

O. HESSER.

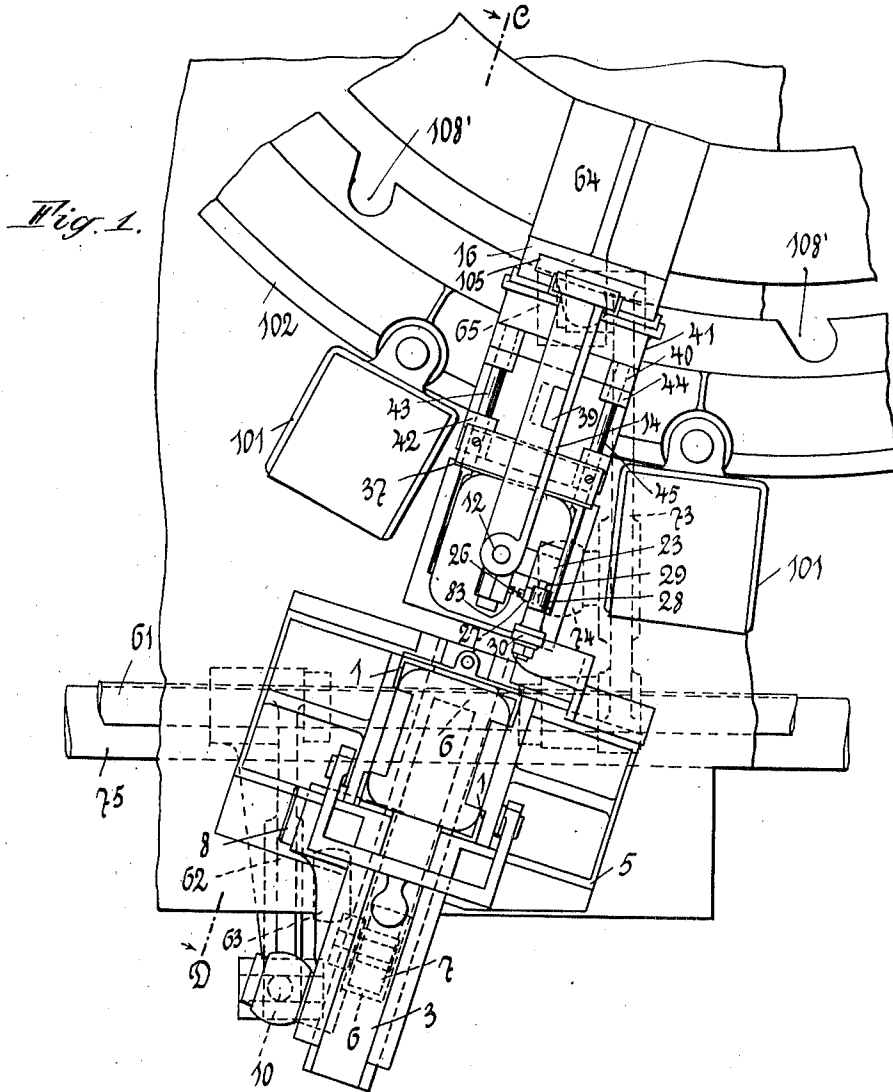
MACHINE FOR CHARGING AND CLOSING PAPER BAGS.

APPLICATION FILED MAY 23, 1913.

1,106,304.

Patented Aug. 4, 1914.

