

March 11, 1930.

G. H. MATCHETT

1,749,773

VENDING MACHINE

Filed Sept. 5, 1925

5 Sheets-Sheet 1

Fig. 1.

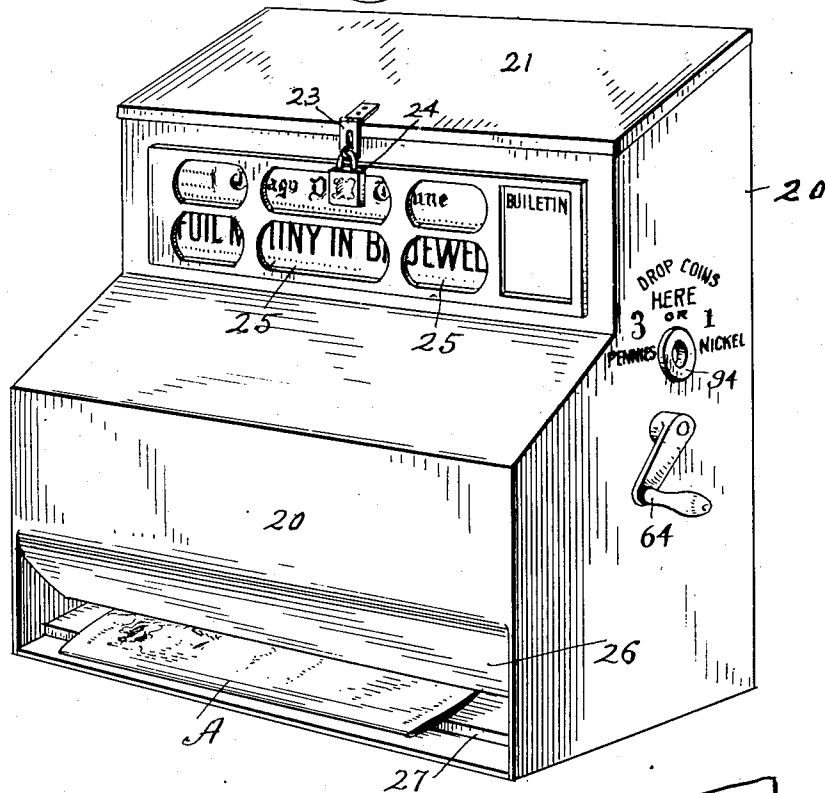
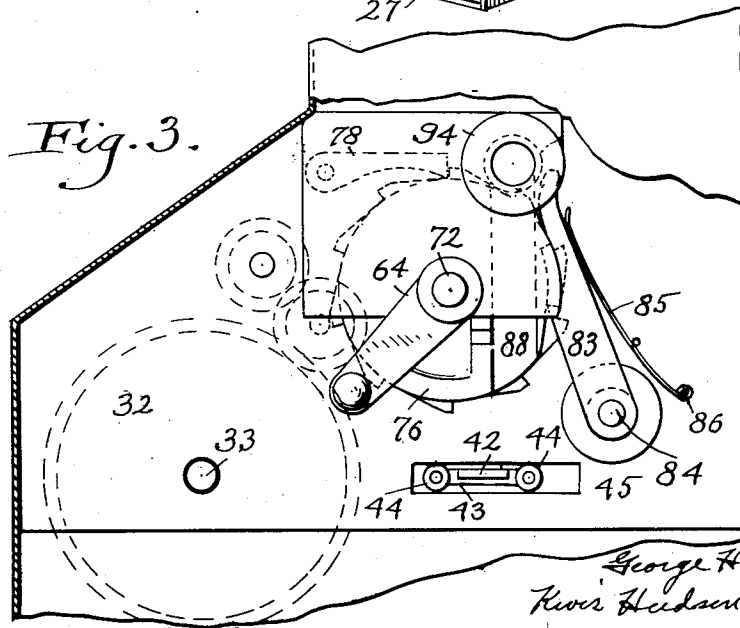


Fig. 3.



