

July 13, 1926.

1,591,954

W. H. BANZETT
SHEET DRYING MECHANISM

Filed May 16, 1924

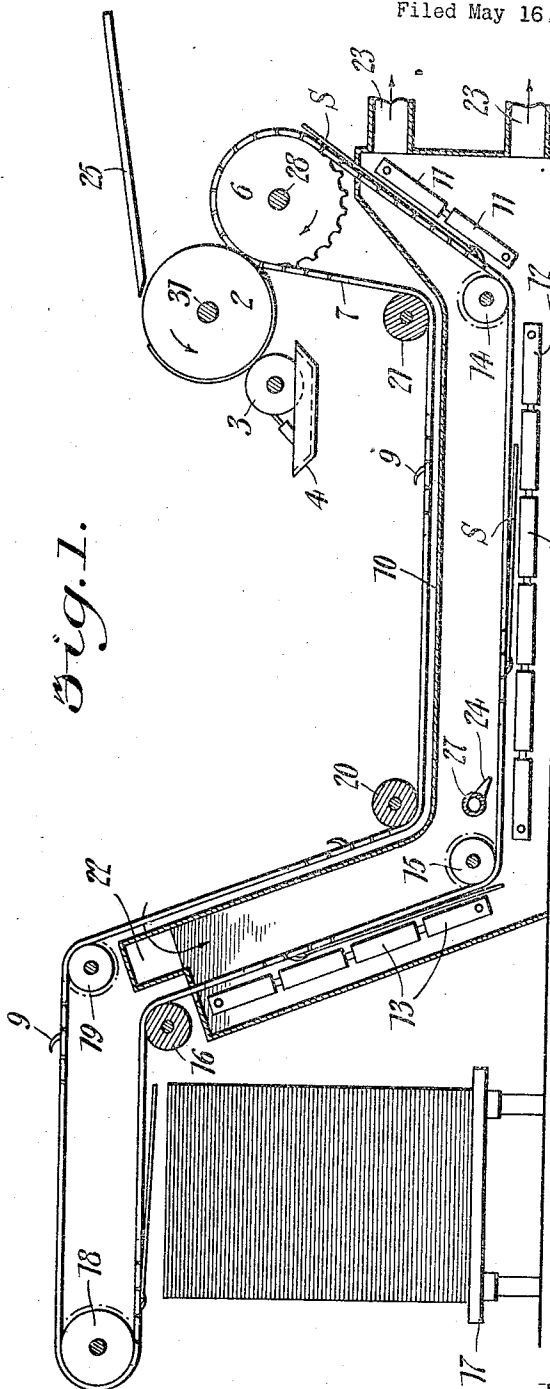
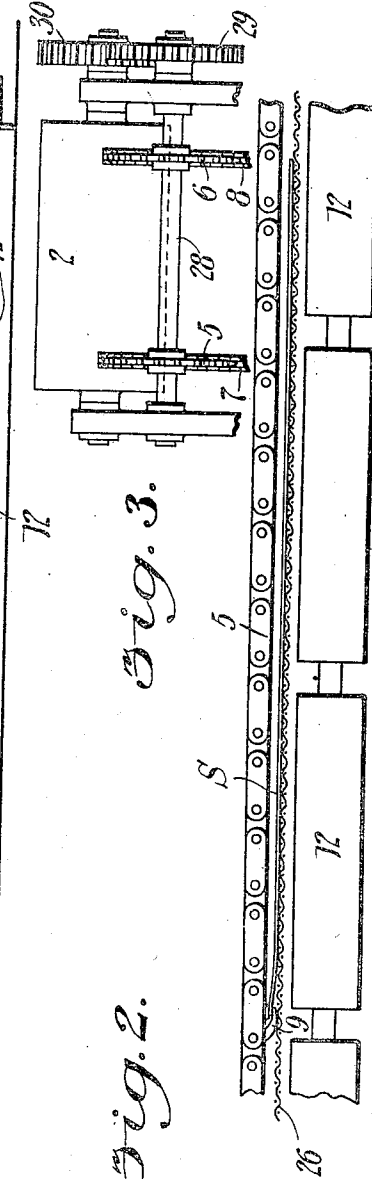


Fig. 3.

