

(No Model.)

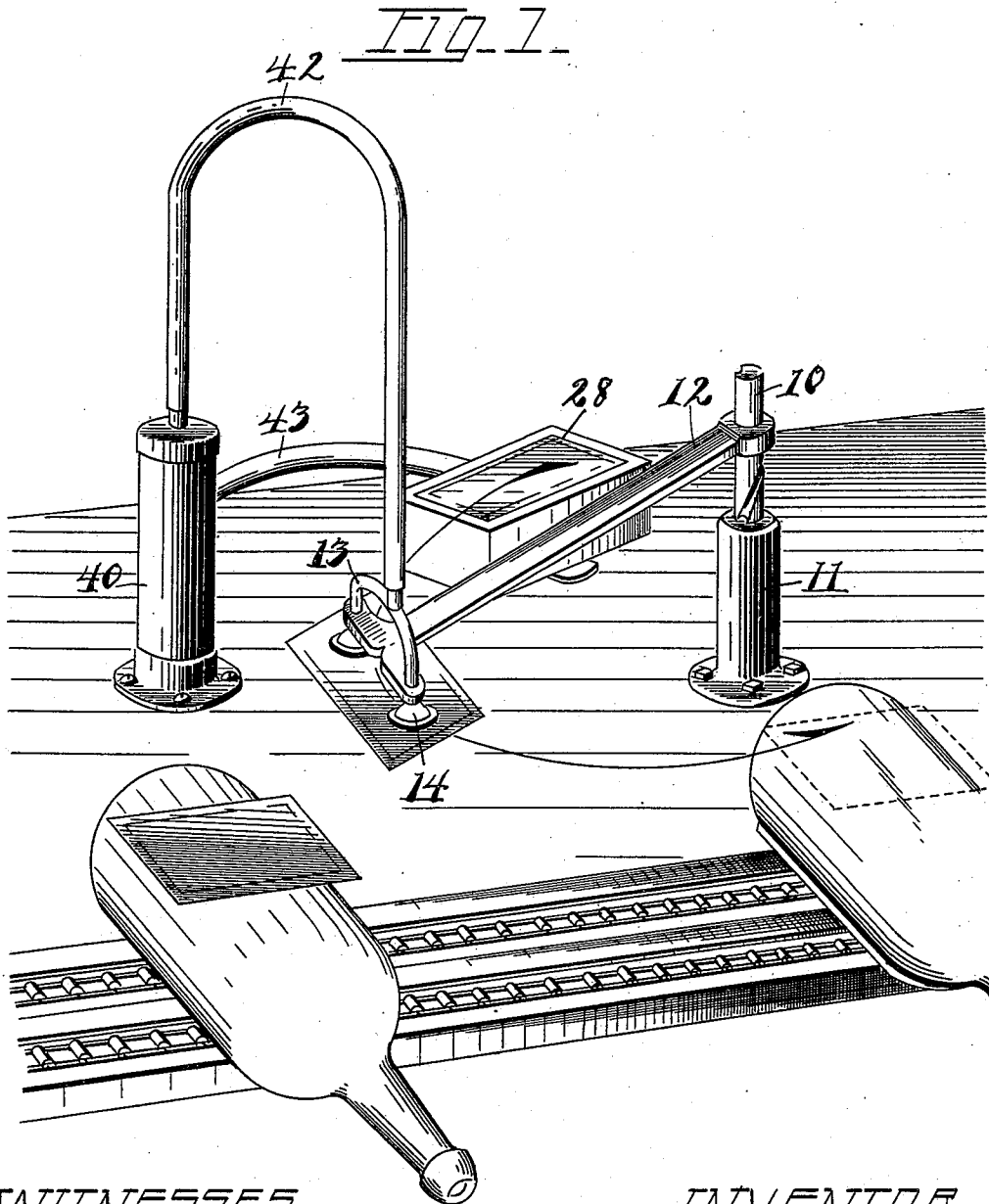
5 Sheets—Sheet 1.

