July 2, 1968 A. J. FUCHS 3,390,784

MULTIPLE TRAY DRYING RACK

Filed Oct. 5, 1966

Fig. 1

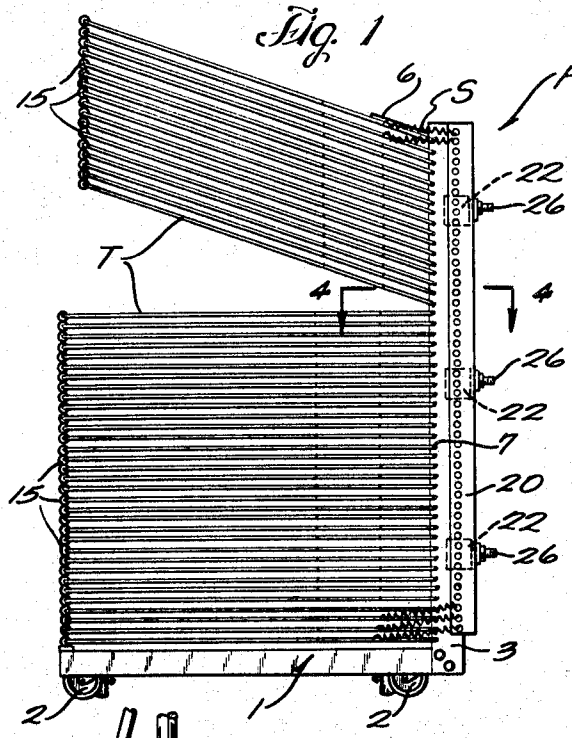
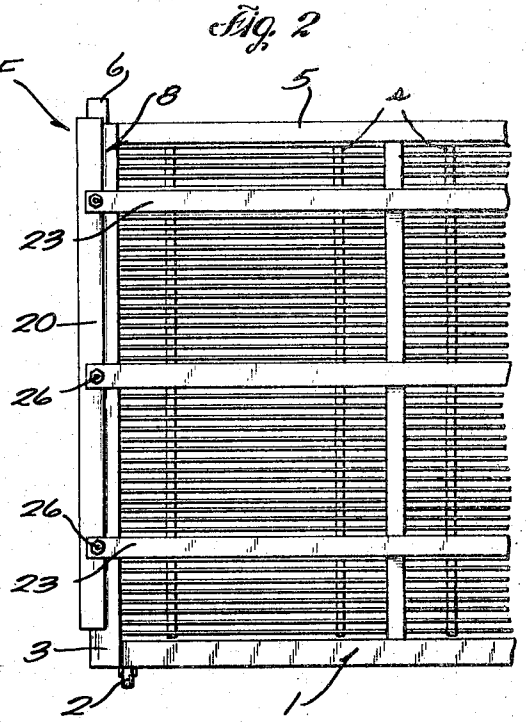


Fig. 2



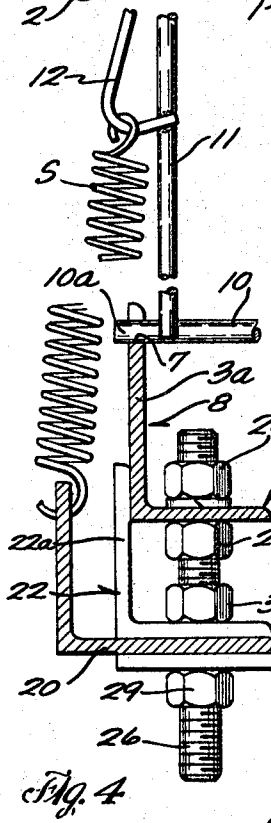
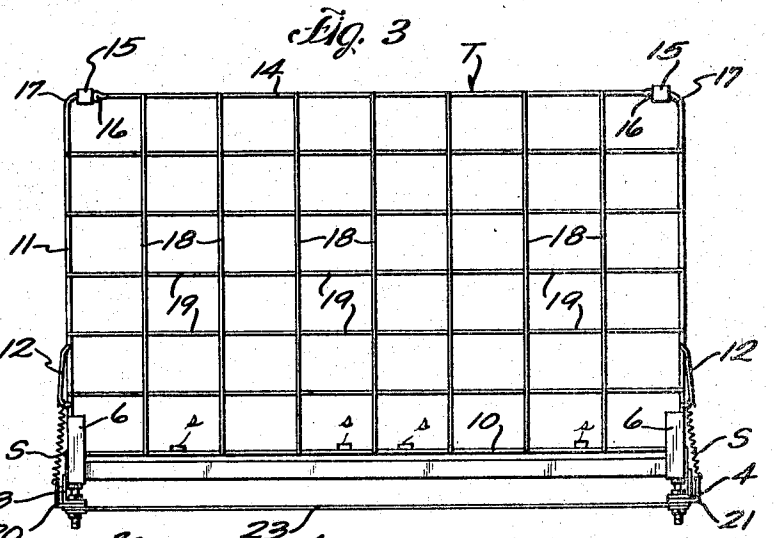


Fig. 4

Fig. 3



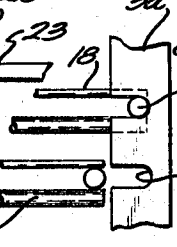


Fig. 5

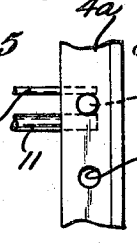


Fig. 6

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MULTIPLE TRAY DRYING RACK

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ABSTRACT OF THE DISCLOSURE

A drying rack having a plurality of swingable trays each pivotally mounted for swinging between a horizontal position and a raised position. Means are provided on the front edge of each tray and within the width of the tray for maintaining them in properly spaced relationship with one another, regardless of their vertical position.

