

March 10, 1925.

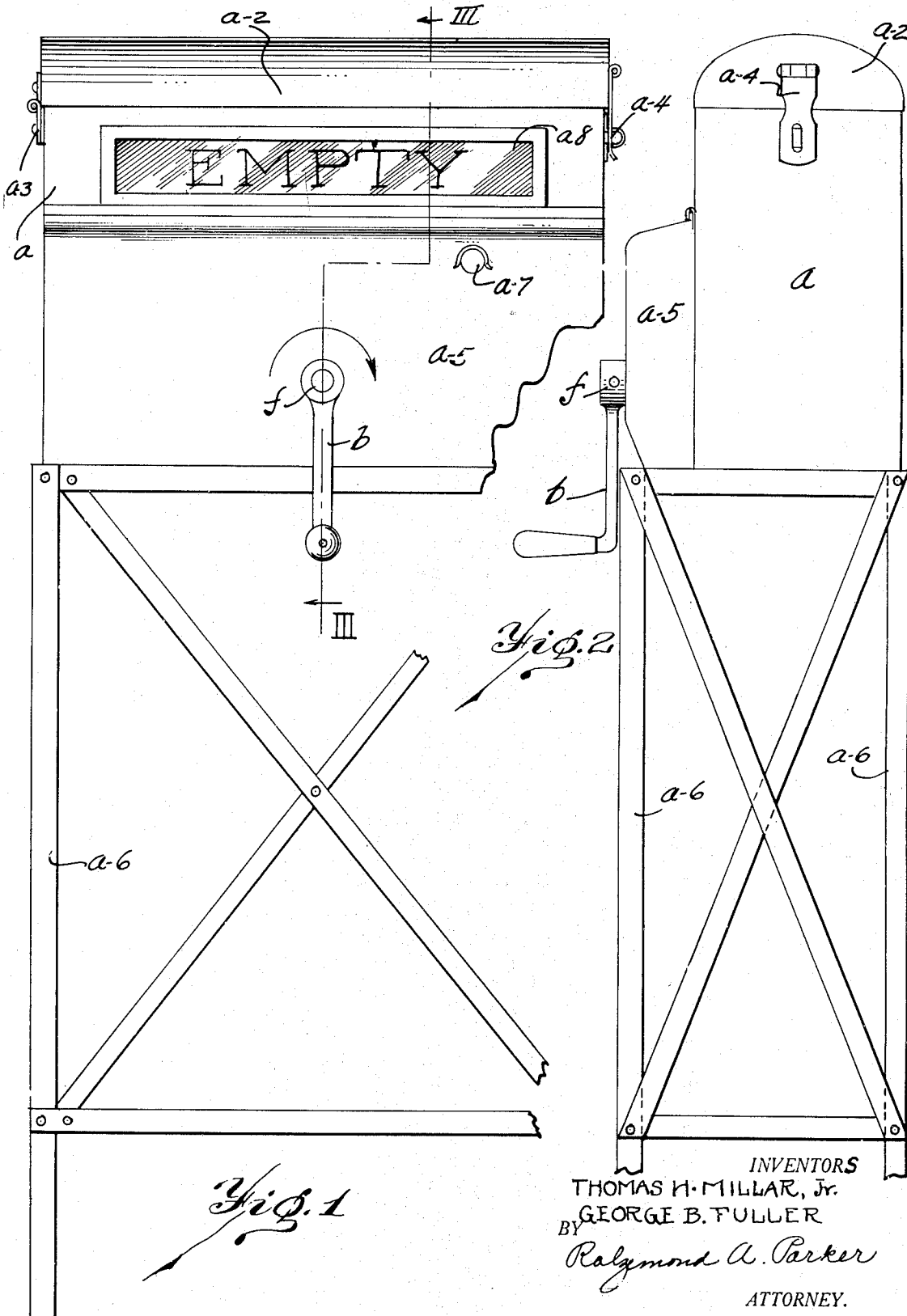
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T. H. MILLAR, JR., ET AL