H. HOPPE.

PNEUMATIC SHEET FEEDING APPARATUS.

No. 583,376.

Patented May 25, 1897.



WITNESSES

Carl H. Keller.
Maud Schmiracher.

INVENTOR

Henry Hoppe
By William Webster
att'y

(No Model.)

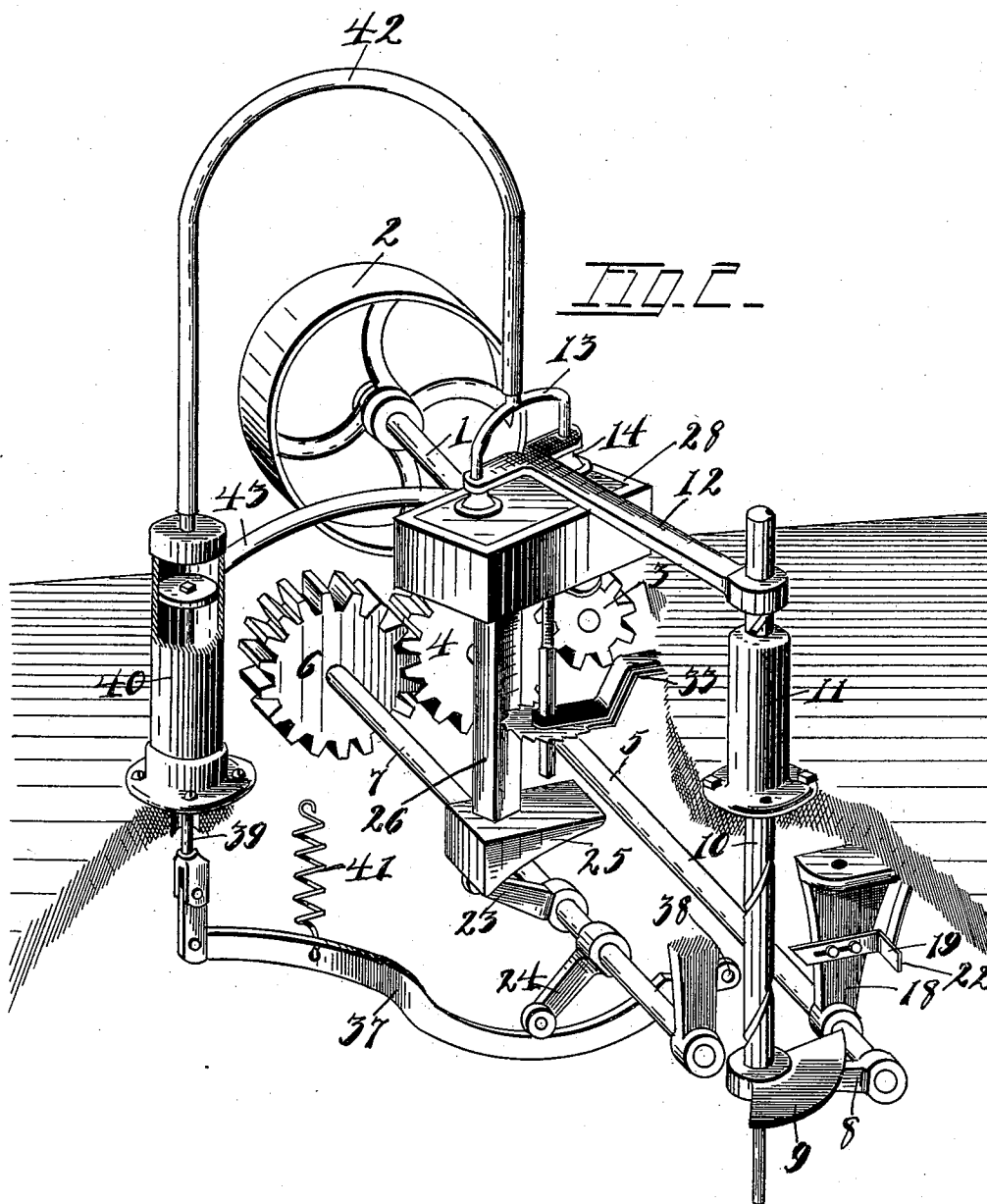
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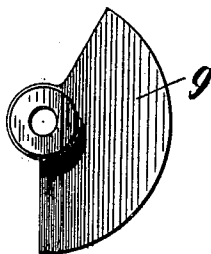
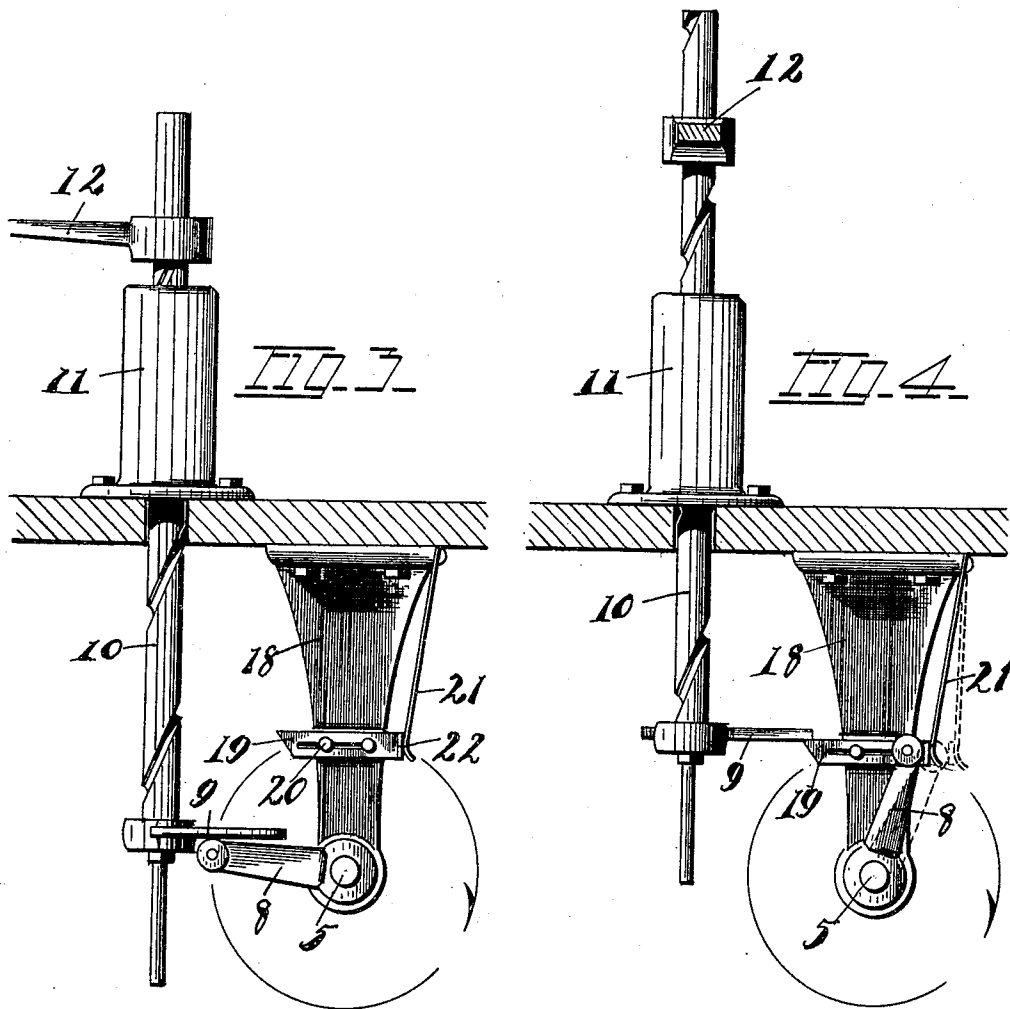
