T. C. DEXTER & R. MEREDITH.

PNEUMATIC SHEET SEPARATING MACHINE.

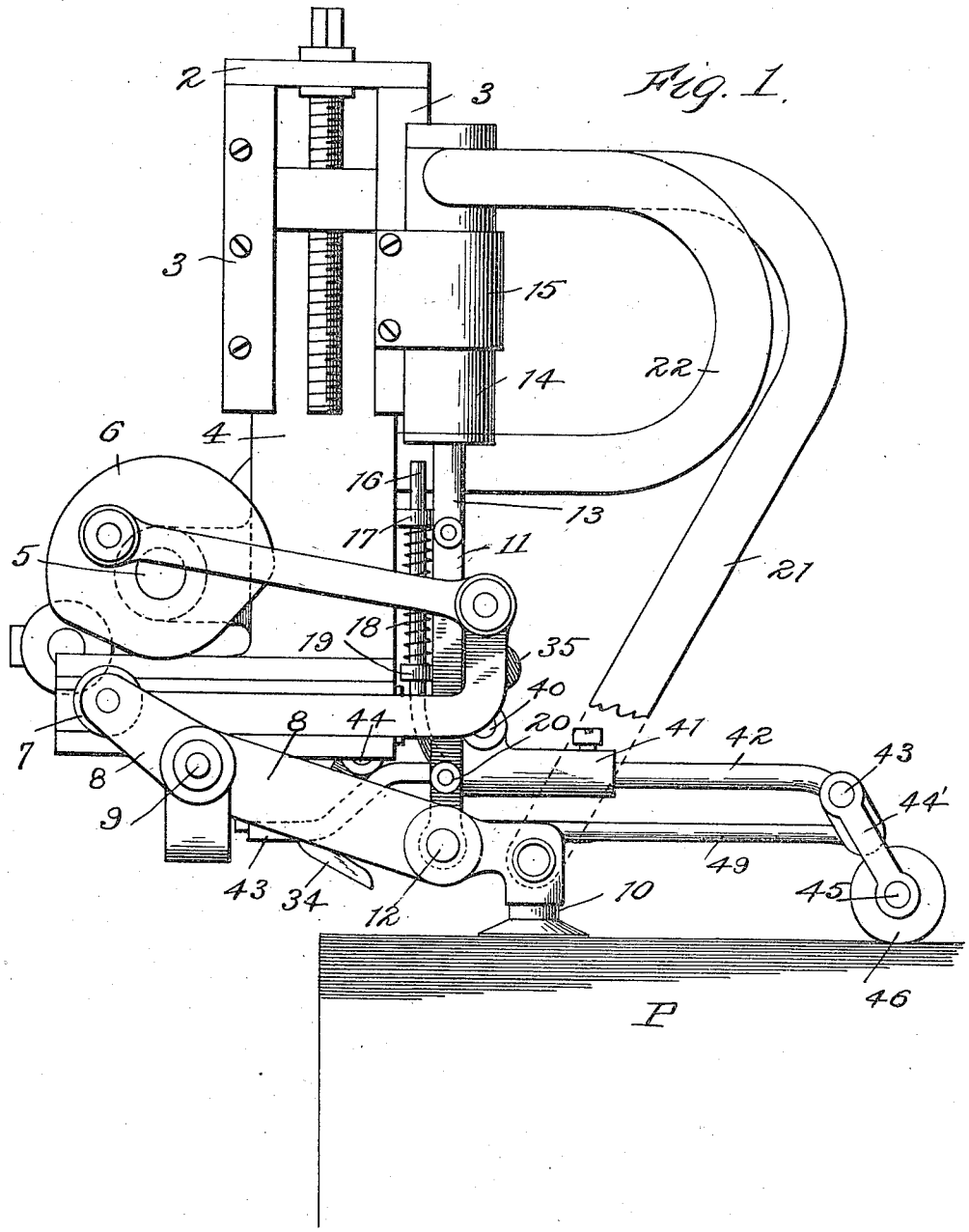
APPLICATION FILED OCT. 7, 1916.

1,249,042.