NEWSPAPER VENDING MACHINE

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6 Sheets-Sheet 1



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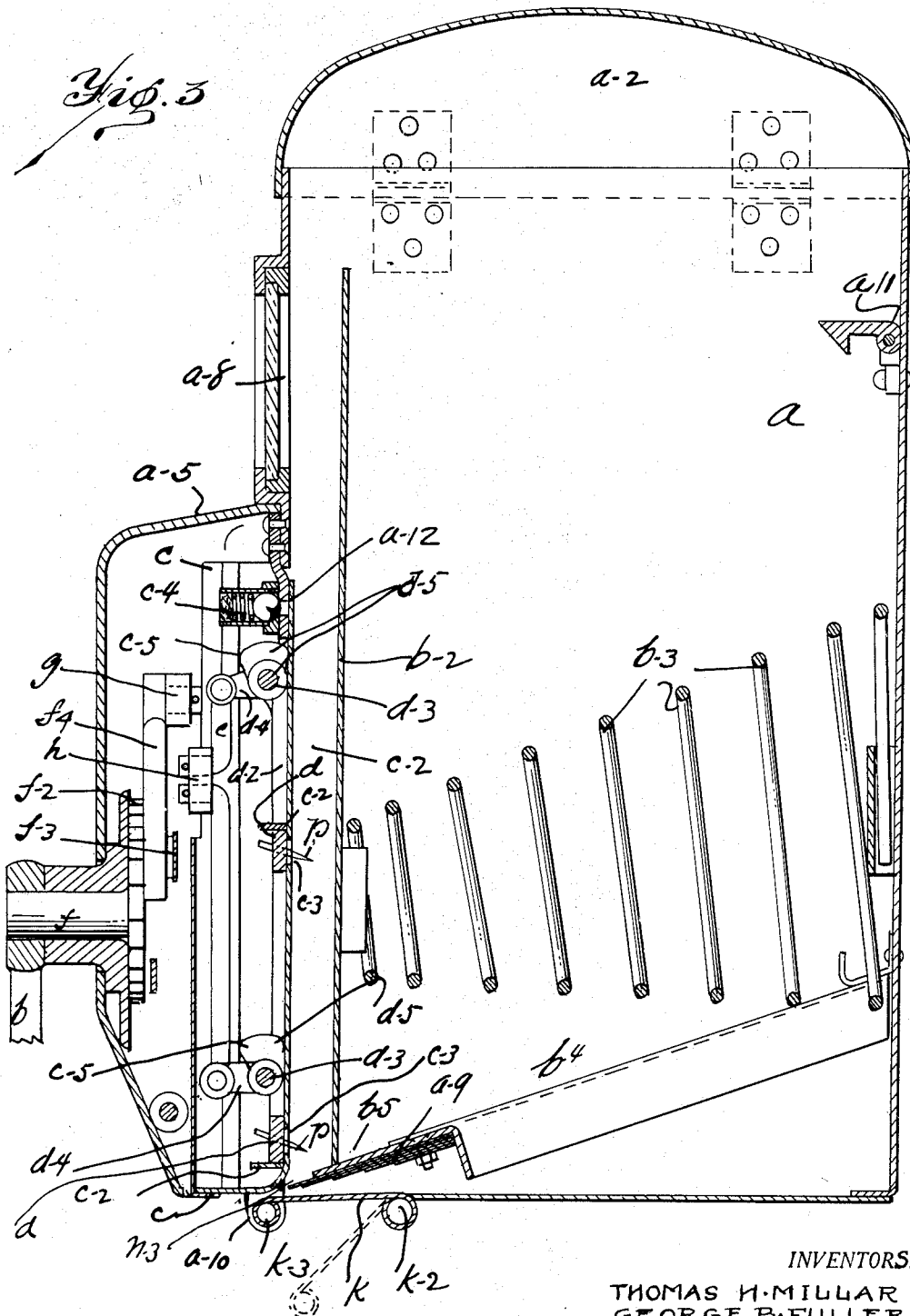
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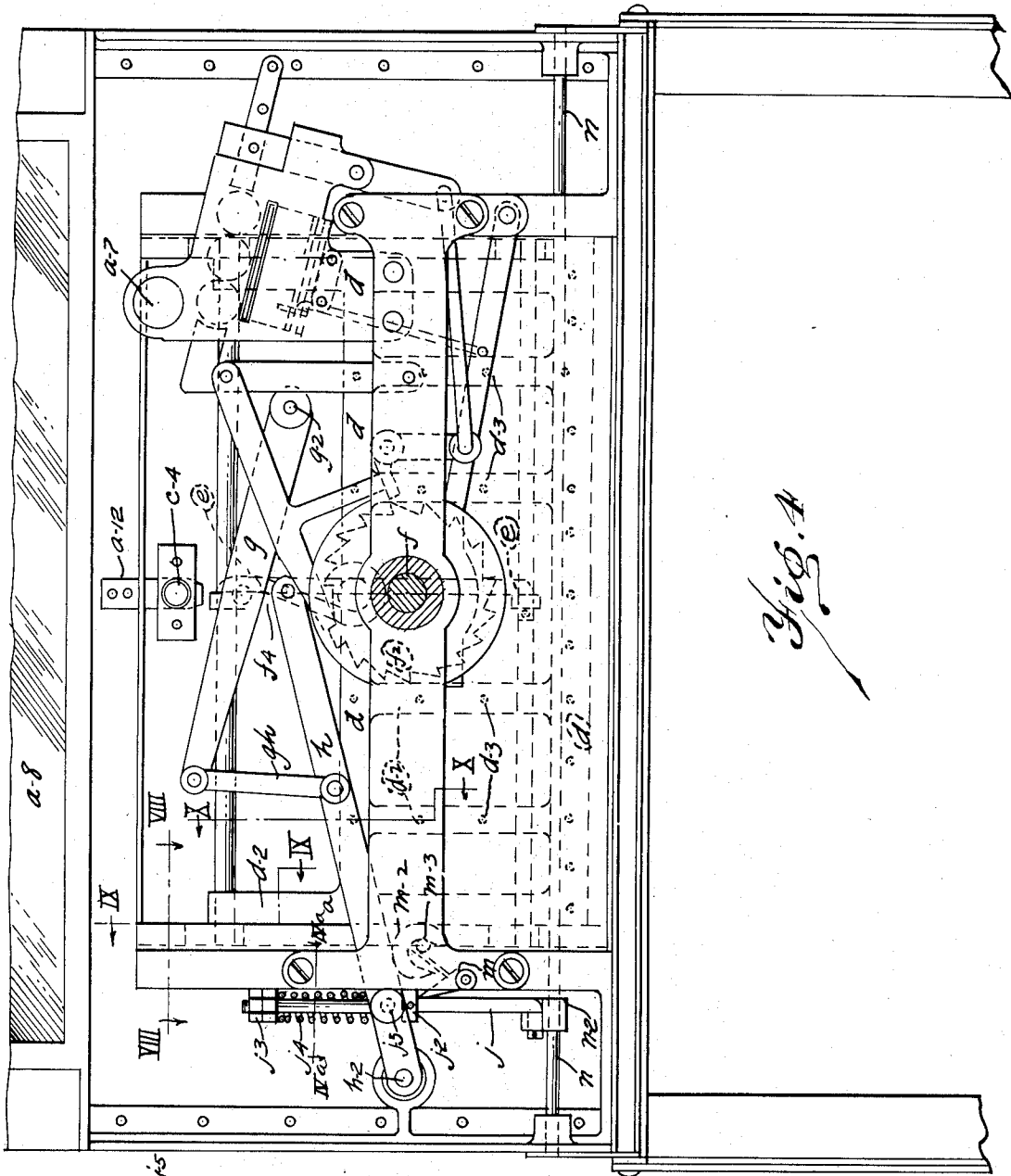


