

W. P. SARGENT.
WRAPPER FEEDER.
APPLICATION FILED JULY 20, 1911.

1,054,795.

Patented Mar. 4, 1913.

4 SHEETS—SHEET 1.

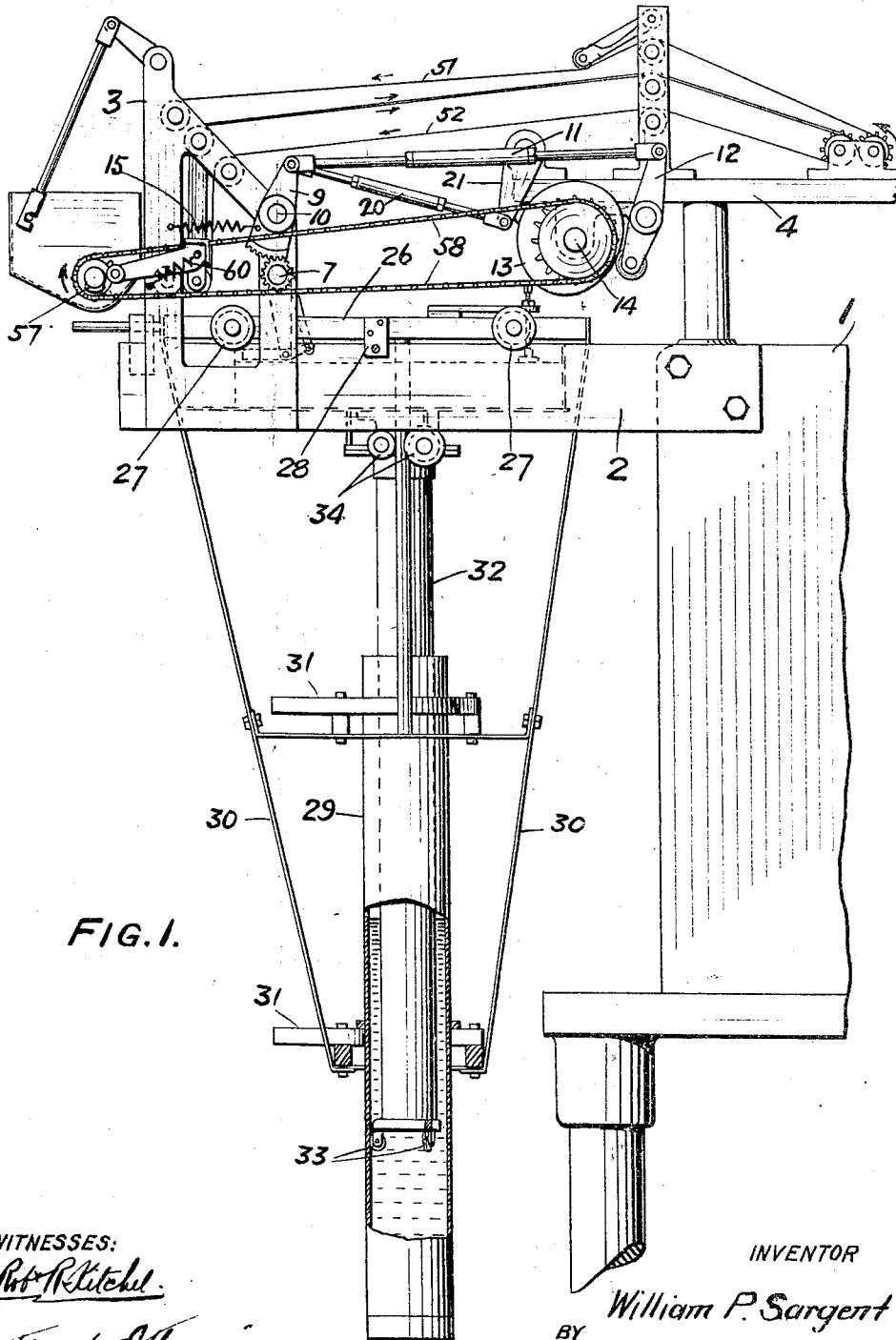


FIG. 1.

