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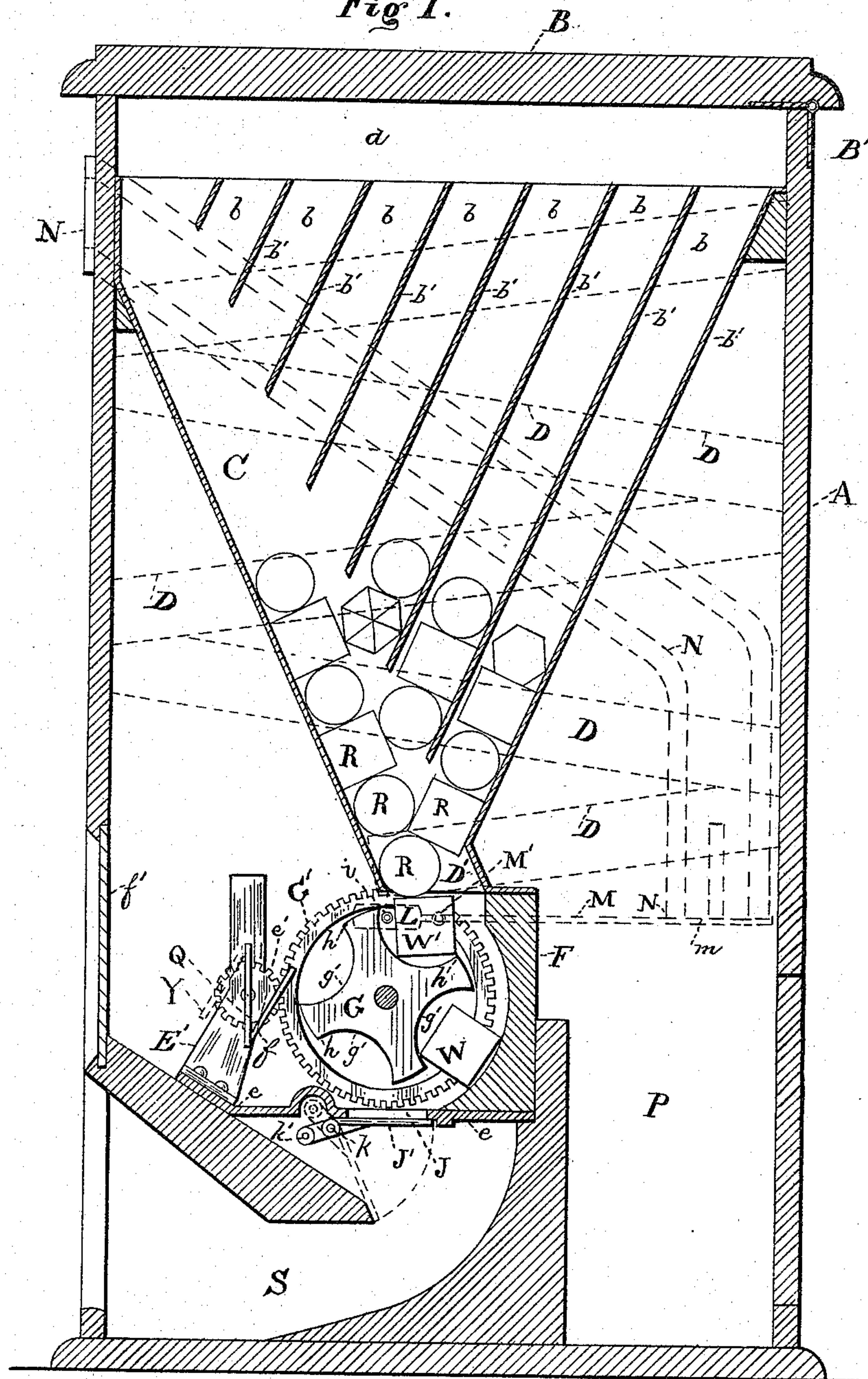
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A. & O. JAEGER.
VENDING MACHINE.

No. 533,197

Patented Jan. 29, 1895.

Fig 1.



Witnesses:
Eugene P. Edson
Otto Saut.

Inventors:
Alexander Jaeger
Otto Jaeger
By *Geo. H. Leggett*
Attorney.

(No Model.)