Fig. 4

Fig. 4a

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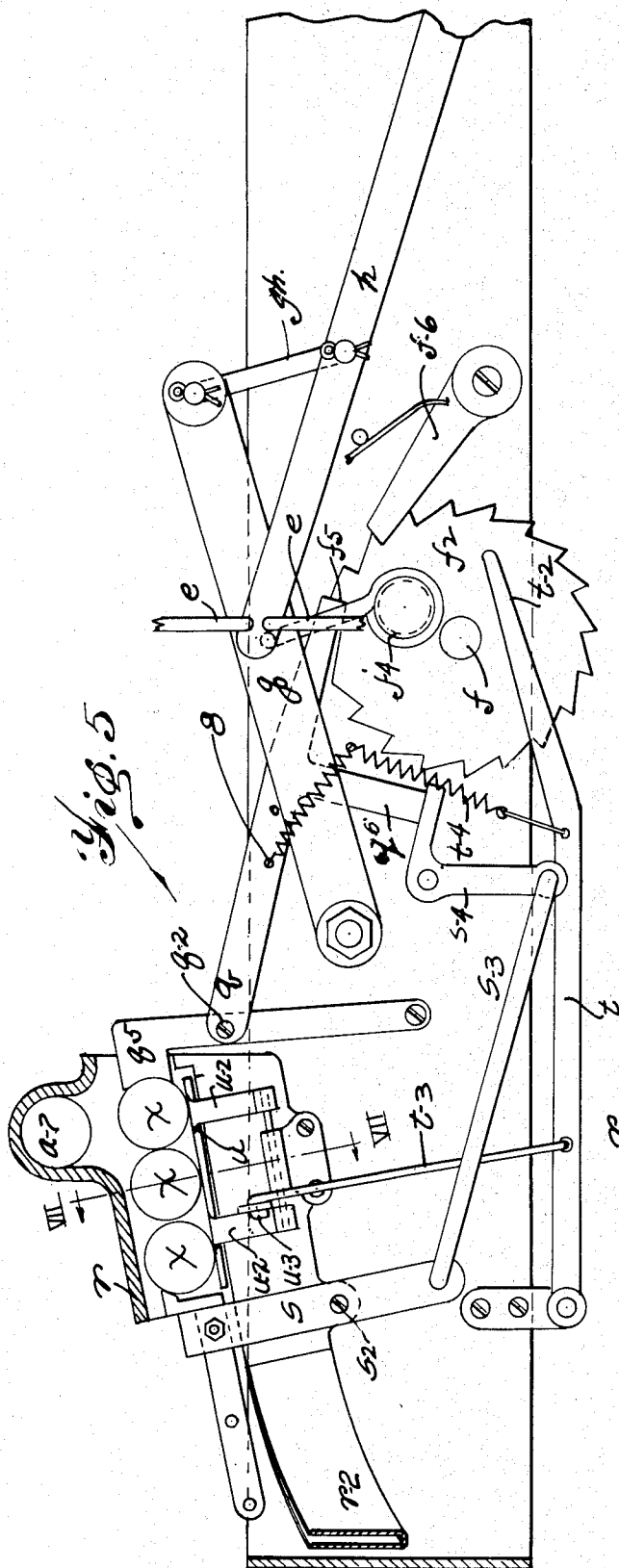
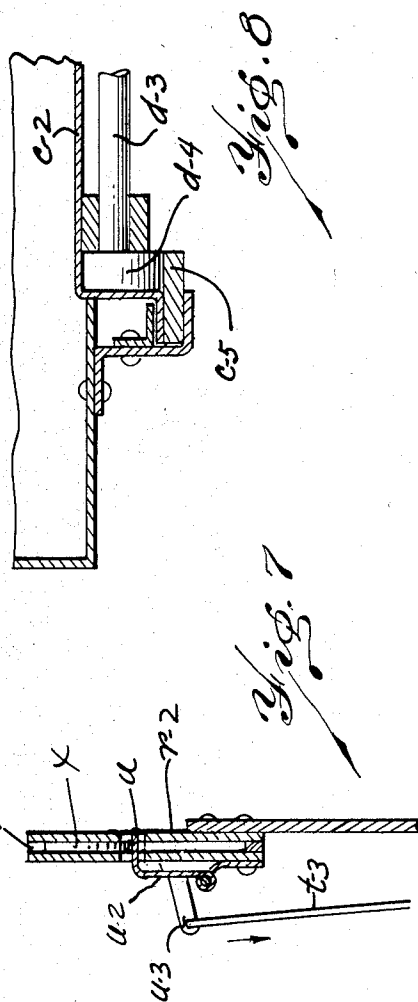
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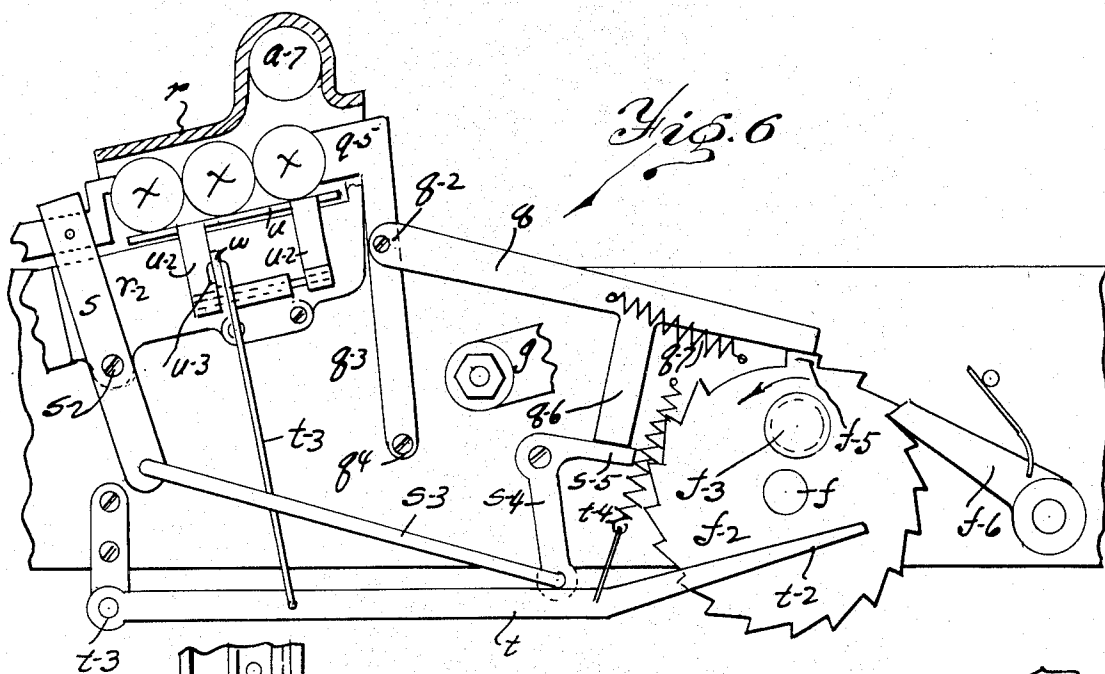
