

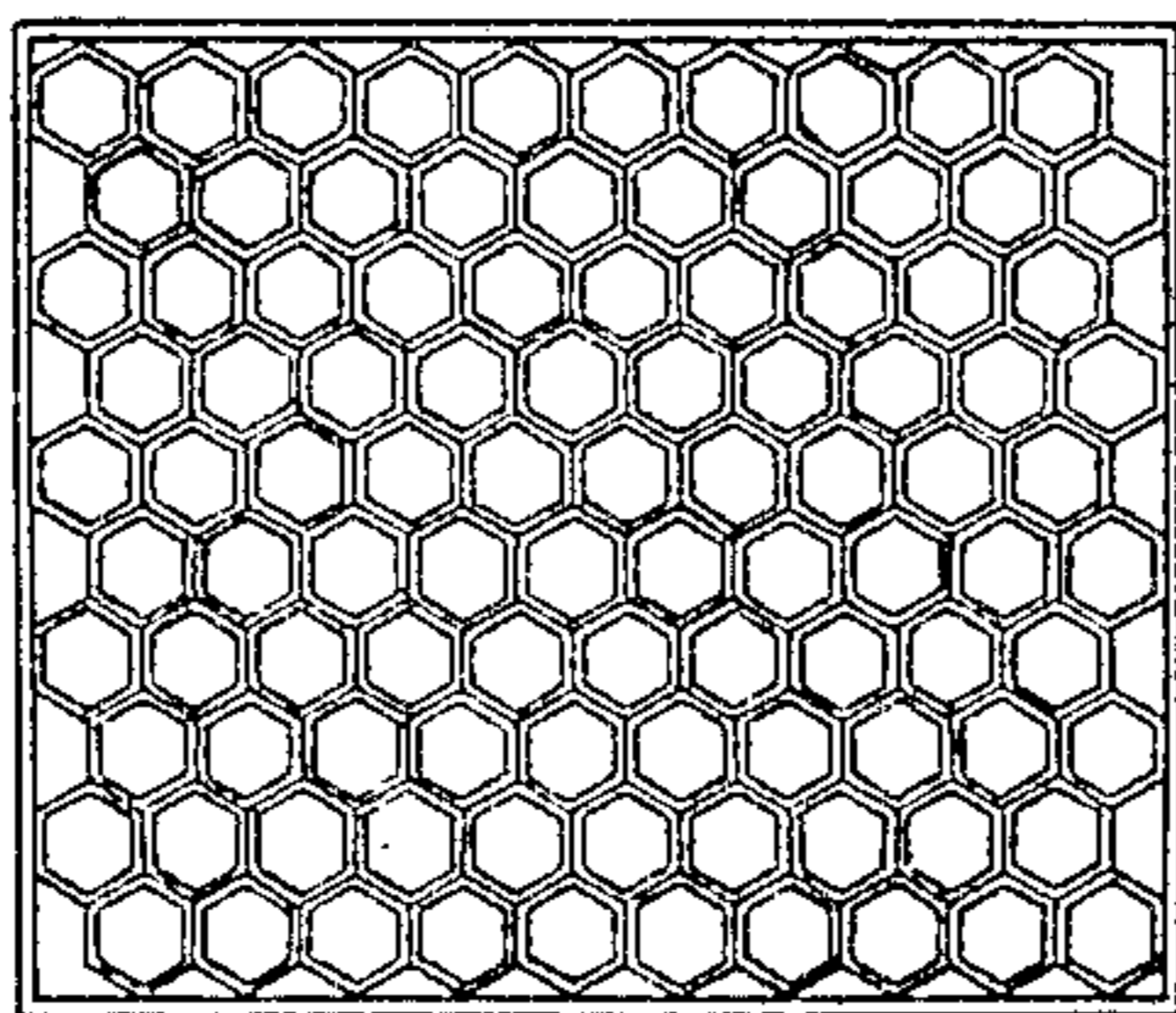