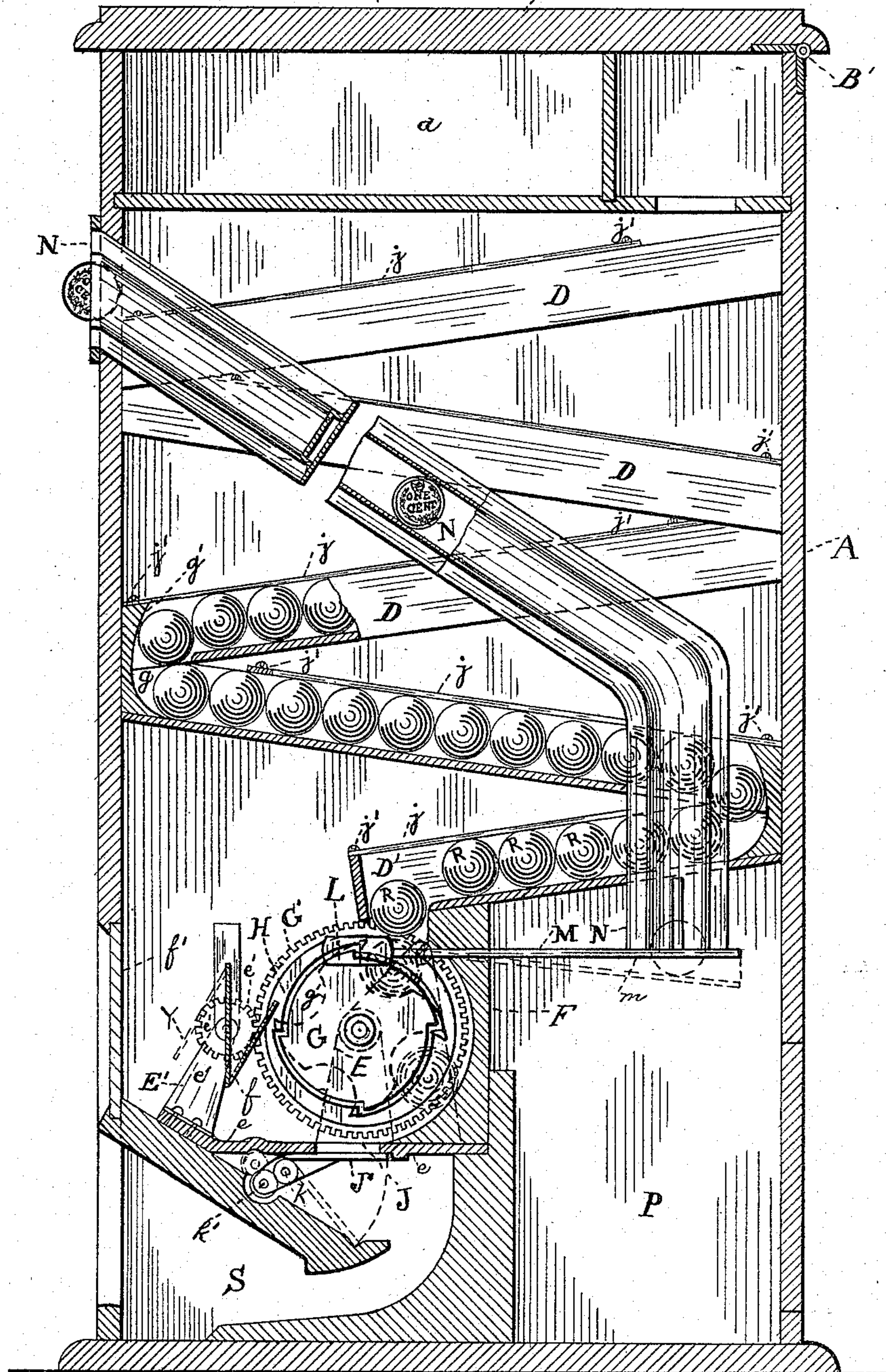
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Fig 2. B



Witnesses:
Eugene P. Sadron.
Otto Faust.

Inventors:
Alexander Jaeger
Otto Jaeger
By Geo. H. Hoggatt
Attorney.

(No Model.)

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Fig 3.