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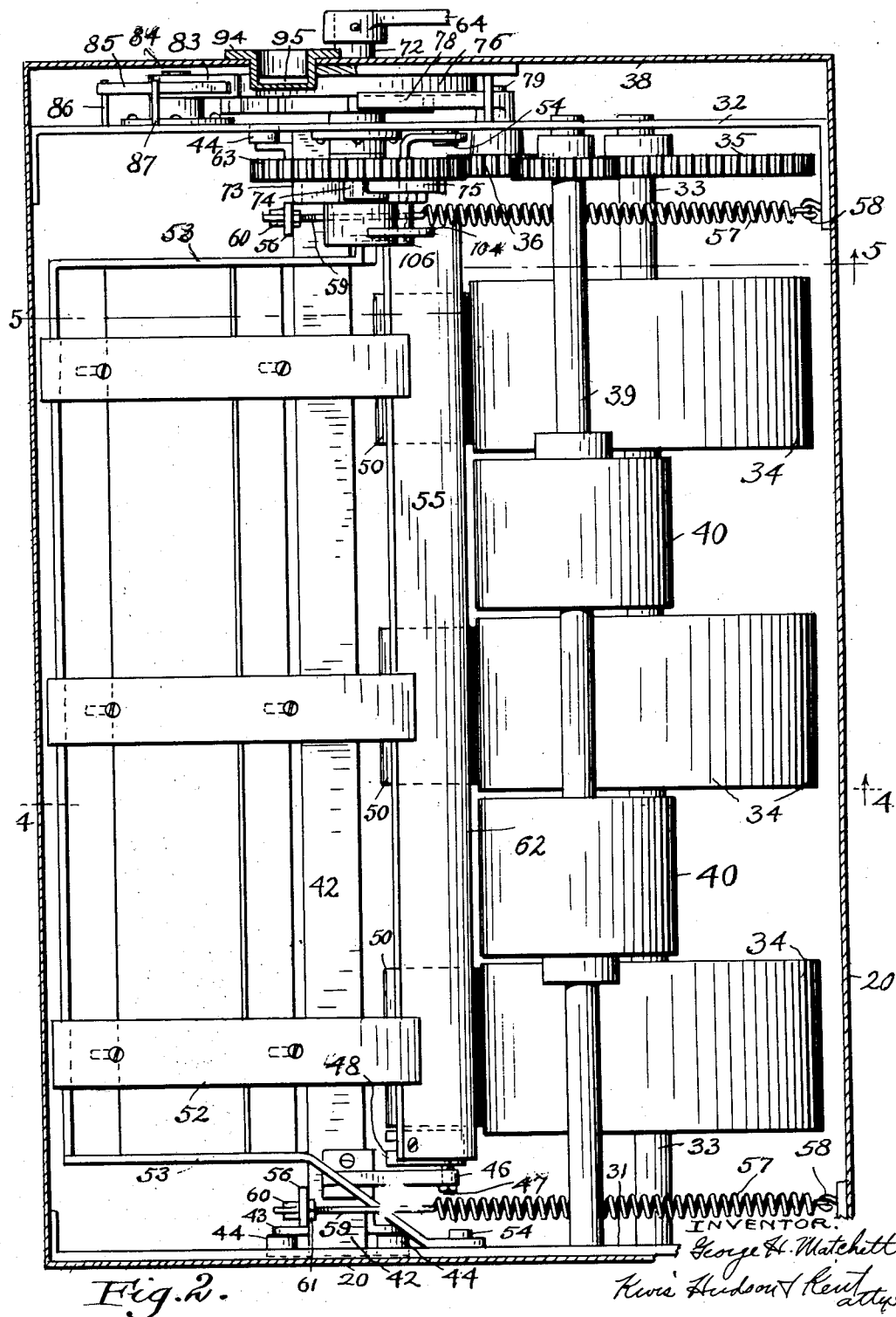
