

April 19, 1955

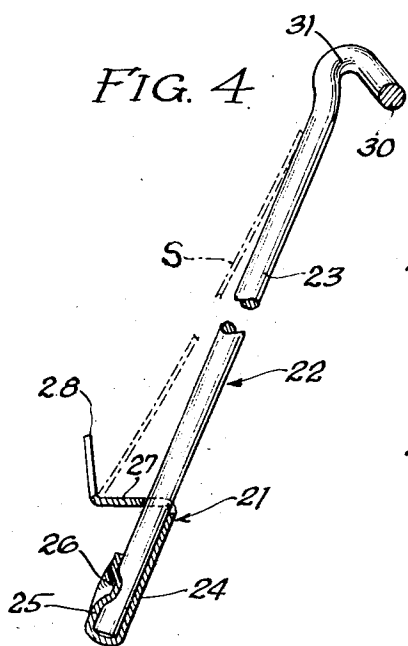
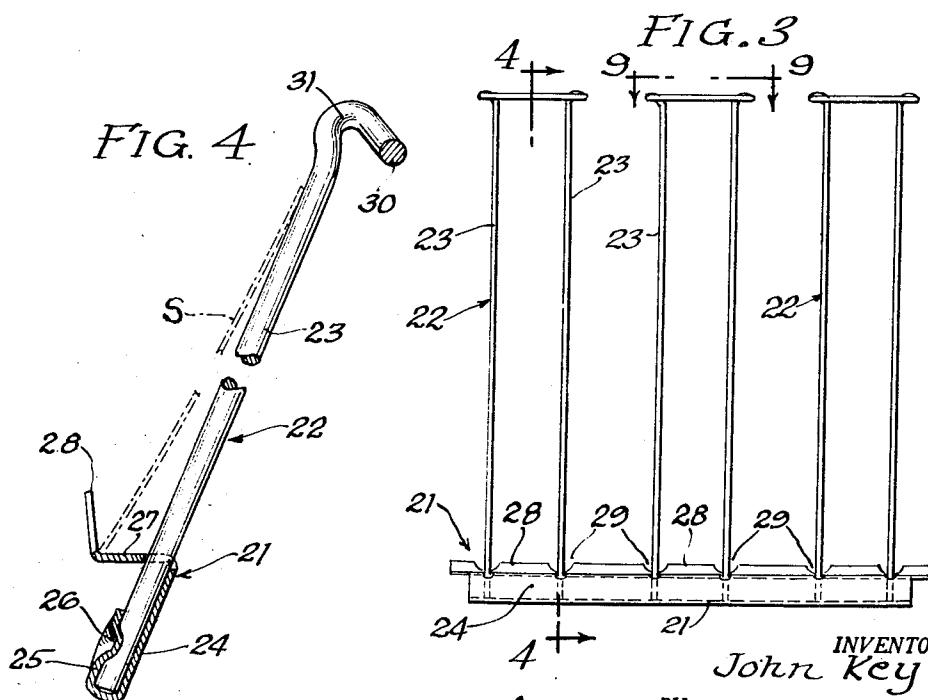
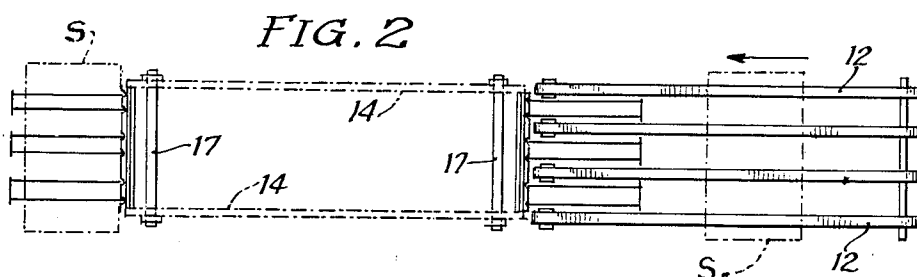
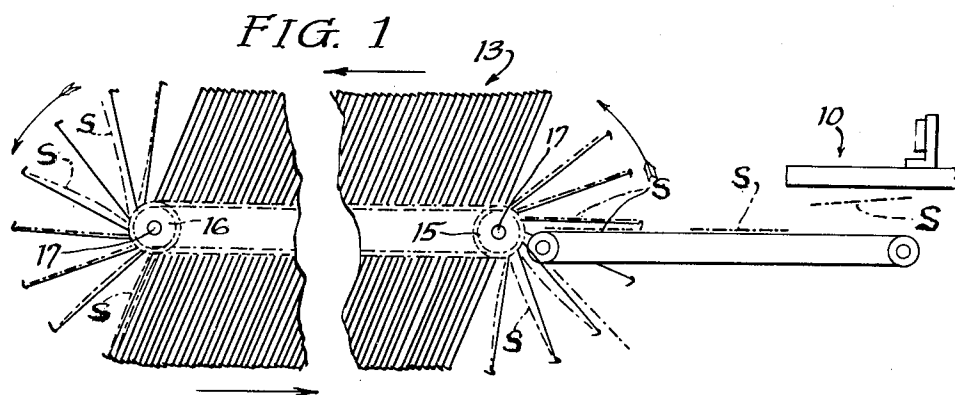
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2,706,552