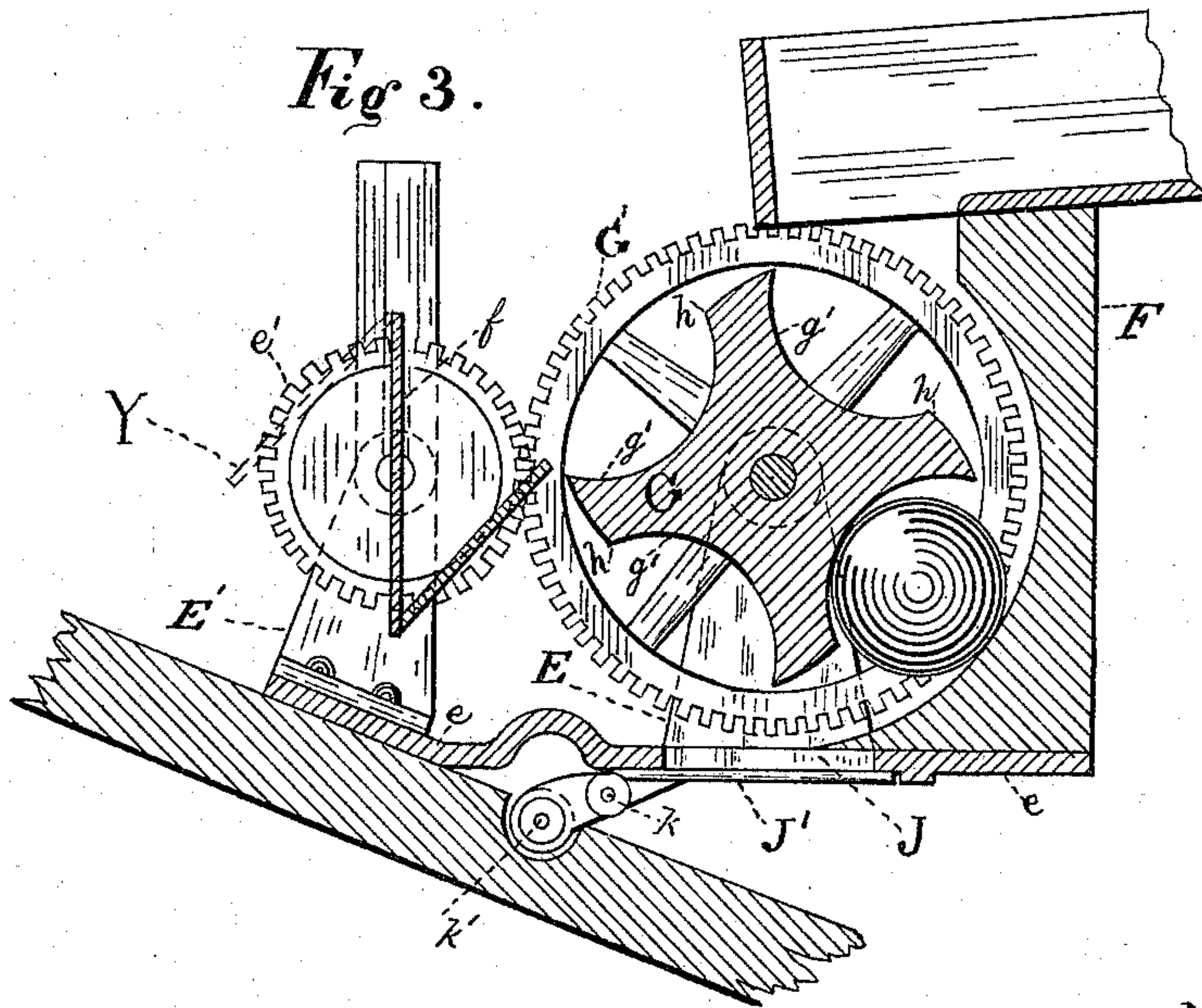


Fig 4.

