No. 800,725. PATENTED OCT. 3, 1905.

J. H. DEAN.

VENDING MECHANISM.

APPLICATION FILED OCT. 13, 1904.

2 SHEETS—SHEET 1.

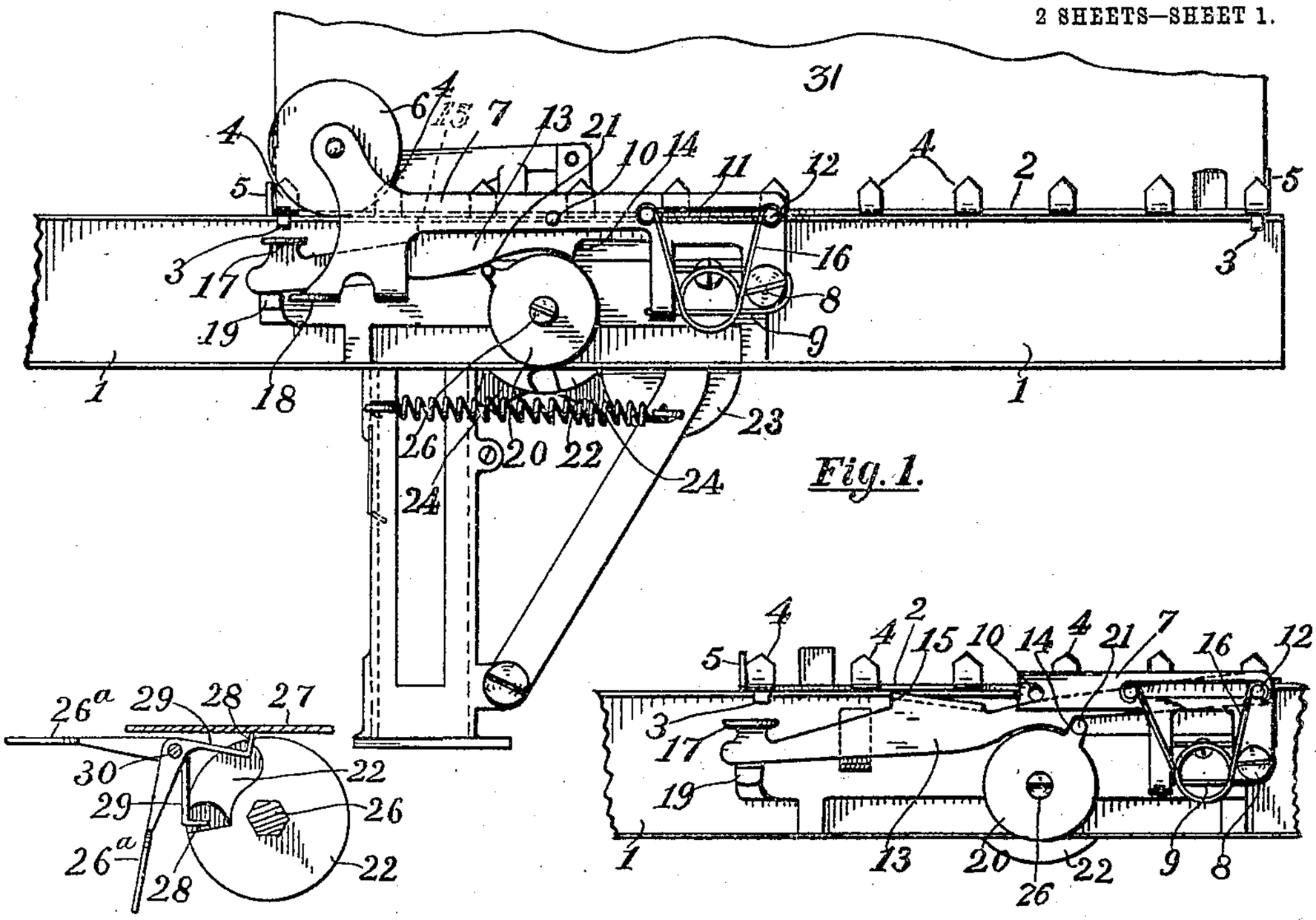

Fig. 1.