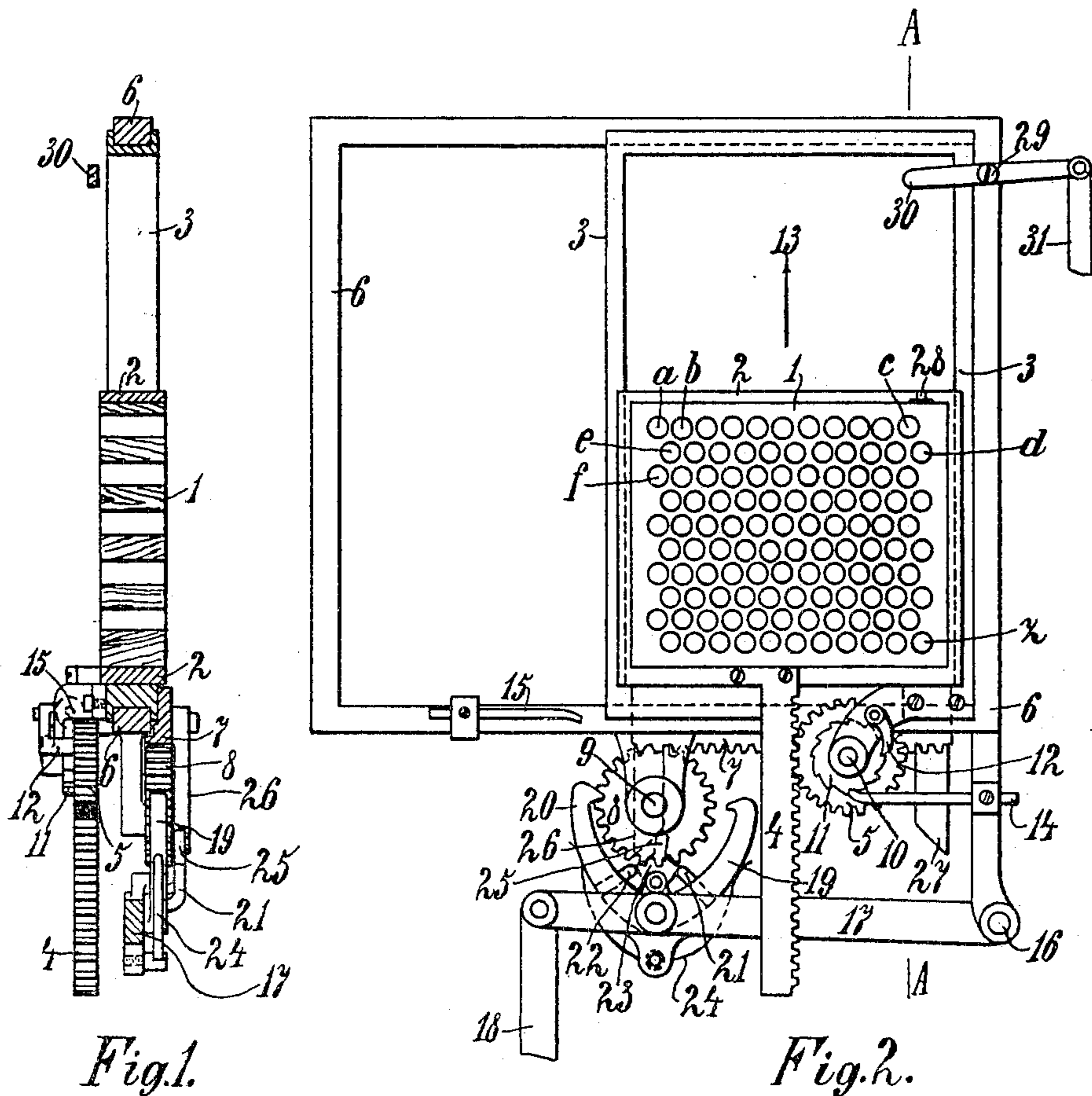
No. 798,609.