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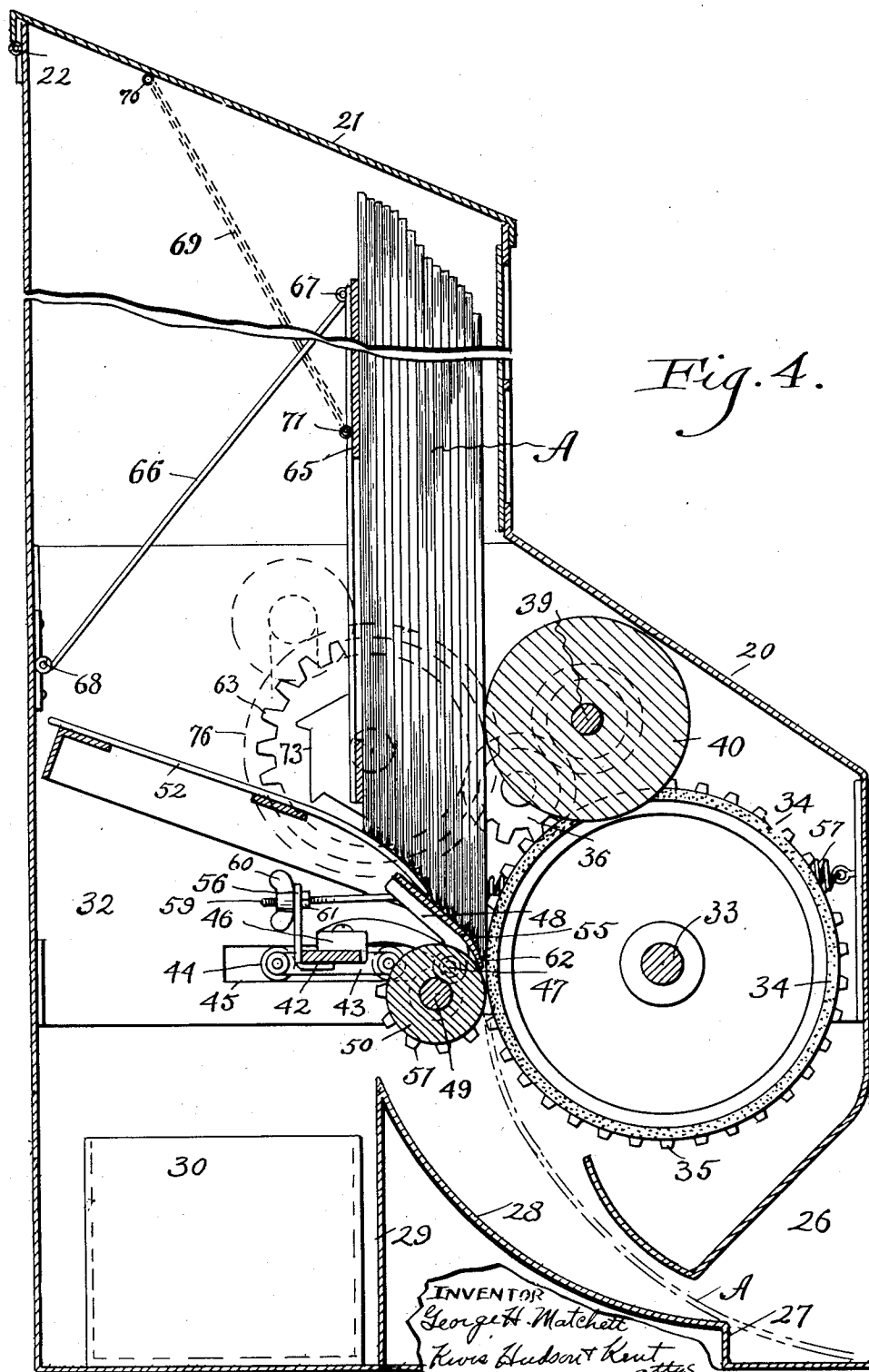
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