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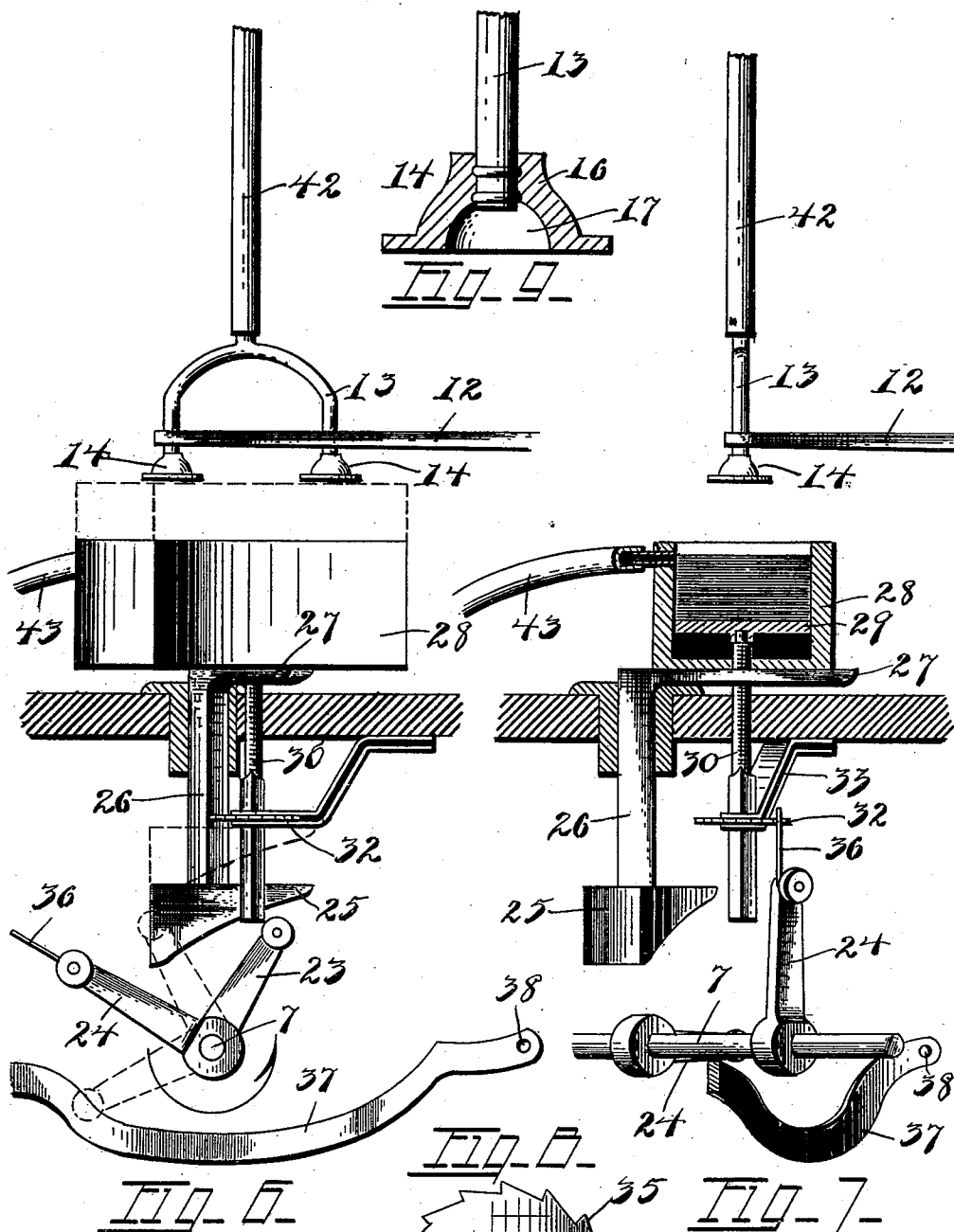
WITNESSES
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Maud Schumacher.