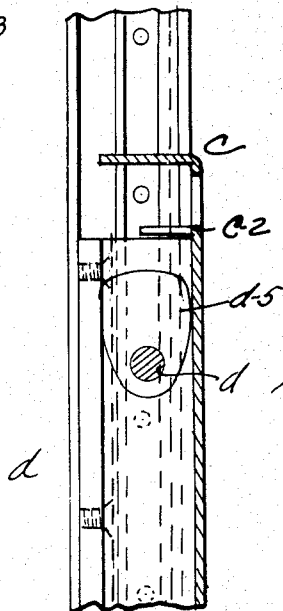
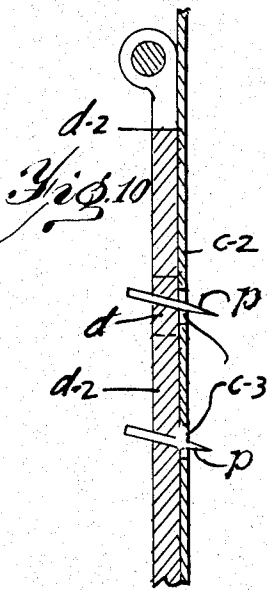
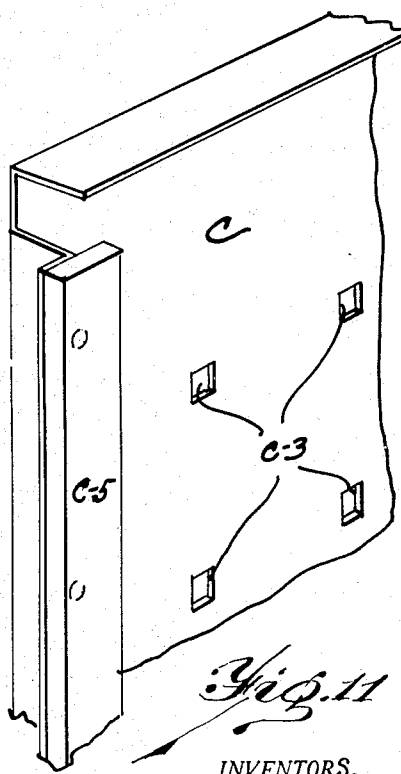
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6 Sheets-Sheet 5