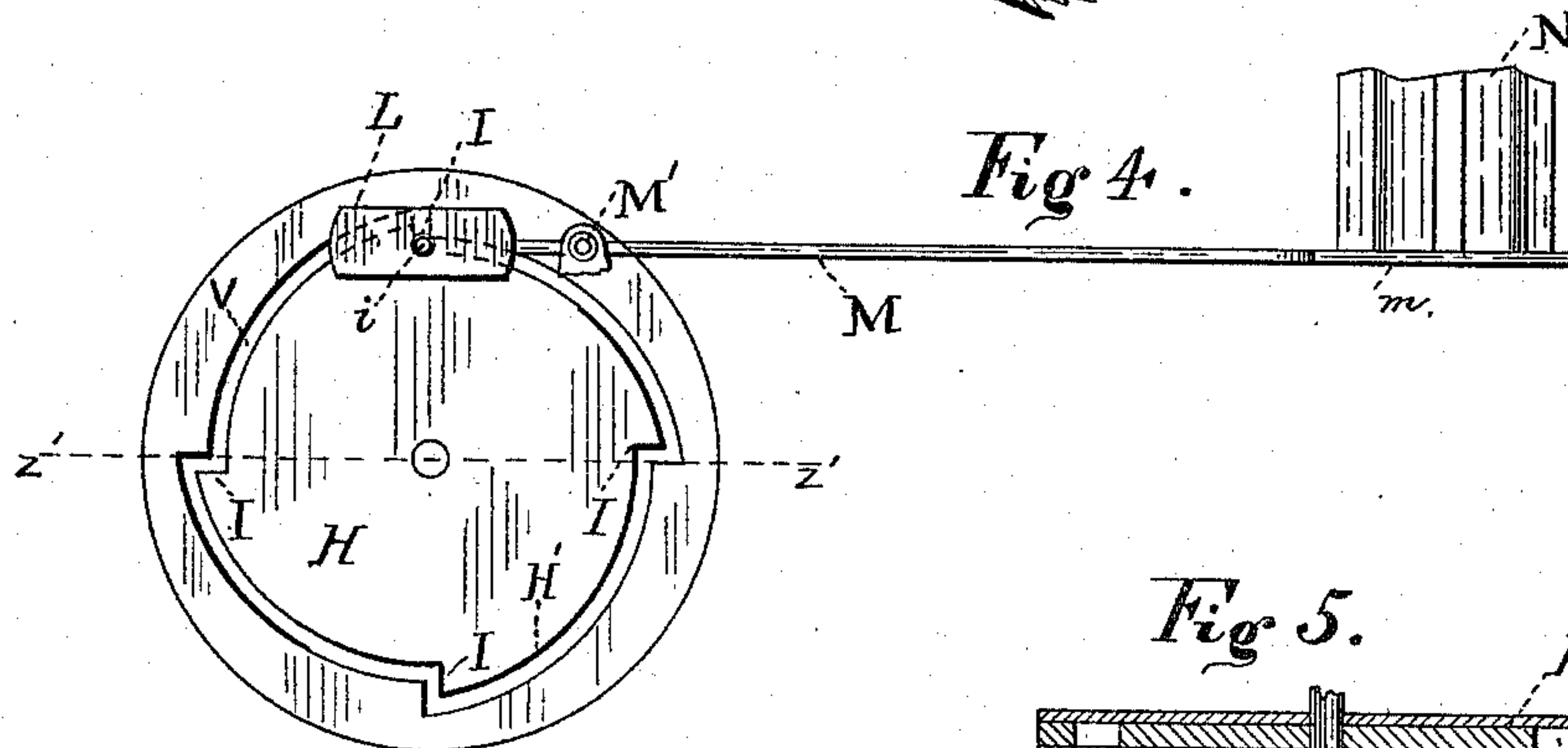


Fig 5.