Fig. 4

Fig. 3.

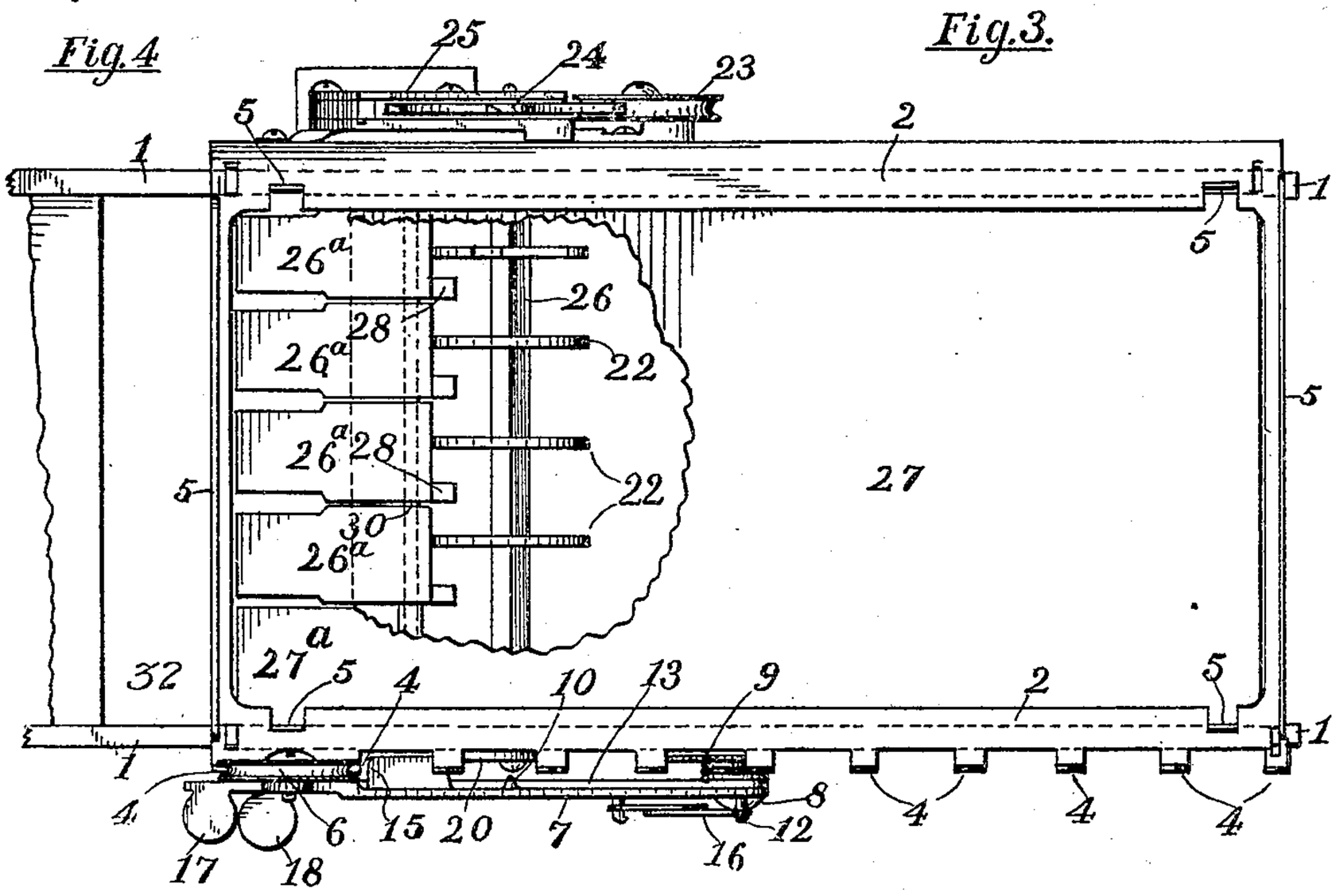

Fig. 2.