Patented Dec. 4, 1917.

5 SHEETS—SHEET 1.

Fig. 1.



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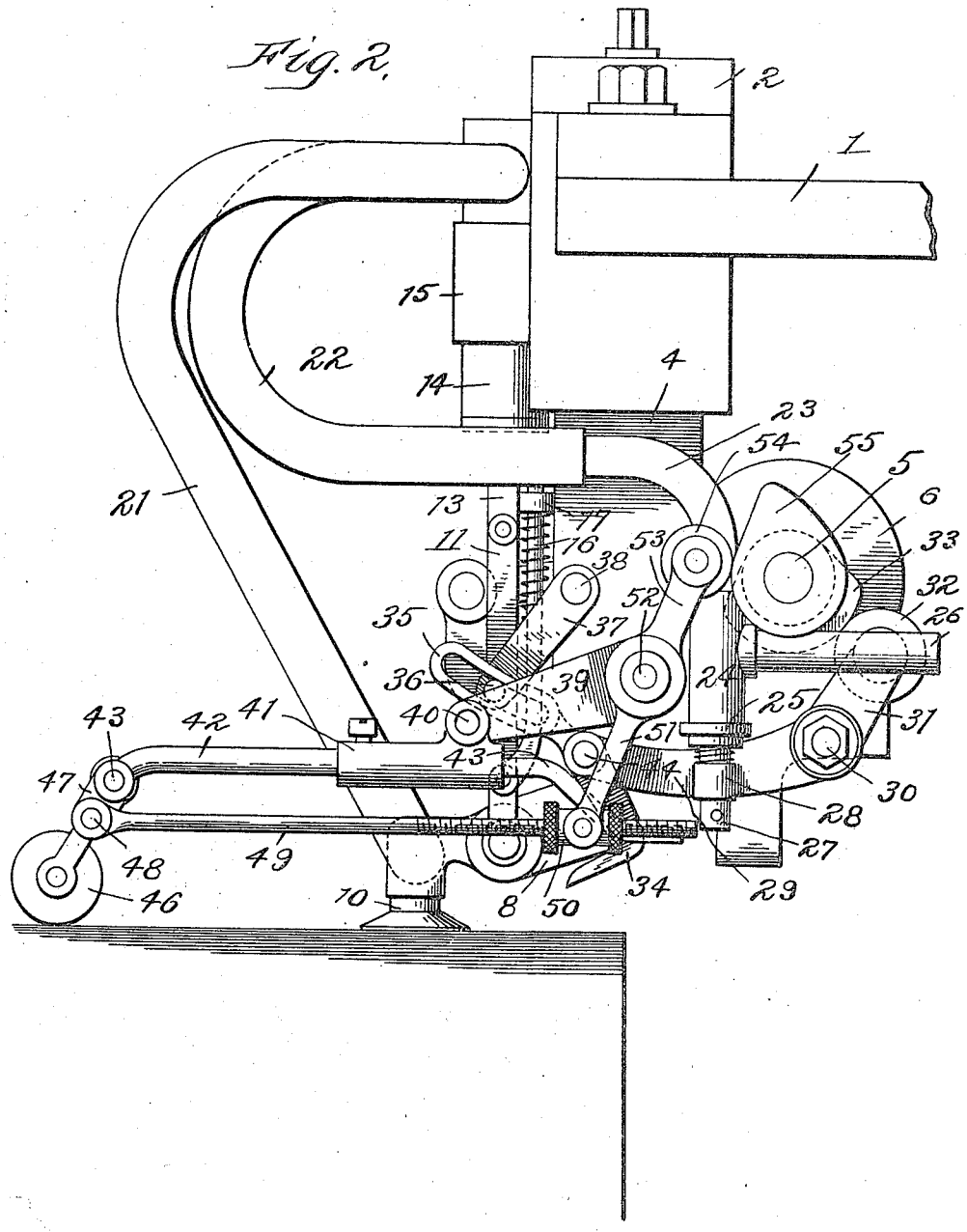
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5 SHEETS—SHEET 2.

Fig. 2.