WITNESSES:

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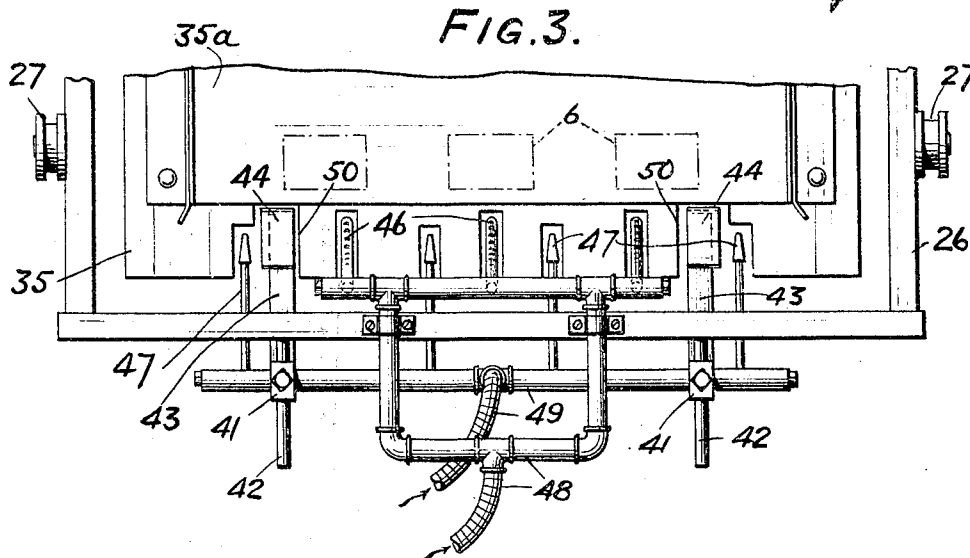
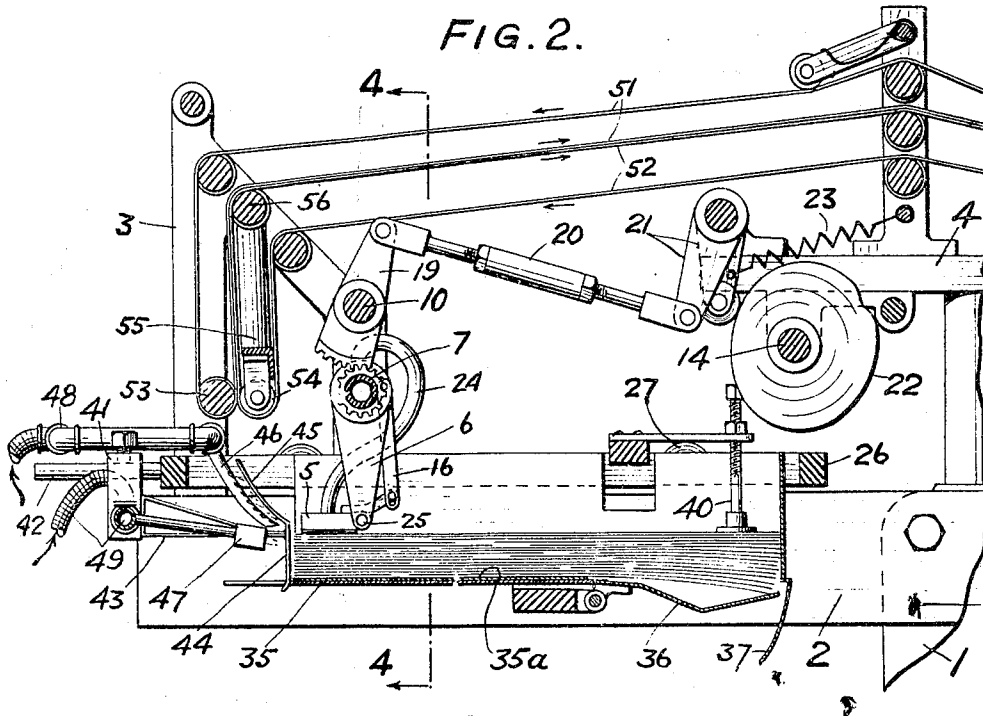
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4 SHEETS-SHEET 2.