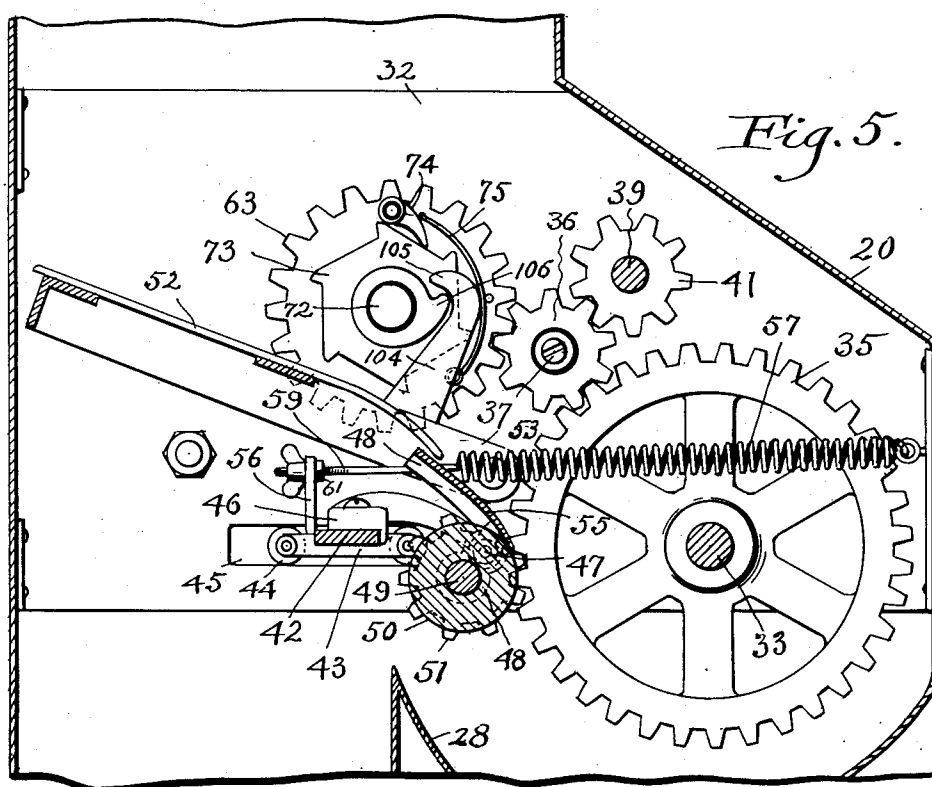
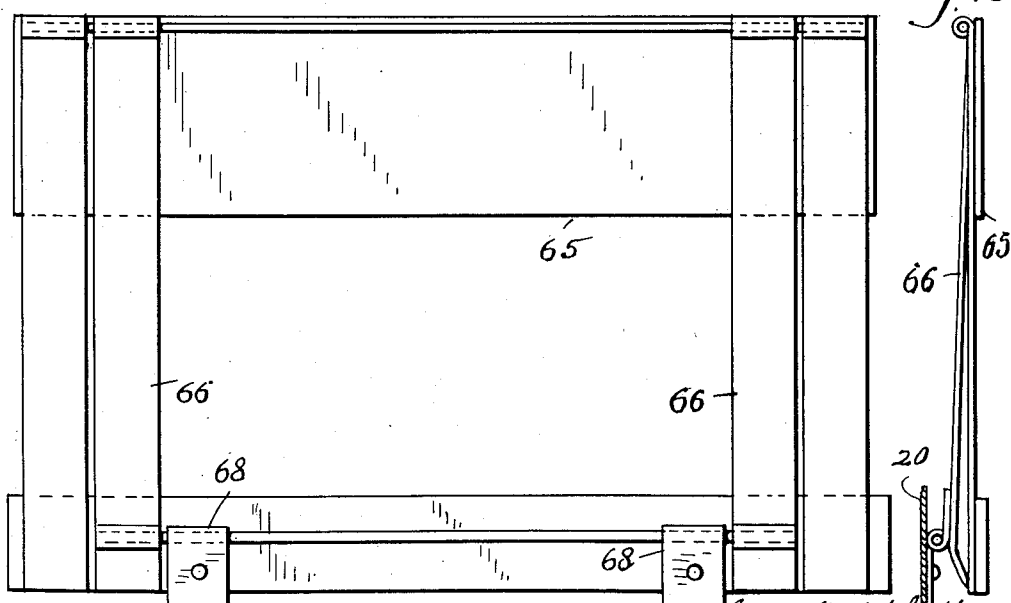