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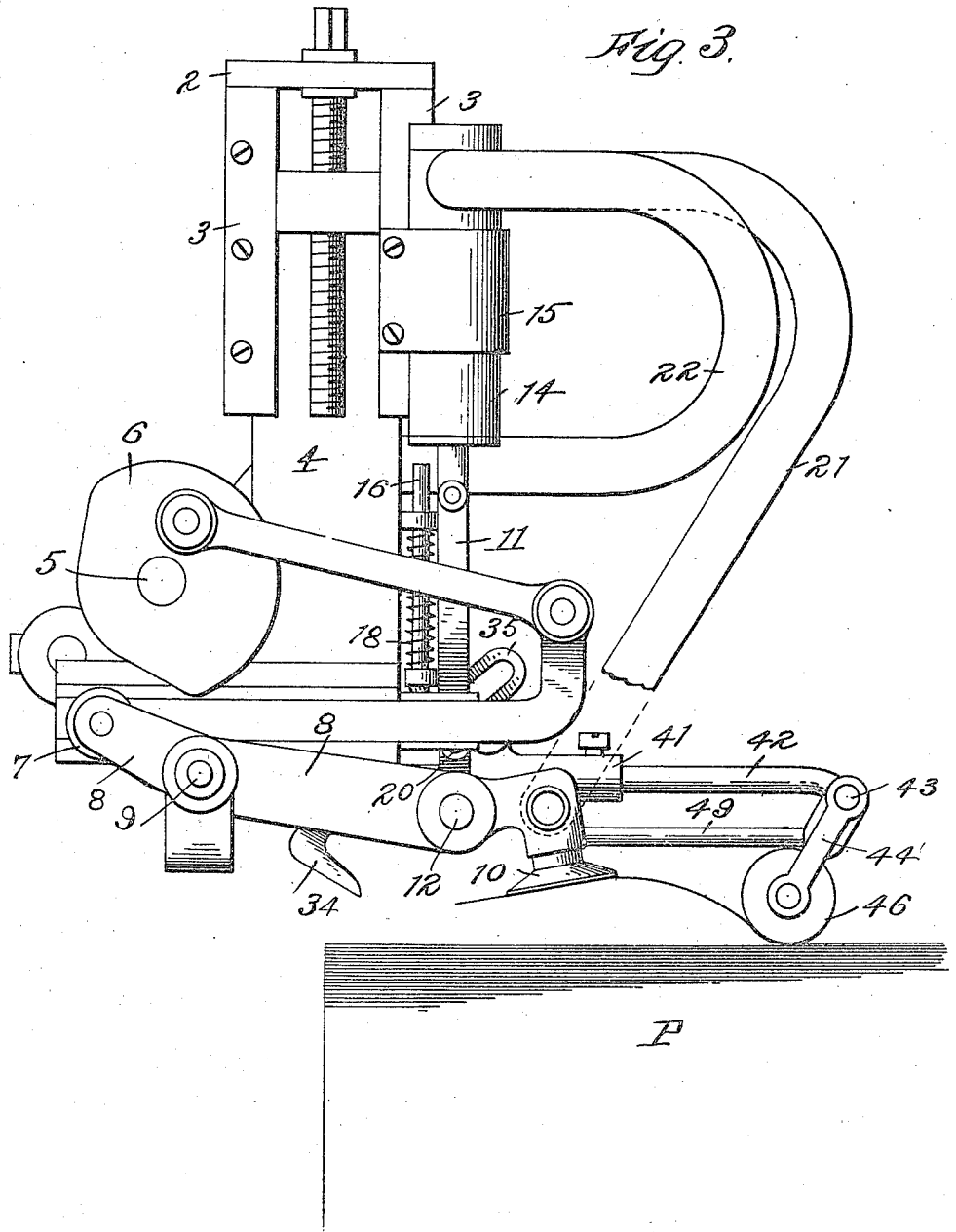
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5 SHEETS—SHEET 3.

Fig. 3.



