

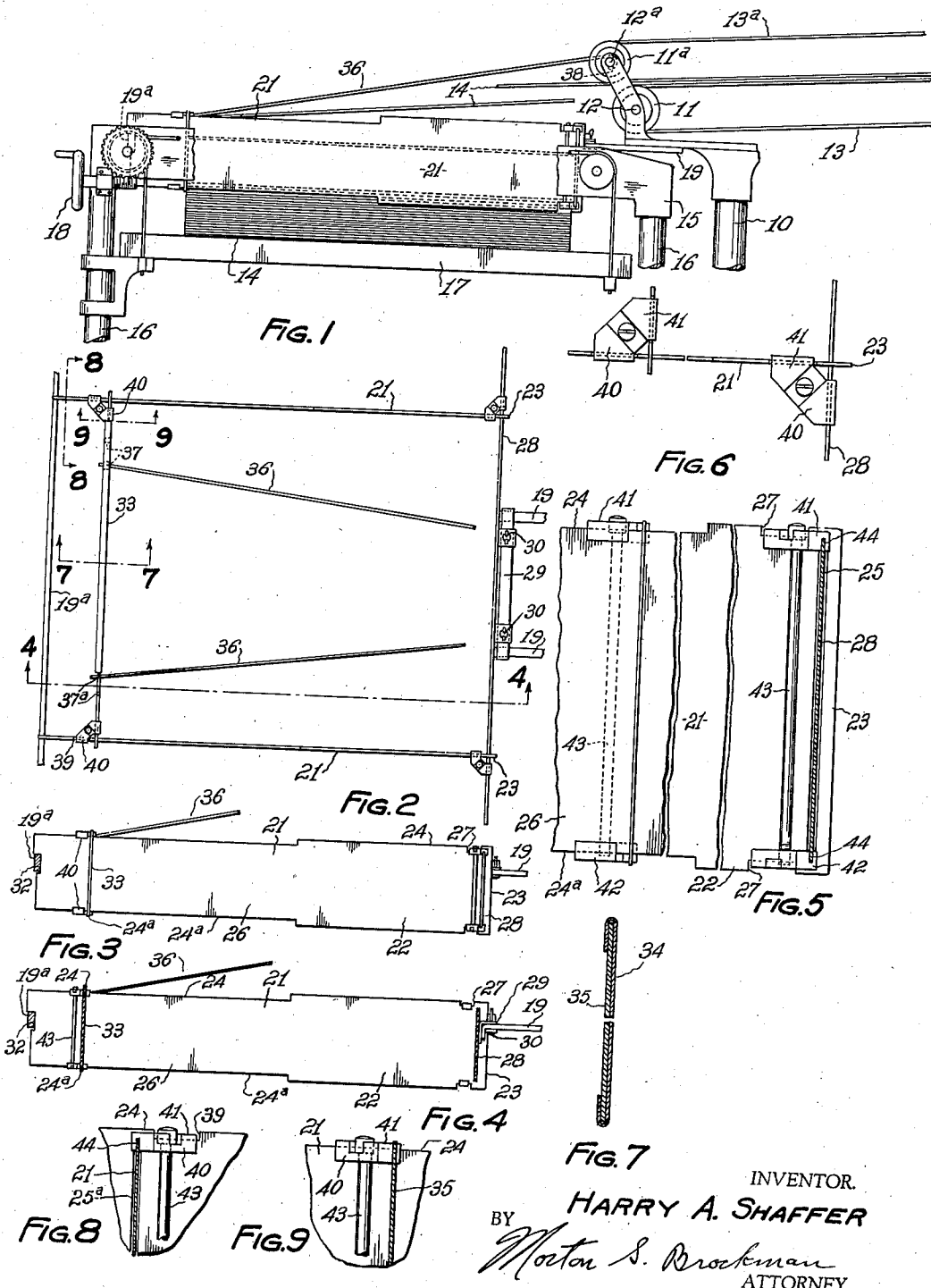
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STACKING FRAME FOR PRINTED SHEETS

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STACKING FRAME FOR PRINTED SHEETS

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9 Claims. (Cl. 271-86)

This invention relates to sheet handling devices and particularly to frames used on printing presses for stacking freshly printed sheets.

The primary object of the invention is to provide a metal frame which is easily and quickly adjustable and which will accommodate sheets of various sizes.

Another object is to provide a device of the type mentioned which slows up the settling of the stacked sheets so as to permit the fresh ink thereon to dry and thus prevent smudge or off-set.

A further object is to economically construct such device out of simple standard or easily made parts and which may be dismantled and nested for compact storage or transportation.

Still another object is to construct such device so that it is easily attached and readily adapted to different makes of printing presses.