3 SHEETS-SHEET 1.



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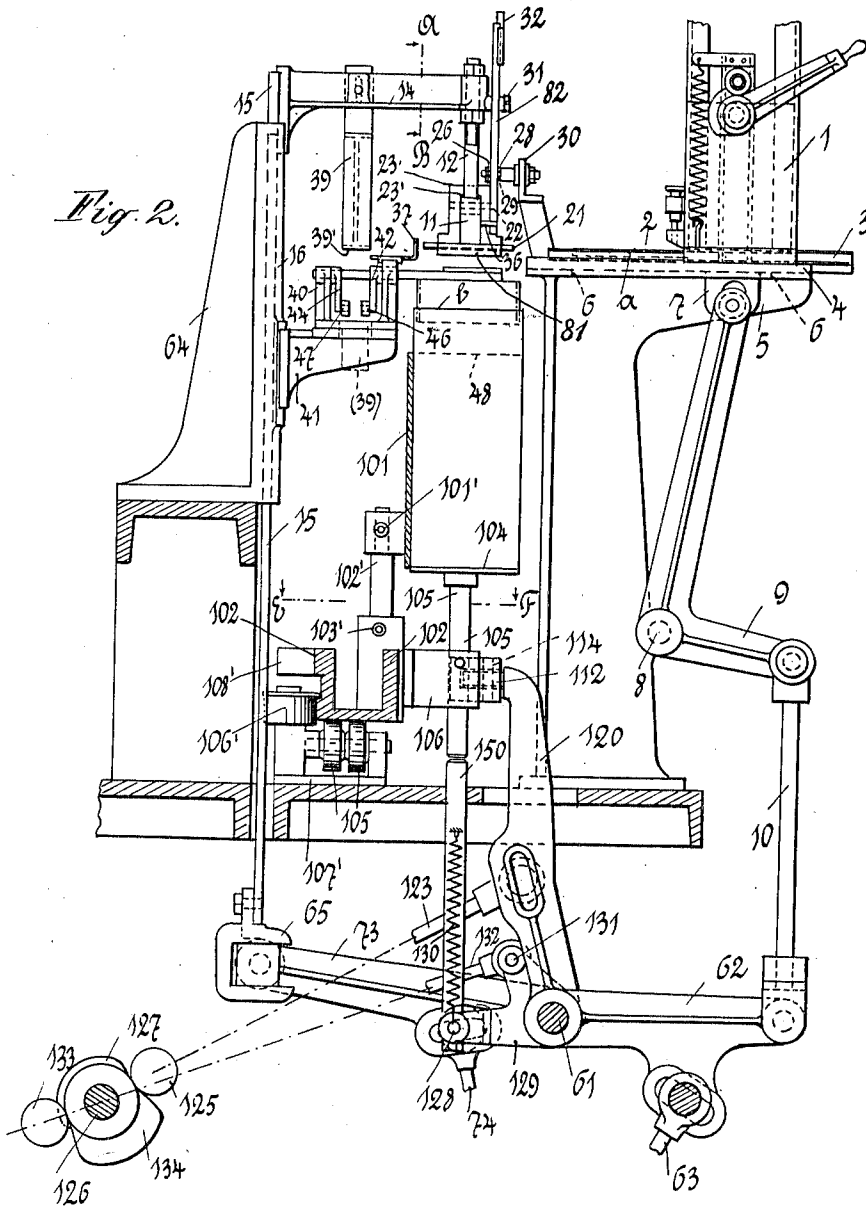
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3 SHEETS—SHEET 2.



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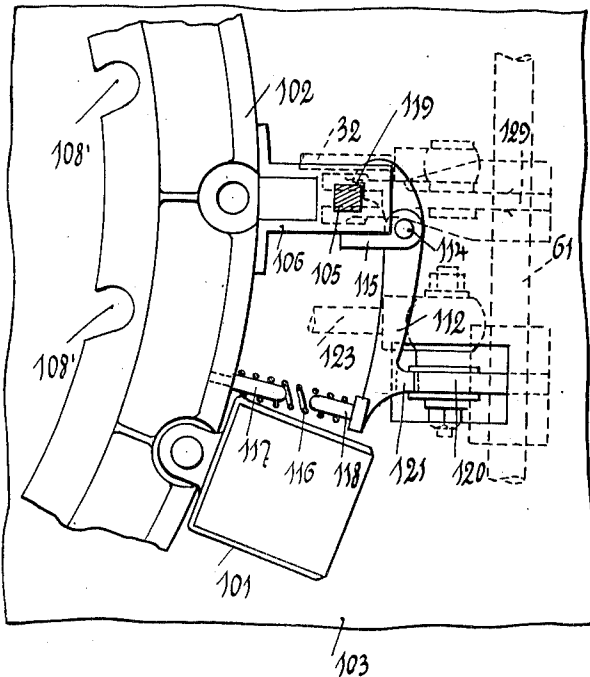


Fig. 3.