Inventor,
William H. Banzett;
By Wilbur M. Stone
His Attorney.

Patented July 13, 1926.

1,591,954

UNITED STATES PATENT OFFICE.

WILLIAM H. BANZETT, OF BERGENFIELD, NEW JERSEY, ASSIGNOR TO AMERICAN LITHOGRAPHIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SHEET-DRYING MECHANISM.

Application filed May 16, 1924. Serial No. 713,713.

This invention relates to sheet drying mechanisms and has for its object to provide a mechanism of the class specified, simple in construction and speedy and efficient in operation.

With these ends in view and others which will appear later herein, my improvements comprise features illustrated in their preferred embodiment in the drawing accompanying this specification, wherein:—

Figure 1 is a diagrammatic longitudinal section of a mechanism embodying my improvements. Fig. 2 is a front elevation of a portion of what is shown in Fig. 1. Fig. 3 is an end view of a pair of sprockets at the receiving end of the mechanism and showing the conveyor chains thereon. Figs. 1 and 3 are to one scale and Fig. 2 is to another scale about four times that of Figs. 1 and 3.

The present invention is directed to the removal of successive printed sheets from the impression cylinder, as 2, of a printing press in which the form cylinder 3 is inked by immersion in ink in trough 4. My improvements are particularly useful in connection with gravure printing, as the ink used in such printing is a fluid ink and especially liable to smear after application to a sheet of paper.

At one side of said impression cylinder, fixed to shaft 28, are opposite sprockets 5, 6 over which conveyor chains 7, 8 are led and said chains may be provided with the usual grippers, as 9, for gripping the leading ends of the sheets to said conveyor chains. Known means, not shown, may be provided for closing and opening said grippers at suitable times and places for receiving and discharging the sheets. Said sprocket shaft 28 has fixed thereto gear 29 for meshing with gear 30 fixed to shaft 31 of impression cylinder 2 whereby power is transmitted from shaft 31, which may be considered the prime mover, to sprockets 5, 6 and chains 7, 8.

Below sprockets 5, 6 and extending to the left therefrom is drying chamber 10, and said chamber is provided with radiators 11, 12, 13 which may be heated by steam or electricity, according to known practice. Said radiators may be covered on their upper sides with a wire netting 26, if desired, to provide a continuous surface for the passage of the paper. The path of said con-

veyor chains from sprockets 5, 6 is preferably, first downwardly over radiators 11, then about sprockets, as 14, in the lower portion of chamber 10, then horizontally over radiators 12, and then upwardly about sprockets, as 15, over radiators 13, thence outwardly from chamber 10 and over drum 16. Thence said chains pass horizontally over sheet receiving table 17, where the sheets are delivered successively. Chains 7, 8 then pass about sprockets, as 18, and return outside chamber 10, over sprockets, as 19, then downwardly about drum 20 and horizontally to drum 21, then upwardly to sprockets 5 and 6. The horizontal runs of said conveyor chains are arranged low so as to provide access thereover to the inking mechanism 4.

Chamber 10 is provided at one end thereof at one side, as at 22, with an air inlet and at the other end, as at 23, 23, with one or more air outlets. At some convenient place within said chamber, as near sprockets 15, is arranged nozzle 24 through which a blast of air may be directed against the passing sheets. Said blast of air may be supplied through pipe 27 from some source not shown, but for the purposes herein, said pipe 27 may be considered the source of supply. Said air blast is also efficient for inducing a draft of air through said chamber from inlet 22 toward and out through openings 23 and for inducing the passing sheets to lie close to radiators 12. The heat from the radiators within said chamber causes the ink solvent to evaporate and the current of air removes the gases generated, through openings 23. By a properly selected relation between the length or number, or both, of radiators 12, the amount of heat radiated therefrom and the quantity and force of the air blast, sheets may be passed through chamber 10 at the same speed as delivered by the press and suitably dried before reaching the stack.