These and other objects and features of the invention will become apparent from a study of the following description and claims together with the accompanying drawing in which like parts are designated by like reference characters and wherein:

Figure 1 is a side elevation of the device constituting this invention mounted on a part of a conventional printing press;

Figure 2 is a top view of the device;

Figure 3 is a side view of the device alone as shown in the Figure 2;

Figure 4 is a side sectional view of the frame taken along the lines 4-4 of the Figure 2;

Figure 5 is an enlarged view of the corner clamps shown in the Figure 3;

Figure 6 is a plan view of the clamps shown in the Figure 5;

Figure 7 is a vertical sectional view of the rear adjustable wall taken along the lines 7-7 of the Figure 2.

Figure 8 is a vertical sectional view of a corner of the device taken along the line and in the direction of the arrows 8-8 of the Figure 2; and

Figure 9 is a vertical sectional view of the device taken along the line and in the direction of the arrows 9-9 of the Figure 2.

The instant invention consists primarily of a set of wall members and a set of clamp members. The wall members are made of sheet metal and are arranged to form a rectangular frame or bottomless and topless box. The clamp members are also made of metal and will be described in greater detail hereinafter. The Figure 1 shows this device mounted on a printing press and collecting table.

In the drawing the printing press frame is indicated by the character 10. The paper feed rollers 11 and 11a are mounted on the press frame by means of the laterally extending shafts 12 and 12a and the paper feed belts 13 and 13a extend around the rollers 11 and 11a in a conventional manner and direct the printed sheets 14 to the collecting table. The printing press collecting table 15 broadly consists of a stand having four vertical supports 16 on which there is mounted a horizontal platform 17 which platform is capable of being raised or lowered by means of the elevator mechanism indicated by the character 18.

The frame constituting the invention consists of spaced parallel side wall members 21, the front wall member 28 and the rear wall member 33.

The side wall members 21 have a narrow portion 26 extending rearwardly and a wide portion 22 extending toward the front through which there is cut close to the forward vertical edge 23 and between the top and bottom horizontal edges 24 and 24a a narrow vertical slot 25. Two portions 27 of the wall members 21 are cut away at the top and bottom horizontal edges 24 and 24a close to the vertical slot 25 to make room for the clamp member 40 which will be described hereinafter. The rear ends 26 of the side wall portions 21 are cut away as at 32 to receive the laterally extending bar 19a of the collecting table 15.

The front wall member 28 is a plain rectangular sheet of metal narrow enough to slide through the vertical slots 25 of the side wall members. Extending lengthwise across the outside surface of the front wall 28 there is mounted a means for connecting the frame to the printing press 10. This consists of a simple bracket 29 which is drilled to accommodate the two bolts and wing-nuts 30. The rear bars 19 of the printing press are held tightly there by the bracket 29 and bolts and wing-nuts 30.

The rear wall member 33 is adjustable as to length. It is made in two separate parts 34 and 35. The part 35 is slidable within the part 34 somewhat telescopically as shown in the Figure 7. The outer ends of each of the parts 34 and 35 have long narrow vertical slots 25a similar to the slots 25 of the side wall members and through which the narrow portions 26 of the side wall members 21 pass. Portions 39 of the rear wall member 34 and 35 near the two slots 25a are cut away to receive the rear clamp members 40 in the same manner that the side wall members

are cut away to receive the front clamp members 40. In addition the rear wall member 33 is provided with paper guides 36. These paper guides are simply metal rods the rear ends of which fit into the holes 37 of the wall portions 34 or in the slots 37a of the inner rear wall portion 35 and the front ends 38 of which have hooks which engage the top shafts 12a of the printing press. These guides 36 direct the individual sheets of paper downward so that as they are ejected from the press by the belts 13 and 13a they enter the frame and do not pass over the rear wall member 33.

Up to this point with the wall members described the frame may be assembled to form a rectangular box, however, in order to keep the frame rigid so that its size remains substantially the same as that of the printed sheet 14, four clamp members are provided which make the wall members immovable with respect to each other.

The clamp members 40 are angular pieces of metal shaped somewhat as shown and which engage the wall members in pairs. Both the top and bottom portions of a pair which are sometimes referred to as jaws 41 and 42 respectively are drilled or otherwise provided with suitable holes to receive the long bolt 43. The hole in the bottom jaw 42 may be threaded to receive the threaded end of the bolt if desired so as to eliminate the use of an extra nut. Each of the jaws have grooves 44 therein which run crosswise of each other and which grooves receive the horizontal edges of the wall members. The longitudinally running grooves 44 of the front jaw members fit into the top and bottom horizontal edges 24 and 24a of the side wall members 21 at the cut away parts 27 thereof. The laterally running grooves 44 of the same jaw members engage the top and bottom horizontal edges of the straight front wall member 28. Similarly the laterally running grooves 44 of the rear jaw members engage the top and bottom horizontal edges of the outer and inner wall portions of the rear wall members 34 and 35 at the recessed or cut away parts 39. The longitudinally running grooves 44 of the rear clamp members 40 engage the top and bottom horizontal edges of the narrow portion 26 of the side wall members in the same manner.