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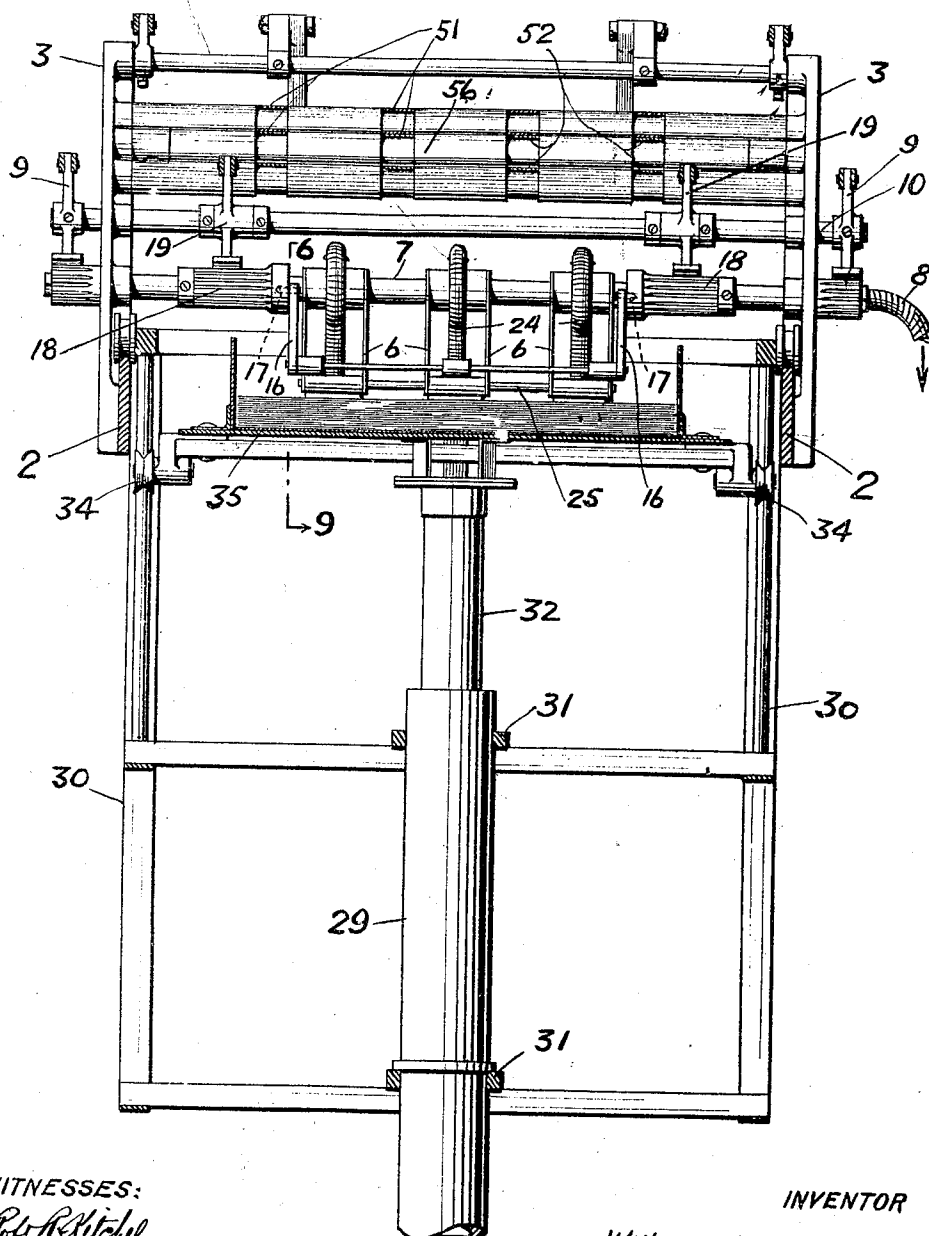
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4 SHEETS—SHEET 3.

FIG. 4.