The present invention relates generally to drying racks of the type used to accommodate sheet materials which are processed and then racked for drying. These racks are used with various types of sheet material such as cardboard, fibre material, plastics, fabrics or paper.

More particularly, the invention relates to novel means for spacing the racks one from another in either a horizontal or upwardly position of the trays during use. The invention is also directed to an improved means for adjusting the resilient members which support the individual trays in elevated position.

The drying trays used with a rack made in accordance with the present invention are mounted for individual pivotal movement on a support frame. Each tray can be disposed in a horizontal position, one above the other, and they can also be pivoted to an upper position, one at the time, to expose the tray immediately below it for loading or unloading. These trays must be loaded and unloaded frequently and rapidly, and the processed sheets on the trays must be perimtted to dry in the atmosphere without contacting one another while drying or while being moved from the horizontal to the raised position in the rack.

Various prior art devices have heretofore been proposed for maintaining the spacing between the trays, regardless of the position of the trays. It is essential that the vertical distance between the pivoted ends of the trays remains the same as the vertical distance between free or swinging ends of the trays, regardless of the vertical position of the latter, otherwise the lowermost trays would be incapable of being raised to their full inclined position. In order to provide for this peculiarity, the various prior art spacing devices have employed resilient spacers with planar surfaces, various shaped triangular brackets, or other devices, which are not only complicated and costly to make, but which are difficult to assemble or disassemble for repair or disassemble for repair or replacement, and are difficult to maintain in alignment.

Accordingly, the present invention provides very simple and troublefree means for insuring smooth and efficient movement of the trays and also insuring proper spacing at all times between the trays, regardless of their relative position. More specifically, this aspect of the invention provides a pair of rollers mounted at the free end of each of the trays and located within the width or sides of the trays so as not to obstructingly protrude therefrom. The rollers abut with those adjacent rollers which are immediately above and below them and maintain the proper distance between the trays at all times by relative movement of the rollers over one another. With the present invention, there are no surfaces to adjust, wear or become misaligned, and instead the trays are swung with particular ease and smoothness of operation.

Furthermore, in the prior art devices, some difficulty

has been encountered in providing suitable means for adjusting the tension of the springs which hold the trays in the raised position. For example, these devices have heretofore been complicated and require individual adjustment for each tray. Therefore, another aspect of the present invention is to provide a simple and efficient means for quickly and positively adjusting the tension of all of the springs located at one side of the rack and which hold the various trays in elevated position. The improved, common adjusting means is easily and quickly adjusted and eliminates individual adjustment of each tray. This aspect of the invention has resulted in a highly economical device to produce, as well as one which is efficient in performing the functions for which it is designed.

These and other objects and advantages of the present invention will appear hereinafter as this disclosure progresses, reference being had to the accompanying drawings in which:

FIGURE 1 is a side elevational view of a drying rack made in accordance with the present invention; and showing some of the upper trays in the raised position;

FIGURE 2 is a fragmentary, rear view of a portion of the device shown in FIGURE 1;

FIGURE 3 is a top view of the rack;

FIGURE 4 is a sectional view, on an enlarged scale, taken generally along line 4—4 in FIGURE 1;

FIGURE 5 is an enlarged, fragmentary view of the tray pivot connection to one of the post members; and

FIGURE 6 is an enlarged, fragmentary view of the tray pivot connection to the other rear post.

Support frame

Referring in greater detail to the drawings, the support frame F of the machine includes an angle iron, rectangular base **1** which is supported by wheels **2**. At the rear of the base, and extending upwardly from each rear corner thereof, is a main post **3** and **4** also formed of angle iron, and these two posts are rigidly secured together at their upper ends by cross brace **5**, thus forming a vertical frame member **5***a*. At the upper end of each post is rigidly secured a stop member **6** which extends generally forwardly from the rear posts and serves to limit the extent of the upward swinging of the trays. The main support frame F comprises the base **1** and vertical frame member **5***a*.

A series of open ended slots **7** is provided along the forward flange **3***a* of the rear post **3** and a series of holes **8** are provided along the forward flange **4***a* of post **4**. These slots and holes are equally spaced vertically from one another along the height of the posts.

Trays

A plurality of individual trays T are mounted at their rear side in the slots **7** and holes **8** in the vertical frame member **5***a* and are thus pivotally mounted for swinging between a horizontal position to an upwardly pivoted position.