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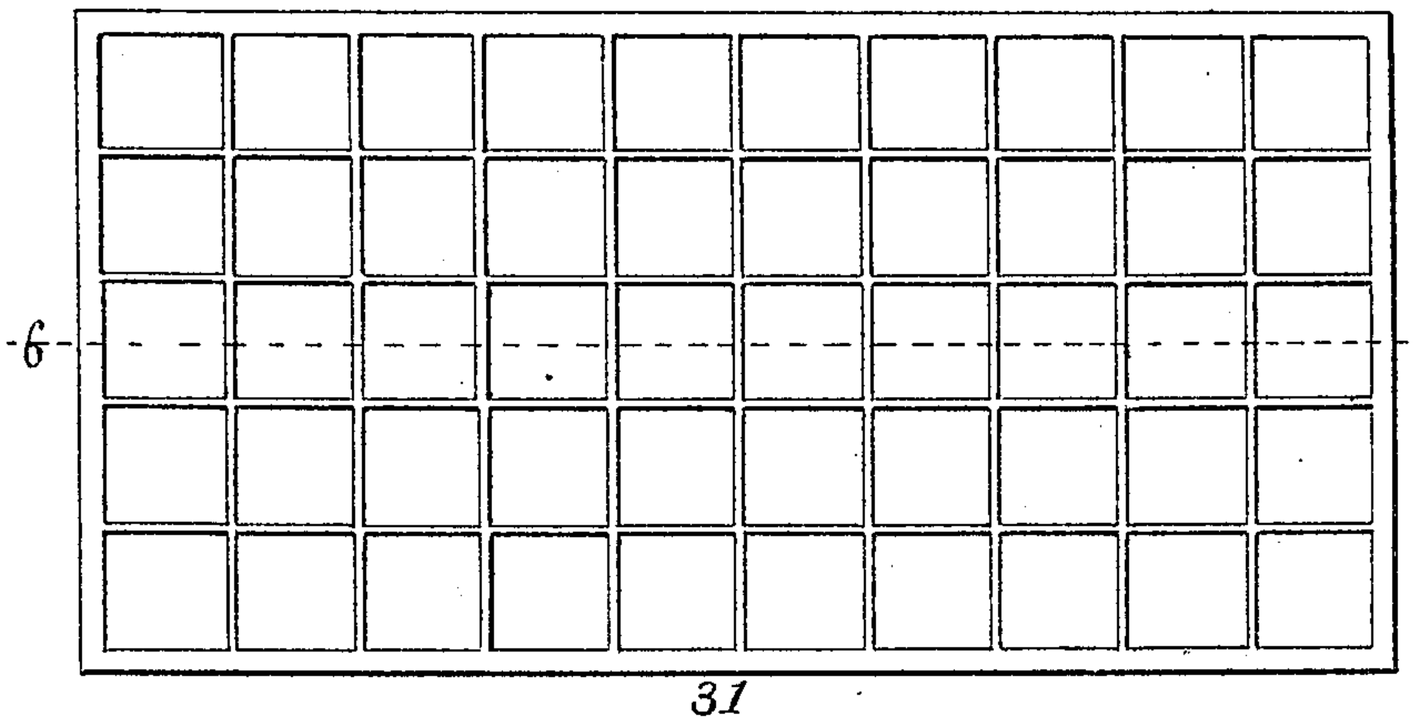

Fig. 5.

