April 5, 1932. H. C. BLAUVELT ET AL 1,851,972

PRINTING PRESS SHEET DELIVERY FRAME

Filed June 27, 1929 2 Sheets-Sheet 1

Fig. 1.

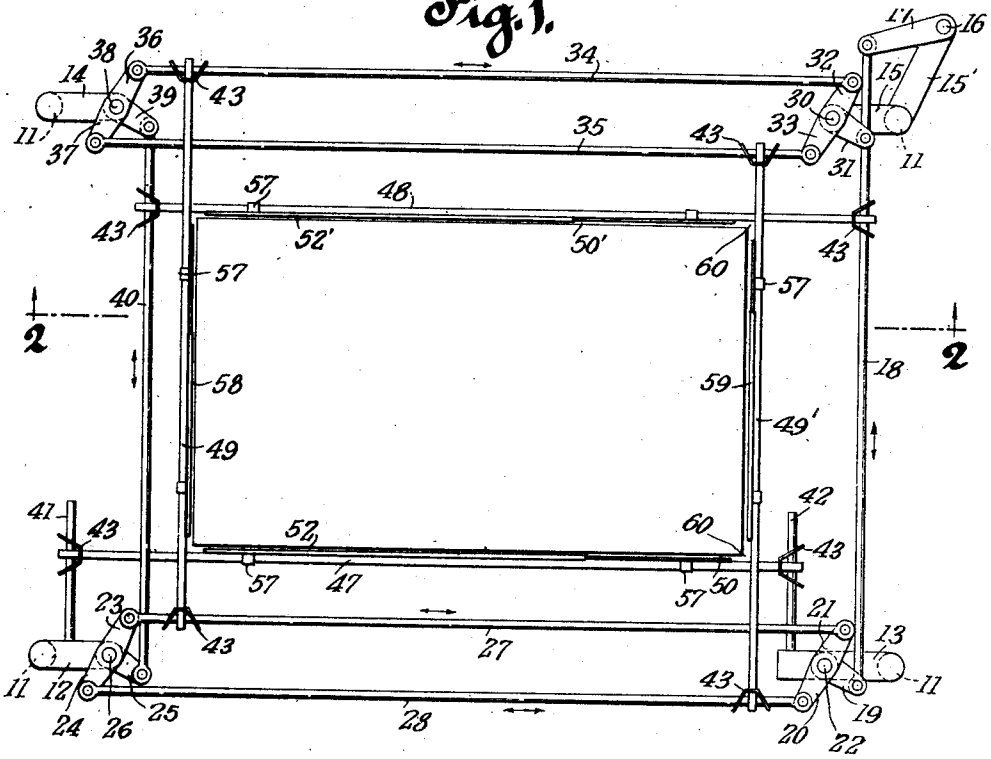
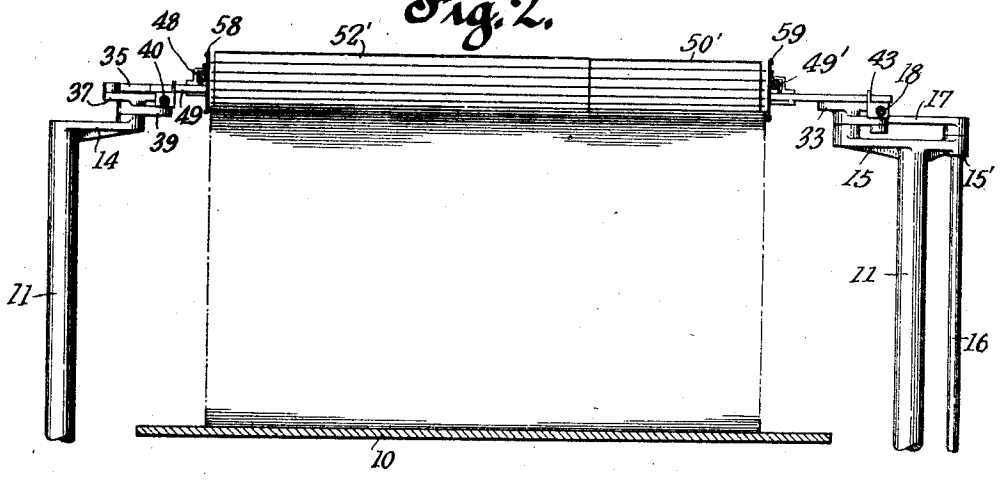


Fig. 2.