Fig. 12.

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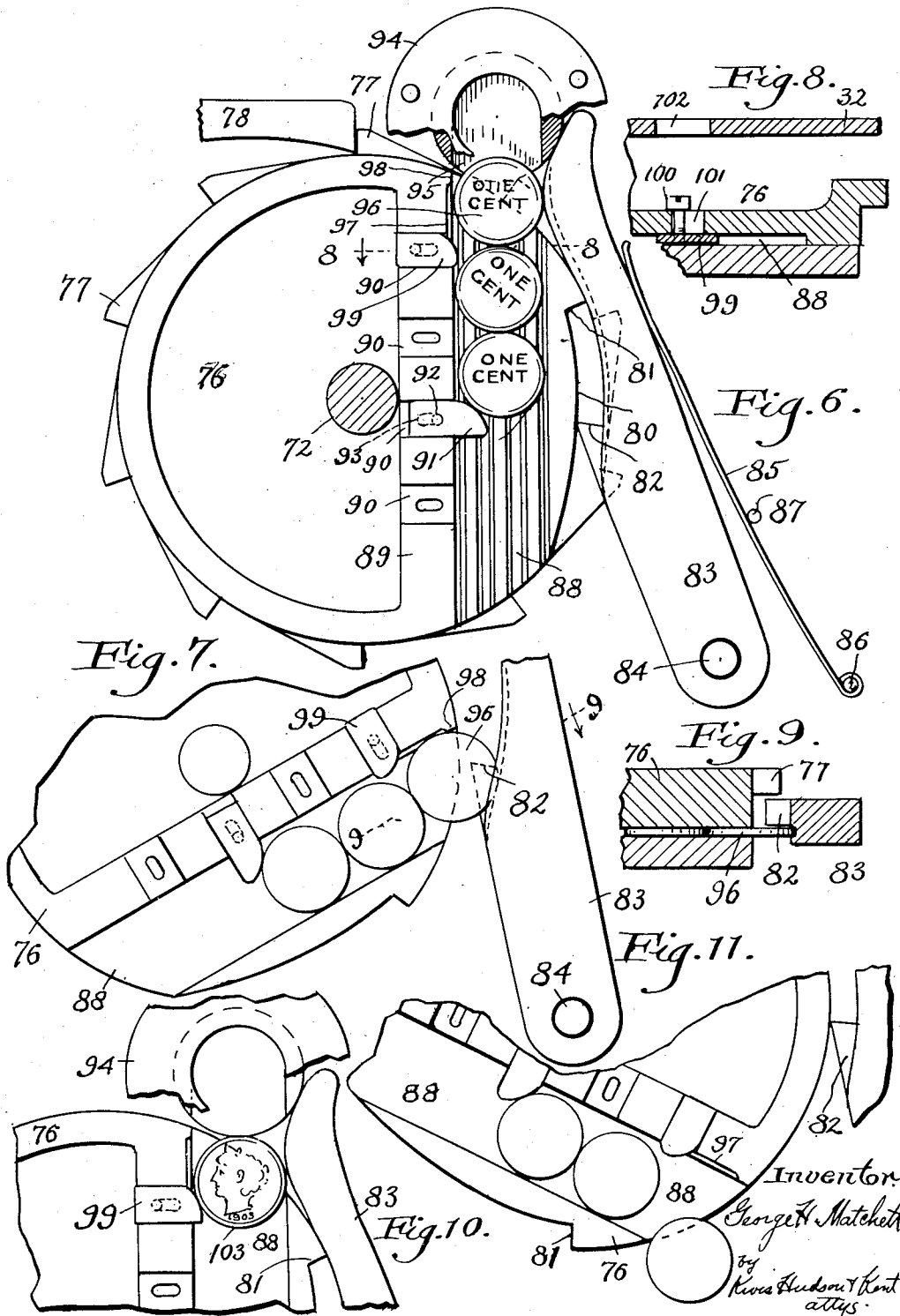
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VENDING MACHINE