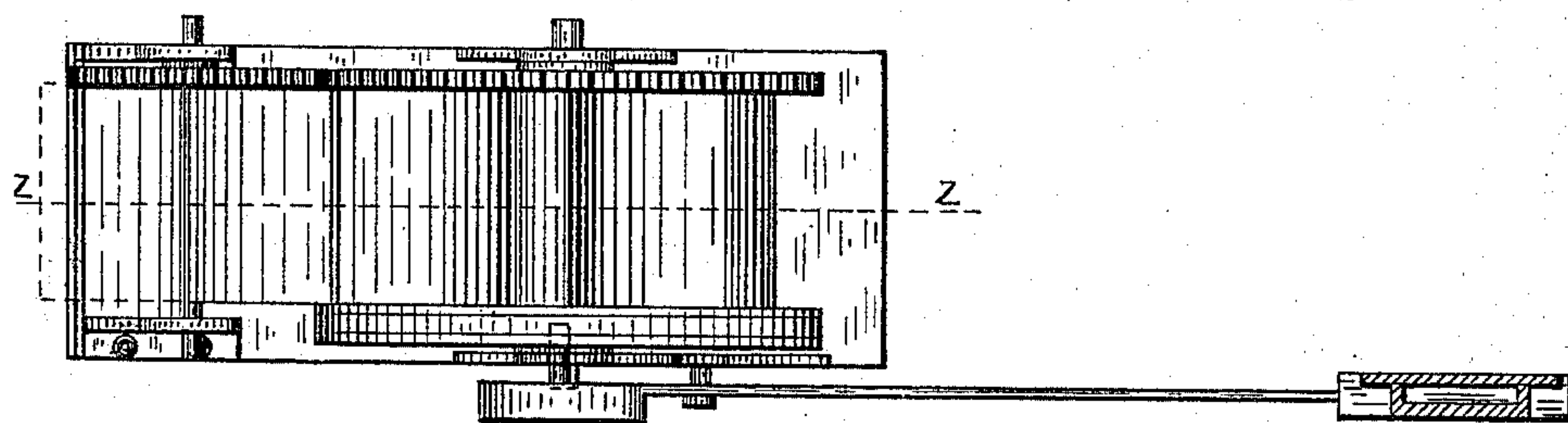
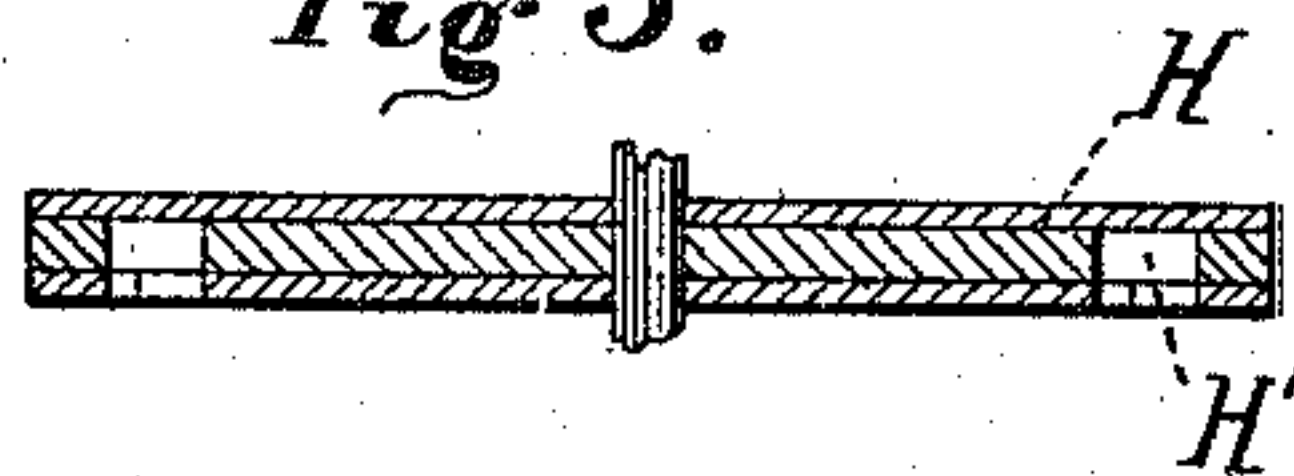


Fig 6.

Witnesses:
Eugene P. Cadson
Otto Savist.

Inventors:
Alexander Jaeger
Otto Jaeger
by Geo. H. Holgate
Attorney.

(No Model.)