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PRINTING PRESS SHEET DELIVERY FRAME

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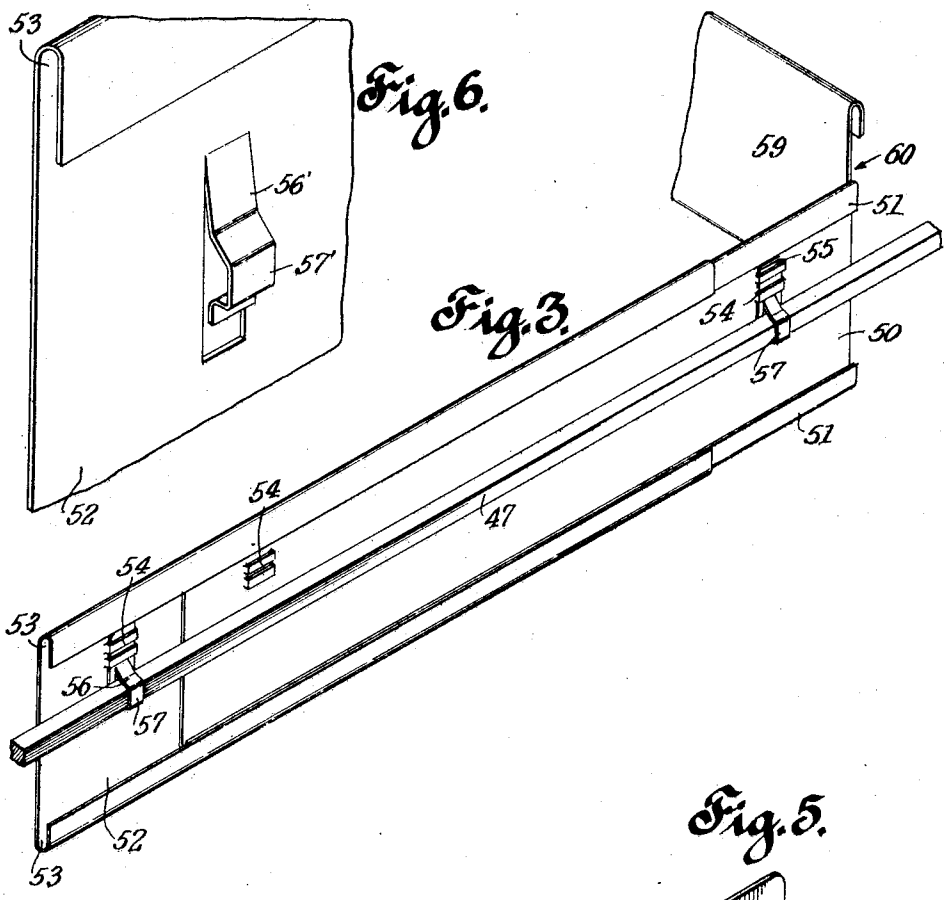

Fig. 6.

Fig. 3.

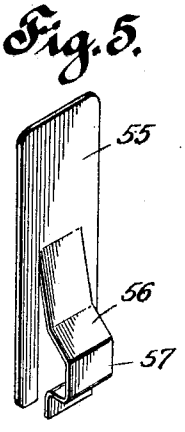

Fig. 5.

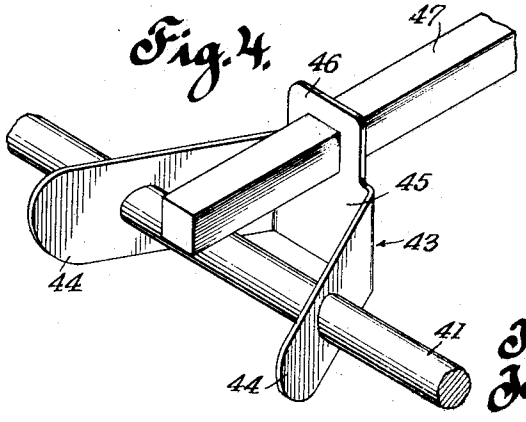

Fig. 4.

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UNITED STATES PATENT OFFICE

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PRINTING PRESS SHEET DELIVERY FRAME

Application filed June 27, 1929. Serial No. 373,960.

