

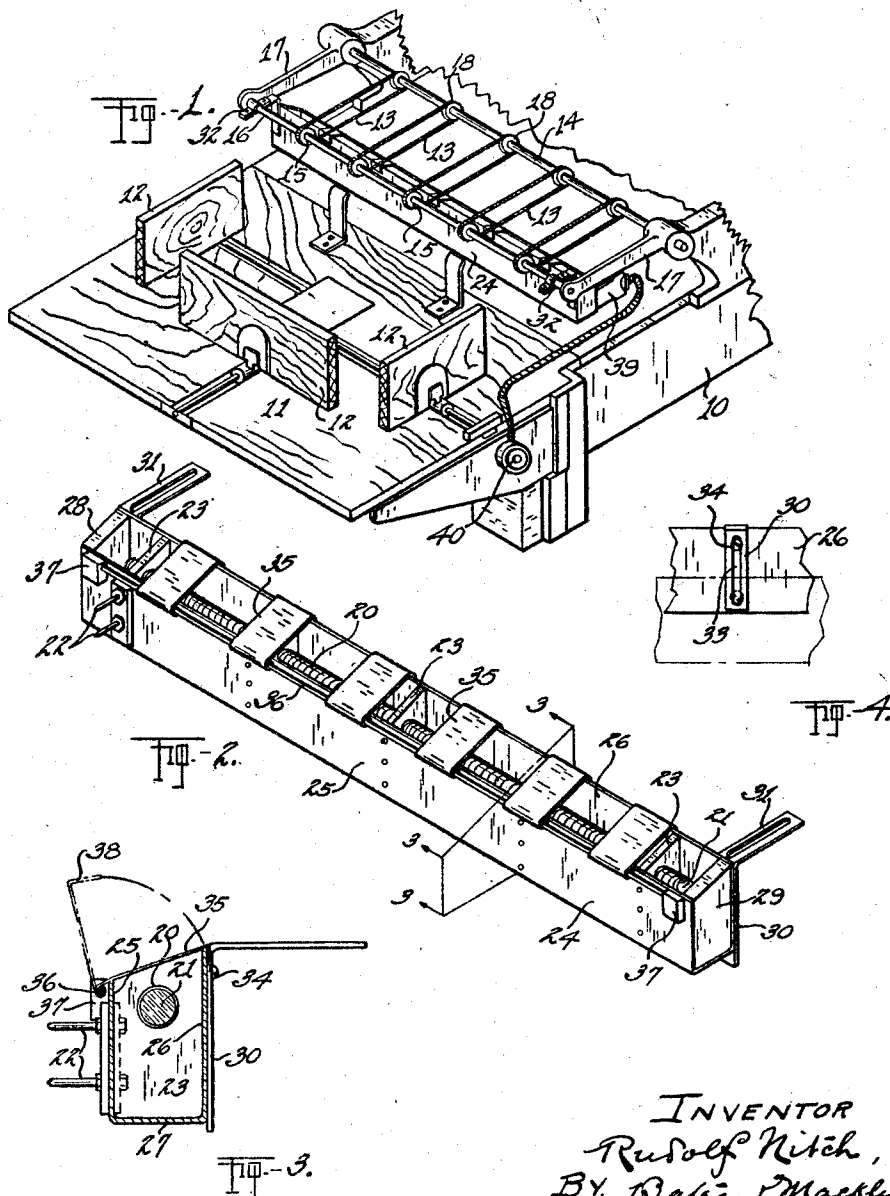
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R. NITCH

DRIER FOR PRINTING PRESSES

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UNITED STATES PATENT OFFICE.

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DRIER FOR PRINTING PRESSES.

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To all whom it may concern:

Be it known that I, RUDOLF NITCH, a citizen of the United States, residing at city of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Driers for Printing Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention relates to heaters and is particularly concerned with improvements in electric heating devices adapted for use in connection with printing presses for drying printed sheets.

15 The present invention is an improvement over that shown in my prior Patent No. 1,360,012 granted November 23, 1920, wherein it was proposed to use means for preventing offset in printing, comprising a heating element positioned adjacent the conveyor mechanism on the delivery end of the press. With such constructions, when the press is in operation and the heating element is functioning, I have found that the heat has a detrimental effect on the conveyor belts positioned above the heating element. This is particularly noticeable where the belts are made of rubber or sash tape, since the heating in time causes the rubber or tape to deteriorate.

30 One of the objects of my invention therefore, is the provision of means which may be positioned adjacent the delivery mechanism of a press to prevent offset on printed sheets and at the same time prevent any detrimental effects to the delivery mechanism.

40 Another object is the provision of a drier embodying an electrical heating element which may be readily attached to existing presses and be adjustable thereon for varying the distance between the drying element and the printed sheet.

45 Still another object is the provision of heat deflecting means adjustable longitudinally of the heating element, to correspond with the position of the conveying belts, whereby the latter are protected irrespective of the size of sheet being printed.

50 Another object of the invention is to provide a conveying mechanism wherein the conveying members are constructed of fire-proof material.

Further objects of the invention will be apparent from the following description taken in connection with the accompanying drawings wherein:

Fig. 1 is a perspective view showing the delivery end of a printing press with my invention applied thereto; Fig. 2 is an enlarged perspective view of the drier shown in Fig. 1; Fig. 3 is a cross-section taken on the plane 3—3 through Fig. 2 and Fig. 4 is a detail showing the vertical adjusting mechanism in elevation.