HOLDER FOR SHEET DRYING APPARATUS

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2 Sheets-Sheet 1



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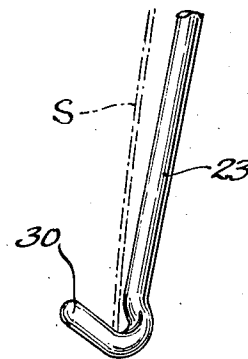
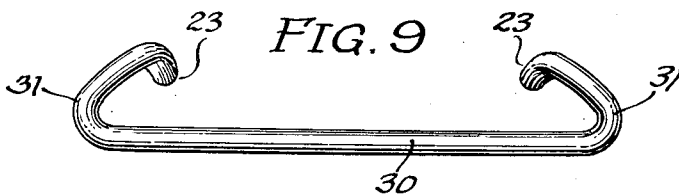
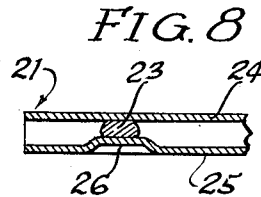
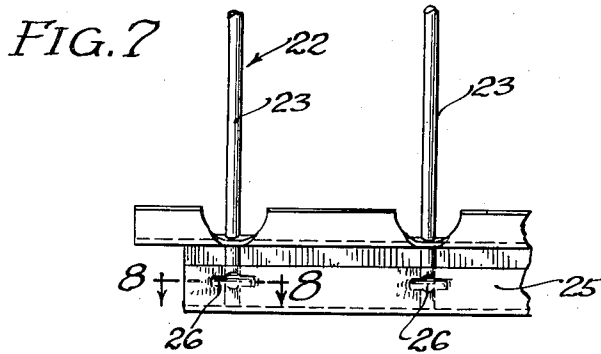
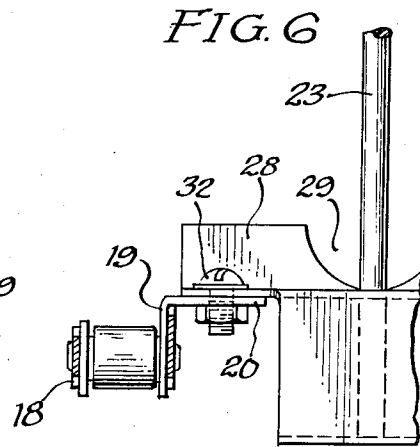
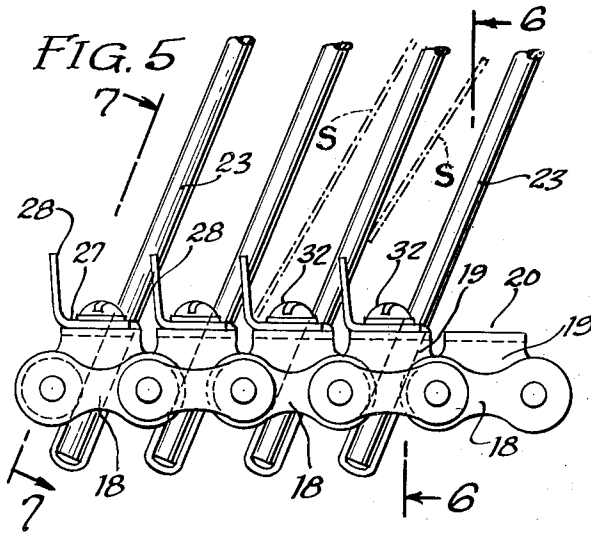
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HOLDER FOR SHEET DRYING APPARATUS

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2 Sheets-Sheet 2



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2,706,552

HOLDER FOR SHEET DRYING APPARATUS

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Application May 3, 1954, Serial No. 427,198

1 Claim. (Cl. 198—134)

This invention relates to improvements in sheet drying apparatus.