The clamps 40 are affixed to the frame as shown in the Figure 2, that is, the inside walls of the assembled frame are unobstructed and the vertical bolts 43 are on the outside of the enclosure formed.

The assembled and clamped frame is supported by the laterally extending horizontal bars 19 and 19a and at the start the bottom edges 24a of all the wall members rest on the collecting table platform 17. The wall members are spaced apart to a trifle larger than the size of the finished sheet and as the sheets 14 fall into the assembled frame, the air therein slows the descent of the sheets and gives the fresh ink thereon a chance to dry before touching the sheet just ahead. The speed of descent of the printed sheets may be easily regulated by expanding or contracting the frame walls. As the frame fills with the stacked printed sheets, the platform 17 is lowered by means of the elevator mechanism 18 heretofore mentioned. For best results the top of the stack of printed sheets should be about one inch up into the frame or just far enough to provide an air cushion between the top of the

stack and the top horizontal edge 24 of the wall members.

Among the many advantages found in the instant device are those relating to convenience of operation and use. The frame can be adjusted to proper size while mounted on the press 10 and collecting table 15. The parts are easily slidable with respect to each other and there are relatively few parts to jam, stick or get out of shape because there is practically no friction between the movable parts. There are only four simple readily accessible bolts to tighten and which, when tightened, make the frame perfectly rigid and usable.

It will now be clear that there is provided by this invention a stacking frame for printed sheets which accomplishes the objects originally set forth. While the invention has been illustrated in its preferred form and while certain special terms have been used to describe it, it is to be understood that the embodiment of the invention as set forth herein is not to be considered in a limiting sense as there may be other forms or modifications of the invention which are also considered to be within the scope of the appended claims.

I claim:

1. A sheet stacking frame, comprising in combination, spaced side wall members having end slots therein, a front wall member engageable with the end slots, and a rear wall member having end slots therein and being engageable with the spaced side wall members.

2. A sheet stacking frame of the type defined in claim 1 and characterized further by having a plurality of clamp members retaining the said wall members in fixed position.

3. A sheet stacking frame of the type defined in claim 1 and characterized further by having a means for guiding sheets therein.

4. A sheet stacking frame, comprising in combination, a rear wall member having end slots therein, spaced side wall members having end slots therein and extending through the said rear wall member end slots, a front wall member extending through the said side wall member end slots, all of the said wall members having top and bottom edges, and clamp members engaging the wall member top and bottom edges contiguous to the said end slots in a fixed position.

5. A sheet stacking frame, comprising in combination, a front wall member, spaced side wall members, a rear wall member, all of the said wall members having top and bottom edges, and clamp members engaging the said top and bottom edges and retaining the wall members in a fixed position.

6. A sheet stacking frame of the type defined in claim 5 and further characterized by having a mounting bracket attached thereto.

7. In a printing press of the type having sheet feed rollers and a laterally extending supporting bar, a sheet stacking frame, comprising in combination, spaced side wall members including wide and narrow portions having horizontal edges thereon, the said side wall wide portions having slots therein extending vertically between the said horizontal edges, a front wall member having horizontal edges thereon and extending through the vertically extending slots of the side wall wide portions, the said front wall member including a means for attachment to the said printing press supporting bar, a rear wall member including telescoping sections hav-

ing horizontal edges thereon and vertically extending slots receiving the narrow portions of the side wall members, and clamp members contiguous to the said vertical slots and engaging the wall members, horizontal edges and retaining the said members in a fixed position.

8. A device of the class defined in claim 7 and further characterized by the rear wall member having sheet guiding means mounted thereon and engageable with the said printing press feed rollers.

9. In a printing press of the type having sheet feed rollers and spaced front and rear laterally extending supporting bars thereon, a sheet stacking frame, comprising in combination, spaced side wall members including wide and narrow

portions, the said wide portions having vertical slots therein, the said narrow portions having means for engaging the said rear supporting bar, a front wall member engaging the said side wall vertical slots and having a means for attachment to the said printing press front supporting bar, an adjustable rear wall member having vertical slots therein engaging the said narrow portions of the spaced side wall members and including sheet guiding means engageable with the said printing press feed rollers, each of the said wall members having top and bottom horizontal edges, and a plurality of clamp members having grooves therein engageable with the top and bottom horizontal edges of the wall members.

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