Jan. 26, 1960 G. K. HURLBUT 2,922,645

SHEET MATERIAL LIFTING MECHANISM

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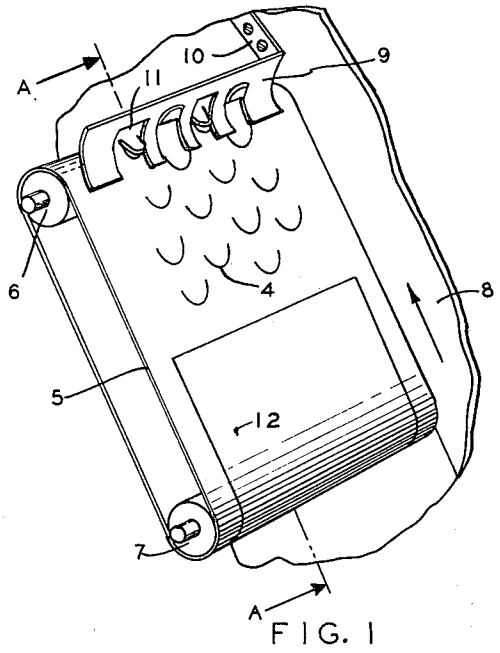


FIG. 1

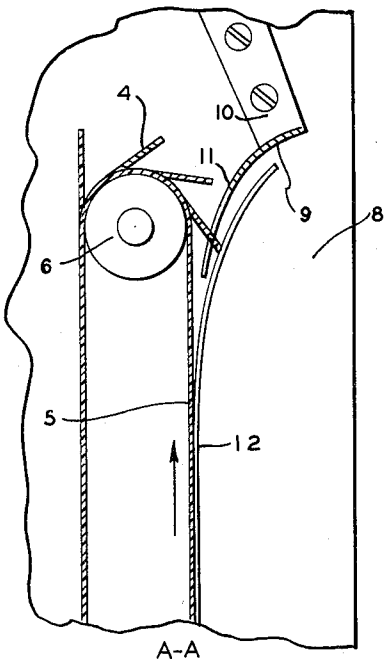


FIG. 2

INVENTOR.
GORDON K. HURLBUT
BY Henry W. Gephart
Frederick H. Smith

United States Patent Office

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SHEET MATERIAL LIFTING MECHANISM

Gordon K. Hurlbut, Chenango Bridge, N.Y., assignor to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

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3 Claims. (Cl. 271—45)

This invention relates to a conveyor apparatus and more particularly to lifting means for sheet material transported over conveyor belts stretched between rollers.

In various applications where flexible sheet material is conveyed, for example, sensitized paper in diazotype reproduction machines, difficulty may be encountered in separating the sheet material from the belt surface. Heat, moisture, or other factors produce a tendency of the paper to adhere to the surface of the conveyor belt.

Various means have been proposed for separating the paper from the belt, such as pick-off fingers or suction means. The former require close contact with the conveyor belt and may injure the surface thereof, and suction devices are costly and bulky in nature.

The present invention has for its primary object the provision of simple lifting means which will become automatically effective when the conveyor belt reaches a certain position in the conveying system.

A particular feature of the invention is that the lifting means are inherently part of the conveyor belt and require no auxiliary apparatus for effective operation.

Other objects and features will become apparent from the following description of the invention, pointed out in particularity in the appended claims and taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a simple conveying belt stretched between rollers; and

Fig. 2 is a sectional view thereof along lines A—A of Fig. 1.

Referring to the drawing, it is seen that in accordance with the invention U-shaped tabs 4 are formed in the belt surface 5 either by lancing through the complete thickness of the belt or only partly through one or more of the outside laminations.

The U-shaped tabs 4 are staggered across the width of the belt 5, the legs of the U being parallel to the sides

of the belt, with the open ends of the U-shaped form being in the direction of rotation of the rollers 6 and 7 between which the belt 5 is stretched. The rollers may run in bearings attached to the side walls, of which side wall 8 is shown by way of example. Alongside of roller 6 is provided a guide member 9 attached by means of a suitable bracket 10 to the wall 8. The guide member 9 has a curved surface and is provided with suitable openings 11 to permit the tabs 4 to pass through as the belt 5 follows the curvature of the roller 6.

When the belt 5 is stretched between rollers 6 and 7 the tabs 4 normally assume a flat position. However, as the belt 5 is moved over the roller 6, the tabs 4 assume a tangential position to the curved surface of the roller. In this manner the edge of the sheet material 12 is lifted and carried by means of the raised tabs 4 to permit the guide member 9 to support the paper and guide it into proper direction so that it may be deposited onto a tray or any suitable sheet collecting device.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive concept may be carried out in a number of ways. This application, therefore, is not to be limited to the precise details described, but is intended to cover all variations and modifications thereof falling within the spirit of the invention and the scope of the claims.

I claim:

1. In a sheet material conveying apparatus utilizing a flexible conveyor belt stretched between rollers, said material having the tendency to adhere to the surface of said belt, means for lifting said material from said belt comprising a plurality of tabs cut into said belt and facing in the direction opposite to the movement thereof, said tabs lying normally in the plane of the belt and, upon circumferential movement of said belt over said roller, being constrained to assume a tangential position to said roller whereby said sheet material is lifted from said conveyor belt.

2. An apparatus in accordance with claim 1 wherein said tabs are formed of U-shaped cuts in the belt.

3. An apparatus in accordance with claim 1 wherein a guide member is placed alongside said roller for guiding said sheet material upon being lifted from said belt, said member having a plurality of openings for the passage of said tabs.

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