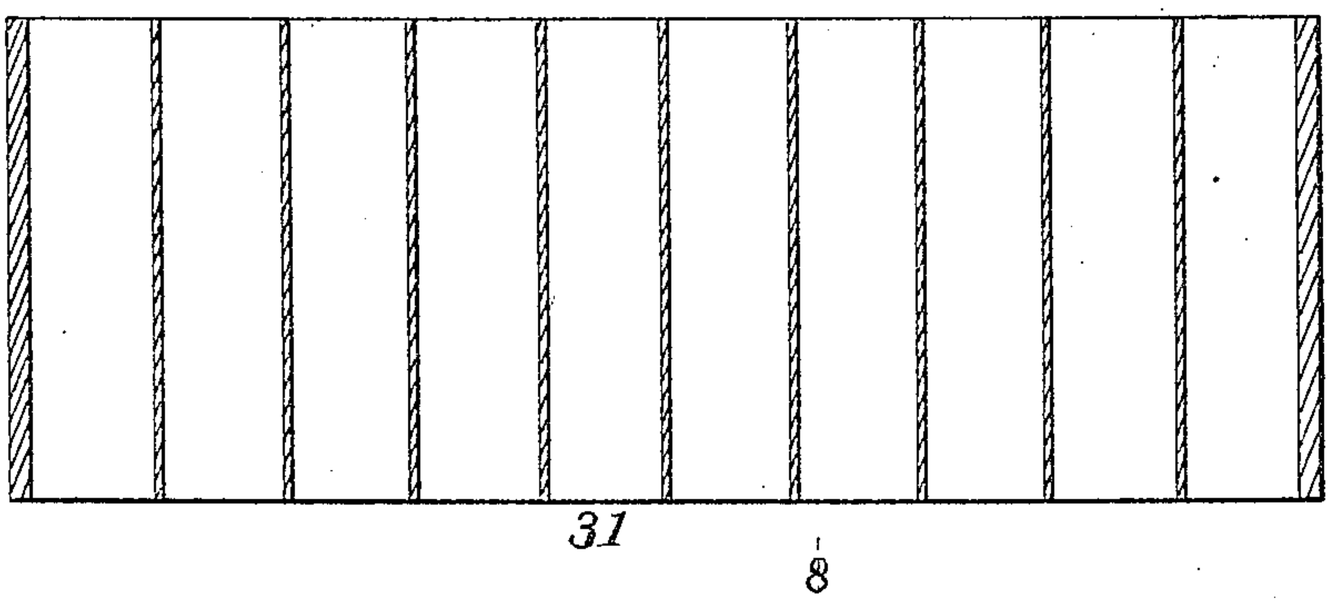

Fig. 6.

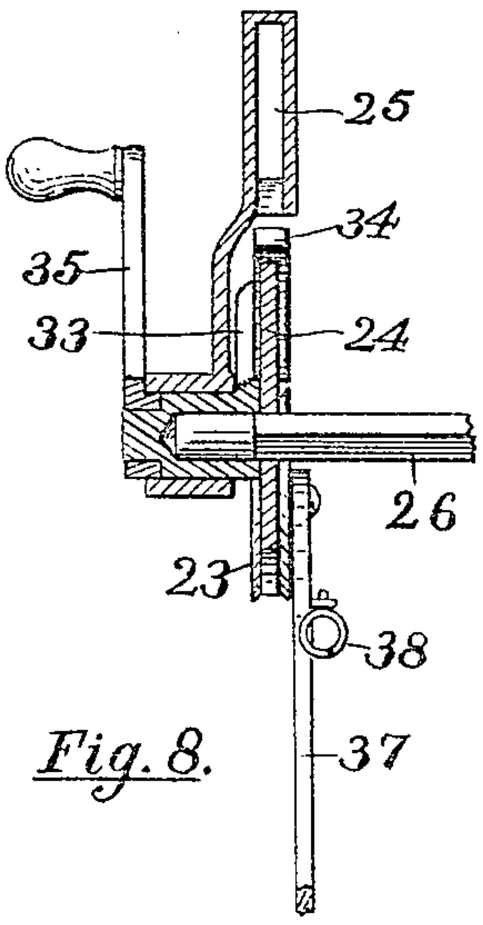

Fig. 8.