Fig. 5.

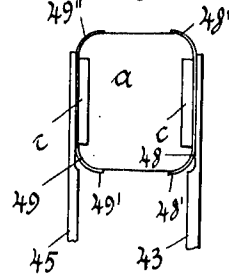


Fig. 6.

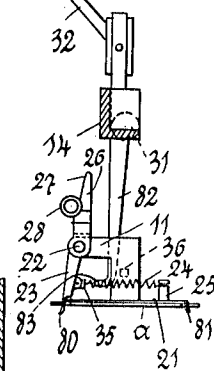


Fig. 4.

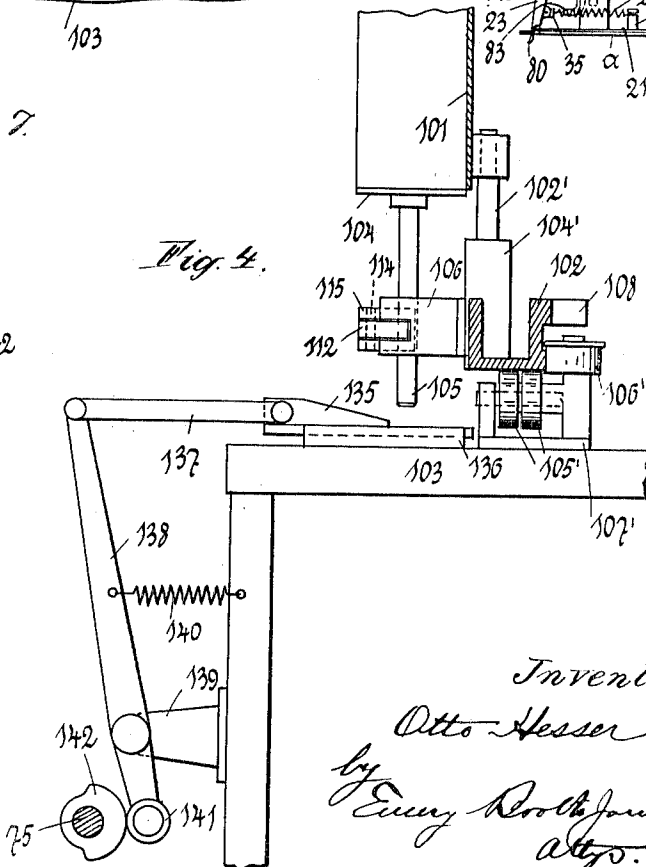
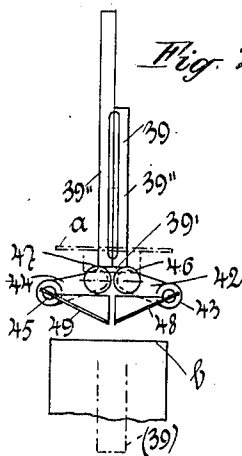


Fig. 7.



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UNITED STATES PATENT OFFICE.

OTTO HESSER, OF CANNSTATT, NEAR STUTTGART, GERMANY, ASSIGNOR TO THE FIRM OF FR. HESSER MASCHINENFABRIK AKTIENGESELLSCHAFT, OF CANNSTATT, NEAR STUTTGART, GERMANY.

MACHINE FOR CHARGING AND CLOSING PAPER BAGS.

1,106,304.

Specification of Letters Patent.

Patented Aug. 4, 1914.

Application filed May 23, 1913. Serial No. 769,406.

To all whom it may concern:

Be it known that I, OTTO HESSER, a subject of the King of Wurttemberg, residing at 61 Ludwigstrasse, Canstatt, near Stuttgart, in the Kingdom of Wurttemberg, Empire of Germany, have invented a new and useful Machine for Charging and Closing Paper Bags, of which the following is a specification.