The operation of my improved mechanism will be readily understood, therefore, suffice it to state that the sheet to be printed is fed from board 25 onto cylinder 2 and thence between said cylinder 2 and form cylinder 3 and, as the leading end of the sheet reaches sprockets 5, 6, grippers 9 on chains 7, 8 take the leading end of the sheet from said cylinder 2 and carry the sheet upwardly over said sprockets and thence

downwardly into chamber 10, the printed face of the sheet facing the conveyor and the unprinted face traveling against radiators 11, and thence over horizontal radiators 12, where air from nozzle 24 will assist in holding the sheet S against said radiators, or their netting cover 26, and also carry off the gases evaporated from the ink on the sheet. The sheet then passes upwardly over radiators 13 and thence out of chamber 10 and horizontally over the stack on table 17 onto the top of which the sheet is delivered by the release of grippers 9.

It will be understood that table 17 may be provided with known means for lowering the pile from time to time to keep the top at a proper level for receiving the sheets as they are delivered. Neither this device nor the printing press form any part of my improvements. It is also recognized that numerous drying devices for sheets have been heretofore proposed but none of them, known to me, have the construction, function or mode of operation set forth herein.

I claim:—

1. In a sheet drying mechanism the combination of an endless carrier having spaced apart lengthwise thereof a plurality of means for gripping the leading ends of sheets respectively, said carrier having a receiving station contiguous to the delivery cylinder of a printing press and a delivery station contiguous to a sheet receiving table, the path of said carrier extending downwardly from said receiving station, then substantially horizontally, then upwardly to above said table and then substantially horizontally over said table, a drying chamber, the sheet-carrying run of said carrier being partially within said chamber, means for heating said chamber, and means for actuating said carrier.

2. In a sheet drying mechanism the combination of an endless carrier having spaced apart lengthwise thereof a plurality of means for gripping the leading ends of sheets respectively, said carrier having a receiving station contiguous to the delivery cylinder of a printing press and a delivery station contiguous to a sheet receiving table, the path of said carrier extending downwardly from said receiving station, then substantially horizontally, then upwardly to above said table and then substantially horizontally over said table, a drying cham-

ber, the sheet-carrying run of said carrier being partially within said chamber, means for heating said chamber, means for inducing a circulation of air through said chamber, and means for actuating said carrier.

3. In a sheet drying mechanism the combination of an endless carrier having spaced apart lengthwise thereof a plurality of means for gripping the leading ends of sheets respectively, said carrier having a receiving station contiguous to the delivery cylinder of a printing press and a delivery station contiguous to a sheet receiving table, the path of said carrier extending downwardly from said receiving station, then substantially horizontally, then upwardly to above said table and then substantially horizontally over said table, a drying chamber, a heater within said chamber, the sheet-carrying run of said carrier being partially within said chamber, and adapted to pass the sheets over said heater, means for inducing a circulation of air through said chamber, and means for actuating said carrier.

4. In a sheet drying mechanism the combination of an endless carrier having spaced apart lengthwise thereof a plurality of means for gripping the leading ends of sheets respectively, said carrier having a receiving station contiguous to the delivery cylinder of a printing press and a delivery station contiguous to a sheet receiving table, the path of said carrier extending downwardly from said receiving station, then substantially horizontally, then upwardly to above said table and then substantially horizontally over said table, a drying chamber, the sheet-carrying run of said carrier being partially within said chamber, means contiguous to the path of said carrier for heating the passing sheets, means for the admission of air to said chamber near the point of exit of said carrier from said chamber and means for the exit of air from said chamber near the point of entrance of said carrier to said chamber, means for causing air to enter through said admission means and to be discharged through said exit means, and means for actuating said carrier.

In witness whereof, I hereby affix my signature this 14th day of May, 1924.

WILLIAM H. BANZETT