PATENTED SEPT. 5, 1905.

F. W. LÄSSIG & G. WALTHER.
AUTOMATIC PACKING APPARATUS.

APPLICATION FILED FEB. 26, 1904.

2 SHEETS—SHEET 1.



Witnesses.
C. Heymann.
A. Hall.

Fig. 3. Fritz Wilhelm Lässig
Gustav Walther
By J. B. Singer atty

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No. 798,609.

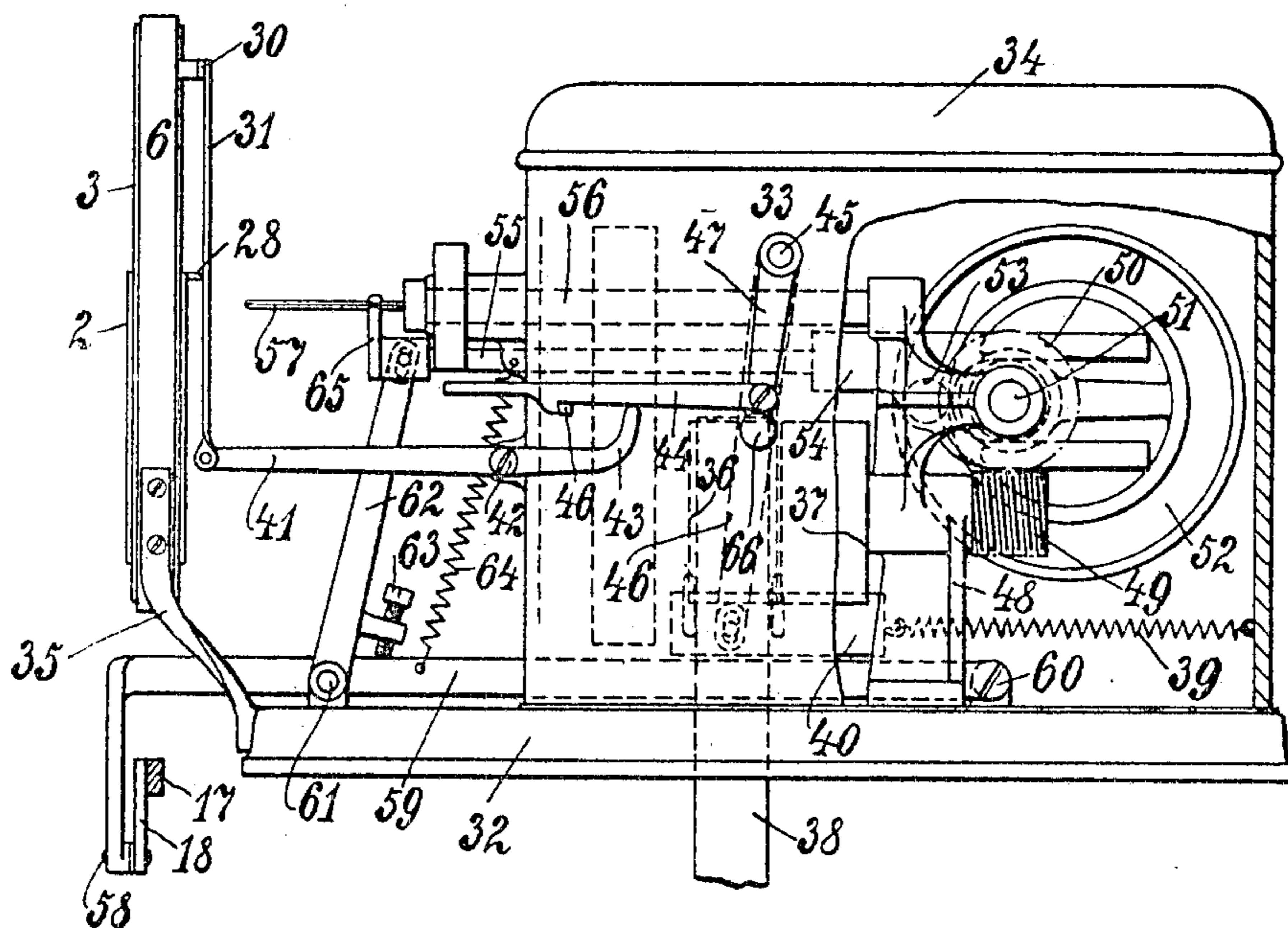
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2 SHEETS—SHEET 2.