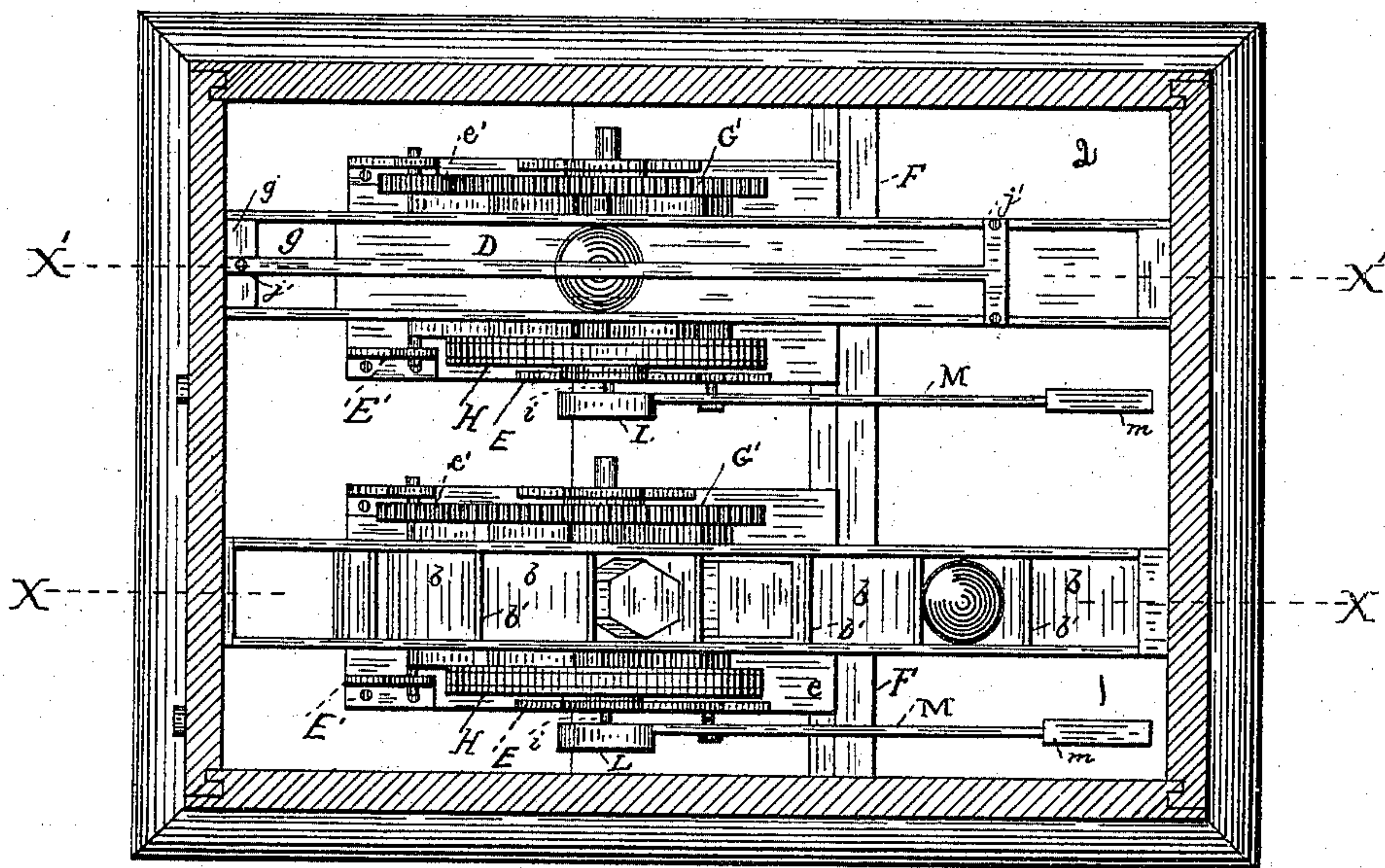
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Fig 7.



Witnesses:
Eugene P. Eadsom.
Otto Faust.

Inventors:
Alexander Jaeger
Otto Jaeger
Georg Holgate
Attorney.

UNITED STATES PATENT OFFICE.

ALEXANDER JAEGER AND OTTO JAEGER, OF PHILADELPHIA,
PENNSYLVANIA.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 533,197, dated January 29, 1895.

Application filed May 29, 1894. Serial No. 512,863. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER JAEGER and OTTO JAEGER, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new Improvement in Vending-Machines, of which the following is a specification.

Our invention relates to improvements in vending machines of that class which automatically deliver to the depositor of a coin, one of any articles that are stored in the machine.

The object of our invention is to provide a new and improved vending machine which will be inexpensive in cost of manufacture, very simple and durable in construction, and most reliable in its operation; second, to supply a device that will be entirely automatic in its operation, and thereby avoiding all complicated power or spring mechanism of any description to aid the operation of the machine, by utilizing the power obtained from the gravity of the articles being vended from the machine, and, third, to produce an automatic vending machine adapted to sell several different varieties of articles, having various forms and sizes, and thereby allowing the owner or user of the machine to change the contents offered for sale when the same is deemed advisable, and thus securing a greater range of usefulness.

To accomplish the various objects of our invention, we construct an outside or inclosing case of suitable form and dimensions, and containing within its inclosed space, a series of steeply inclined cells or reservoirs, their lower extremities opening into an inclined feeding reservoir of slightly larger dimensions; and also containing a series of inclined cells, formed with vertical sides and its base forming an incline. The vertical sides have transversely arranged strips which support a flexible spring over the center of each incline. These springs give elasticity to the movement of the articles and more especially prevents them from being forced upward or out of the confines of the inclined reservoir, which might occur from their gravity, or pressure against each other. At the base of each inclined reservoir is ar-

