

Nov. 6, 1951

D. S. BOYD

2,574,013

LEAF TURNER

Filed Jan. 27, 1947

2 SHEETS—SHEET 1

Fig. 1.

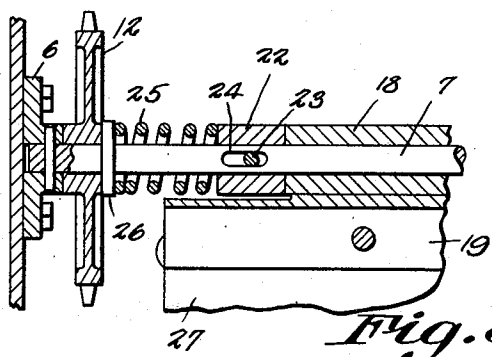
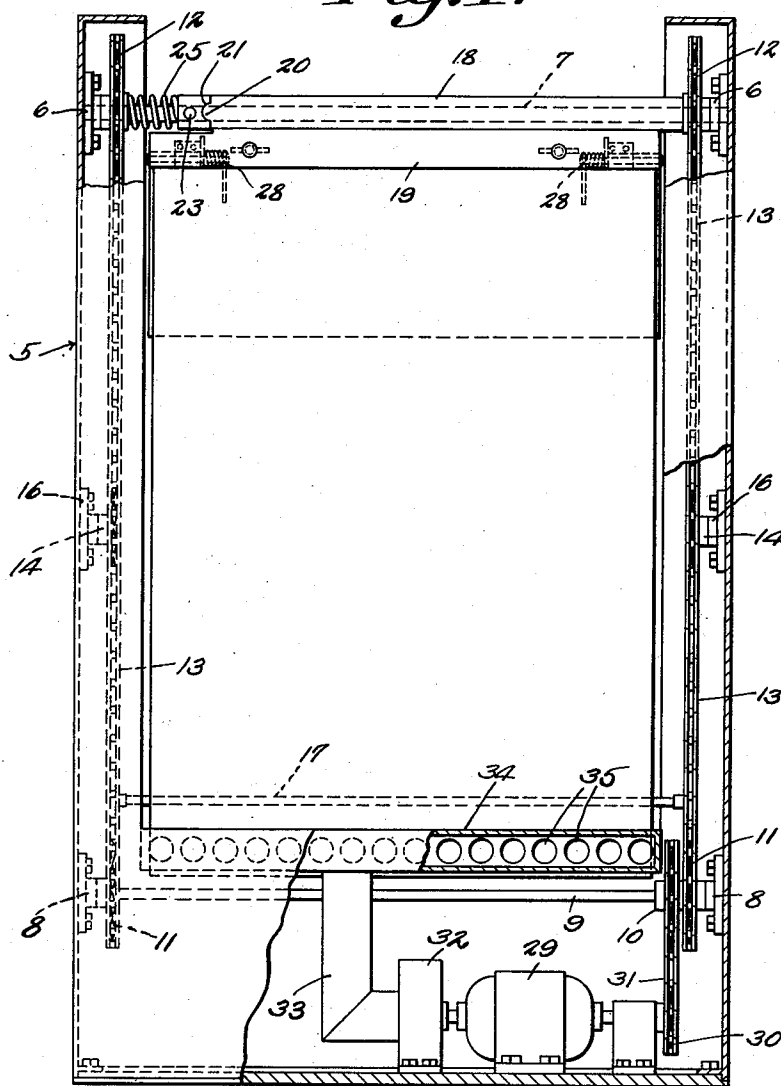


Fig. 5.

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2 SHEETS—SHEET 2

Fig. 2.

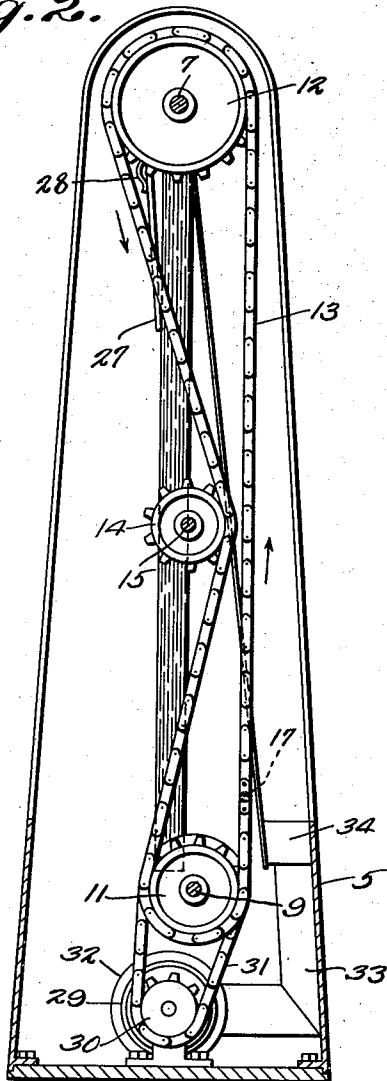


Fig. 3.