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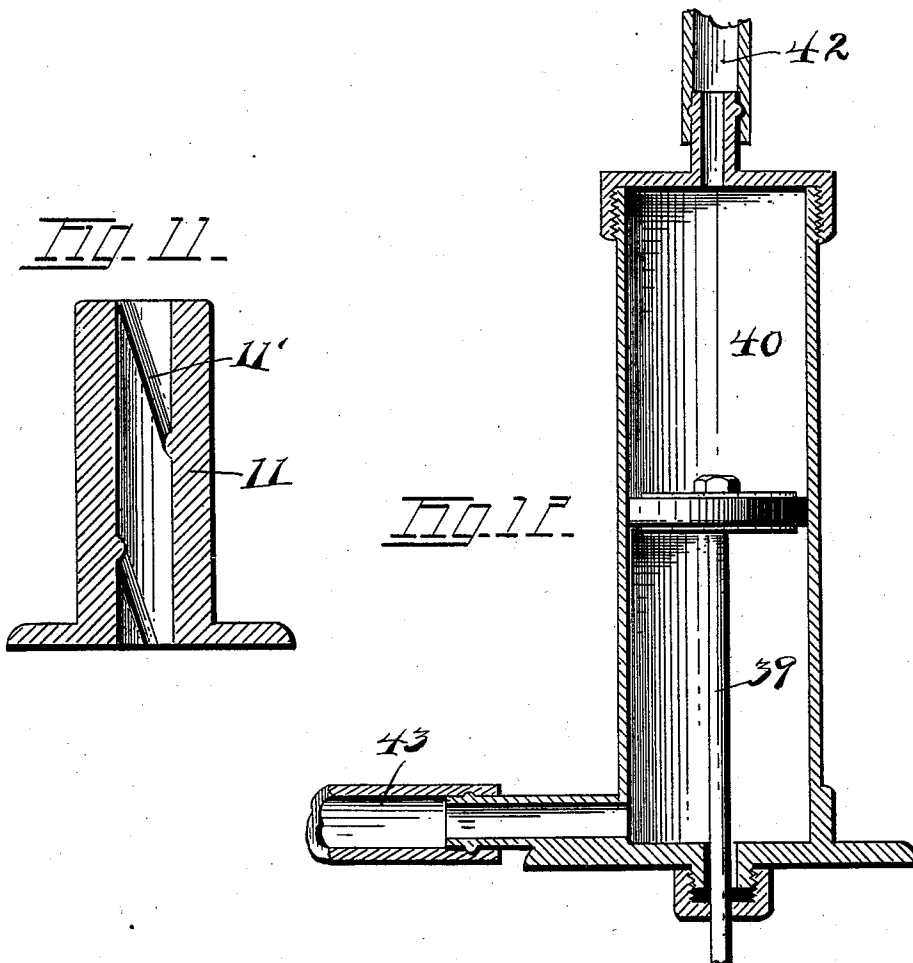
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WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY HOPPE, OF TOLEDO, OHIO.