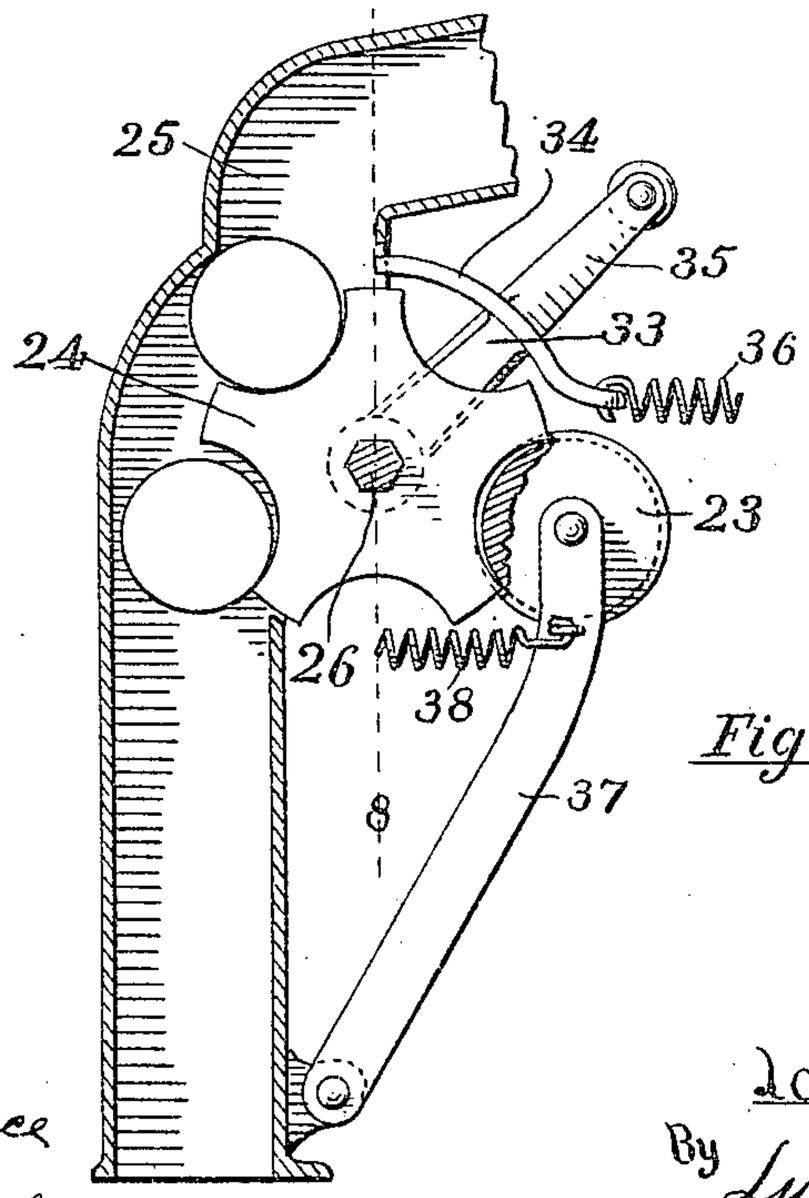

Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN H. DEAN, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO LEGO AUTOMATIC VENDING MACHINE COMPANY, A CORPORATION OF SOUTH DAKOTA.

VENDING MECHANISM.

No. 800,725. Specification of Letters Patent. Patented Oct. 3, 1905.

Application filed October 13, 1904. Serial No. 228,326.

To all whom it may concern:

Be it known that I, JOHN H. DEAN, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Vending Mechanism; 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 improvements in the vending mechanism of a coin-controlled machine for vending cigars or other like small articles; and the object of my invention is to improve the mechanism of the class shown and described in Patent No. 758,588, to Erickson and Fagan, dated April 26, 1904, in which the articles to be vended are arranged severally in rows of cells which are open at the bottom and the articles allowed to drop out of the same one at a time by means of a suitable coin-controlled mechanism.

My invention consists in the combination and arrangement of elements hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention; Fig. 2, a plan view of the same with a portion of the stationary platform or table broken away to show the mechanism; Fig. 3, a detail in elevation of a portion of the device; Fig. 4, a detail of the operating means for the droppers; Fig. 5, a plan of the cells; Fig. 6, a vertical section of the same on the line 6 6 of Fig. 5; Fig. 7, a detail of the mechanism for operating the droppers shown in elevation, and Fig. 8 a vertical section of the same on the line 8 8 of Fig. 7.

Like numerals refer to like parts in all of the figures.