anged an opening through which the articles drop to the incline plane immediately below, and so on through the whole course. The articles delivered, either from the direct inclined reservoir, fed from its series of feeding reservoirs, or from the series of inclined planes, obtain their normal rest or support within the upper recess of a drum. These recesses are cut and formed transversely from one end of the drum to the other, and modeled after the shape of a circular saw tooth, for the purpose of aiding the gravity of the article in rotating and escaping from the saw-toothed shaped recess, with less resistance or traction. At one end of this recessed drum there is arranged a gear wheel which rotates with the drum and engages with a smaller gear of one-fourth the size, which operates an annunciator, stating on one side the nature of the article and on the other stating when empty. On the reverse end of the drum, there is a deeply recessed or sunk channeled ratchet wheel, in which a roller pin engages. This roller pin securely locks the apparatus and is mounted at the weighted end of a pivoted lever, having its longer end provided with a plate, conformed to and closing the end of the coin conducting chute. The passage or delivery chamber for the articles from the wheel is effectually protected by a pivoted balanced shutter or trap door, which allows egress of the articles, but which protects the mechanism from all tampering or interference from the outside. At the top of the case a reserve storage chamber is arranged, and a suitable receptacle for the coins provided at the base of the machine; and our invention consists in the several novel features of construction, devices, combination and operation of devices hereinafter fully described and illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical sectional side elevation on the line X X of Fig. 7, and illustrates that division of the machine having the series of inclined cells, and illustrates by dotted lines the other side of the machine with inclined planes, as in Fig. 2. Fig. 2 shows a vertical sectional side elevation on the line X' X' of Fig. 7 and illustrates the inclined cells or planes on the other side or division of the machine. Fig. 3 is an en-

larged sectional elevation, showing mechanism and taken on the line Z Z of Fig. 6. Fig. 4 shows a side elevation of the deeply recessed, channeled ratchet, pivoted balanced releasing lever, with its balance weight and pin with roller, and having coin plate at the other end under the base of the coin chute. Fig. 5 is a cross sectional view of the deeply recessed channeled ratchet wheel on line Z' Z' of Fig. 4. Fig. 6 is a top or plan view of the mechanism, as would be used in each division of the machine. Fig. 7 is a plan showing position of each division.

Similar letters and numbers indicate corresponding parts in the drawings.

In Fig. 1, A A is the outside case of the machine, which may be made in any ornamental form or design. B is the top or lid, hinged at B' and secured by a lock not shown in the drawings. The space *a* forms a storage chamber for a surplus supply of articles, &c. *b b b b* are the steeply inclined cells, divided by the divisions *b' b' b'*. C is the steeply inclined feeding and receiving chamber, into which the articles contained in the series of cells *b b b b* are fed by their own gravity.

In Fig. 2, D D D D are a series of inclined planes, having an opening *g* at the base of each incline plane through which the articles pass from one incline to the next one below. *j* is a flexible spring secured at *j'* at each end over the inclines D, to prevent any articles from being forced upward or out of the sides of the inclines D D D, as the inclines D are intended more for use with articles in the machine, having a spherical or ball shape. The block *g'*, or its equivalent, which forms a means of connecting the various inclined planes together, is curved so as to offer less resistance to the articles in their descent from one incline plane to the next inclined plane below, and so on until they arrive at D'.

In Figs. 1, 2 and 3 E shows one of the pillar blocks or supports of the drum G, gear wheel G' and the deep recessed channel ratchet wheel H, with the channel H', and E' shows one of the pillar block supports of the smaller gear wheel *e'* which engages with larger wheel G', and operates or rotates the annunciator *f*, which is visible through the glass *f'*.

Referring to Figs. 1 and 2, the drum G is shown somewhat plainer, by the removal of the recessed channel ratchet wheel H. This drum G is provided with the recesses *g'*, these recesses so formed that the divisions between them are somewhat similar to the rake of a grooving or routing circular saw tooth, as shown at *h*. This formation of the recess in the drum aids the gravity pressure of the article in its descent.

Referring to Figs. 1, 2, and 3, F is a curved casing block, conforming to the circle of the drum G, and forming a delivering conductor of the articles to the outlet J. This outlet J is protected by the balanced pivoted trap shutter J', which is pivoted at K, and has

the counter balancing weight *k'* which is so balanced as to keep the shutter trap J' in its normal or horizontal position, and thereby effectively closing the outlet opening J, and preventing malicious tampering with the machine.

Fig. 4 shows an enlarged view of the recessed channel ratchet wheel H, with the recessed channel H', and the angular channel turns I, forming the banking stops, against which the pin roller *i* engages; the pin roller *i* being mounted at the weighted end L of the locking lever M, pivoted at M' and the locking lever M having the plate *m* traversing the lower end of the coin conductor N.

Fig. 5 is a cross sectional view of the recessed channel ratchet wheel H taken on the line Z' Z' in Fig. 4, and shows the formation of the wheel and channel H', in which the pin roller stop *i* engages and travels, forming the locking device of the drum G and mechanism.