PNEUMATIC SHEET-FEEDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 583,376, dated May 25, 1897.

Application filed January 2, 1896. Serial No. 573,998. (No model.)

To all whom it may concern:

Be it known that I, HENRY HOPPE, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Pneumatic Sheet-Feeding Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to an apparatus for automatically delivering labels and sheets of paper by a vacuum process, and has for its object to provide means for delivering sheets of paper either in a printed or label form to a point for attachment to bottles, &c., or delivering sheets in a blank form to a desired point for the purpose of printing.

A further object is to provide means for automatically delivering sheets of paper by a delivery mechanism actuated by a vacuum process to the point of use and in releasing the same at said point by pressure.

The invention consists in the parts and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a general view of my invention as applied to a labeling-machine, a portion of a continuous carrier being shown but not described in this invention. Fig. 2 is an elevation of the essential mechanism employed in carrying out my invention, a portion of the table being broken away to disclose the same. Fig. 3 is a sectional detail of the rotary reciprocating shaft controlling the delivery mechanism, showing the parts in their lowered position. Fig. 4 is a like view showing the parts in their raised position. Fig. 5 is a top plan view of the segmental disk controlling the operation of the rotary reciprocating shaft. Fig. 6 is a front elevation of the label-receptacle and the mechanism for raising the labels. Fig. 7 is a side elevation of the same, showing the label-receptacle in section with the labels inclosed therein, also showing the inlet of air thereto. Fig. 8 is a plan view of the ratchet-disk employed in feeding the labels. Fig. 9 is a section of the tip employed to pick up the labels

and convey the same. Fig. 10 is a sectional elevation of the standard, illustrating more particularly the spiral projection upon the interior surface thereof by which a vertical and reciprocatory movement is imparted to the vacuum-tips. Fig. 11 is a sectional detail view of the air-pump, illustrating more particularly the points of communication therewith and with the paper-receptacle and vacuum-tips.

1 is a power-shaft having a power-wheel 2 and a pinion 3 thereon, which meshes with a pinion 4 on a shaft 5. Pinion 4 in turn meshes with a pinion 6 on shaft 7. Keyed to shaft 5 is a roller-arm 8, which in the course of its revolution contacts with the lower side of a segmental disk 9 on a vertically-rotary reciprocating shaft 10. Shaft 10 has a spiral groove cut thereon and is suitably guided in its vertical movement by its bearing in the bore of the standard 11 and its rotary movement by the engagement of the spiral projection 11' with the spiral groove upon the shaft 10.

Secured to the upper end of shaft 10 is the label-carrying arm 12, which is preferably bifurcated at its end to receive a forked tube 13, having tips 14, of rubber or other suitable material, thereon. Tips 14 are constructed with a body portion 16 securely attached to tube 13, and a flaring mouth 17 to offer a maximum surface to the label in the act of picking up the same. Upon hanger 18 of shaft 5 is a catch 19, guided by pins 20 and held in its normal position by a spring 21. When rotary reciprocating shaft 10 is raised by the action of roller-arm 8 on segmental disk 9, catch 19 will hold the same in an elevated position (Fig. 4) until roller-arm 8 strikes the projecting end 22 of catch 19, thereby withdrawing the same and permitting shaft 10 and the segmental disk 9 to return to their normal position, Fig. 3.

On shaft 7 are roller-arms 23 and 24, respectively. Roller-arm 23 in the course of its revolution contacts with a cam-face 25 on the lower end of a vertical reciprocating bar 26, having a right-angled portion 27, on which rests the label-receptacle 28. Receptacle 28 is formed with a false bottom 29, which rests centrally thereof on a screw-threaded stem 30, screwed into the right-angled portion 27 and squared at its lower end, as at 31. In

sliding connection upon the squared portion 31 is a ratcheted disk 32, held in place by brackets 33. Disk 32 has a square cut-out portion 34 centrally thereof to fit the squared portion 31 and give free vertical movement thereto, and teeth 35 on the periphery thereof. Attached to the end of roller-arm 24 is a finger 36, which, as the roller-arm revolves, contacts successively with the teeth 35 on ratcheted disk 32, thereby rotating the stem 30, and consequently raising the false bottom 29 and the labels thereon, the advance depending upon the number of teeth in the ratchet-disk and the pitch of the thread on stem 30. It will be seen that for each revolution of arm 24 I may raise the body of labels a minimum degree, or the thickness of a single label. Roller-arm 24 in course of its revolution on shaft 7 contacts with a cam-lever 37, thereby depressing the same. Cam-lever 37 is fulcrumed at 38, the opposite end being attached to the lower end of a piston 39 of an air-pump 40 and the return of the same being effected by a spring 41. To the head of air-pump 40 and in like manner to the forked tube 13 is attached a flexible tube 42, which communicates either a vacuum or air pressure to the tips 14 as the piston 39 of air-pump is lowered and raised, respectively. To the lower extremity of air-pump 40 and to the side of the label-receptacle 28 and communicating with the interior thereof is also a flexible-tube connection 43, which carries the exhaust-air from air-pump 40 into the label-receptacle, thereby producing a fluttering of the labels and preventing the same from adhering one to another.