Fig. 4.



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Inventors:

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UNITED STATES PATENT OFFICE.

FRITZ WILHELM LÄSSIG AND GUSTAV WALTHER, OF CHEMNITZ,
GERMANY.

AUTOMATIC PACKING APPARATUS.

No. 798,609.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed February 26, 1904. Serial No. 195,464.

To all whom it may concern:

Be it known that we, FRITZ WILHELM LÄSSIG and GUSTAV WALTHER, subjects of the Emperor of Germany, both residing at Chemnitz, in the Empire of Germany, have invented certain new and useful Improvements in Automatic Packing Apparatus for Quantities of Separate Articles, of which the following is a specification.

10 In certain branches of the food and medicine industry, but also in many other lines of business—for instance, when sending out samples of goods, spools of thread, and the like—the shipment of the goods packed in bottles, boxes, tins, separated into smaller or larger
15 lots, or else loose pieces not packed up at all requires a good deal of care and a considerable amount of expense in wages when great quantities of such goods have to be sent out ordered separately into lots.

This invention relates to a device for arranging the single pieces supplied to it at a quick rate and collecting them in a “magazine” destined for shipment. The present
25 device differs from known arrangements of the same kind in that it consists of two guide-frames of different size, the smaller of which is adapted to slide within the other in two different directions at right angles to each other, or horizontally and vertically. In the
30 smaller frame a magazine consisting of wood, pressed paper, metal, or the like is, moreover, detachably arranged. A large number of holes for the reception of the goods are arranged in the magazine, and the two frames
35 are adapted to be moved step by step by suitable means in a very rapid manner, so that the openings of the magazine are successively brought in front of a goods-delivering apparatus. Each empty magazine arranged in the
40 frame is thereby filled within a comparatively short time with all kinds of articles—bottles of pills, gelatin capsules, preserve-tins, spools of thread, and the like—without any considerable assistance by hand. The magazine is
45 then taken out of the frame and replaced by a new one, which is treated in the same way. According to requirements, the magazines may be constructed durably of metal or rubber. So, for instance, when they are to be
50 used for the transport from one machine to another, when the articles are still to be subjected to further operations—for instance, labeling—or else they may be made of an inferior material, so that after being packed in

cases they are ready for transport or export and only serve as a packing which is destroyed after use.

In the annexed drawings, Figure 1 is a cross-section on the line A in Fig. 2; and Fig. 2, a
60 front view of the apparatus, which, according to the nature of the goods or according to the construction of the packing-machine of which it forms a part, may be standing vertically, horizontally, or even obliquely. Fig. 3 represents a form of construction of a maga-
65 zine. Fig. 4 is an elevation of the packing-machine with the present apparatus attached to same in a position to receive the goods, a part of the machine being broken away for
70 the sake of clearness.

The magazine 1 is a flat board detachably mounted in the metal frame 2 in any suitable manner. This frame 2 is slidable vertically in a second frame 3 and is moved up and
75 down in the same by means of a rack 4, attached to it, and a pinion 5, engaging said rack, the pinion rotating around the pivot 10, fastened to the frame 3. This frame 3 is adapted to slide horizontally in the frame 6, which is
80 stationary and attached to the base 32 of the packing-machine 33, provided with a cover 34, by means of supports 35. (See Fig. 4.) The frame 3, as is clearly visible from Figs. 1 and 2, receives its horizontal motion from a rack
85 7, attached to it, which engages a pinion 8, rotating around a pivot 9, the latter being fastened to the frame 6.