Fig. 6 shows a plan or top view of the working parts or automatic portion of our invention, as removed from the case, with the relative parts assembled in their normal positions.

Fig. 7 shows a plan partially in section of the outside case A, containing the mechanical movements, division No. 1 having the series of steeply inclined cells or divisions for mixed articles, and division No. 2 having the inclined planes for the spherically formed articles.

Having fully described the various parts and construction comprised in our invention, the operation of the same is as follows: The cells *b b b b* of division No. 1 as shown in Figs. 1 and 7, and the inclined planes D D D D of division No. 2, as shown in Figs. 2 and 7, are all filled with the articles to be sold or delivered. A coin being dropped in the coin conductor N, descends the conductor and its weight depresses the plate *m* of the balanced locking lever M, pivoted at M' and falls in the coin chamber P, thereby raising the pin roller *i* and releasing the banking stop I of the recessed channel H' of the ratchet wheel H, which movement, if the machine has articles stored, permits the articles R to propel or rotate by their downward gravity, the drum G until they fall on the balanced trap J' which they depress and pass out at J to the delivery chamber S. The gear wheel G' being firmly attached to the shaft or end of the drum G, partakes of the same speed and motion as the drum G, and engages with a smaller gear *e'*, the dimensions of which are so regulated that the small gear *e'* will make one complete revolution to every quarter revolution of the drum or larger gear wheel G', thus operating the annunciator *f*, so that it will at each movement return to its original or normal position as seen at Q. This motion and result is obtained by the combined action of the two articles in the wheel. As the lever M is released, the first article W descends and passes out, and before the roller pin *i* engages with the next

stop I, the article W' has maintained the rotary movement of the drum G, until it has arrived at the position occupied by the preceding article W, and the locking roller pin *i* engages with the next stop I of the ratchet wheel H, and at which time another article has dropped into the position formerly occupied by the article W'. These motions are repeated as each coin is dropped into the machine, until the last article in the machine has arrived at its position as shown in Fig. 3, when, if a coin is dropped, the releasing mechanism operates as before described, and the article passes out, but as there are no more articles to follow, the drum has only made one-eighth of a revolution, and stops, with the roller pin *i* at V, or midway between two of the banking stops I of the ratchet wheel H, thus only allowing the small gear *e'* to make half a revolution and thereby exposing the reverse side of the angular annunciator *f*, as shown at Y, and announcing the machine is empty.

It will be obvious that a vending machine, involving in its construction such simple and inexpensive mechanical means for its operation, will be very desirable.

Changes in the minor details of construction may be resorted to without departing from or sacrificing any advantages of our invention.

Having thus described our invention, what we claim as new is—

1. In a vending machine, the combination with the frame work; of a reservoir, formed of a series of inclined ways, connected together to form a continuous passage or way, and having an opening formed at its lower end to admit of the passage of an article; mechanism for releasing said article; said mechanism comprising a rotary drum G, having recesses *g'*, said drum being adapted to be rotated by the gravity of the articles descending from

said reservoir; annunciator *f*, operated by means of rotating gear wheel G' and gear *e'*; ratchet wheel H, balanced lever M, having roller pin *i* for operating said releasing mechanism; and weighted trap J', substantially as described.

2. In a vending machine, the combination with the frame work; of a reservoir, formed of a series of inclined ways, each way opening into a receiving chamber formed in said reservoir, said receiving chamber having an opening formed at its lower end to admit of the passage of an article; mechanism for releasing said article, comprising a rotary drum G, having recesses *g'*, said drum being adapted to be rotated by the gravity of the articles descending from said reservoir; annunciator *f* operated by means of rotating gear wheel G' and gear *e'*; ratchet wheel H and balanced lever M having roller pin *i* for operating said releasing mechanism; and weighted trap J', substantially as described.

3. In combination with a vending machine, a rotary drum G, provided with the recesses *g'* and operated by the articles vended, the rotating gear wheel G' operating the gear *e'*, and angular annunciator *f*, lever M, pivoted at M' and having a balance weight L, and roller pin *i*, operating by the weight of a coin falling on the plate *m*, and releasing the pin roller *i*, from the stop I of the recessed ratchet wheel H, the articles released passing through weighted trap J' and gravitating to the delivery opening S, substantially as shown and described and for the purpose specified.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

ALEXANDER JAEGER.
OTTO JAEGER.

Witnesses:

GEORGE MCCURDY,
P. E. PIERCE.