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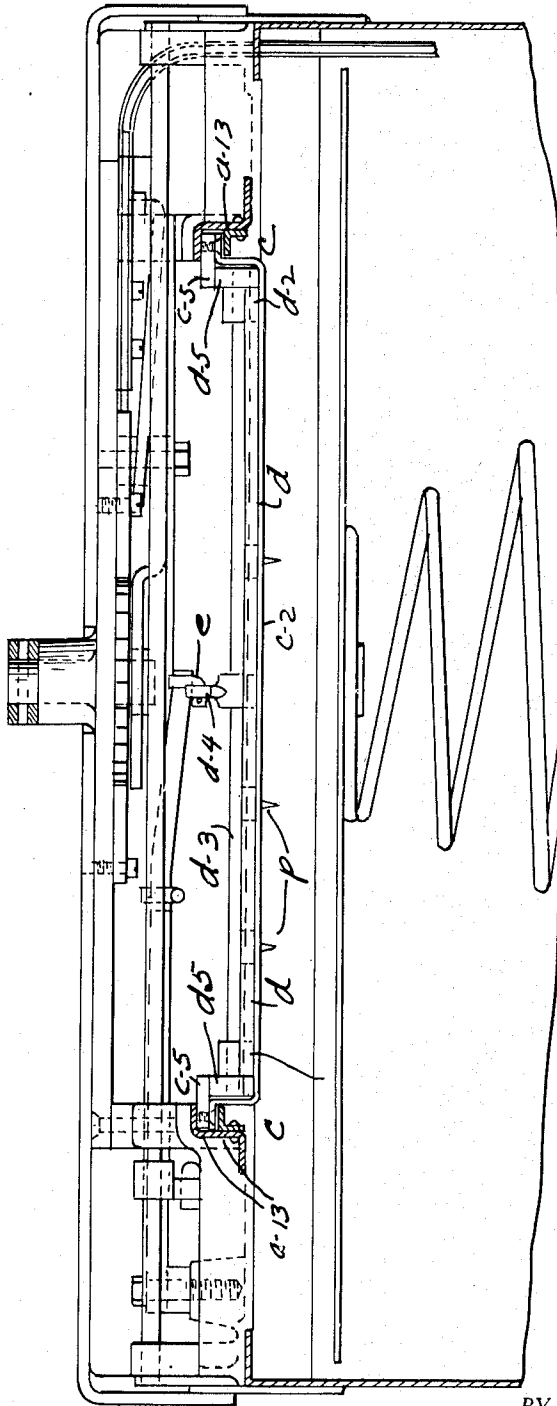
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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE.