The trays are made from wire which is fabricated and welded together and each include a rod **10** (FIGURE 4) which forms the rear end of the tray. To mount the tray on the frame, one end **10***a* is first inserted in a hole **8** and the other end **10***b* is then slipped into the opposite slot **7**, thus providing a pivot for the trays. The trays can be quickly assembled or removed from the support frame simply by removing their springs and sheet retaining straps **5**.

The sides of the tray are formed by rods **11**, and side brackets **12** welded thereto to receive one end of the springs S. The free front edge of the tray is formed by rod **14** which extends through a pair of rollers **15**, one of which is located adjacent each side of the front edge **14**. The rollers are rotatably mounted on the rod **14** and

held against axial displacement by crimping or flattened portions **16** formed in the rod adjacent the inner side of the rollers. It will be noted that the rollers are located within the sides of the tray, so as not to form any obstruction, and the corner **17** also prevents axial displacement.

Cross bars **18** and **19** complete the tray so as to form a substantially rectangular mesh support surface for supporting a processed sheet (not shown) thereon.

Spring adjusting means

Means for simultaneously adjusting the tension of all of the springs along one side of the rack are provided in accordance with the improved rack of the present invention.

A pair of vertically extending adjusting members **20** and **21** are located adjacent to and extend generally coextensively in height with posts **3** and **4**, respectively. Members **20** and **21** are formed of angle iron and each have a plurality of attaching brackets **22** secured thereto at spaced locations along their height, as will appear.

The forwardly extending flange **22***a* of these brackets abut and slide against the posts **3** and **4** and prevent forward twisting of member **20** due to the tension of all the springs. Cross braces **23** connect the adjusting members **20** and **21** together and also help hold members in proper alignment relative to the support frame.

The other ends of the springs S are anchored along the height of the adjusting members **20** and **21**.

Adjustable means are provided for moving the adjusting members **20** and **21** relative to the vertical frame member **5***a* to thereby vary the tension of the springs. This adjustable means comprises a threaded bolt **26** extending through the members **20**, **21**, members **3** and **4**, and brackets **22**. Nuts **27** and **28** lock the bolts **26** to the posts **3** and **4**, and nuts **29** and **30** rigidly and adjustably hold the adjusting members **20** and **21** in any desired position according to the tension desired in the springs.

Résumé

The spacing between the trays is maintained equal at their rear ends by the quickly assembled, pivoted connection formed by the slots **7** and holes **8**. The spacing at the forward or free end of the trays is maintained equal to that spacing regardless of the vertical position of the trays by means of the rollers located at the front end of the tracks. These rollers abut against one another and cannot become misaligned and as the trays move vertically the rollers roll relative to one another with an easy movement. There is no sliding or wear action because of these rollers. In any position of the trays, whether in the horizontal or the upwardly pivoted position, they are parallel to one another and the vertical space between the front edges of the trays is the same as the vertical spacing between the rear edges of the trays. Because this distance remains the same, and because the distance, as measured normally, between the inclined trays is less than when they are in the horizontal position, the processed sheets will not come in contact with one another and the trays will always be properly spaced and supported from its neighbor both in the horizontal and upwardly pivoted positions.

With the spring adjusting means provided by the present invention, all of the springs at one side of the rack may be adjusted simultaneously and there is no need to individually adjust each spring. The adjustment is easily and quickly made, and the trays are properly held in their elevated position by the over center spring arrangement.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention:

I claim:

1. A multiple tray drying rack comprising, a support frame including a rear, vertical frame member, a plurality of vertically spaced trays each pivotally mounted at spaced apart locations along one of its sides to said vertical member for individual movement between a first position in which said tray is horizontally disposed and a second position in which said tray is upwardly pivoted, said trays extending from said member and each terminating in a free front edge which is generally vertically swingable about its pivotal mounting between said positions, a pair of rollers mounted at spaced locations along and intermediate the length of the free forward edge of each of said trays for engagement with one another as said trays are swung in a vertical direction, and means for preventing shifting of said rollers on said front edge, to thereby maintain said trays in parallelism.

2. A rack as defined in claim **1** including a pair of vertically extending adjusting members along the rear vertical frame member, one at each side thereof, adjustable means connected between said vertical frame member and each of said adjusting members for changing the distance between said frame member and said adjusting members, and a spring connected between each tray and each of said adjusting members whereby the bias of said springs along one side can all be adjusted simultaneously to hold said trays in said inclined position.

3. A rack as defined in claim **1** further characterized in that said trays each have a rod forming said free front edge, said rod extends through said rollers, one of said rollers being located adjacent each side of said front edge.

4. A rack as defined in claim **3** further characterized in that said rollers are located within the sides of said tray.

5. A rack as defined in claim **1** further characterized in that said vertical frame member has a series of open ended slots vertically spaced along one of its sides and a series of holes vertically spaced along the other of its sides, said trays being pivotally mounted in said rack by sliding them in said holes and slots for easy assembly of said trays.

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