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J. I. HAASE ET AL

COUNTERBALANCED TAPE DELIVERY FOR PRINTING PRESSES

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Fig. 1.

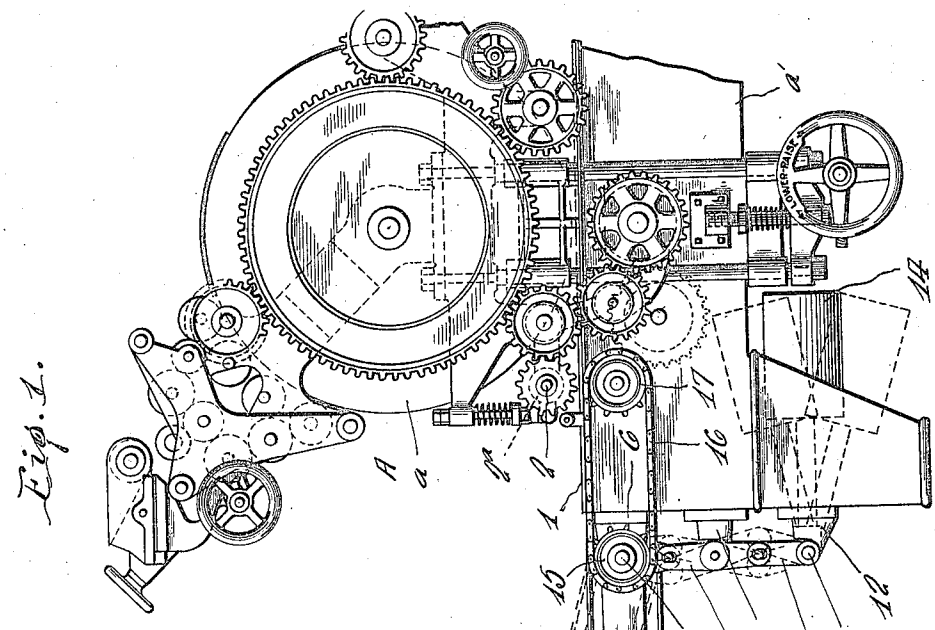
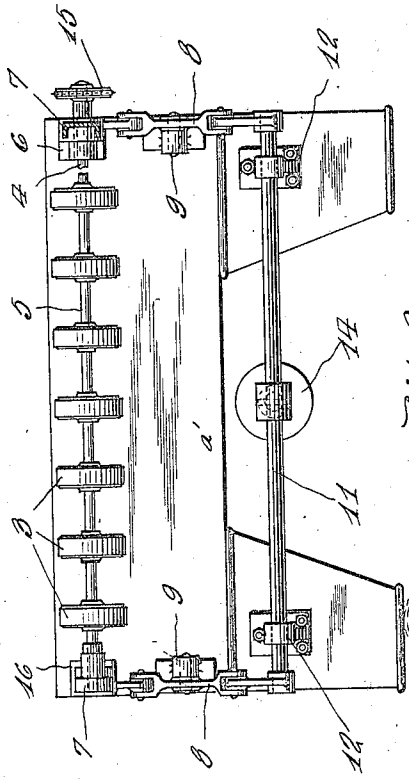


Fig. 2.



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UNITED STATES PATENT OFFICE.

JORGEN I. HAASE, OF TOWSON, AND ELLWOOD A. METZ, OF GLENARM, MARYLAND, ASSIGNORS TO F. X. HOOPER COMPANY, INC., OF GLENARM, MARYLAND, A CORPORATION OF MARYLAND.

COUNTERBALANCED TAPE DELIVERY FOR PRINTING PRESSES.

Application filed November 10, 1921. Serial No. 514,386.

To all whom it may concern:

Be it known that we, JORGEN I. HAASE, a subject of the King of Denmark, residing at Towson, and ELLWOOD A. METZ, a citizen of the United States, residing at Glenarm, both in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Counterbalanced Tape Deliveries for Printing Presses, of which the following is a specification.