Rigidly attached to the pinion 5 is a ratchet-wheel 11, which is prevented from moving
90 backward by its detent 12, while its forward movement—i. e., that which moves the frame 2 in the direction of the arrow 13—is brought about by one of its teeth at the end of each horizontal movement of the frame 3 butting
95 against one of the two stationary catches or pawls 14 or 15, so that the ratchet-wheel 11 is thereby moved the distance of one pitch. The ratio of transmission is so adjusted that on turning the ratchet-wheel 11 by one pitch
100 the frame 2 is lifted the difference of height between two rows of holes.

The pinion 8 is actuated in the following manner: Around a pivot 16, firmly attached to the machine-frame, a lever 17 swings up
105 and down, said lever receiving its motion from a connecting-rod 18, while one of the catches 19 constantly engages one of the teeth of the pinion 8, thus moving it in one or the other direction of rotation. The adjustment
110

of the catches 19 20 is regulated by means of
cams 21 22, pressed against a toothed segment
23 by the spring 24. This segment 23, with
its front cam end 25, is so arranged that at the
5 end of the horizontal movement of the frame
3 it comes in contact with the cam 26, as
shown in Fig. 2, and at the end of its move-
ment in the opposite direction it comes in con-
tact with the cam 27, said cams 26 27 being
10 stationary and part of the machine-frame.

As shown in Fig. 4, the machine is moved
by means of belt driving mechanism consist-
ing of the fixed pulley 36 and loose pulley 37,
with the belt 38 according to requirements
15 adapted to drive on one or the other pulley
36 37. Fixed to the back of the machine is a
spring 39, with its other end engaging in a
belt-shifting slide 40. The lever 31 is attached
to a two-armed lever 41, pivoted at 42 to the
20 machine and provided with an elbow 43, com-
ing up against an arm 44. Attached to the
slide 40 with one end and with the other end
at 45 to the machine is a lever 46, a second
and shorter lever 47 also being fixed to said
25 pivot 45, said lever 47 with its other end en-
gaging the arm 44. Arranged at the front
side of the machine is a projection 46, adapted
to engage the arm 44 and hold it fast. Keyed
on the same shaft with the pulleys 36 37 and
30 journaled in the pillow-block 48 is a worm 49,
engaging a worm-wheel 50, attached to a shaft
51, on which latter also a groove-cam 52 is
arranged. In the groove of said cam a roller
53 is provided, said roller being attached to a
35 slidable fork 54, fixed to a shaft 55, journaled
in the machine. Also arranged in the sup-
port 48 at its top is a shaft 56, carrying the
spindle 57, adapted to place the goods in the
magazine. Fixed to the connecting-rod 18 at
40 58 is a double lever 59, which is pivoted to
the machine at 60 and partakes in the move-
ments of the rod 18. Also fixed to the ma-
chine-frame and pivoted at 61 is a lever 62,
provided with a screw 63, resting on said le-
45 ver 59. Attached to the latter with one end
and with the other to the machine is a spring
64, adapted to draw the lever 59 upward on
its release from the screw 63. Fixed to the
shaft 55 is the goods-deliverer 65, to which
50 the lever 62 is attached with one end.