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UNITED STATES PATENT OFFICE

GEORGE H. MATCHETT, OF CLEVELAND, OHIO

VENDING MACHINE

Application filed September 5, 1925. Serial No. 54,603.

This invention relates to machines for vending articles such as newspapers, magazines, etc., and has for one of its objects the provision of an improved type of feeding mechanism for the articles which will be reliable in operation and adapted to properly separate the articles so as to deliver them one at a time. A further object of the invention is to provide an improved coin-receiving mechanism especially adapted for use in connection with the feeding mechanism and which will so control the latter as to prevent operation without using the proper coin or coins.

In the accompanying drawings, I have illustrated the preferred form of my invention, the same constituting an improvement in the apparatus and described in my prior application Serial No. 365,583, filed March 13, 1920.

In the drawings;

Fig. 1 is a perspective view of a machine embodying my present invention;

Fig. 2 is a plan view of the machine shown in Fig. 1, with the upper part of the casing removed;

Fig. 3 is a fragmentary end elevation with a portion of the casing broken away;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is an enlarged elevation of the coin mechanism in the position in which it receives the coins;

Fig. 7 is a fragment of Fig. 6 with the coin-wheel partially rotated to illustrate the manner of effecting the release of the locking dog;

Fig. 8 is a detail section on the line 8—8 of Fig. 6;

Fig. 9 is a section on the line 9—9 of Fig. 7;

Fig. 10 is a fragmentary view similar to Fig. 6, but showing the manner in which the mechanism is unlocked by a single coin;

Fig. 11 is a view similar to Fig. 7 but showing the coin-wheel rotated to the position for discharging the coins;

Fig. 12 is a side elevation of the device for

supporting the sheets of paper on edge; and, Fig. 13 is an edge view thereof.

Referring to the drawings, 20 indicates a casing preferably made of sheet metal with the different parts secured together in a substantial manner so as to protect the interior mechanism from being tampered with. At the top of the casing 20, there is a door 21 that is hinged to the casing at 22 and adapted to be secured in closed position by means of the hasp 23 and padlock 24. In the upper part of the front wall of the casing there are windows 25 for displaying the newspaper or other article that is to be vended, these windows being glazed for the purpose of protecting the interior mechanism. In the lower part of the front wall of the casing, there is a discharge opening 26 through which the newspapers or other articles are delivered, the bottom wall of this opening being preferably formed with a ledge 27 in order to raise the front edge of the article and permit it to be readily grasped and withdrawn. From the ledge 27, there is an upwardly curved wall 28 which acts as a chute to guide the articles to the opening 26, the upper edge of the wall 28 being supported on the upright wall 29, behind which there is located a receptacle 30 for receiving the coins that are used to operate the machine. Frame members 31 and 32 are secured within the casing 20, adjacent the end walls thereof and the mechanism is supported on these frame members. A horizontally arranged shaft 33 has its ends supported in the frame members 31 and 32 and carries the feed-wheels 34. A driving gear 35 is secured on the shaft 33 and meshes with a pinion 36 that is mounted on a stub shaft 37 carried by the frame member 32. From Fig. 2, it may be noted that the frame member 32 is spaced a short distance from the end wall 38 of the casing to provide a compartment for the coin mechanism to be hereinafter described.

Above the shaft 33 there is a shaft 39 which carries the wheels 40, the latter being arranged between the wheels 34, as shown in Fig. 2. The shaft 39 is mounted in bearings in the frame members 31 and 32 and carries

a gear 41 which meshes with the pinion 36. On account of the gear 41 being much smaller than the gear 35, the shaft 39 will be rotated much faster than the gear shaft 33 for a purpose to be hereinafter described.

A bar 42, extending parallel with the shaft 33, is mounted, at its ends, on members 43 which are supported on rollers 44 that run in slots 45 in the frame members 31 and 32. Secured on the bar 42 are the brackets 46 which carry pivots 47 and arms 48 are mounted on these pivots. The lower ends of the arms 48 carry a shaft 49 on which there are feed rollers 50 cooperating with the feed-wheels 34, as best seen in Fig. 4. The shaft 49 also carries a pinion 51 which meshes with the gear 35.

An inclined platform 52 has arms 53 at its ends which are mounted on the pivots 54 on the frame members 31 and 32. Below the forward edge of the platform 52 is an inclined plate 55 which is secured to the upwardly projecting portions of the arms 48. Secured to the bar 42 are upwardly projecting arms 56, and springs 57, anchored at one end to the front wall of the casing, as shown at 58, have threaded ends 59 extending through the arms 56 and adjustable therein by means of nuts 60 and 61, to vary the tension of the springs.