In the silk screen printing art it is usually necessary to maintain a separation of the sheets for a suitable drying period following the printing to avoid smudging or blurring the ink applied to the sheets. Where the printing is performed rapidly, mechanized drying racks are sometimes used. In such instances sheets are passed individually from the printer to moving sheet holders of the dryer and are retained by the holders during the drying period.

One object of the present invention is to provide improved sheet drying apparatus including sheet handling or wicket members which receive freshly printed sheets and which have means which cooperate with like adjacent holders in preventing the entanglement of sheets between such members and consequent spoilage of the sheets.

Other objects of the invention relate to features of construction which will be apparent from a consideration of the following specification and the accompanying drawings wherein:

Figure 1 is a broken side elevational view showing an improved sheet drying apparatus in conjunction with the sheet delivery means of a fragmentarily illustrated printing machine;

Fig. 2 is a plan view of the drying apparatus and the sheet delivery means;

Fig. 3 is an enlarged elevational view of a sheet holder or wicket assembly in detached relation;

Fig. 4 is an enlarged sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a broken elevational view of the drying apparatus illustrating a group of wicket members;

Fig. 6 is a broken elevational view taken on line 6—6 of Fig. 5;

Fig. 7 is a broken elevational view of a holder base and a wire wicket member attached thereto;

Fig. 8 is a broken sectional view taken on line 8—8 of Fig. 7;

Fig. 9 is a plan view of a wicket member taken on line 9—9 of Fig. 3;

Fig. 10 is a broken side elevational view of a wicket member in inverted position.

In Figure 1 of the drawing a press of the type employed in making silk screen prints is shown fragmentarily at 10. The sheets S as printed are deposited upon ribbon conveyors 12 which convey the freshly printed sheets horizontally to the dryer indicated generally by numeral 13.

The dryer 13 comprises a pair of endless sprocket chains 14 suitably spaced apart and operating about pairs of sprockets 15, 16 which are driven from a power source not shown. The supporting frame work for the shafts 17 of the sprockets, tracks for the chains and other conventional parts have been omitted for the sake of simplicity of illustration. It will be understood that the dryer 13 is operated at a rate enabling it to receive for drying the prints delivered in sequence to the conveyors 12 by the printing mechanism 10.

The sprocket chains 14 carry holders or wicket assemblies which receive the freshly printed sheets from the conveyor and carry the prints during the drying period, as later described.

As illustrated in Fig. 5, the conveyor chain links 18 are provided on one side of each with a bracket 19 providing a support or tab 20. These tabs 20 of each link extend inwardly of the machine and in the present em-

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bodiment of the invention are provided each with an opening for receiving a bolt by means of which the base of a sheet holder is supported transversely of the machine and moved by the chains during use of the apparatus.

In Figure 3 an enlarged view of a sheet holder is illustrated. The specific holder shown comprises a sheet metal base 21 and three wickets 22 carried by the base. The individual wickets 22 are of U-shape and have parallel legs 23 formed of wire of suitable gage. The assembly shown in Fig. 3 comprises three wickets each attached to the base 21 by passing the free ends of the legs 23 through openings in the base and into a channel provided between the body portion 24 and an up-turned longitudinal edge portion 25 and thereafter indenting the portion 25 and the legs as indicated at 26 to secure the parts together.

The base 21 is shaped in cross section as shown in Fig. 4, that is, the body 24 has a forwardly extending flange or sheet support 27 which terminates in an upwardly inclined flange 28. As viewed in Fig. 3, it will be noted that the inclined flange 28 is provided with notches 29 aligned with each leg 23 of the wickets.

The outer ends of the legs of each U-shaped wicket 22, as shown in Figs. 3, 4, 9 and 10, are joined by an integral, transverse head 30 which by reason of the curved corner portions 31, are disposed at one side of the plane of the leg portions of the wicket. As indicated in Fig. 4, the head portions 30 are located at one side of the plane of the wicket legs while the major portion of the sheet support 27 and the flange 28 are disposed on the opposite side of the legs 23. As indicated in Fig. 4 where the holders are shown in the position of horizontal travel in the upper run of the dryer, the portion 27 provides a support for a sheet S, whereas in Fig. 10 where a holder is shown in the inverted relation, the transverse head portion 30 then constitutes a sheet supporting means.