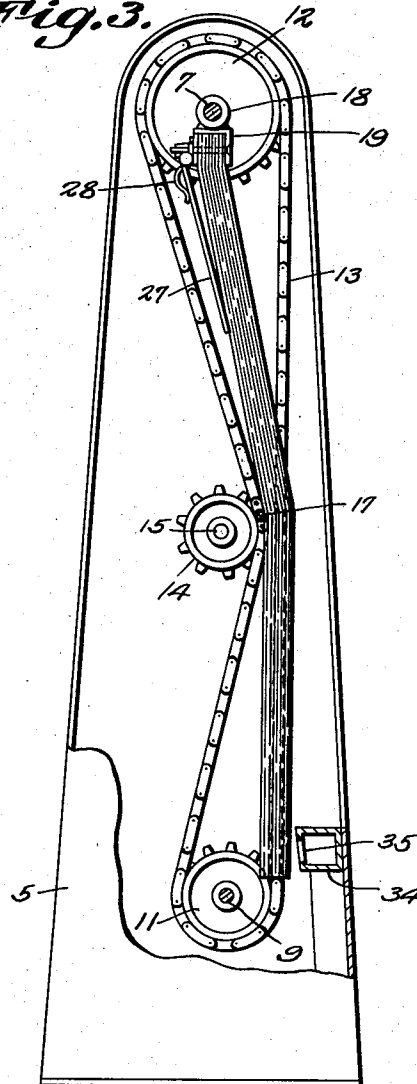
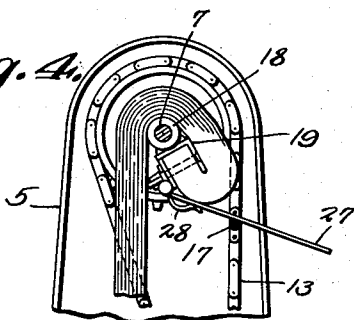


Fig. 4.



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2,574,013

LEAF TURNER

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4 Claims. (Cl. 40-104)

1

This invention relates to leaf turners, especially designed for displaying samples as in displaying sheets of wallpaper or the like.

An important object of the invention is to provide an improvement in leaf turners of the type illustrated in Patent No. 1,689,106, issued October 23, 1928, to the end that the rod used in moving the pack of sheets or leaves forwardly within the machine, will be carried into engagement with the pack of sheets or leaves by the movement of the chains, thereby eliminating complicated mechanism used in said patent, for accomplishing this result.

Another object of the invention is to provide an elongated suction head which will contact the sheets throughout their entire widths, to the end that the possibilities of wrinkling or damaging the sheets by the suction mechanism, are reduced to a minimum.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts herein-after more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings

Figure 1 is a front elevational view of a leaf-turning device, constructed in accordance with the invention, portions thereof being broken away to illustrate the inner mechanism of the device.

Figure 2 is a vertical sectional view through the machine, illustrating one of the leaves as being separated from the pack of leaves, by the suction head.

Figure 3 is a side elevational view of the device, one of the side walls having been removed illustrating the pack of sheets as moved forwardly by the horizontal leaf moving rod.

Figure 4 is a fragmental elevational view illustrating the plate which operates to return the pack of leaves to their normal positions, after the last leaf of the pack has been turned.

Referring to the drawings in detail, the device embodies a frame indicated generally by the reference character 5, the frame being open at the front and rear.

Mounted at the upper end of the frame, are bearings 6 in which the ends of the upper shaft 7 operate. Adjacent to the bottom of the frame, are bearings 8 arranged at opposite sides of the frame, in which the ends of the shaft 9 operate,

2

the shaft 9 being provided with the sprocket 10 which is secured thereto. Sprockets 11 are secured to the shaft 9 to operate therewith. Loosely mounted on the shaft 7 are sprockets 12 that are rotated by means of the chains 13 which also move over the sprockets 11. Idle sprockets 14 are disposed between the shafts 7 and 9, the idle sprockets being mounted on the stub shafts 15 that are mounted within the bearings 16 secured to the inner surface of the frame 5, as clearly shown by the drawings.

The chains 13 are of the endless type and the rear flight of each chain moves over the idle sprocket 14 associated therewith, to the end that the rear flight of each chain is directed forwardly to a point adjacent to the front of the frame at a point intermediate the upper and lower ends of the frame.

Connecting the chains 13 at opposite sides of the frame, is a rod 17, the rod 17 being horizontally disposed at all times.

Mounted on the shaft 7, is a sleeve 18 to which the clamp 19 is connected, the clamp 19 providing means whereby a pack of leaves may be secured in the frame to hang from the shaft 7. Rounded lugs 20 extend from one end of the sleeve 18 and are fitted in correspondingly shaped recesses 21 formed in the clutch member 22 which is secured to the shaft 7, by means of the pin 23 that moves in the elongated opening 24, formed in the shaft 7. The coiled spring 25 bears against the clutch member 22 at one of its ends, the opposite end of the spring being in engagement with the washer 26 which in turn bears against the sprocket 12, adjacent thereto.