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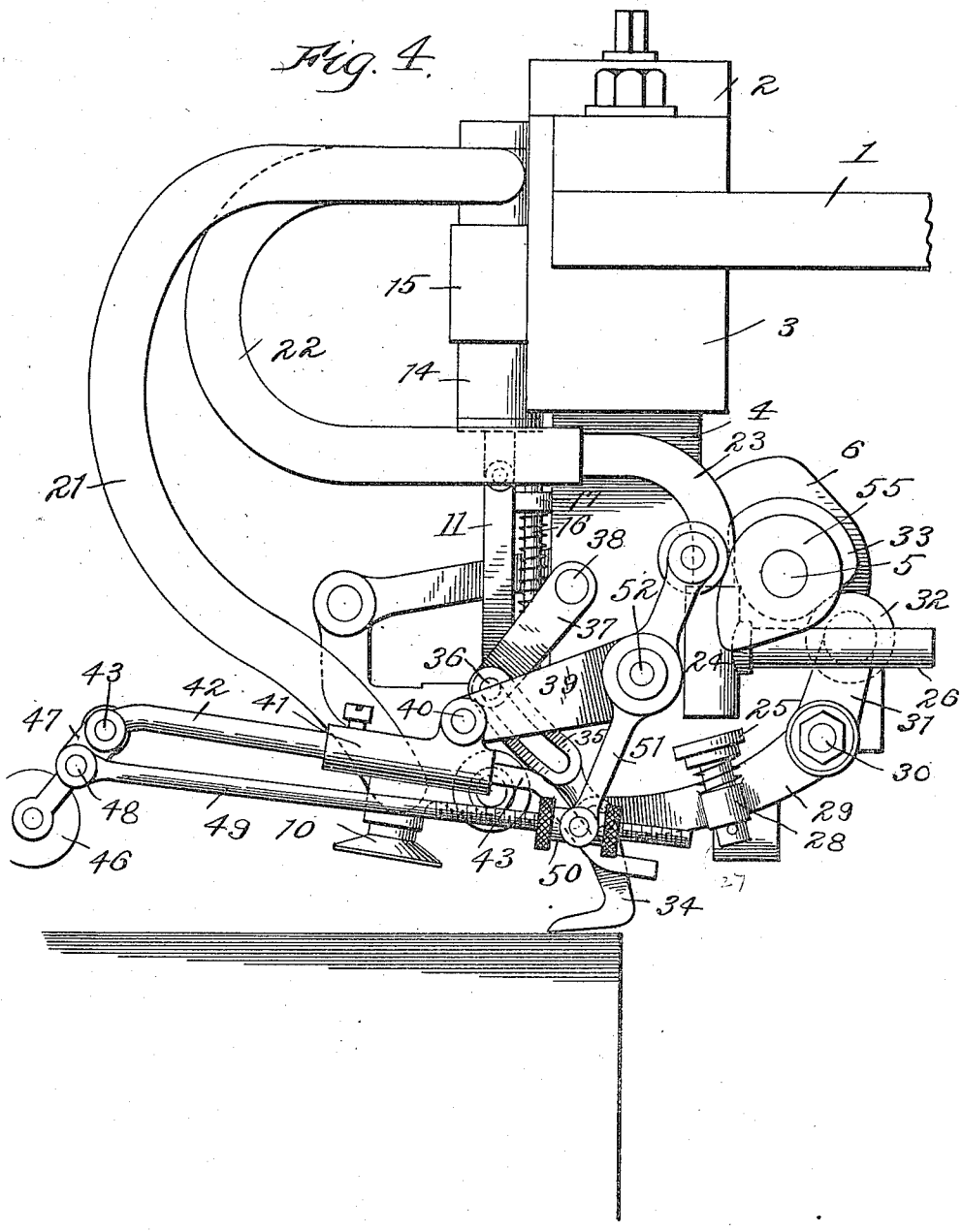
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5 SHEETS—SHEET 4.

Fig. 4.