THOMAS H. MILLAR, JR., AND GEORGE B. FULLER, OF DETROIT, MICHIGAN.

NEWSPAPER-VENDING MACHINE.

Application filed July 21, 1921. Serial No. 486,356.

To all whom it may concern:

Be it known that we, THOMAS H. MILLAR, Jr., and GEORGE B. FULLER, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Newspaper-Vending Machines, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to newspaper vending machines and an object of our improvements is to provide an improved apparatus actuated by depositing coins for delivering newspapers to a purchaser.

In the accompanying drawings,
Figure 1 is a front elevation of an apparatus embodying our invention partly broken away to economize space.

Fig. 2 is a side elevation of the same.

Fig. 3 is a section to an enlarged scale on the line III—III Fig. 1.

Fig. 4 is an elevation of the upper part of the device looking from the front, partly broken away to show the interior construction and the enclosed mechanism.

Fig. 4^a is a detailed section on the line IV^a—IV^a Fig. 4.

Fig. 5 is a detailed elevation of a part of the mechanism to an enlarged scale, the part being in one operative position.

Fig. 6 is a view similar to Fig. 5 showing the parts in a different operative position.

Fig. 7 is a detailed section on the line VII—VII Fig. 5.

Fig. 8 is a detailed sectional view on the line VIII—VIII of Fig. 4.

Fig. 9 is a detailed sectional view on the line IX—IX of Fig. 4.

Fig. 10 is a detailed sectional view on the line X—X of Fig. 4.

Fig. 11 is a perspective view of one corner of the carrier for the gripping mechanism.

Fig. 12 is a detailed view of a part of the apparatus, parts being broken away to show the construction more clearly.

a is a metal enclosing casing having a cover a^2 adapted to be secured in a closed position by a conventional apparatus a^4 and at the other end hinged as indicated at a^3 . The papers are placed in the main part of the mechanism a and are delivered by means

of a mechanism contained in the extension or auxiliary compartment a^5 .

a^6 represents legs or a supporting frame for the casing a . a^7 indicates the aperture through which the coins are deposited to secure the delivery of a paper. a^8 is a glass-covered aperture in the wall of the casing a through which an observer may note whether or not there are any papers in the casing ready to be delivered. When the last paper has been withdrawn, the word "Empty" appears through the glass of the aperture a^8 .

b is a crank by which the delivery apparatus is operated. b^2 is a pressure plate located within the main body of the casing a . b^3 is a compression spring, one end of which engages against the back wall of the casing a and the other end against the pressure plate b^2 to force said plate forward toward the front of the main portion of the casing a (Fig. 3). The pressure plate b^2 is adapted at b^4 to rest and reciprocate upon a way b^4 .

The newspapers are folded flat and placed against the face of the pressure plate b^2 which is toward the front of the casing a so that the spring b^3 continually presses the folded papers toward the front of the machine and against the inner surface of the front wall of the main portion thereof. a^9 is a spring plate extending across the delivery aperture of the casing a . A folded paper is pressed outward through said aperture causing the spring a^9 to yield permitting a single paper to pass out but restraining the other papers from following and when the paper has been withdrawn the spring returns to position.

c is a carrier for the gripping mechanism. This consists mainly of a plate or wall c^2 which extends across the opening between the main portion of the casing a and the auxiliary portion a^5 . The lateral edges of the plate c^2 are turned outward (Fig. 12) and provided with metal strips c^5 which extend vertically and are adapted to fit and reciprocate in ways a^{13} secured to the main casing.

The gripping apparatus consists of a frame having horizontally extending cross pieces d and vertically extending parts d^2 . This frame has pivoted thereon two shafts d^3 d^3 which shafts are provided with cams or eccentrics d^5 d^5 d^5 d^5 at their ends. These

eccentrics engage between the rear portion c^2 of the plate c and the inwardly extending portion of the strips c^5 . When the shafts d^3 d^3 are oscillated they move the frame d d^2 outward and inward by means of the

p indicates engaging points which extend from the frame d d^2 through apertures c^3 in the wall d^2 of the carrier c . When the frame d d^2 is moved inward the point p projects through said apertures and engage a paper which is pressed toward it by the pressure plate d^2 .

d^4 d^4 (Fig. 3) are lever arms secured at one end to the shafts d^3 d^3 . e e are connecting rods, the ends of which are secured to the outer ends of the lever arms d^4 d^4 . f is the shaft which the crank b is adapted to rotate. This shaft bears in the wall of the extension a^5 of the casing a . f^2 is a ratchet wheel upon the inner end of the shaft f . f^3 is a wrist pin extending from the inner surface of the ratchet wheel f^2 . g (Fig. 4) is a lever arm pivoted to a stationary pivot at g^2 . f^4 is a connecting rod pivoted at one end to the lever g and at the other end sleeved upon the wrist pin f^3 . h is a lever arm pivoted near the edge of the casing to a stationary pivot at h^2 . g h is a connecting rod joining the lever arms g and h . The adjacent ends of the connecting rods e e are pivoted to the end of the lever arm h .