This invention relates to improvements in printing presses and more particularly to devices receptive of the printed sheets as delivered from the press.

Such sheets, freshly printed upon one or both sides, are commonly passed over a zone of heat, as a plurality of small gas flames, or an electric heater unit, to oxidize the surface of the ink, and also to dispel inherent static electricity in the sheets which advance to become stacked in a pile at the end of the press, ready for further operations.

In practice it is often found necessary to interpose slip sheeting between the printed sheets to prevent offsetting or transference of some of the ink from the face of the lower sheet to the back of the next above, although the ink will at times stick to the slip sheets and cause offset on the work.

It is also desirable that the pile of printed sheets be stacked uniformly with the edges of each sheet in register throughout.

Various expedients have been devised to attain these purposes, such for instance as closed frame structures in which the sheets float on a film of air entrained under their lower surfaces and fall slowly as the air escapes at their edges, the corners of the sheets descending slower than their main portions.

It is an object of the present invention to provide an adjustable enclosure having quite high walls, each side being adjustable in length to enclose the printed sheets with a minimum of space at their edges, and which are arranged to present open corners, adjustable in extent to suit the size and weight of the paper used, so that the sheets passing over the heated zone with hot air entrained below them, will float onto the enclosure and fall slowly through it, the air cushion escaping at the adjustable corner openings so that the sheets at all times remain flat and level without offset.

A further feature is to use the joggling rods of the press to cause the frame sides to reciprocate laterally as the sheet is deposited, thus causing the pile to present accurately registering edges, particularly important on color work.

Another aim is to produce convenient means for adjustably attaching the frame walls to support bars commonly provided with the press.

These several important objects are accomplished by the novel construction and combination of parts hereinafter described and illustrated in the accompanying drawings, forming a material part of this disclosure, and in which:—

Figure 1 is a plan view of an embodiment of the invention as attached for operation.

Figure 2 is a transverse sectional view taken on line 2—2 of Fig. 1, showing the sheets as deposited.

Figure 3 is a perspective view of one of the adjustable side walls as attached to a support bar, showing the adjustable open corner.

Figure 4 is a similar view showing a support bar and its connections to a joggle rod.

Figure 5 is a like view of an independent bar attaching device.

Figure 6 is a fragmentary perspective view showing an attaching clip as integrally formed on one of the frame walls.

A printed sheet receiving table 10, see Fig. 2, forming part of the press, such as the Babcock or like type, is provided with means for height adjustment and spaced adjacent the corners of the table are four posts 11, surmounted by rigid brackets 12, 13, 14 and 15 extending towards the center line of the table, the bracket 15 having an arm 15′ extending angularly outward and rearward or towards the direction from which the printed sheets are delivered from the press.

Journalled in the end of the arm 15′ is an upright shaft 16 to which is communicated a semi rotary motion reciprocatively by some convenient means, as part of the press.

Fixed on the upper end of the shaft 16 is a lever 17 having pivotally attached at its end a horizontal rod 18, its forwardly extending end pivotally engaging an angular arm 19 of a double bell-crank lever having two opposed arms 20—21 respectively, the lever being pivoted at 22 on the bracket 13.

A similar lever having opposed arms 23—24 and a right angled arm 25 is pivoted at 26 to the bracket 12. A connecting rod 27 is pivoted to the arms 21 and 23 and a similar

rod 28 connects the arms 20 and 24, these rods extending in parallel transversely across the front of the press.

A third double bell-crank lever pivoted at 30 to the bracket 15 has an angular arm 31 pivoted to the rod 18; its opposed arms 32—33 are connected by rods 34—35 to the arms 36—37 of a fourth double bell-crank lever, pivoted at 38 to the bracket 14 and its angular arm 39 is engaged by a connecting rod 40 with the arm 25.

It will now be apparent that the rods 18 and 40, at the ends of the table will move in unison in the same direction, also the rod 28 and 35, while at the same time the rods 27 and 34 move in unison in opposite directions coincidentally.

A pair of studs 41—42 are fixed respectively in the brackets 12—13 to extend horizontally towards the front and slidably engaged on the studs are sheet metal spring clips 43, each comprising a pair of divergent arms 44 containing slightly oversized openings through which the studs freely pass when the arms are pressed inward to permit adjustment of the clip, the arms springing out when released to firmly grip the stud.