The mechanism so far described operates as follows:

The newspapers or other articles to be vended are arranged on edge as shown at A in Fig. 4 and rest on the platform 52 and the plate 55, the forward edge 62 of the latter being normally held close to the feed-wheels 34 to prevent more than one article from entering between the feed-wheels 34 and the roller 50. The gear 36 meshes with a driving gear 63 and the latter is rotated by means of a crank 64, on the exterior of the casing. The details of the mechanism for connecting the crank 64 and the gear 63 will be hereinafter described. The rotation of the gear 63 effects the rotation of the pinion 36 and the latter, being meshed with the gears 35 and 41, rotates the shafts 33 and 39. On account of the relative sizes of the gears 35 and 41, the wheels 40 will be rotated faster than the wheels 34 and since the forward newspaper is pressed against the wheels 40, the latter will tend to give it a quick impulse which will feed it downwardly between the feed-wheels 34 and the rollers 50. The springs 57 serve to draw the roller toward the feed-wheels 34 so that the papers are gripped and fed downwardly thereby. As the paper enters between the roller 50 and the feed-wheels 34, the arms 48 are rocked on their pivots 47 to carry the forward edge of the plate 55 toward the feed-wheels 34 and thus retain the papers that are immediately behind the one that is being discharged. The springs 57 also permit the roller 50 to move

away from the feed-wheels 34 to whatever extent is necessary in order to permit the passage of the newspaper or other article that is being vended.

In order to support the papers in the upright position, as shown in Fig. 4, a follow-plate 65 is provided, this plate being suspended on arms 66 which are pivoted to the plate 65 at their upper ends, as indicated at 67, and have their lower ends pivoted to the casing, as indicated at 68, the arrangement of the arms 66 being such that gravity acts upon the plate 65 to hold it against the stack of papers and also to move it forward therewith.

When it is desired to replenish the supply of newspapers, on the platform 52, the door 21 is opened and the follow-plate 65 is thereby automatically withdrawn to the folded position, shown in Fig. 13, by the chains or other suitable connections 69 which are attached to the door at the point 70 and to the follow-plate at the point 71. When the door 21 is closed, the follow-plate 65 is permitted to move forward against the papers and thus support them.

The gear 63 is loosely mounted on the shaft 72, to which the crank 64 is attached, and there is secured to the shaft 72 a ratchet wheel 73, which is arranged along-side of the gear 63. A dog 74, carried by the latter, is arranged to engage with the teeth of the ratchet wheel 73 to cause the latter to rotate with the shaft 72. A spring 75 is also carried by the gear 63 and holds the dog 74 against the ratchet wheel 73 (see Fig. 5). A coin-wheel 76 is secured on the shaft 72 and has a series of peripheral ratchet teeth 77 which cooperate with a dog 78 that is mounted on the pivot 79 on the frame member 32, the dog 78 preventing rotation of the coin-wheel in the counter-clockwise direction, as seen in Fig. 6. The coin-wheel 76 is also provided with a peripheral recess 80 forming an abutment 81 which cooperates with the tooth 82 on the pawl 83 that is mounted on the pivot 84 on the frame member 32. A spring 85 that is anchored on a pin 86 on the frame member 32, and is held against the pawl 83 by the pin 87, presses the pawl toward the coin-wheel so that the engagement of the abutment 81 with the tooth 82 will prevent rotation of the coin-wheel, in the clockwise direction, except for the limited extent indicated in Fig. 6. The coin-wheel 76 is provided with a coin-receiving slot 88 which, when the mechanism is at rest is vertically arranged, as shown in Fig. 6. At one side of the slot 88 the coin-wheel has a rib 89 which is traversed by a series of spaced slots 90 adapted to receive stop members for the coins. One of said stop members is indicated at 91 and is secured in position by a screw 92, which is attached thereto and movable with the member 91, transversely of the rib 89, in a slot 93, the arrangement being such that when the screw

92 is at one end of the slot 93, the stop member 91 will be adapted to intercept a coin of one denomination and when in engagement with the other end of the slot 93, will be adapted to intercept a coin of another denomination and pass coins that are smaller in size. As shown in Fig. 6, the stop member 91 is positioned to intercept the one-cent coins so that the slot 88, above the member 91, is adapted to receive three coins of this denomination, as shown.