My invention relates to improvements in machines for automatically charging and closing paper bags of the kind, in which the paper bags are inserted in a series of intermittently moved transporting vessels and are thereby exposed to the action of various devices disposed for respectively charging and shaking the bags, gumming the upper edges of the bags, closing and pressing the packages.

One improvement consists in so perfecting the device for inserting an advertising paper or a business-card and placing it on the contents of a bag, that the inserting piston takes up the card in a reliable manner, holds it fast and presses it during the insertion from above against the contents of the bag. Means are provided for so spreading the upper edges of the bag as to prevent the card from colliding with the edges of the bag.

Another improvement consists in so arranging the inserting piston and the movable bottom in any of the transporting vessels as to cause the contents of the paper bag to be simultaneously yieldingly pressed from below and from above.

A further improvement consists in providing means for protecting the vertically movable bottom in any of the transporting vessels from downwardly shifting at such stations, where a pressure requires to be exerted from above upon the bag.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is an upper view of a portion of a known machine for charging and closing paper bags which portion is provided with the improved device for inserting an advertising paper or a business-card according to my invention, Fig. 2 is a vertical section on a reduced scale through the same on the line C—D in Fig. 1, seen in the direction of the arrows, Fig. 3 is a horizontal section through the line E—F in Fig. 2, seen

in the direction of the arrows, Fig. 4 illustrates in elevation on a reduced scale the device for supporting the movable bottom in any of the transporting vessels, Fig. 5 is a detail and is an upper view of a business-card and the means for spreading the upper edges of a paper bag. Fig. 6 is a vertical section through the line A—B in Fig. 2, seen in the direction of the arrows, and Fig. 7 illustrates in elevation the device for actuating the spreading means.

Similar characters of reference refer to similar parts throughout the several views.

102 is a known horizontal turnable ring of a U-shaped cross section (Fig. 2), which is disposed above the table 103 and is made to roll over several radial series of vertical rollers 105 mounted to turn on horizontal pins in suitable supports 107¹. The ring 102 is centered by means of horizontal rollers 106¹ turnable on the supports 107¹ and bearing against the inner lower periphery of the ring. The rollers 106¹ are preferably flanged on their upper edges for preventing the ring 102 from upward motion. The ring 102 is provided with a number of vertical bosses, in each of which a stud 102² can be inserted and secured by means of a set-screw 103¹. The upper end of the stud 102² is set off and engages in the lug of a detachable exchangeable transporting vessel 101, which is prevented from turning on the stud 102² by means of a set-screw 101¹. Each transporting vessel 101 is open not only above and below, but also on the outer side. The ring 102 has fastened on its outer side in the radial vertical planes of the studs 102² brackets 106, in which the square spindles 105 of vertically movable bottoms 104 for the transporting vessels 101 are guided. The ring 102 is provided with an inner flange at its upper edge, which flange has recesses 108¹ (Fig. 3) corresponding to the several transporting vessels 101. The ring 102 is from the machine intermittently turned in one direction by means of a known feeding pawl (not shown) adapted to engage in the recesses 108¹ one after the other.

Fastened on each bracket 106 is a small bracket 115 (Fig. 3) holding a vertical pin 114, on which a clamping two-armed lever 112 is mounted to horizontally rock. The short arm of this lever 112 has at the free end an angular recess 119 adapted to nor-

mally pinch the square spindle 105. The long arm of each lever 112 has at the free end a horizontal pin 118 facing the ring 102, which latter is provided with a pin 117 opposite to 118. A helical spring 116 inserted between the ring 102 and the long arm of the clamping lever 112 and surrounding the two pins 117 and 118 tends to press this long arm outward and the short arm of the lever 112 with its recess 119 against the square spindle 105 for thereby preventing the movable bottom 104 from vertically shifting. The spring 116 is made so strong as to protect in any case the bottom 104 from downwardly shifting.