The apparatus as described above operates
as follows: Supposing the belt 38 to be run-
ning on the fixed pulley 36 and the apparatus
in such a position with regard to the machine
55 that the hole *a* of the magazine-frame is situ-
ated in front of the distributing mechanism
of said machine—to wit, in front of the spin-
dle 57—then the shaft 55, with the goods-de-
liverer 65, will be moved to and fro through
60 the medium of the worm 49, worm-wheel 50,
groove-cam 52, roller 53, and fork 54. On
the forward movement of the fork 54, with the
shaft 55 and the goods-deliverer 65, the lever
62, which partakes in said movement, is
65 turned on the pivot 61. In consequence there-

of the screw 63 being lifted a short distance
comes free of the lever 59, and the latter by
means of the spring 64 is drawn upward.
Now the article is inserted in the hole *a* by
means of 65, whereupon the lever 62, with the
70 screw 63, is moved back through the medium
of the deliverer 65, said screw 63 forcing the
lever 59 down again, thereby overcoming the
force of the spring 64, said downward move-
ment being transmitted to the rod 18 and the
75 lever 17. The catch 19 is at this moment dis-
engaged from the pinion 8, the catch 20, how-
ever, engaged with it, so that the pinion 8
will be moved round to the left for a certain
distance, (see Fig. 2,) and in consequence 80
thereof the opening *b* of the magazine-frame
will come in front of the spindle 57 and will
likewise be filled. In this manner the opera-
tion continues until all of the holes in the top
row have been filled, thus also the last hole *c*. 85
At the next downward stroke of the lever 17
the catch 20 engages the pinion 8 for the last
time, the cam 27 thereby pushing the cam end
25 of the segment 23 to the left. Consequently
the catch 20 will be disengaged and the catch 90
19 engaged with the pinion 8, and at the same
time the pawl 15 has turned the ratchet-wheel
11 by one pitch, so that the frame 2 is moved
vertically upward and the frame 3 horizon-
tally to the left, so that the hole *d* will be 95
brought in front of the spindle 57. Now the
frame 3 will be moved step by step to the
right until the hole *e* is filled, when the cam
26 will butt against the cam 25 and pawl 14
turns the ratchet-wheel 11 by one pitch, so 100
that the hole *f* gets opposite the distributing
mechanism. In this way all the holes of the
magazine are filled until the last hole *z* has
also received its turn, when the catch 14 for
the last time during this operation causes the 105
frame to accomplish its last upward movement
in the direction of the arrow 13. At this
moment the pin 28, attached to the frame 2,
strikes against the lever 30, swinging around
the stationary pivot 29, thereby moving the 110
connecting-rod 31 downward. In consequence
thereof the lever 41 is oscillated downward on
its pivot 42, the elbow 43 thereby lifting the
lever 44 up and disengaging it from the pro-
jection 46. Then the spring 39 draws the le- 115
ver 46 through the medium of the slide 40 to
the right, thus moving the belt 38 from the
fixed pulley 36 to the loose pulley 37 and stop-
ping the machine. Thereby the short lever
47 partakes in the movement of the lever 46, 120
drawing the lever 44 along with it and the
end of the latter sliding upon the projection
46. Then the filled magazine is to be changed
for an empty one and the whole mechanism
placed in its initial position, this being aided 125
by a knob 66, fixed to the short lever 47.

The magazine (represented in Fig. 3 of the
drawings) serves for the purpose of packing
up as many articles as possible in the small-
est possible space in a suitable manner for 130

transatlantic export shipment. It consists of honeycomb-like cells joined together, these cells having the form of hexagonal prisms, which are held together by a frame fitting in the frame 2, Figs. 1 and 2. These numerous cells may be produced in a very accurate manner—for instance, by cutting rings from long tubes of hexagonal section, the height of these rings being equal to the depth of the magazine, and joining said rings by soldering in the manner as shown in Fig. 3. Such magazines, which may also consist of strips of cardboard, are very well adapted for packing hexagonal prismatic glass bottles, and the apparatus shown in Figs. 1 and 2 is then brought in front of the delivery mechanism of one of those well-known corking-machines, which automatically close the bottles with corks and seal the corks with tin-foil.

Having now fully described our invention, we claim the following:

1. In an automatic packing apparatus for quantities of separate articles the combination of three guiding-frames adapted to slide relatively to each other, the first within the second and the second within the third at an angle to the movement of the first, of a magazine provided with openings arranged in series for the reception of the articles, with means for moving said magazine intermittently, substantially as and for the purpose set forth.