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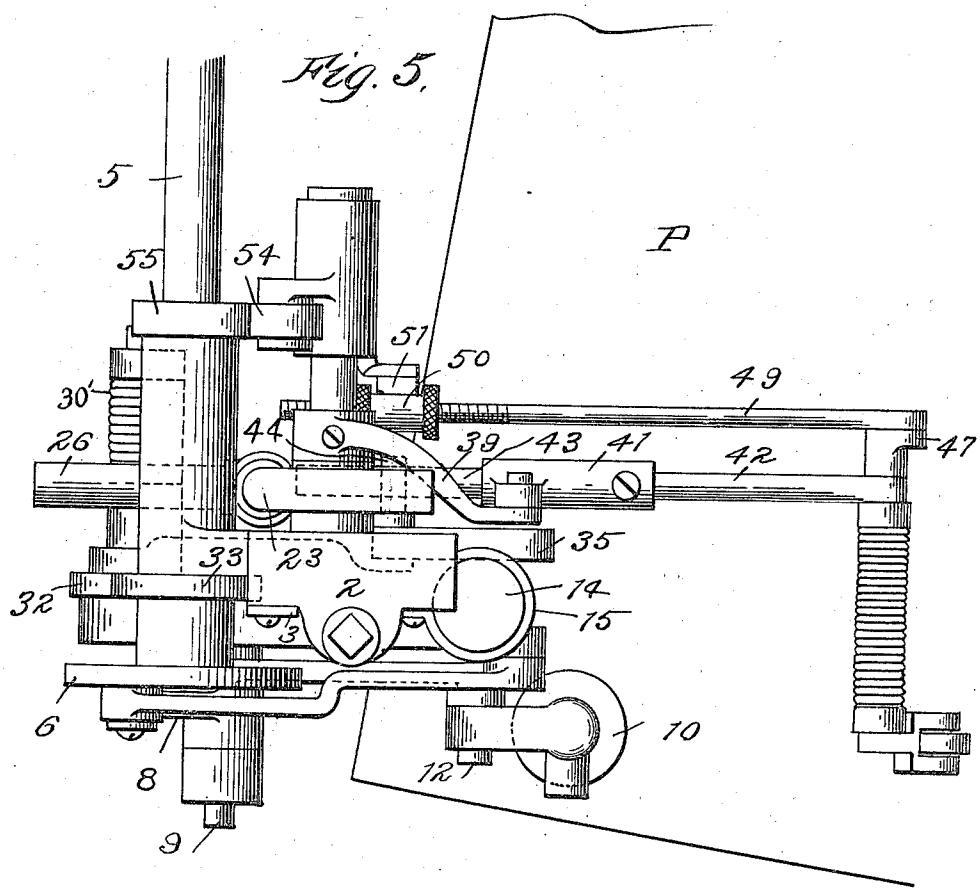
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5 SHEETS—SHEET 5.

Fig. 5.



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UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER AND ROSS MEREDITH, OF PEARL RIVER, NEW YORK, ASSIGNORS TO DEXTER FOLDER COMPANY, OF PEARL RIVER, NEW YORK, A CORPORATION OF NEW YORK.

PNEUMATIC SHEET-SEPARATING MACHINE.

1,249,042. Specification of Letters Patent. Patented Dec. 4, 1917.

Application filed October 7, 1916. Serial No. 124,350.

To all whom it may concern:

Be it known that we, TALBOT C. DEXTER and ROSS MEREDITH, citizens of the United States, both residing at Pearl River, county of Rockland and State of New York, have invented certain new and useful Improvements in Pneumatic Sheet-Separating Machines, of which the following is a specification.

This invention relates to feeding mechanism of the same general character as that shown and described in our co-pending application, Serial Number 124,349, filed October 7th, 1916.

The primary object of our invention is to provide improved sheet-separating mechanism that will be peculiarly serviceable in connection with feeding sheets of cardboard. One of the objects of the present invention is to provide improvements which will adapt a machine of the character shown and described in our above identified application, to operate upon cardboard or the like. Other and further objects will appear in the specification and be pointed out in the appended claims, reference being had to the accompanying drawings which show pneumatic sheet-separating mechanism constructed in accordance with the principles of the present invention.