The frame d d^2 is restrained from movement along the carrier c parallel to the plane thereof and consequently when the shaft f is rotated by the crank b the lever arm g is oscillated by the connecting rod f^4 which oscillates the lever arm h which acts through the connecting rods e e not only to oscillate the shafts d^3 d^3 but also to reciprocate the carrier c , thus when the shaft f is turned to draw the carrier c downward to cause the delivery of a paper the shafts d^3 d^3 are turned before motion is communicated to said carrier and this projects the engaging points p through the aperture c^3 and into the paper so that when the carrier c is drawn downward the paper is carried with it and forced out at the delivery opening pressing the spring a^9 aside as above described.

c^4 is a spring impelled catch by which the carrier c is yieldingly connected to a tongue a^{12} secured to the frame of the machine. This yielding connection retains the carrier c in its upper position until the shafts d^3 d^3 have been rocked and the point p projected to engage the paper.

k is a leaf pivoted along one of its longer edges at k^2 to the lower wall of the casing a . This leaf closes over the delivery aperture of the paper or may be turned about its pivot to permit the passage of the paper as indicated in dotted lines in Fig. 3.

j is a longitudinal reciprocating rod, the lower end of which is pivoted to the outer end of an arm n^2 secured to the shaft n (Fig. 4) raising in bearings in the casing above, adjacent and parallel to the delivery opening from said casing. The rod j passes through an aperture in a nut j^5 (Fig. 4^a) which itself is pivoted to the side wall of the lever arm h . j^2 is a collar secured at one end upon the rod j , and j^3 are collars secured at the upper end of said rod. The nut j^5 engages against the collar j^2 and there is a compression spring under tension, one end of which bears against a collar j^2 and the other against a nut j^3 . k^3 is a connecting rod, the lower end of which is pivoted to the outer edge of the leaf k and the upper end of which is pivotally secured to a lever arm n^2 . When the shaft f is rotated to operate the lever apparatus and the lever arm h is drawn downward this forces the rod j downward which turns the leaf k about its pivoted edge k^2 by means of a connecting rod k^3 , as indicated in Fig. 3, thus permitting the passage of the paper. When the carrier c is returned to its upper position, if the paper is partly protruding from the delivery aperture so as to prevent the closure of the leaf k , the spring j^4 yields to permit the raising of the lever arm h without carrying with it the rod j . m (Fig. 4) is a spring actuated pawl that automatically engages under the sleeve j^2 to prevent the movement of the rod j and therefore the unauthorized opening of the leaf k . m^3 is a pin extending from the carrier c . This pin engages a hooklike cam m^2 to draw the pawl m out of engagement with the sleeve j^2 when the carrier c is drawn downward.

Turning more particularly to Figs. 5 and 6, it will be observed that the ratchet wheel f^2 is engaged by a spring actuated pawl f^6 so that the handle b and shaft f and said ratchet wheel can only be turned in one direction. One tooth of the ratchet wheel f^2 is provided as shown at f^5 with a radially extending wall adapted to be engaged by a pawl q to prevent the rotation of said wheel. The pawl q is pivoted at q^2 to a lever arm q^5 which has a laterally extending portion projecting from its free end. q^6 is a foot piece extending downward from the pawl q .

r is a receptacle into which the coins primarily drop when passed through the aperture a^7 . The ends of the receptacle r are open and the projection from the lever arm q^5 extends into one end. Into the other end of said receptacle extends a projection from a lever arm s pivoted upon a stationary pivot at s^2 . s^4 s^5 are arms of a bell crank pivoted to a stationary support. The arm s^5 engages under the foot piece q^6 of the pawl q . s^3 is a connecting rod piv-

oted at one end to the outer end of the arm s^4 of the bell crank lever $s^4 s^5$ and at the other end to the lower end of the lever s .

5 $x x x$ indicate the coins that are placed in the receptacle r , the requisite number being held in said receptacle adjacent to each other and occupying the space between the projections from the lever arms q^5 and s .