A cup-shaped coin receiver is secured in the end wall 38 of the casing, as shown at 94, and provided with a slot 95 which is normally in alignment with the slot 88 so that when coins are inserted in the receiver 94, they will drop into the slot 88. The stop member 91 is so positioned that when three one-cent coins are in the slot 88, they assume substantially the position shown in Fig. 6 and when the coin-wheel 76 is rotated in the clockwise direction, by means of the crank 64 (referring to Fig. 6), the uppermost coin 96 will engage the upper end of the pawl 83 and move the latter away from the coin-wheel so that the abutment 81 will clear the tooth 82 and permit a complete rotation of the coin-wheel. A complete rotation of the coin-wheel actuates the delivery mechanism to deliver a newspaper or other article which the machine is designed to vend. The purpose of permitting the limited rotation of the coin-wheel, which is afforded by having the abutment 81 normally spaced from the tooth 82, as shown in Fig. 6, is to provide for sufficient rotation to enable the coin 96 to actuate the pawl 83 and when there are no coins in the slot 88, the coin-wheel may be oscillated to this extent without affecting the delivery mechanism, the teeth of the ratchet wheel 73 being spaced apart sufficiently to permit this limited rotation without engaging the dog 74 and rotating the gear 63.

It will be noted that the rib 89, adjacent the coin 96, is recessed, as indicated at 97 so that when the coin 96 engages with the pawl 83, it is moved into the recess 97 and the abutment 98 prevents the coin from being rolled out of the slot 88 due to its frictional engagement with the pawl 83.

At 99, I have indicated another stop member for the coins, this stop member carrying a screw 100 that is slidable in the slot 101. When the member 99 is in the position shown in Fig. 6, it will permit coins of the size of a cent, or smaller, to pass but it will intercept a nickel and hold it in position to actuate the pawl 83 when the coin-wheel is rotated. When the member 99 is moved to the right, from the position shown in Fig. 6, so that the screw 100 engages the opposite end of the slot 101, the member 99 will then intercept a cent or a nickel so that the mechanism may be actuated by one of either of these coins. To permit access to the screws 92 and 100,

openings 102 are provided in the frame member 32, opposite these screws, these openings permitting the insertion of a screw driver by which the screws may be tightened or loosened.

When the coin-wheel, in its rotation, reaches the position shown in Fig. 11, the coins will roll out of the slot 88, due to the action of gravity thereon, and fall into the coin receptacle 30.

In Fig. 10, I have illustrated the manner in which a coin of the size of a nickel, which is indicated at 103, is intercepted by the stop member 99 so that the pawl 83 will be actuated thereby. From Fig. 3, it will be noted that the handle 64 is so positioned that it acts as a counterweight for the coin-wheel, to return it to the position shown in Fig. 6, after it has been rotated through the limited extent afforded by the space between the abutment 81 and the tooth 82 so that when there are no coins in the slot 88, the coin-wheel will be automatically restored to the position shown in Fig. 6 when the handle 64 is released, thereby insuring that the coin slot 88 will normally remain in position to receive the coins from the member 94.

The platform 52 carries an arm 104 having a hook 105 on its upper end which cooperates with the cam 106, on the shaft 72 to vibrate the platform each time that the mechanism is operated to deliver an article, such vibration of the platform 52 serving to separate the articles, one from the other, in order to facilitate the delivery thereof in succession.

Having described my invention, I claim:

1. In a machine of the character described, the combination of an inclined platform for supporting sheets or the like on edge, means for maintaining the sheets in upright position, extrusion means adjacent the lower edge of said platform for withdrawing sheets therefrom in succession, and means operatively associated with said extension means for vibrating said platform.

2. In a machine of the character described, the combination of a pivotally mounted platform for supporting sheets or the like on edge, means for maintaining the sheets in upright position, extrusion means for withdrawing sheets therefrom in succession, and means operatively associated with said extrusion means for vibrating said platform.

3. In a machine of the character described, the combination of an inclined movable platform for supporting sheets or the like on edge, rotary means for withdrawing sheets therefrom in succession, means for operating said rotary means, and a cam associated with the second-mentioned means for vibrating said platform.

4. In a machine of the character described, the combination of an inclined pivotally supported platform for supporting sheets or the like on edge, rotary means for withdrawing

5 sheets therefrom, a crank shaft and means
operatively connecting it with said rotary
means for operating the latter, a cam on said
crank shaft, and means on said platform co-
operating with said cam to vibrate the plat-
form.

10 5. In a machine of the character described,
the combination of a platform adapted to
support the sheets to be fed, an extrusion
roller adjacent an edge of the platform, a
retaining member mounted adjacent said ex-
trusion roller, a movable member upon which
the retaining member is mounted, and ad-
justable spring means for moving said mem-
ber toward said extrusion roller.

15 In testimony whereof, I hereunto affix my
signature.

GEORGE H. MATCHETT.