A. L. PYE.

FEED MECHANISM.

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1,204,188. Patented Nov. 7, 1916.

Fig. 1.

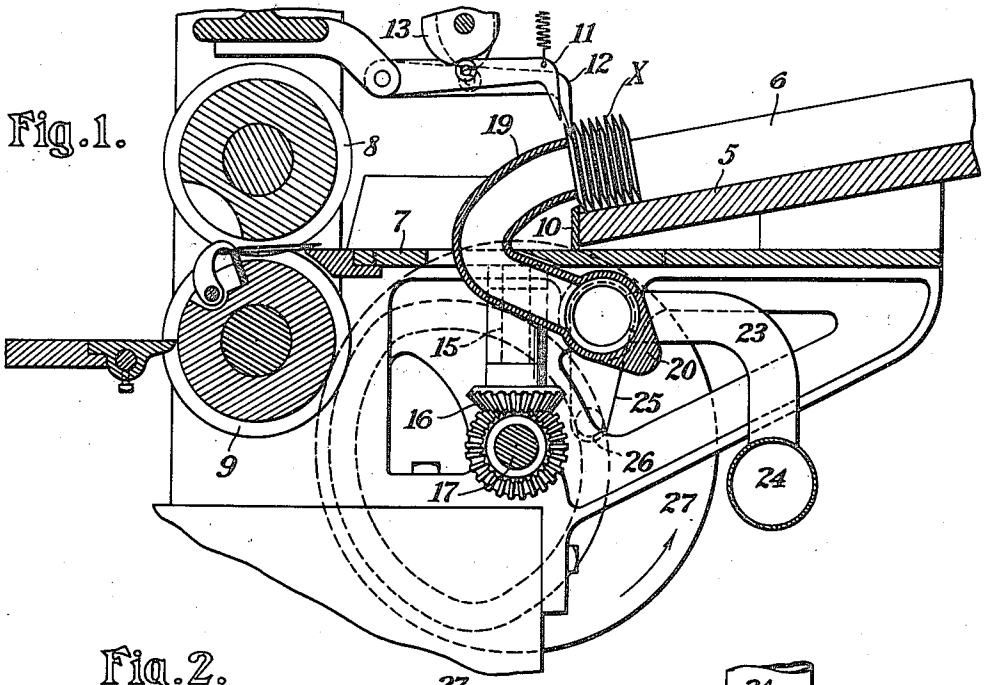
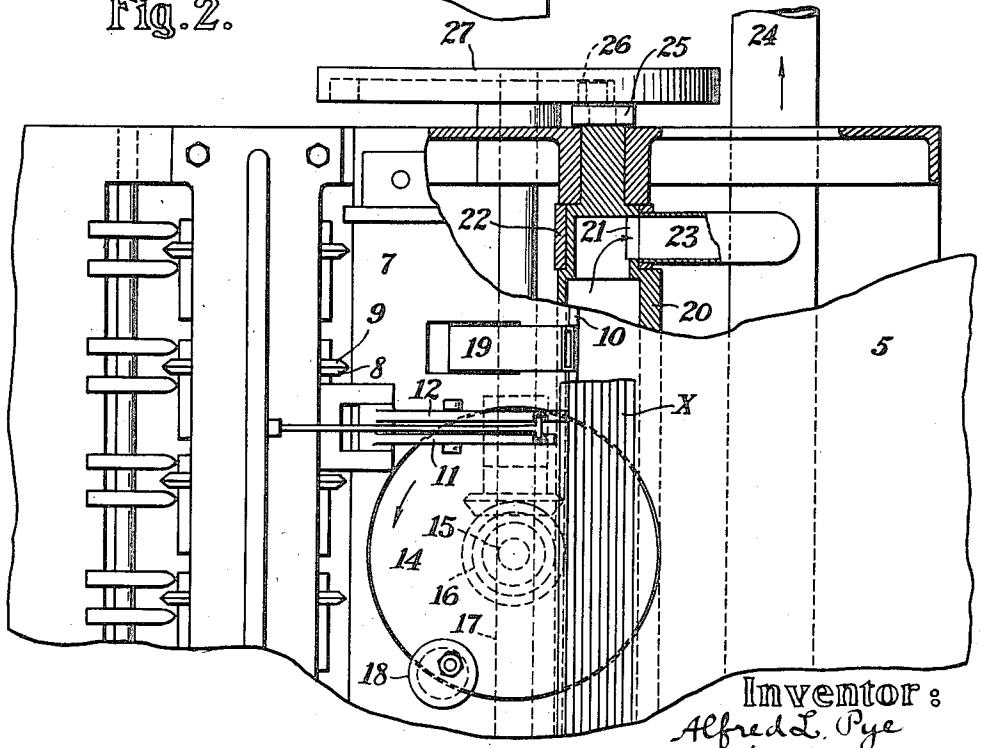


Fig. 2.



Inventor:
Alfred L. Pye
by his attorneys
Davis & Dorsey

UNITED STATES PATENT OFFICE.

ALFRED L. PYE, OF ROCHESTER, NEW YORK, ASSIGNOR TO ROCHESTER FOLDING BOX COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

FEED MECHANISM.

1,204,188. Specification of Letters Patent. Patented Nov. 7, 1916.

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To all whom it may concern:

Be it known that I, ALFRED L. PYE, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Feed Mechanisms, of which the following is a specification.