In operation a quantity of labels sufficient to fill the label-receptacle are deposited therein and the bottle on the continuous carrier takes a position just forward of the standard 11. Label-receptacle 28 is then raised so that the top label is brought into contact with tips 14. Piston 39 of air-pump 40 is then depressed, thereby producing a vacuum in the upper end of air-cylinder 40, in consequence of the closing of tips 14 by the label in close contact therewith. At the moment the vacuum is established the label-receptacle assumes its normally-lowered position, and simultaneously with this movement there is a fluttering of the several top labels, produced by the exhaust-air in the lower portion of the cylinder 40. By this means the adhesion of two or more labels is entirely prevented, thereby insuring the delivery of but one label at a time. When the label-receptacle is lowered, a single label is held by the tips 14. At this stage in the operation roller-arm 8 contacts with segmental disk 9, thereby giving a vertical rotary reciprocating movement to shaft 10 and arm 12 and carries the label to a position (shown in dotted lines, Fig. 1) immediately over a pasted portion of the bottle on the continuous carrier. During the operation of carrying the label from the label-receptacle to its position over the bottle the vacuum re-

mains intact, but at the instant it reaches a position over the bottle the piston of the air-pump begins to rise, thereby destroying the vacuum and discharging the label upon the bottle. The label-carrying arm then assumes its normal position over the label-receptacle by gravitation, the piston of the air-pump is raised, and the operation of carrying the label to the bottle is repeated, thereby making the operation entirely automatic.

While I have shown and described my invention as applicable to affixing labels upon bottles, I wish it understood that the essential features of my invention may be applied in automatically delivering sheets of paper to a printing-press, and, in fact, I consider this particular character of my invention as adaptable to the art of printing, in which I propose to supplant the manual labor heretofore employed, and while the device is illustrated as means for affixing labels to bottles I desire to have the broad interpretation that shall subordinate the invention to any of the purposes for which it is adaptable.

While I have shown and described two vacuum-tips, I wish it understood that I may employ but one or more than two tips, according to the size of the sheet of paper to be raised by the same.

What I claim is—

1. An apparatus for automatically delivering labels or sheets of paper by a vacuum process, a receptacle for paper, an air-pump having vacuum-tips connected therewith, a standard, a shaft having a rotary and reciprocating movement therein, having an arm extending therefrom carrying the vacuum-tips, a means for vertically moving said shaft which comprises a shaft journaled at right angles thereto, an arm carried by said shaft, a segmental disk carried by the vertical shaft in the path of travel of the arm, whereby the vertical shaft is raised and a catch normally projected to hold the disk in a vertical position and released by the further revolution of the arm to allow the vertical shaft to drop and reset by gravitation.

2. In an apparatus for automatically delivering labels and sheets of paper by vacuum process, a paper-receptacle, a standard depending therefrom having a cam-face, a screw-shaft threaded in the base of the standard having a platen upon which the paper rests, a toothed disk upon the lower squared end of the screw-shaft and the power-shaft having arms radiating therefrom to contact with the cam-face and toothed disk respectively.

3. In an apparatus for automatically delivering labels and sheets of paper by a vacuum process, a receptacle for paper, an air-pump having vacuum-tips connected therewith at one end and a conduit connected therewith at the opposite end and with a paper-receptacle, a shaft, a means thereon for operating the air-pump and raising and lowering the paper-receptacle, a shaft having a rotary and reciprocating movement secured in the stand-

ard, an arm carried by said shaft which carries the vacuum-tips, means for raising and rotating said shaft an independent means for holding said shaft in a raised position and
5 releasing the same to assume its normal position by gravitation.

In testimony that I claim the foregoing as

my own I hereby affix my signature in presence of two witnesses.

HENRY HOPPE.

Witnesses:

WILLIAM WEBSTER,
MAUD SCHUMACHER.