1 indicates parallel ways on which the carriage 2 is mounted and slidable. These ways are preferably of channel-bar form, as shown, with the flanges turned outward, and the carriage consists of an open frame to carry the cells. This carriage is preferably of stamped sheet metal and provided with suitable hooks 3, struck downward to engage the upper flange of the ways to guide and hold the carriage thereon. Upwardly-projecting portions 5 are also provided to suitably adjust and hold the cells 31, containing the articles to be vended, which shells are not shown in Fig. 2. On the front of the carriage are a series of lateral projections 4, having their outer ends turned upward to engage the holding-wheel 6. These projections are spaced apart, and the spaces correspond to the various rows of cells containing the articles to be vended. Beneath one row of cells are a series of droppers 26^a, which consist of small platforms pivoted at one end upon a suitable transverse rod 30. The one of these droppers under the last cell in the row is omitted, and an extension 27^a of the fixed table or platform 27 supplies the place thereof. This platform 27, with its extension 27^a, and these droppers 26^a when in position support the contents of all of the cells. To operate the droppers, a transverse shaft 26 is provided, on which are mounted a series of recessed wheels 22, the rims of which wheels engage downwardly-projecting arms 29 on the pivoted ends of the droppers 26^a, and thus hold the droppers in horizontal position. In the rim of each wheel is formed a recess, as shown in Fig. 4, which recess when opposite the arm 29 will permit the dropper to swing downward and discharge the contents of the respective cells, as indicated in Fig. 4. A projection 28 on the end of the arm 29 engages the platform 27 and stops the arm 29 within the radius of the wheel, so that as the wheel turns the rim of the wheel restores the dropper to place and holds the same horizontal until the wheel again turns with its recess opposite the arm. These wheels are so adjusted as to operate the droppers successively and are so related to the operating-wheel 24 on the end of the shaft 26 that when the same is turned by a step-by-step movement one dropper will be released at each actuation of the device. When each of the series of droppers 26^a have been operated, the carriage is moved forward a sufficient distance to bring the next row of cells over the droppers 26^a, and in so doing the last cell of the first series moves beyond the end of the extension 27 and its contents are discharged through an opening 32 in the platform.

The mechanism for moving the carriage forward consists of a suitable crank-wheel 20, having a crank-pin 21 on its periphery and mounted on the shaft 26, which pin operates the carriage-moving mechanism. An arm 7 supports the retaining-wheel 6, which wheel engages two of the upturned ends of the pro-

jections 4 and temporarily holds the carriage during the operation of the droppers. This arm 7 is pivoted to the sill 1, as at 8, and the wheel 6 is yieldingly held in engagement with the projections 4 by means of the spring 9. This arm is also provided with a longitudinal slot 11, traversed by a pivot-pin 12, attached to a dog 13, extending along the inner surface of the arm 7 and provided with a shoulder 14, engaged by the crank-pin 21. This dog is extended beneath the wheel 6 and beyond the arm 7 and supported on a lug 19. The dog and arm are respectively provided with thumb-pieces 17 and 18, whereby by grasping these pieces and bringing them toward each other the wheel 6 can be raised clear of the projections 4 and the carriage thus released and manually traversed back to place after the cells have all been emptied. The arm 7 is also provided with an inward projection or lug 10, engaged by the dog 13 to lift the arm and wheel 6 when the carriage is automatically moved forward, as hereinafter described. An inwardly-projecting shoulder 15 on the dog 13 is provided to successively engage the horizontal portions of the projections 4 and move the carriage forward. A retracting-spring 16 restores the dog to place after the same has been operated by the crank-pin. The device shown is adapted to cells having transverse rows of five each, and thus the mechanism is adapted to operate by five successive steps. The first four steps successively lower the droppers 26[a] and the fifth step moves the carriage forward and completes the revolution of the shaft.

In moving the carriage the crank-pin 21 first engages the shoulder 14, and as the wheel 20 rotates the first movement is to raise the dog 13 and engage the shoulder 15 with the horizontal portion of one of the projections 4, and at the same time the dog engages the projection 10 and raises the arm 7 and lifts the wheel 6 to release the carriage and permit it to move forward. As the crank-pin 21 carries the dog 13 forward the pivot-pin 12 on which it is mounted traverses the slot 11, thus permitting the dog to move forward a sufficient distance to carry the carriage forward to proper position, when the pin 21 descends sufficiently to become released from the shoulder 14, and the spring 16 restores the dog to retracted position ready for the next operation.