65 In illustrating my invention, I have shown it applied near the delivery end of a "Kelly" press. The portion of such a press to which my invention is adapted is shown in Fig. 2 as embodied in a frame, 10, which supports a stacking table 11, on which table are mounted adjustable stacking guides 12. Adjacent the stacking table there is the usual delivery mechanism, comprising conveyor belts 13, which are operable by the drive shaft 14. The means for operating the drive shaft 14 is not shown, but usually it comprises mechanism geared with the motor used for operating the press.

80 The belts 13 may comprise suitable cords dipped in fireproofing material such as tungstate of magnesium or similar material. The use of such cords would produce a fire-proof conveyor means.

85 The conveyor belts 13 are shown as extending around the driven pulleys 15 mounted on a stationary shaft 16. This shaft extends outwardly from the frame 10 and over the stacking table 11 and is maintained in such position by the supporting arms 17. The driving pulleys 18 may be splined to the shaft 14, so as to be adjustable longitudinally of such shaft, for accommodating various sizes of printed sheets.

95 My invention is embodied in a heating element which may be positioned beneath the conveyor belts 13, and is arranged to be adjustable relative thereto. The heating device shown in Fig. 2 as comprising a coil of resistance wire 20, wound around a core 21 and suitably connected with electrical leads 22. The core is shown as supported by insulated blocks 23 within an open trough-shaped frame 24.

105 This frame preferably comprises a U-shaped member, the legs 25 and 26 of which

comprise the side walls, and the intermediate portion 27 of which comprises the bottom. Suitable blocks 28 and 29 may be employed for closing the ends of the frame. To facilitate the circulation of air around the heating coil, I have shown the side 26 as being longer than the side 25, and have shown the heating coil as supported adjacent the top of the frame.

The frame 24, as shown in Fig. 1, may be of a length equivalent to the distance between the supporting arms 17 whereby heat may be distributed to dry the widest sheets which the press is adapted to print. To secure the frame to the press I have shown a pair of L-shaped brackets 30, adapted to be secured to each end of the frame. The free end of the bracket may be slotted, as at 31, so as to be connected with suitable brackets 32 shown as carried on the shaft 16. That portion of the bracket 30 adjacent the frame may also be provided with a slot 33 to receive a clamping screw 34 on the frame, whereby the vertical position of the frame, and therefore the heating element, may be controlled.

When current is passed through the coil 20, I have found, as above explained, that the heat generated has a detrimental effect upon the material of which the belts are composed. To eliminate this defect, I provide a series of deflecting plates 35 which may be pivotally mounted on a rod 36, shown as supported in bearing blocks 37 on each end of the frame. These deflecting plates are adjustable longitudinally of the frame, so that one plate may be stationed under each belt in accordance with the position of such belt. Each of the plates 35 may have the free end thereof, as at 38, bent to provide a hook, adapted to frictionally engage the wall 26 to thereby retain the plate in position.

In operation, the trough-shaped frame 24, having previously been secured to the printing press; the deflecting plates 35 are adjusted longitudinally of the frame to dispose one plate beneath each belt. The frame and coil are then adjusted to the desired position and secured vertically with relation to the conveying mechanism by the clamping screw 34. A plug 39 is then connected with the lead 22 and the switch 40 is closed.

From the foregoing description it will be seen that I have provided a heating element that may be readily adapted to existing forms of printing presses, and that is provided with effective baffling plates for protecting the conveying mechanism. Furthermore, it will be seen that I have provided a device that is capable of being adjusted in accordance with the various sizes of sheets that are to be dried, and in accordance with the intensity of heat required for the drying operation.

I claim:

1. In a printing press having conveying belts thereon, heating means to dry the ink to prevent offset, and a plurality of separated heat deflectors, one deflector being interposed between each conveying belt and the heating means.

2. The combination with a printing press having a belted conveyer at its delivery end, of heating means transversely adjustable toward and from the conveyer, and heat deflectors adjustable longitudinally of the heating means.

3. In combination, a frame, an electric heating element therein, spaced deflectors secured to the frame and extending over the heating element, and conveyer belts located over the deflectors respectively.

4. In a printing press, a conveyer mechanism comprising a plurality of pairs of pulleys, endless belts connecting each pair of pulleys respectively, a heating element adjacent said belts, and laterally adjustable guards adapted to be positioned in registration with the belts and between them and the heating element.

5. In combination, a series of movable belts, an electric heating element positioned beneath the belts and extending transversely thereof, a U-shaped frame for supporting the heating element, and a plurality of plates extending across the top of the frame and beneath the belts.

6. In combination, a plurality of conveyer belts having a common drive shaft, of an electric heating coil extending transversely of said belts, means for supporting said coil, plates associated with said supporting means, there being one plate beneath each of said belts and means for varying the distance between the coil and the belts.

7. In combination, a hollow frame having a U-shaped cross section, one leg being longer than the other, an electric heating element supported within the frame, a shaft positioned on one leg of the frame and extending longitudinally thereof, and plates pivoted to said shaft adapted to frictionally engage the other leg of the frame.

8. In combination, a series of conveyer belts, means for rotating the belts, an electric heating element extending transversely and positioned beneath said belts, a frame supporting said element and having walls on opposite sides thereof, means comprising slotted brackets for adjusting the frame vertically, a series of plates pivoted on one wall of the frame and adapted to frictionally engage the other wall thereof, said plates being positioned intermediate said element and the conveyer belts.

In testimony whereof, I hereunto affix my signature.

RUDOLF NITCH.