10 When the requisite number of coins are placed in the receptacle r the space between said projection is entirely occupied. Now when the shaft f is turned the radial surface or wall f^5 on the wheel f^2 acts against the pawl q oscillating the lever q^5 which acts through the interposed coins to oscillate the lever s which acts through the connecting rod s^3 to oscillate the bell crank lever $s^4 s^5$ which raises the pawl q and disengages it from the surface f^5 permitting the rotation of the wheel f^2 for the delivery of the paper. If the requisite number of coins are not placed in the receptacle r the lever q^5 will move to the limit of its travel without actuating the lever s and when it has reached the limit of its motion the pawl q will prevent the further rotation of the wheel f^2 . The springs return the pawl q and wheel f^2 .

30 The coins $x x x$ are held in the receptacle r by a removable plate u extending to form the bottom plate of said receptacle. The plate u is upon the upper ends of lever arms u^2 from which extends an arm u^3 . t is a lever arm pivoted at one end to a stationary support and at the other end t^2 extending in the line of travel of the wrist pin f^3 . t^4 is a spring holding the lever arm t in an elevated position. t^3 is a connecting rod joining the lever arms t and u^3 .

40 When the requisite number of coins have been placed in the receptacle r and the wheel f^2 rotated as above described, the wrist pin f^3 engages the end t^2 of the lever arm t which acts through the connecting rod t^3 to oscillate the arms u^2 and withdraw the supporting plate u from under the coins $x x x$ thus allowing said coins to drop into the chute r^2 and pass to a conveniently accessible place.

50 a^{11} is a spring hook pivoted to the back of the main receptacle and adapted to engage over the edge of an aperture over the platen b^2 when the platen is pressed to the limit of its travel backward. Thus the platen is held in position to admit of placing a bundle of papers in position to be delivered in the machine and when they are so placed the hook is released and the spring b^3 acts to press the papers to the forward end of the machine and in position to be acted on by the delivery apparatus.

Claims:

65 1. In an apparatus of the kind described, the combination of a receptacle for news-

papers having newspapers therein, a reciprocating apparatus adapted to engage a newspaper in one direction of motion to remove the same from said receptacle and to be disengaged from said newspaper in the other direction of motion, said reciprocating means consisting of a carrier with a frame thereon having engaging points, said frame being adapted to reciprocate on said carrier at right angles to the direction of motion of said carrier to engage and disengage said points with a newspaper and means for reciprocating said carrier and said frame, substantially as and for the purpose described.

2. The combination of claim 1 when said frame is actuated by a cam engaging the carrier, the lateral motion of said frame being secured by the rocking of said cam.

3. The combination of claim 1 with means for resisting the delivery motion of said carrier and restoring the same to its initial position with a definite force, and means for reciprocating said carrier and also rotating said cam with a force proportional to the resistance to the motion of said carrier.

4. In an apparatus of the kind described, the combination of a receptacle for newspapers having newspapers therein, a reciprocating apparatus adapted to engage a newspaper in one direction of motion to remove the same from said receptacle and to be disengaged from said newspaper in the other direction of motion, said reciprocating means consisting of a carrier with a frame thereon having engaging points, said frame being adapted to reciprocate on said carrier at right angles to the direction of motion of said carrier to engage and disengage said points with a newspaper, and a cam provided with a lever arm adapted to engage said frame, the lateral motion of said frame being secured by the rocking of said cam, and means for reciprocating said carrier connected to said lever arm whereby the carrier is reciprocated and the lateral movement of the frame is also secured.

5. The combination of claim 4 with means for yieldingly restraining the motion of said frame at its initial position.

6. In an apparatus of the kind described, the combination of a reciprocating carrier, a frame upon said carrier adapted to reciprocate with respect thereto, and a single means acting to reciprocate said carrier in its direction of motion and said frame in a direction at right angles to the motion of the carrier, said frame being provided with an engaging point and means for holding a paper in position to be engaged by said point.

7. In an apparatus of the kind described, a reciprocating carrier, a frame on said carrier adapted to reciprocate with respect thereto, a cam upon said carrier and engaging said frame, the lateral motion of said

frame being secured by the rocking of said cam and means for reciprocating said carrier which also acts to rock said cam, said frame being provided with an engaging point and means for holding a paper in position to be engaged by said point. 5

8. In an apparatus of the kind described, a reciprocating means consisting of a carrier with a frame thereon having engaging points, said frame being adapted to reciprocate on said carrier at right angles to the direction of motion of said carrier to engage and disengage said point with a newspaper, a cam upon said carrier engaging said frame 10

and adapted to reciprocate the same in a direction at right angles to the motion of said carrier, means for resisting the motion of said carrier and restoring the same to its initial position with a definite force, and means for reciprocating said carrier and also rotating said cam with a force proportional to the resistance to the motion of said carrier. 15 20

In testimony whereof, we sign this specification.

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