On the table 103 is disposed a suitable standard 5 (Fig. 2), the top of which is made in one with a radial horizontal guide 4, wherein a slide 3 is guided. This slide 3 has on its underside a forked projection 7, which engages through a longitudinal slot in the guide 4 extending from 6 to 6 in Figs. 1 and 2. The standard 5 carries a horizontal pin 8, on which a bent lever 9 is made to rock. The upper long arm of the lever 9 has at the free end a pin engaging in the slot of the forked projection 7. The machine frame carries a horizontal shaft 61 (Figs. 1 and 2), on which a lever 62 is turnable. The free end of the lever 62 is pivotally connected with the free end of the short arm of the lever 9 by means of a rod 10. The lever 62 has below a radial slot in which a pin can be longitudinally adjusted. This pin is by means of a rod 63 (Fig. 2) moved up and down from a shaft 75 not shown in Fig. 2 (but visible in Fig. 1) by means of a cam disk (not shown). In this manner the slide 3 is reciprocated from the machine. Four vertical angle pieces 1, 1 (Figs. 1 and 2) fastened on the guide 4 form in combination with two opposite plates above the slide 3 a magazine for business-cards *a* and the like (Fig. 5). Opposite to the standard 5 another standard 64 (Figs. 1 and 2) is mounted on the machine frame nearer to the center of the ring 102 and is made in one with a vertical guide 16, in which a long slide 15 is vertically guided. At the upper end the slide 15 is rigidly connected with a horizontal arm 14, the free end of which can be adjustably connected with an inserting piston 21 by means of a screw-threaded vertical spindle 12 and two opposite nuts, so that in this manner the piston 21 can be vertically adjusted in accordance with the height of the contents of a paper bag in the transporting vessel 101 after the bag has been pressed. At the lower end the slide 15 is rigidly connected with a fork 65, in the slot of which the free end of a lever 73 loose on the shaft 61 is made to engage by means of a pin and a sliding block. The lever 73 has below a radial slot, in which a pin is longitudinally adjustable,

which pin is pivotally connected with a rod 74, that is rocked from the shaft 75 by means of a suitable cam disk (not shown). Preferably the lower end of the rod 74 carries a roller, which by means of a helical spring or the like is permanently pressed from above against the cam disk. Then the slide 15 is permitted to stop in its downward motion at the moment that the inserting piston 21 strikes the contents of the paper bag and is thereby checked. In this manner the slide 15 and thereby the piston 21 is yieldingly pressed downward, so that the said spring-pressed roller at the lower end of the rod 74 is permitted to freely detach from the cam disk on the shaft 75.

The piston 21 has a horizontal arm 11 (Fig. 6) holding a pin 22, on which a two-armed lever 23, 26 is made to rock. The lower arm 23 of this lever is by means of a helical spring 24 elastically connected with a stud 25 on the piston 21. The lower arm 23 and the inner part of the upper arm 26 are formed similar to a fork, so as to permit the arm 11 to engage in the slot 23¹ (Fig. 2) of this fork and the two arms of the fork are guided in suitable cuts of the piston 21, while their lower ends form fingers 80, which are adapted to grip any business-card *a* with the aid of an opposite finger 81 fastened on the piston 21. Where so preferred, the lower arm 23 and the inner part of the upper arm 26 may be recessed at 23¹, or a separate metal strip serving as a finger 80 may be fastened on the lower ends of the two arms of the fork. Fastened on the guide 4 is a bow 30, on which a pin 29 (Fig. 2) is fastened. A roller 28 (Fig. 6) turnable on this pin 29 is made to roll on the curved surface 27 of the upper arm 26. It will be now seen, that on the arm 14 with the piston 21 ascending the roller 28 will turn the upper arm 26 of the lever 26, 23 inward (to the right in Fig. 6) and consequently the lower arm 23 outward for releasing the business-card *a*, while on the arm 14 with the piston 21 descending the roller 28 will permit the lower arm 23 to turn inward under the action of the helical spring 24, so that the fingers 80, 81 can grip a fresh business-card *a*, which had been meanwhile ejected from under the column of cards in the magazine by means of an ejector 2 of any known construction with the aid of other known means shown at Fig. 2 and introduced beneath the piston 21.