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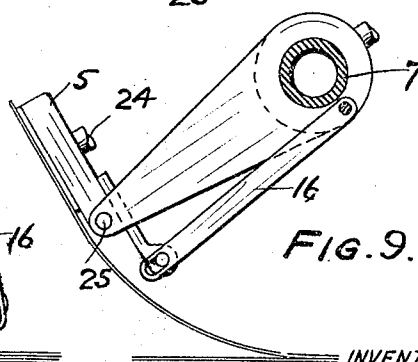
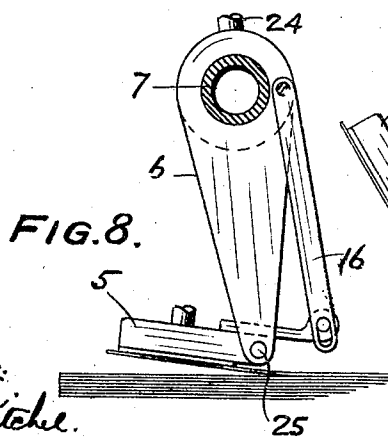
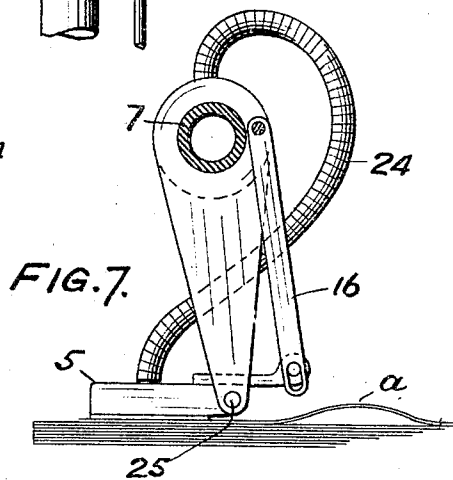
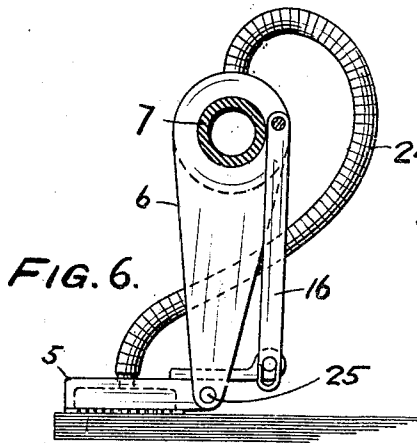
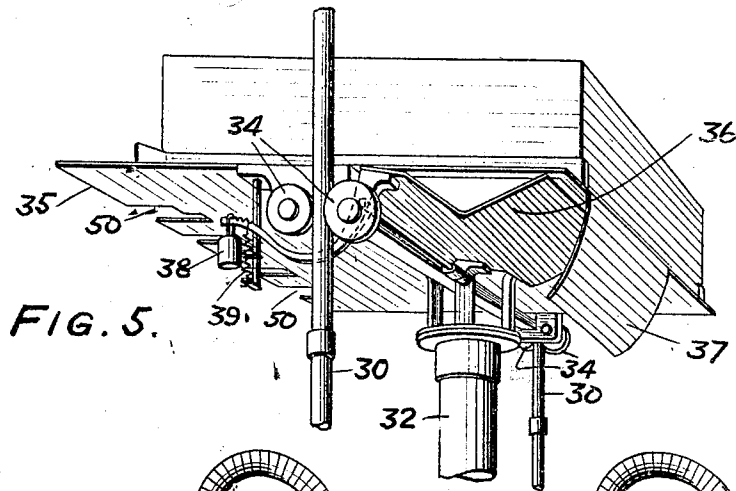
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4 SHEETS—SHEET 4.



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WRAPPER-FEEDER.

1,054,795.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed July 20, 1911. Serial No. 639,577.

To all whom it may concern:

Be it known that I, WILLIAM P. SARGENT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Wrapper-Feeder, of which the following is a specification.

Objects of the present invention are to provide automatic mechanism for reliably and accurately feeding wrappers to which adhesive address labels have been applied, one at a time, from a pile or stack of wrappers; to accommodate such automatic mechanism for operation upon wrappers of different sizes; to accurately time or control the delivery of the wrappers, for example, so that they can have paste properly applied to them; to provide automatic machinery for feeding wrappers, even though they have adhesive addressed labels applied thereto for some other operation, for example to the paster of my application serially numbered 639,579, filed July 20th, 1911, and to the magazine wrapper of my Patent No. 1,006,009, dated October 17th, 1911; to provide for automatically maintaining the top of a pile of wrappers, as the pile decreases, in proper position for cooperation with a suction foot; and to improve the operation of the suction foot and avoid accidental destruction of wrappers.

The invention will be claimed at the end hereof, but will first be described in connection with the embodiment, but not the only embodiment of it, chosen for illustration in the accompanying drawings, in which—

Figure 1, is a side view of a wrapper feeder embodying features of the invention. Fig. 2, is a transverse sectional view of the same. Fig. 3, is a top or plan view of the front of the feeder. Fig. 4, is a transverse sectional view taken on the line 4—4 of Fig. 2. Fig. 5, is a perspective view of the under-side of the table, and Figs. 6, 7, 8, and 9, are views drawn to an enlarged scale and taken generally on the line 6—9 of Fig. 4, illustrating the operation of the suction foot.

In the drawings 1, is a support which carries the various parts of the apparatus by means which may, of course be changed, but the particular means that happens to have been selected and shown on the drawings will, for the sake of description, be

referred to, but the invention is, of course, not limited to them.