To rotate the shaft 26 by successive steps, the operating-wheel 24 is fixed on said shaft and provided with coin-receiving recesses in its periphery equal in number to the successive steps of one revolution of the shaft, (five in this case.) A coin-chute 25 is provided having fraud-preventing devices, which are not herein shown, the same being the subject matter of another application filed of even date herewith.

A pusher-arm 33 is journaled on the shaft 26 and extends radially alongside the wheel 24, and attached to the outer end of said arm is a segmental pusher 34, arranged opposite the rim of the wheel 24 and concentric therewith. A spring 36 retracts this segment from beneath the opening of the chute and permits a coin to drop into one of the recesses in the wheel 24. A crank 35 is attached to the hub of the arm 33, whereby said arm is manually turned on the shaft to engage the pusher 34 with the coin, which coin is thus moved around the axis of the shaft by the pusher, and thus carries the wheel and shaft around far enough to bring the next recess in the wheel 24 beneath the chute 25. A grooved roll 23 successively engages the recesses in the wheel 24 and holds the wheel from turning, except as moved by the coin, as described. This wheel 23 is mounted on a pivoted arm 37 and yieldingly held in engagement with the wheel 24 by a spring 38.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a vending-machine, a horizontally-movable carriage, projections at intervals on the carriage, movable holding means successively engaging the projections, a horizontally-movable dog to successively engage the projections, a crank-wheel adapted to release the holding means and to move the dog, and means for rotating the crank-wheel.

2. In a vending-machine, a horizontally-movable carriage, projections at intervals on the carriage, a pivoted arm, retaining means on the arm and engaging the projections, a projection on the arm, a horizontally and vertically movable dog engaging the projections on the carriage and arm, a crank-wheel having a pin to engage and operate the dog, and means for rotating the crank-wheel.

3. In a vending-machine, in combination with a horizontally-movable carriage and a series of droppers, a shaft having a step-by-step rotary movement, means for operating the shaft and droppers, a wheel on the shaft, a crank-pin on the wheel, a series of projections on the carriage, a pivoted arm, a wheel on the arm and engaging the projections on the carriage, a dog pivoted on the arm and horizontally movable, a shoulder on the dog and engaged by the crank-pin, and a retracting-spring for the dog.

4. In a vending-machine, a horizontally-movable carriage, projections at intervals on the carriage, a pivoted arm having a longitudinal slot and a lateral projection, a retaining-wheel on the arm to successively engage the projections on the carriage, a pivot-pin slidable in the slot, a dog attached to the pivot-pin and engaging the projections on the arm and the projections on the carriage, a retracting-spring for the dog, a shoulder on the dog, a crank-wheel having a pin to engage the shoulder, and means for rotating the crank-wheel.

5. In a vending-machine, in combination with a carriage having a series of projections on its side, a pivoted arm having a longitudinal slot, a lateral projection and a thumb-piece on said arm, a retaining-wheel mounted on the arm, and engaging the projections on the carriage, a spring to depress the arm, a pivot-pin traversing the slot, a retracting-spring attached to said pivot-pin, a dog attached to the pivot-pin and having a shoulder to engage the projections on the carriage, and also having a shoulder to engage the crank-pin, a crank-wheel having a pin to engage the dog, and a lug to support the dog.

6. In a vending-machine, a carriage having a series of projections spaced apart, a series of pivoted droppers, a platform having an extension in line with the droppers, a shaft, a series of cams to operate the droppers, a pivoted arm having a longitudinal slot and a lateral projection, a spring engaging the arm, a wheel on the arm and engaging the projections on the carriage, a pivot-pin movable in the slot, a spring engaging the pin, a dog attached to the pin and having a shoulder to engage the projections on the carriage and a shoulder to engage the crank-pin, a wheel on the shaft, and a crank-pin on the wheel to engage a shoulder on the dog.

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

JOHN H. DEAN.

Witnesses:
LUTHER V. MOULTON,
GEORGIANA CHACE.