On the outer end of the arm 14 a vertical two-armed lever 82 (Figs. 2 and 6) is made to rock at 31. The upper arm of this lever 82 is adjustably connected with an inclined arm 32, which is adapted to strike and to roll on the roller 28, so that thereby the upper arm of the lever 82 is turned to the right in Fig. 6. The free end of the lower arm of the lever 82 is bent to the left

in Fig. 6 and is adapted to strike a projection 35 on the arm 23 and to turn the latter for releasing the business-card *a*. The turn of the lever 82 is limited by a stop 36 on the piston 21 and the weight of the adjustable arm 32 tends to normally press the lower arm of the lever 82 against the stop 36.

On the guide 16 is fastened a bracket 41 carrying a support 40, in which latter two parallel shafts 43 and 45 (Figs. 1, 2, 5 and 7) are mounted to rock. These two shafts 43, 45 are rigidly connected with two spreaders 48, 49, that is two pieces of sheet metal with oppositely bent ends 48', 48'' and 49', 49'' (Fig. 5), so that the two spreaders 48, 49 when turned into their vertical position parallel to one another will fit the inside of the upper edges *b* (Fig. 7) of the paper bag on two opposite sides. Springs of any known construction should be provided for normally turning the two spreaders 48, 49 into their oppositely inclined positions shown at Fig. 7, so that they remain above the upper edges of the paper bags, in other words, they remain clear of the bags. The two shafts 43, 45 have fastened on them two pairs of opposite arms 42, 44 carrying at their free ends rollers 46, 47. Fastened on the arm 14 is a pendent arm 39 which on descending is adapted to strike with its lower end face the four rollers 46, 47 and to thereby turn the four arms 42, 44 after which the rollers 46, 47 roll on its two sides 39'', 39'', whereby the two spreaders 48, 49 are pressed against the inside of the upper edges *b* of the paper bag thus spreading them. The arm 39 can be vertically adjusted on the arm 14 in accordance with the height of the paper bags.

At the station, where a business-card *a* is to be inserted in the paper bag, a vertical lever 120 (Fig. 2) is disposed, which is loose on the shaft 61 and is adapted to press with its upper bent end on a projection 121 (Fig. 3) at the free end of the large arm of the clamping lever 112. The lever 120 has a radial slot, in which a pin 124 can be longitudinally adjusted. This pin 124 is pivotally connected with the upper end of a rod 123, the lower end of which (shown as broken away and only indicated by a dotted line in Fig. 2) is in a known manner guided on the shaft 126 and is with its roller 125 pressed by means of any known spring (not shown) against the periphery of a cam disk 127 fastened on the shaft 126. This shaft 123 is permanently driven from the already mentioned shaft 75 in any known manner. As long as the roller 125 rolls on the projecting part of the cam disk 127, the lever 120 is moved off from the clamping lever 112, which therefore under the action of the helical spring 116 keeps the square spindle 105 of the movable bottom 104 pinched.

When, however, the roller 125 rolls on the concentric part of smaller radius of the cam disk 127, the said spring at the lower end of the rod 123 will press by this rod the lever 120 against the clamping lever 112 while overcoming the tension of the helical spring 116, so that the square spindle 105 with the piston 104 will be thereby released.

Beneath the spindle 105 and in its axis a supporting rod 150 is with its upper end vertically guided in the table 103. The lower end of the rod 150 is pivotally connected at 128 with the lower arm of a bent lever 129 loose on the shaft 61. Helical springs 130 connecting the lower end of the rod 150 with suitable pins in the machine frame serve for pressing the rod 150 upward, so that thereby the spindle 105 with the piston 104 can be supported. The upper arm of the bent lever 129 is pivotally by means of a pin 131 connected with an inclined rod 132, which is at the lower end guided by the shaft 126 and carries a roller 133 that rolls on the periphery of another cam disk 134 fastened on the shaft 126. The said springs 130 press the roller 133 against the cam disk 134.