2, are arms or rails arranged parallel with each other and spaced apart.

3 and 4, are brackets.

There is a suction device comprising suction feet 5 and swinging arms 6, to which the feet are pivoted. The devices are alike and one of them will be described. 7, is an oscillating shaft journaled in the brackets 3 and shown as hollow and provided with an exhaust connection 8. The arms 6, extend radially from this shaft and are rigidly connected with it. The shaft is oscillated by means of a pinion meshing with a toothed sector 9 which is oscillated about the shaft 10, as a center, by means of an adjustable link 11 and a lever 12, one arm of which is moved by and is the follower of a cam 13 mounted on the drive shaft 14. The spring 15 serves to keep the follower 12 up to the cam. 16, is a link or pitman rod, one end of which is connected to a projection on the heel of the suction foot and the other end of which is connected to a crank pin 17 (Fig. 4) on a toothed wheel 18, that is turned back and forth by a sector 19 which turns about the shaft 10, as a center, and this sector 19 (Fig. 2) is oscillated by an adjustable link 20 connected with the follower 21 of the cam 22 on the drive shaft 14; the follower may be held up to its work by a spring 23. 24, is a flexible connection from the hollow shaft 7 to the interior of the suction foot, the working face of which is perforated. The suction foot by the described mechanism is turned about the fixed axis 7 and about the movable axis 25 at the end of the arm 6.

Mounted on the arms 2 is a frame 26 shown as of generally rectangular form and in the present instance this frame is mounted on wheels 27 running on suitable ways and is provided with a clamp 28, so that it can be moved toward and away from the support 1 and clamped in any desired position, the purpose being to adapt the machine to wrappers of different sizes. Depending from the frame 26 is a cylinder or receptacle 29. It is shown as detachably connected with the suspension frame or rods 30 by clamps 31, so that it can be removed in order to replace it with one of different cross-section. Within the cylinder 29 is a

float 32 or piston of relatively small bore. The float or piston 32 is shown as guided by rollers 33 and 34, the latter cooperating with rails on the suspension frame and the former with the interior of the cylinder. The piston or float 32 carries a wrapper holder 35. The cylinder contains fluid, and mercury has been found well adapted for the purpose. The part 35 therefore is a floating table and the parts are so proportioned that by reason of its floating support, it is always in proper position for presenting the top sheet of a pile of wrappers supported by it to the suction foot 5. In accomplishing this, account is to be taken of the weight of the pile of wrappers and the weight of mercury displaced for a given movement corresponding to the withdrawal of wrappers from the pile. The wrapper holder 35 is provided with a hinged concaved bottom section 36 and with a depending wrapper end guard 37 arranged opposite the free end of the hinged bottom section. The side and end wall and the parts 35^a of the bottom constitute a detachable tray. The hinged bottom section is counter-balanced by the weighted arm 38 and is normally turned upward by a spring 39; the purpose of the hinged section bottom is to accommodate the portion of the pile or stack of wrappers which may be comparatively thick by reason of the application of adhesive labels to the wrappers. Above the hinged bottom section 36 are adjustable abutments 40 (Fig. 2) between which and the hinged bottom the thick part of the pile is accommodated. At the front the frame is provided with blocks 41 adjustable on rods 42. These blocks carry brackets 43 which support front gates 44 for the receptacle 35 and also a guide plate 45. The blocks 41 also carry blast devices 47 supplied by connections 49. The blast devices 46 are supplied by connections 48 adjustably mounted on the frame 26. The blast devices 47 discharge generally in the direction of the plane of the wrappers and the blast devices 46 discharge generally downward at an inclination to that plane and both these devices operate on the front edge of the wrappers. The gates 44 project in notches 50 in the bottom of the receptacle 35. This prevents the accidental escape of wrappers. If the size of the wrappers is increased the rectangular frame 26 is moved back toward the support 1 and the blocks 41 and connections 48 are adjusted toward the left, in Fig. 2, thus increasing the size of the receptacle 35 while at the same time maintaining the proper relation of the operating parts.

