever 48 downward against the tension of the spring 49 and expose to view through the sight-opening 46 the words "Machine is loaded."

In a machine for vending papers it is very desirable to have means for setting the coin-actuated mechanism so that it will be operated at different times by different coins or by a different number of coins. Some papers are sold for a penny, some for two pennies, and almost all Sunday editions for five cents. To meet these conditions, I provide means for varying the tension of the spring 38. This means, as shown, comprises a light coiled spring 52, a lever 53, and a latch-bar 54. This latch-bar 54 is rigidly secured to the supporting-plate 29 and has stop-shoulders 55 and 56. The lever 53 is pivoted to said bearing-plate 29 and is adapted to be held in either of two positions by the stop-shoulders 55 and 56. The spring 52 is connected to the intermediate portion of the spring 38 and with the free end of the lever 53. The arrangement is such that when the lever 53 is engaged with the shoulder 55 the tension of the spring 38 will be so light that a penny deposited in the pocket 37 on the end of the trip-lever 36 will force the lock-dog 35 into an operative position. When, however, the lever 53 is engaged with the shoulders 56, the tension of the spring 38 will be so increased that a single penny deposited in said pocket 37 will not force the said dog 35 into an operative position, but will force said dog into its operative position when two pennies, dropped in succession, are deposited in said pocket 37. A nickel deposited under any adjustment of the lever 53 will of course overcome the spring 38 and force the dog 35 into its operative position.

The paper-delivery mechanism above described is of simple construction, has no parts that are liable to get out of order, and operates in the most satisfactory manner to deliver the papers within reach of the operator—that is, to project them through the discharge-chute 4 far enough so that they may be taken hold of by the fingers and pulled from the magazine. The trap-door 5^a of course opens up automatically when the paper is forced against the same and closes automatically after the paper has been withdrawn. This trap-door therefore serves to keep the paper-containing magazine closed against the entrance of dust and rain. A machine embodying the several features of construction above described has been constructed and put into use, and the efficiency thereof has been demonstrated.

From what has been said it will be understood that the machine above described is capable of general use for delivering from the magazine not only newspapers, but various other articles, such as magazines, photographs, pamphlets, cards, tablets, writing-paper, envelops, and various other articles.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a magazine for the papers, said magazine having a paper-supporting bottom, of a plurality of laterally-spaced spring-pressed barbs, and means for imparting common reciprocating movements thereto, and which spring-pressed barbs work through slots in the bottom of said magazine and operate on the lowermost paper to eject the same from said magazine in one direction of movement, but yield under reverse movements, substantially as described.

2. The combination with a magazine for the papers, said magazine having a slotted bottom, of a plurality of push-bars connected for common sliding movements and working in the slots, spring-pressed barbs carried by said push-bars and operating on the lowermost paper to eject the same from the said magazine under one movement of said push-bars, but yielding under a reverse movement of said bars, and means for reciprocating said bars, substantially as described.

3. The combination with a magazine for the papers, of a reciprocatory paper-ejector

and operating-lever, means for preventing said operating-lever from making a return movement from an intermediate position, and a connection between said operating-lever and said ejector, arranged to impart an operative movement to the latter, only after said lever has been locked against return movement from its intermediate position, substantially as described.

4. In a machine of the character described, the combination with a magazine, having a paper-discharge passage of such size as to permit the discharge of several papers at the same time, and means for ejecting the papers therefrom one at a time, of a vertically-adjustable yielding stop operating to hold back all but the lowermost of the papers under ordinary conditions, but adapted to yield and permit the discharge of several papers which are stuck together, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SIDNEY L. LONG.

Witnesses:
H. D. KILGORE,
F. D. MERCHANT.