The so described device for inserting business-cards operates as follows: Before the charged paper bag is moved with the transporting vessel 101 into the station, where the insertion is to be effected, in other words before the spindle 105 of the movable bottom 104 is moved over the supporting rod 150, the clamping lever 112 is made to firmly clamp the spindle 105 and the inserting piston 21 occupies its uppermost position, so that by means of the roller 28 and the curved surface 27 on the lever 26 (Fig. 6) the tongs formed by the movable finger 80 and the stationary finger 81 is opened. During the said motion of the paper bag into the station for the insertion of the card, also the slide 3 is in the above described manner moved inward beneath the inserting stamp 21, so that the known ejector 2 on the slide 3 will have ejected the lowermost business-card *a* from under the column in the magazine 1 and placed it beneath the piston 21. As can be seen from Fig. 5, each card *a* has on both sides two cuts *c c* in which the two fingers 80, 81 can engage. In order to make sure, that each card *a* be moved into the correct position beneath the piston 21, an adjustable stop 37 (Fig. 2) is provided for example on the support 40, and the card *a* is made to strike in its extreme position against this stop 37, so that thereby the card *a* can be moved into the correct position, should it have by accident assumed a not quite correct position with regard to the two fingers 80, 81. Thereupon the arm 14 with the piston 21 descends, so that the stationary roller 28 rolling on the curved surface 27 of the arm

26 at last releases the latter, whereupon under the action of the helical spring 24 the finger 80 engages in one cut *c* of the card *a* and presses the latter against the stationary finger 81, whereby the card *a* is 5 pinched. The slide 3 has meanwhile moved outward for fetching another business-card *a* out of the magazine 1 and the arm 14 with the piston 21 continues descending. 10 The pendent arm 39 striking with its lower end face the four rollers 46, 47 and thereby turning the arms 42, 44, spreads the two spreaders 48, 49 and presses them against the inside of the upper edges of the paper bag. When the piston 21 arrives at the de- 15 sired height above the upper surface of the contents, the inclined adjustable arm 32 will strike the stationary roller 28, whereby the two-armed lever 82 is turned, so that its lower bent end striking the pro- 20 jection 35 of the forked or recessed arm 23 moves the finger 80 a little outward, whereby the card *a* beneath the piston 21 is released, so that it drops on the contents. 25 Where so preferred, however, the said device may be so arranged as to release the card *a* only at the moment that it lies on the upper surface of the contents. During the continued downward motion of the arm 30 14 the piston 21 will exert a pressure upon the card *a* and the contents of the bag. Meanwhile the lever 120 has in the described manner been moved inward, that is to the left in Fig. 2, so that it turns the 35 long arm of the clamping lever 112 while overcoming the tension of the spring 116 and the short arm of the lever 112 detaches from the square spindle 105, whereby the latter and with it the bottom 104 40 is released. Thereupon the supporting rod 150 is by means of the helical springs 130 pressed upward against the spindle 105 and consequently the bottom 104 is a little moved upward, so that the contents of the 45 bag is simultaneously subjected to a pressure from above by means of the piston 21 and from below by means of the bottom 104. The contents of the bag or the latter itself is protected from damage by too 50 strong a pressure since the helical springs 130, the tension of which is adjusted according to the nature of the material to be packed, can yield on the bottom 104 en- counter- ing too strong a resistance and the 55 springs for pulling the rod 123 with the roller 125 toward the cam disk 127 can yield on the piston 21 encountering too strong a resistance. During the pressing of the con- 60 tents the clamping lever 112 is again re- leased by the lever 120, so that under the action of the spring 116 the spindle 105 with the bottom 104 is again firmly pinched. Thereby the contents of the bag is protected from again loosening by the bottom 104 65 dropping on its spindle 105 moving away

from the supporting rod 150 during the mo- tion of the ring 102. This is also particu- larly useful on the bag arriving at any of the following stations, where the upper 70 edges of the bag are gummed and folded in various directions, the bag is closed, the closing label is applied to the closed bag and the whole bag is finally pressed. By means of the clamping lever 112 all the re- 75 spective devices at the various stations are protected from getting out of order, which otherwise would take place if the spindle 105 of the bottom 104 were not positively protected from shifting. Then the produc- 80 tion of faultless packages is insured. After the simultaneous pressing of the bag from above and below described above the sup- porting rod 150 is again lowered by means of the cam disk 134 while straining the heli- 85 cal springs 130.