2. In an automatic packing apparatus for quantities of separate articles the combination of three guiding-frames adapted to slide relatively to each other, the first within the second and the second within the third at an angle to the movement of the first, of a magazine detachably arranged in one of said guiding-frames and provided with openings arranged in series for the reception of the articles, with means for moving said magazine intermittently, substantially as and for the purpose set forth.

3. In an automatic packing apparatus for quantities of separate articles the combination of three guiding-frames, with means for sliding one of said guiding-frames rectilinearly within the second one, and means for sliding the latter in the third guiding-frame in a direction at right angles to the movement of the first guiding-frame, and a magazine detachably arranged in said first guiding-frame, provided with openings arranged in series for the reception of the articles, substantially as and for the purpose set forth.

4. In an automatic packing apparatus for quantities of separate articles, the combination of three guiding-frames and a magazine detachably arranged in one of said guiding-frames, provided with openings arranged in series for the reception of the articles, of a rack and a pinion engaging said rack for moving the magazine-carrying frame in a lateral direction and a second rack and pinion

for moving the frame carrying the magazine-carrying frame in a direction at right angles to the first one, substantially as set forth.

5. In an automatic packing apparatus for quantities of separate articles, the combination of three guiding-frames and a magazine detachably arranged in one of said guiding-frames provided with openings arranged in series for the reception of the articles, of a rack and pinion engaging said rack, and a pair of pawls adapted to be moved up and down engaging the pinion on each side for rotating the latter in both directions of rotation respectively, and a second rack and pinion for moving the frame carrying the magazine-carrying frame in a direction at right angles to the first one, substantially as and for the purpose set forth.

6. In an automatic packing apparatus for quantities of separate articles the combination of three guiding-frames and a magazine detachably arranged in one of said guiding-frames, provided with openings arranged in series for the reception of the articles, of a rack and a pinion engaging said rack, and a pair of pawls adapted to be moved up and down engaging the pinion on each side for rotating the latter in both directions of rotation respectively, of an automatically-reversible cam and a second rack and pinion for moving the frame carrying the magazine-carrying frame in a direction at right angles to the first one, of two stationary butt-pawls with which the second pinion engages respectively at the end of each lateral movement produced by the first rack and pinion, substantially as and for the purpose set forth.

7. In an automatic packing apparatus for quantities of separate articles, the combination of three guiding-frames, with means for sliding one of said guiding-frames rectilinearly within the second one, and means for sliding the latter in the third guiding-frame in a direction at right angles to the movement of the first guiding-frame, and a magazine detachably arranged in said latter guiding-frame, provided with openings arranged in series for the reception of the articles, of a pin located adjacent to the top of said magazine to strike a pivotally-arranged lever at the end of the upward movement of said magazine, substantially as described and for the purpose set forth.

8. In an automatic packing apparatus for quantities of separate articles, the combination of three guiding-frames with means for sliding one of said guiding-frames rectilinearly within the second one, and means for sliding the latter in the third guiding-frame in a direction at right angles to the movement of the first guiding-frame, and a magazine detachably arranged in said latter guiding-frame provided with openings arranged in series for the reception of the articles, of a pin attached to the guiding-frame inclosing the

magazine, adapted to strike a pivotally-arranged lever at the end of the upward movement of said magazine, substantially as set forth.

- 5 9. In an automatic packing apparatus, the combination of three guiding-frames with means for rectilinearly sliding one of said guiding-frames in the second one, and means for sliding the latter in the third guiding-
10 frame in a direction at right angles to the movement of the first guiding-frame, and a magazine of the form of a flat board detach-

ably arranged within said first guiding-frame, said magazine being provided with openings of optional section arranged over the whole 15 surface of the same in series, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

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GUSTAV WALTHER.

Witnesses:

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