51 and 52 are suitably driven belts between the adjacent sides of which the wrappers travel. One set of these belts runs over a fixed guide pulley 53 and the other set

runs over guide pulleys 54 carried by a swinging frame 55 pivoted to the bracket 3 at 56. The belts may be opened up so as not to engage a wrapper by swinging the frame 55 toward the right in Fig. 2 and as shown in that figure the frame is in position for permitting the belts to engage and carry forward a wrapper. The swinging frame may be swung by appropriate mechanism and as shown this is accomplished by a spring 60 and a cam 57, driven by a sprocket chain 58 from the shaft 14. The shaft on which the cam 57 is mounted happens to be a part of a paster, which is not described or claimed herein, as it constitutes the subject-matter of my application serially numbered 639,579, filed July 20th, 1911.

The floating table presents the top wrapper of the pile to the suction foot, as indicated in Fig. 6. The arm 6 is then turned slightly toward the right into the position shown in Fig. 7, the result of this is that the top wrapper or sheet is pushed back and humped up and freed from the underlying wrappers or sheets. The heel of the foot is then depressed by the operation of the rod 16, so that the front of the foot is turned up and lifts the portion of the sheet or wrapper beneath the foot from the pile; thereafter both the arm 6 and rod 16 turn about the shaft 7 as a center as shown in Fig. 9. Meanwhile the jets or blasts of air 47 and 46 playing generally in the plane of the sheets or wrappers and at a downward inclination thereto, not only facilitate the removal by the suction foot of a single sheet, but also blow back or detach any second sheet that may tend to adhere to such single sheet or wrapper. The suction foot 5 delivers the wrappers over the guide 45 when the swinging frame brings the roll 54 toward the roll 53 into the position shown in Fig. 2, the belts carry the wrapper forward. It is possible for a wrapper to dwell before the swinging frame closes up the belts and this is important as it enables the operation of feeding to be made extremely accurate.

In the description and claims reference is made to wrappers, but that term is intended to include sheets.

What I claim is:

1. In a wrapper feeder the combination of a suction foot, and its actuating mechanism, and a wrapper holder having a concaved bottom section movable in respect to the other portions of the bottom of the holder to accommodate the portion of a pile of wrappers made thick by applied labels, substantially as described.

2. In a wrapper feeder the combination of the suction foot and its actuating mechanism and a wrapper holder provided with a bottom section movable in respect to the other portions of the bottom of the holder

and with a guard coöperating with the free edge of the movable bottom, substantially as described.

3. In a wrapper feeder the combination of a fixed and a movable frame, a suction foot carried by the fixed frame, a wrapper holder and means for floating it carried by the movable frame, and delivery devices adjustably carried by the fixed frame whereby wrappers of different sizes can be accommodated, substantially as described.

4. A wrapper feeder comprising the combination of a floating table for supporting a pile of sheets, a suction foot coöperating with the table, and means for swinging the suction foot inwardly from the edge of the pile to wipe the top sheet carried thereby inwardly and buckle it and for lifting its toe and swinging it outwardly to deliver the sheet carried thereby outwardly from the pile.

5. A wrapper feeder comprising the combination of a floating table for supporting a pile of sheets, a suction foot coöperating with the table, means for swinging the suction foot backward to wipe the sheet carried thereby inwardly and for lifting its toe and swinging it forward to deliver the sheet carried thereby outwardly from the pile, air blast devices and guide belts, and mechanism for separating the belts.

6. In a wrapper feeder the combination of a suction foot, a pivotal arm to which the suction foot is pivotally connected, mechanism for turning the foot in respect to the arm, and separate mechanism for turning the arm and the foot bodily to wipe the sheet inward on the pile and buckle the sheet

and for turning the arm and the foot forward to deliver the sheet outward from the pile.

7. In a wrapper feeder the combination of a suction foot whose pivotal center is between the foot and the center of the pile, and means for moving the foot after contact with the top sheet together with the top sheet bodily both inwardly and outwardly in respect to a pile of sheets and for tilting the outer edge of the foot upwardly to turn up the outer edge of the sheet, substantially as described.

8. A wrapper feeder comprising the combination of a fluid vessel, a plunger adapted to support a pile of sheets and movable in the vessel to create a fluid head suitable for balancing the weight of the pile and positioning the top thereof, and a feeding device arranged to feed from the top of the pile and thereby permit the fluid head acting on the plunger to elevate the pile and maintain its top in the same plane.

9. A wrapper feeder comprising the combination of a fluid vessel, a plunger which when projected into the vessel raises the fluid head, a table carried by the plunger and adapted to support a pile of which the weight is balanced by the initial head, and a feeding device arranged to feed from the top of the pile and permit said head to elevate the pile and keep its top in operative relation with the feeding device.

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Witnesses:

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