Where so preferred, special supporting devices illustrated at Fig. 4 and to be pres- 90 ently described may be disposed at any or several or all of the various stations, where the gumming, folding, labeling or the like has to be effected, in order to protect in any 95 case the package from downwardly shifting, even if a very high pressure be exerted upon it, for example when the bag is made from pasteboard or very strong paper.

The said special supporting device is con- 100 structed as follows: In a suitable guide 136 placed radially on the table 103 a wedge- shaped slide 135 is guided, which is adapted to engage beneath the lower end of the spin- 105 dle 105. It is pivotally connected by means of a link 137 with a two-armed lever 138, which may rock on a suitable bracket 139 on the machine frame and is pressed inward by means of a helical spring 140. The lower 110 short arm of the lever 138 carries a roller 141, which by means of the spring 140 is pressed against the periphery of a cam disk 142 fastened on the shaft 75 and can roll on the same. When at the predetermined mo- 115 ment the roller 141 drops and rolls on the concentric part of smaller radius of the cam disk 142, the wedge-shaped slide 137 will under the action of the helical spring 140 move inward (to the right in Fig. 4) and 120 strike the lower end face of the spindle 105 for thereby supporting the bottom 104 with the package on it, after these parts have arrived at the respective station. Then the bottom 104 will in any case be prevented 125 from downward motion, even if the package be subjected to a very high pressure.

The several devices described of the ma- chine for charging and closing paper bags may be varied in many respects without de- 125 parting from the spirit of my invention.

I claim:

1. In a machine for packing and closing paper bags, a plurality of transporting ves- 130 sels adapted to be intermittently moved for

receiving paper bags, vertically guided bottoms for said transporting vessels, clamping devices for immovably holding and releasing said bottoms, a magazine for business-cards, a piston adapted to insert business-cards one after the other in the charged bags and to be yieldingly pressed from above against the contents of any bag, and means on said piston for seizing and releasing the card similar to a pair of tongs.

2. In a machine for charging and closing paper bags, a plurality of transporting vessels adapted to be intermittently moved for receiving paper bags, vertically guided bottoms for said transporting vessels, clamping devices for immovably holding and releasing said bottoms, a magazine for business-cards, and a piston adapted to insert business-cards one after the other in the charged bags and comprising a stationary stop and a movable finger for engaging and pressing a business-card against said stop, said piston being adapted to be yieldingly pressed from above against the contents of any bag.

3. In a machine for charging and closing paper bags, a plurality of transporting vessels adapted to be intermittently moved for receiving paper bags, vertically guided bottoms for said transporting vessels, clamping devices for immovably holding and releasing said bottoms, a magazine for business-cards, a piston adapted to insert business-cards one after the other in the charged bags and to be yieldingly pressed from above against the contents of any bag, movable spreaders fitting the upper edges of any paper bag, and means for spreading

said spreaders against the inside of the paper bag and for withdrawing them.

4. In a machine for charging and closing paper bags, a plurality of transporting vessels adapted to be intermittently moved for receiving paper bags, vertically guided bottoms for said transporting vessels, clamping devices for immovably holding and releasing said bottoms, a magazine for business-cards, a piston adapted to insert business-cards one after the other in the charged bags and to be yieldingly pressed from above against the contents of any bag, means for causing the clamping device for any bottom beneath said piston to release this bottom, and means for yieldingly pressing this bottom from below against the charged bag at the same time that said piston is pressed downwardly.

5. In a machine for charging and closing paper bags, a plurality of transporting vessels adapted to be intermittently moved for receiving paper bags, vertically guided bottoms for said transporting vessels, clamping devices for immovably holding and releasing said bottoms, a magazine for business-cards, a piston adapted to insert business-cards one after the other in the charged bags and to be yieldingly pressed from above against the contents of any bag, stationary supports beneath said bottoms, and wedges guided in said supports and adapted to be yieldingly pressed against said bottoms.

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