Thus it will be seen that due to this construction, the sleeve 18 will be normally held against rotary movement on the shaft 7, to the end that the leaves or sheets to be displayed, will hang vertically, as shown by the drawings.

Pivotally connected with the clamp 19, is a plate 27 which is urged forwardly by means of the spring 28, the tension of the spring being such that it will not move the plate 27 forwardly, over the weight of the leaves or sheets which hang from the clamp, and which the plate contacts at all times.

Mounted within the base of the frame, is an electric motor 29 one end of the motor shaft being supplied with the sprocket 30 over which the chain 31 operates, the chain 31 also operating over the sprocket 10 to transmit movement of the motor shaft to the shaft 9.

The opposite end of the motor shaft extends into the suction fan housing 32 where it oper-

ates a suction fan not shown, to create a suction through the pipe 33 that establishes communication between the fan housing 32 and the suction head 34. This suction head 34 extends throughout the width of the open front of the frame, and is provided with a plurality of openings 35 through which air is drawn to suck a leaf which falls adjacent thereto, against the suction head, throughout the width of the suction head.

Normally the book or pack of leaves to be displayed, hangs vertically within the frame of the device, before the open front of the device, so that the outermost leaf will be clearly visible.

When it is desired to turn the outermost leaf to expose the adjacent leaf, the motor 29 is set in motion, which operates the chains to move the chains in the direction of the arrows as shown in Fig. 2 of the drawings. As the rear flight of the chains move over the idle sprockets 14, the portion of the chains between the shafts 7 and 9, will be pressed forwardly. The rod 17 contacting with the stack of leaves, forces the leaves forwardly to the position shown by Fig. 3, where the suction from the suction head 34 draws the outermost leaf into engagement with the suction head. The rod 17 is now in a position to move behind the leaf which has been separated from the pack of leaves, as shown by Fig. 2 of the drawings, and as the rod moves upwardly, this leaf is carried with the rod and turned over the shaft 7, exposing the adjacent leaf.

This operation is continued until all of the leaves of the pack have been displayed. When all of the leaves have been displayed, it is desirable to return the pack of leaves to their normal positions. Since the weight of the leaves has been removed from the plate 27, the springs 28 will move the plate 27 forwardly into the path of travel of the rod 17. Since the plate 27 is connected with the clamp, the plate 27 together with the clamp will be moved from the position shown by Fig. 4 of the drawings, to the position shown by Fig. 2 of the drawings, where the operation of the machine may be continued to successively display the leaves of the pack.

What is claimed is:

1. In a leaf turner, a movable, endless elevator having an ascending and a descending flight; a horizontal member mounted on the elevator and movable therewith; apparatus for suspending a pack of loose leaves adjacent one side of the ascending flight of the elevator proximal to said descending flight thereof; means for holding said descending flight bent intermediate the ends thereof toward said ascending flight where a portion of the former is on the same side of the pack of leaves as the ascending flight, whereby said member contacts the pack of leaves as it descends and swings the pack of leaves toward said ascending flight, said pack of leaves returning to a normal vertical position by force of gravity as the member moves toward an ascend-

ing position; and structure for receiving and releasably holding one leaf of said pack thereof within the ascending path of travel of said member as the remainder of said pack returns to said normal position.

2. In a leaf turner, a movable, endless elevator having an ascending and a descending elevator; a horizontal member mounted on the elevator and movable therewith; apparatus for suspending a pack of loose leaves adjacent one side of the ascending flight of the elevator proximal to said descending flight thereof; means for holding said descending flight bent toward said ascending flight where a portion of the former is on the same side of the pack of leaves as the ascending flight, whereby said member contacts the pack of leaves as it descends and swings the pack of leaves toward said ascending flight, said pack of leaves returning to a normal vertical position by force of gravity as the member moves toward an ascending position; and structure for receiving and releasably holding one leaf of said pack as the remainder of said pack returns to said normal position, said means being disposed intermediate the ends of said descending flight of the elevator whereby as said member descends it moves toward and away from the ascending flight as it approaches and leaves said means.

3. In a leaf turner, a movable, endless elevator having an ascending and a descending flight; a horizontal member mounted on said elevator and movable therewith; apparatus rotatably mounted on a horizontal axis for suspending a pack of loose leaves adjacent the path of travel of said member; means for swinging said leaves into the ascending path of travel of said member structure for holding a single leaf in the path of travel of the member as the same ascends, whereby the member folds the single leaf over said apparatus; and an element separate from said means, swingably mounted on said apparatus and depending therefrom for rotating the latter after the last leaf has been folded, said element having a spring for holding the same biased against the pack of leaves whereby the element automatically swings into the ascending path of travel of the member for actuation thereby to rotate the apparatus.

4. In a leaf turner as set forth in claim 3 wherein said apparatus is provided with interlocking parts for holding the same against rotation and means for yieldably holding said parts interlocked.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,689,106	Boyd	Oct. 23, 1928