This invention relates to printing presses of the kind adapted to print upon sheets of relatively heavy stock, such as wood, fibreboard, and the like, and more particularly to the delivery mechanism of such presses. The printed sheets from such presses are usually carried from the printing cylinders by a tape delivery of fixed height and stacked by hand on trucks which carry them away from the press. As the stack of sheets builds upon the truck, above the tape delivery, the handling of the sheets becomes bothersome. To facilitate the handling of the sheets, we have provided a tape delivery mechanism comprising a frame hinged at one end of the press and counterbalanced so that the free end of the frame may be lowered to deliver the first sheets to the truck, and raised by hand as the stack builds up to deliver the sheets at the top of the stack.

In the accompanying drawing,

Fig. 1 is a side elevation of part of a printing press having our counterbalanced tape delivery connected thereto; and,

Fig. 2 is an end view of the tape delivery and the bed frame of the press, looking from left to right in Fig.1.

Referring to the drawing, A represents the delivery end of a multi-color printing press adapted to print upon sheets of relatively thick stock, such as wood or fibreboard, one of the printing cylinders being shown at *a*, and the bed frame of the press being shown at *a'*. The press has a horizontal bed 1, along which the stock is moved between the successive pairs of printing and impression cylinders by pull rollers which bear upon the sheets, the pull rollers at the delivery end of the press being mounted upon a shaft 2 and indicated in dotted lines at 2^a. These pull rollers deliver the sheets on to endless tapes 3, which carry them to the trucks on which they are stacked.

The tapes 3 pass around rollers on shafts 4 and 5 at the ends of a hinged frame *b*. The shaft 4 is journaled in bearings 6, attached to the rear end of the press, and parallel bars 7, which constitute the side bars of the frame *b*, are each hinged at one end upon said shaft. The shaft 5 is journaled in the free ends of the side bars, as shown, and constitutes a part of the frame. Short arms or levers 7^a project downwardly from the hinged ends of the side bars, and these have slot and pin connections with the upper ends of vertically arranged levers 8, which latter are pivoted centrally of their lengths in bearings 9, attached to the end of the bed frame. The lower arms of the levers 8 are similarly connected to arms or levers 10, which are rigidly secured to a rock shaft 11, journaled in bearings 12, attached to the frame *a'*. A bar 13 is secured to the rock shaft and projects at right angles to the arm 10 and in the opposite direction from the frame *b*. This arm carries an adjustable weight 14, adapted to counterbalance the frame *b*.

The shaft 4 is provided with a sprocket wheel 15, which is connected by a chain 16 to a sprocket wheel 17 on the press, and through these driving connections the tapes are moved at the same speed as the peripheries of the pull rollers.

The operation will be clear from an inspection of the drawing. When the truck which receives the printed sheets is empty, the frame *b* is swung downward, as indicated by the lower dotted lines and the sheets are delivered a little above the platform of the truck. As the stack on the truck builds up, the frame is moved upward to deliver the sheets on the top of the stack, as indicated by the full line and the upper dotted line positions of the frame. The weight counterbalances the frame in the horizontal position of the latter, and as the frame moves in one direction, the weight moves in the opposite direction, the loss in leverage of the frame as it moves from the horizontal position being substantially offset by the loss in leverage of the weight. The friction between the several parts connecting the weight with the frame is suffi-

cient to prevent movement of the frame while the press is in operation.

What we claim is:

1. In a printing press having a horizontal bed, a delivery mechanism comprising a frame hinged at one end to the bed and adapted to swing vertically, a rock shaft arranged parallel with the axis of the frame, a weighted arm secured to the said rock shaft, and connections between said rock shaft and frame whereby an upward movement of the frame causes a downward movement of the arm, and vice versa.

2. In a printing press having a horizontal bed, a delivery mechanism comprising a frame hinged at one end to the bed and adapted to swing vertically, a rock shaft arranged parallel with the axis of the frame, a weighted arm secured to the said rock shaft, and connections between said rock shaft and frame comprising centrally pivoted levers, and arms on the frame and rock shaft, respectively, having lost motion connections with said centrally pivoted levers.

In testimony whereof we affix our signatures.

JORGEN I. HAASE.
ELLWOOD A. METZ.