These clip arms are integrally connected by a body member 45 having a raised portion 46 containing a rectangular opening closely fitting a rectangular bar 47 in a plane above the studs and which may thus be adjusted with relation to the sheet as delivered into the enclosure.

Another pair of duplicate clips 43 are adjustable on the rods 18—40, to carry a bar 48 parallel with the bar 47.

Other clips, attached to the rods 27—34, adjustably carry a bar 49, and still another pair of clips carry a bar 49′ by their connection with the rods 28—35 movable coincidentally with, but oppositely to the rods 27—34.

It is to be understood that the foregoing description of jogger frame structure will apply to a certain make of press, while other presses may vary considerably in detail, but all presses to which the device is applicable are provided with some means for carrying the four support bars; it will be further understood that the jogger device is not a part of the present invention, which consists of a sheet enclosing frame now to be described.

A pair of thin sheet metal plates 50—50′ constitute sections of the front and rear members of the sheet receiving frame, these plates being closely folded at their upper and lower edges, as at 51, to slidably engage in channels 53 at the corresponding edges of the mating members 52 thus being telescopically engaged, extensible and retractible in aggregate length at will.

The inner sides of these plates are substantially smooth and level, and on the outer sides are sockets 54, preferably in pairs, formed by shearing and upsetting, to receive the plate portions 55 of sheet metal spring clips having tongues 56 formed to present gripping means, as at 57, to engage the rectangular support bars 47—48.

In the modification showing Fig. 6 the clips are struck directly from the walls of the frame to present a spring portion 56′ and a grip 57′ through which the bars may be passed.

The end walls 58—59 of the frame may also be formed in sections, these walls being provided with similar spring clips 56 to engage the support bars.

As the extent of joggling the frame front walls 50′—52′ is very little, being limited by arc of the angular levers 19—25—31—39, and the rear walls 50—52 are held fixed by the bar 47, these walls may be adjusted in length to conform with the length of the paper sheet to be printed.

The end walls 58—59 however may have more movement transmitted to them, as will be evident, their inward motion taking place as the sheets are settling down, thus moving them endwise into registration. It is also within the scope of the invention to dispense with all movement of the frame walls.

In any case, when the frame walls are in their closed position, spaces 60 are adjustably maintained at each corner of the frame, and this adjustment should be made in accordance with the speed of reception of the sheets from the press, the weight of the paper and the size of the sheet, the preferred arrangement being that several of the sheets are floating on intermediate air cushions as they are deposited on the table in a pile as seen in Fig. 2.

The wall 50—52 acts as a stop against which the front edges of the sheets make contact, while the end walls, due to their reciprocative movement, causes the end edges to assume an accurately alined position as they are deposited.

It is further to be noted that the elements 54 and 56′ admit of ventilation, releasing the entrained hot air and it is within the scope of the invention to provide specific ventilating openings, although the spaced corners in practice have been found completely effective for the purpose.

From the foregoing it will be seen that a simple device for this purpose has been disclosed in the preferred form of its embodiment, but it is not desired to restrict the details to the exact construction shown, it being obvious that changes, not involving the exercise of invention, may be made without conflicting with the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to secure by Letters Patent, is:—

1. A printed sheet receiving frame com-

prising four upright walls forming a rectangle, each wall being composed of sections adjustable in length and arranged to present clearly open spaces at each of their corner intersections.

2. A printed sheet receiving frame having relatively adjustable walls spaced at their corners, support bars arranged in parallel relation to said walls and slidably engaged thereto, and clips adjustably connecting said bars to supports.

3. The combination with the jogger frame of a printing press and a sheet receiving table, of a frame adjustable to the size of a printed sheet and open at its corners, clips on the outer surfaces of the frame walls, rectangular bars adjustably engaged in said clips, and adjustable connections between said bars and said jogger frame.

4. The combination with the jogger frame of a printing press and a sheet receiving table, of an upright rectangular frame having length adjustable walls level on the inner sides, integral clips on the outer sides of said walls, bars slidable in said clips, spring clips adjustably connecting said bars with said jogger frame, and means to ventilate the rectangular frame at its walls intersections.

In testimony whereof we affix our signatures.

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