In the drawings:

Figure 1 is a side elevation of mechanism which exemplifies the present invention, parts being broken away;

Fig. 2 is a side elevation of the same from the opposite side;

Fig. 3 is a side elevation similar to Fig. 1, showing the parts in different positions; and

Fig. 4 is a side elevation similar to Fig. 2 showing the parts in more advanced stages of the operation.

Fig. 5 is a top plan view of the same.

Referring more particularly to the drawings, a bracket arm 1 or other suitable support, serves to mount a yoke or frame 2 provided with guides 3 within which reciprocates a slide 4, which journals a cam shaft 5. The cam shaft 5 has keyed thereto a cam 6 which is adapted to operate a cam roller 7 carried by one arm of a lever 8 which oscillates about the axis of a shaft 9 which is also carried by the slide 4. Depending from the forward end of the lever 8 is a sucker 10 which is adapted by the movement of lever 8 to be brought against the top sheet of a pile P in such a position as to close the sucker and to permit the evacuation of the pneumatic system to be hereinafter described. A connecting rod 11 has its lower end journaled on a pin 12 which projects laterally from the lever 8. The upper end of the rod 11 is pivotally connected to the piston rod 13 of a piston (not shown) which reciprocates in a cylinder 14 which is secured by a strap 15 to one of the guides 3. The lower end of cylinder 14 is open to the outside atmosphere. A spring rod 16, which is reciprocably mounted in an apertured lug 17 carries a spring 18 which is interposed between the lug 17 and a collar 19 keyed to the rod 16. The lower end of said rod is pivotally connected at 20 to the rod 11 and therefore imparts a pressure which tends to retain the sucker 10 in its lowermost position. A tube or hose 21 leads from the sucker 10 to the upper end of the cylinder 14; a second tube or hose 22 leads from the upper end of cylinder 19 to a curved pipe 23 which leads to a pipe fitting 24 with an aperture in its lower end provided with a closure 25. A pipe or tube 26 projects rearwardly from the pipe fitting 24 and is adapted to be connected up with any suitable evacuating mechanism. The closure 25 is provided with a rod 27 which is yieldably mounted in an apertured lug 28 on a lever 29 which is pivoted on a shaft 30 and yieldably depressed by spring 30′. A cam lever 31 is also keyed to shaft 30 and carries a cam roller 32 which runs on a cam 33 keyed to the cam shaft 5. Pivotally mounted on the forward end of the lever 29 is a clamping foot 34 provided with an upwardly and forwardly extending slotted arm 35 within which slides a pin 36 carried by an arm 37 which oscillates about a pin 38 on slide 4 and serves to position the clamping foot 34 as it oscillates in the forward end of lever 29. A bracket arm 39, which carries at its outer end a pin 40, pivotally supports a socket 41 in one end of which is mounted a rod 42 while in the other end thereof, is mounted a cam rod 43 which is suitably disposed to be engaged by a pin 44 which projects laterally from the end of lever 29 so that when the clamping foot 34 drops to the pile, the rod 42 will be thrown upwardly, carrying therewith the shaft 43 to which is keyed the arm 44′ in the lower end of which

is a pin 45 on which the stop roller 46 is journaled. A crank arm 47 which is keyed to the other end of the shaft 43 carries a pivot 48 to which is connected the forward end of a rod 49 which carries an adjustable collar 50 to which is pivotally connected one arm 51 of a lever which is journaled on a stud 52 and provided with a cam arm 53 which carries a roller 54 running on a cam 55, which is keyed to the cam shaft 5. By means of this cam movement, the stop roller 46 is periodically drawn rearwardly toward the sucker 10 over the top sheet of the pile. The operation of our improved device will now be readily understood and briefly described is as follows:

In Figs. 1 and 2, the parts are shown at the beginning of the operation, sucker 10 having been lowered to the top cardboard sheet of the pile P. Closure 25 being in closed position, the top sheet seals the pneumatic system in such a way as to cause an immediate evacuation of the cylinder which is accompanied by an upward movement of the piston therein and sucker 10 connected thereto. The parts now assume the positions shown in Fig. 3, in which the roller stop 46 has moved rearwardly, while the sucker 10 has been elevated, thus serving to admit a blast of air beneath the rear corner and edge of the cardboard sheet. Cam 33 has by this time reached a position which permits the clamping foot 34 to drop to the pile in the rear of the top sheet, thus assuming the position shown in Fig. 4. This movement permits the pin 44 carried by the forward end of lever 29, to drop upon the cam rod 43 which projects rearwardly from the socket 41, thus causing the stop roller 46 to be elevated, the top sheet being thereby released to move forward upon the blanket of air. This movement is also accompanied by a downward movement of the closure 25 which opens the lower end of the pipe fitting 24 thus breaking the suction in the pneumatic system which releases the top sheet. As soon as the cam 33 has again operated the lever 29, the closure 25 is forced into closed position when the mechanism is ready for another operation.

What we claim is:—

1. In a sheet-feeding machine, a pneumatic system including a sucker, means for moving said sucker down on to the top sheet of a pile, said sucker being adapted to be sealed by said top sheet when it rests on said top sheet, means operated by said pneumatic system when said sucker is thus sealed, for raising said sucker and said top sheet, and a stop movable into engagement with said top sheet and over said top sheet toward said sucker.

2. In a sheet-feeding machine, a pneumatic system including a sucker, means for moving said sucker down on to the top sheet of a pile, said sucker being adapted to be sealed by said top sheet when it rests on said top sheet, means operated by said pneumatic system when said sucker is thus sealed, for raising said sucker and said top sheet, a stop movable into engagement with said top sheet and over said top sheet toward said sucker, and means for breaking the suction in said system to release the sheet and for raising said stop out of engagement with said sheet.

3. In a machine of the character described, a sucker, means for lowering said sucker on to the top sheet of a pile in suitable position to be sealed by said top-sheet, means operated by suction whenever said sucker is sealed, for raising said sucker, and a stop movable into and out of engagement with said top sheet to coöperate with said sucker.

4. In a machine of the character described, a sucker, means for lowering said sucker on to the top sheet of a pile in suitable position to be sealed by said top-sheet, means operated by suction whenever said sucker is sealed, for raising said sucker, a stop movable into and out of engagement with said top sheet to coöperate with said sucker, and means for moving said stop out of engagement with said top sheet and breaking the suction of said sucker-raising means.

5. In a machine of the character described, a sucker, means for lowering said sucker on to the top sheet of a pile in suitable position to be sealed by said top-sheet, means operated by suction whenever said sucker is sealed, for raising said sucker, and a stop movable into and out of engagement with said top sheet to coöperate with said sucker, said stop being movable toward and away from said sucker.

6. In a pneumatic sheet-separator, an oscillatory arm, a sucker carried thereby, means for periodically moving said arm to bring said sucker into position to be closed by the top sheet of a pile, a pneumatic system including said sucker, and means operated by said pneumatic system when said sucker is sealed by a sheet, for moving said oscillatory arm to move said top sheet away from the pile.

7. In a pneumatic sheet-separator, a pneumatic system including a sucker movable down on to the top sheet of a pile in position to be sealed by said top-sheet, said system being adapted by the sheet to raise said sucker with the sheet, and a clamping foot movable into and out of clamping engagement with the pile, said system having an aperture provided with a closure operatively connected to said clamping foot.

8. In a pneumatic sheet-separating machine, a sucker movable to the top sheet of

a pile and adapted to be closed thereby, a pneumatic system including said sucker for raising said sucker with the top sheet, said system being provided with an aperture other than the one in said sucker, a closure for said other aperture, a stop movable into engagement with said top sheet, and means coöperatively actuating said stop and closure.

9. In a pneumatic sheet-separating machine, a sucker movable to the top sheet of a pile and adapted to be closed thereby, a pneumatic system including said sucker for raising said sucker with the top sheet, said system being provided with an aperture other than the one in said sucker, a closure for said other aperture, a stop movable into engagement with said top sheet, means co-operatively actuating said stop and closure, and a clamping foot operated by the stop and closure actuating means.

TALBOT C. DEXTER.
ROSS MEREDITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."