This invention relates to feed-mechanism by which blanks are transferred, one by one, from a feed-table on which they are stacked on edge, to a horizontal support on which they lie flat.

The invention is particularly applicable to paper-cutting machines, such as that disclosed in United States Patent No. 632,214, granted August 29, 1899, to A. B. Cowles, although it may be employed in connection with machines for performing other operations.

The object of the invention is to produce a feed-mechanism, for the purpose set forth, in which the movements of the blanks shall be controlled in such a manner as to insure their proper presentation to the instrumentalities of the machine, particularly when it is run at high speed. In the feed-mechanism of the machine disclosed in the said patent the action of gravity is depended upon to cause each blank, when released from the end of the stack, to fall into horizontal position on the work-support. In accordance with the present invention, however, a carrier is employed to insure such movement of the blanks, the carrier being actuated, at suitable times, in such a manner as to remove the blanks one at a time from the stack and present them in flat positions on the table. In this manner, the feeding operation may be performed very rapidly, and at the same time reliably.

In the accompanying drawings: Figure 1 is a vertical sectional view of feed-mechanism embodying the present invention, together with the cutting instrumentalities of a paper-cutting machine with which the feed-mechanism is asscciated; and Fig. 2 is a plan-view of the same parts shown partly in horizontal section.

The invention is illustrated as embodied in a machine substantially similar, in its general construction and mode of operation, to that disclosed in the said Patent No. 632,214. The blanks, which in this case are the folded paper tubes from which paper boxes are cut, are stacked on edge on a feed-table 5, which is slightly inclined from the horizontal, and is provided with end-rails 6 to maintain the blanks in proper alinement. From the feed-table the blanks are discharged, one by one, to a horizontal work-support 7, across which they are then fed into engagement with the rotary cutters 8 and 9 by which the tubes are severed into short lengths. The blanks on the feed-table are retained, at their lower edges, by a ledge 10 at the inner edge of the table, while their upper edges are supported by feed-dogs 11 and 12 arranged in pairs, as shown, and moved alternatively by cam-mechanism 13, so as to release the blanks one by one at the proper times.

Disks 14, mounted on the upper ends of vertical shafts 15, are located in openings in the work-support 7, and have their upper surfaces flush therewith. The shafts 15 are connected, by bevel-gears 16, with a horizontal power-shaft 17 driven by any suitable power. A stud 18 projects upwardly from each disk 14, and the rotation of the disks is so timed that when a blank is dropped upon the work-support the studs are in the rear of the forward edge of the feed-table. Consequently, the continued rotation of the disks causes the studs to engage the rear edge of the blank and move the blank forwardly over the work-support and into engagement with the cutters.

The parts so far described are all similar in construction and mode of operation to those disclosed in the said Patent No. 632,214. In the present machine, however, the effect of gravity is not depended upon to cause each blank to fall in proper position upon the work-support. To insure the rapid and certain occurrence of this movement the present mechanism is provided with one or more pneumatic devices or suckers 19 which project integrally from a hollow shaft 20 located below the feed-table. The suckers project upwardly through openings in the work-support, and are so shaped that they may be rocked about the axis of the shaft 20, through about ¼ of a rotation. The shaft 20 is provided, near its end, with a lateral port 21, which registers with a corresponding port in a sleeve 22 surrounding the shaft. This sleeve makes a substantially air-tight joint on the shaft, but is loose thereon so as not to participate in the rocking movement of the latter. An air-

pipe 23 extends, from the port in the sleeve 22, to a pipe 24 which is connected with any suitable means for exhausting air, so as to maintain a partial constant vacuum in the air-pipes. The air-ports are preferably so located that when the sucker has been swung downwardly until its operating end is near the work-support the parts no longer register and thus communication is cut off between the shaft 20 and the air-pipes.

The shaft 20 is provided, at one end, with a lever-arm 25 which carries a cam-roller 26, and this roller engages a path in a cam-disk 27 mounted on the end of the power-shaft 17. The cam is so formed as to rock the shaft, and bring the suckers into engagement with the exposed surface of the endmost blank on the stack, just prior to the release of that blank by the feed-dogs. The suckers are then swung downwardly, thus transferring the blank to the work-support, and at the same time turning it substantially to horizontal position. When the blank reaches the work-support the suckers are disengaged from it, either forcibly by their continued movement, or by the interruption of communication between the suckers and the air-pipes, and the operation of so much of the mechanism as is peculiar to the present invention is thus completed.

I claim:—

1. In combination with a work support having an opening therein, a disk operating in said opening with its upper face flush with the work support, a stud on the disk, a feed table in which the blanks are stacked on an edge, the feeding end of the table being in rear of the turning axis of the disk, and a carrier for removing articles one at a time from the stack and presenting them in flat positions on the table in advance of the stud as the latter moves forwardly.

2. In combination with a work support having an opening therein, a disk operating in said opening with its upper face flush with the work support, a stud on the disk, the work support having an opening in advance of the axis of the latter, a sucker tube pivotally mounted beneath the work support in rear of the turning axis of the disk and having a portion concentric with the axis of turning of said sucker tube to operate above the work support in rear of the opening through which the tube moves, and a feed table in which the blanks are stacked on an edge, the feeding end of the table being in rear of the turning axis of the disk so that the end of the concentric portion of the sucker tube may grasp an article on the feed table in rear of the turning axis of the disk and present it flatwise in advance of the stud on the disk for feeding by the latter.

ALFRED L. PYE.