The ends of the portion 27 of the base of each holder are apertured whereby such ends can be attached, as by bolts 32, to opposed tabs 20 of opposed chain links. (See Fig. 6.) The links 18 of the chains 14 are of such length, relative to the transverse dimension of the wicket bases, that while the wickets are moving with the horizontal runs of the chains 14, the holders are in closely spaced relation as shown in Figs. 1 and 5. The base members 21 support the wickets during the upper and lower runs of the belt at angles inclined rearwardly with respect to the direction of travel. In Fig. 5 it will be seen that the legs 23 of each wicket are accommodated within the notches 29 of the flange of the succeeding sheet holder and that the portions of a flange between the notches are disposed between the legs of the next forward holder and thereby prevent a sheet in sliding down the wickets of a holder toward the portion 27 of the respective base from lodging between the flange 28 and the wickets of the next preceding holder.

Referring to Figs. 1 and 2, the operation of the apparatus will be made clear. Assume that printed sheets S are being regularly discharged from the press 10 upon the ribbon conveyors 12 which operate in a direction to convey them to the dryer. It will be seen in Fig. 2 that the four spaced apart conveyor ribbons 12 accommodate between them the three wickets 22 of each successive sheet holder. As the dryer operates to move the holders in the direction of the arrows in Fig. 1, each sheet S as it approaches the lefthand end of the conveyors shown in Figs. 1 and 2 will be picked up by the wickets of a holder as the latter moves counterclockwise through the plane of the conveyors. As a holder or wicket assembly moves counterclockwise at the right-hand end of the dryer and carries with it a sheet S picked up from the conveyors 13, the printed sheet S will slide downwardly along the wickets as the latter reaches or approaches the most upright position, unless the sheet was already in contact with the portion 27 of the base 21 as it was elevated from the conveyors. As the holders move successively into the closely spaced parallel relation shown in Fig. 5, wherein each flange 28 intersects the plane of the wickets of the next preceding holder, a sheet S in sliding down the wickets to a base of the carrying holder is prevented from passing over the free edge of the respective flange 28. Mild air cur-

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ents for drying purposes thus may be utilized with the present improvements without causing such disarray of the sheets that they will be damaged by the machine.

The wicket assemblies are closely spaced as indicated in Figs. 1 and 5 and the sheets S between the same are retained in a nearly upright position as they move through the upper horizontal run of the dryer. As the holders move about the sprockets 16 at the lefthand end of the dryer, they assume the spaced angular relation shown in Fig. 1 and a sheet S carried by a holder will gravitate forwardly therefrom and lodge against the wickets of a preceding holder. As such receiving holder reaches a sufficiently inclined position that sheet will slide downward along the wickets but will be arrested by the transverse head portions 30 at the free ends of the wickets. As the holders moving to the right in the lower run of the dryer reach the righthand end thereof, they again separate angularly in passing about the sprockets 15 at which end the sheets, then adequately dried, are removed from the dryer.

It will be seen that the wicket members which carry the sheets to be dried, pick them off the conveyor ribbons 12 by movement of the wickets between the spaced belts. The sheets are engaged by the wickets initially at the lower surfaces of the sheets, the printed matter being on the upper surfaces. As the holders move from the righthand end of the dryer into the closely spaced relation shown, adjacent wickets retain the sheets in upright position. In moving about the lefthand end of the dryer the sheets move forwardly to the opposite sides of the wickets of the next preceding holder, but are

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restrained from dropping out of the dryer by the transverse head-like members 30 of the wickets of the receiving holder. The sheets are adequately dry at the lefthand portion of the dryer so that smudging does not occur and at the righthand end of the dryer the sheets can be removed without likelihood of damage thereto. As stated, air currents for aid in drying the ink can be utilized with the present dryer.

While I have shown and described a structure which is illustrative of my improvements, various changes in the details thereof may be made within the scope of the invention defined by the appended claim.

I claim:

A sheet holder for sheet drying apparatus comprising a sheet metal base having an upturned lower flange forming a channel and a forwardly extending sheet supporting portion terminating in an inclined flange provided with spaced notches along the free edge thereof, wire wickets of U-shape having the legs each aligned with said notches and extending through openings in said sheet supporting portion into said channel and secured therein, and sheet supporting heads at the outer ends of each wicket on the side thereof remote from said flange for supporting sheets upon inversion of the holder.

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