Aug. 30, 1927. 1,640,768

C. J. GUTBERLET

CARRY-OFF

Filed Dec. 31, 1923 3 Sheets-Sheet 1

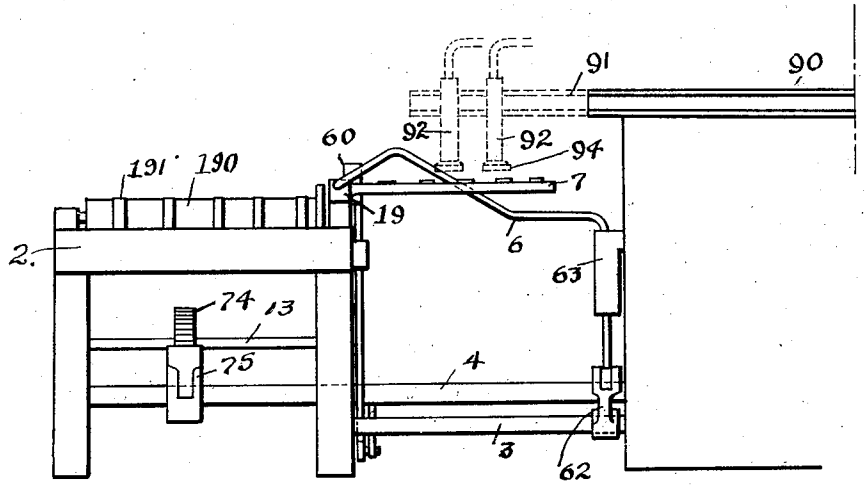


Fig - 1

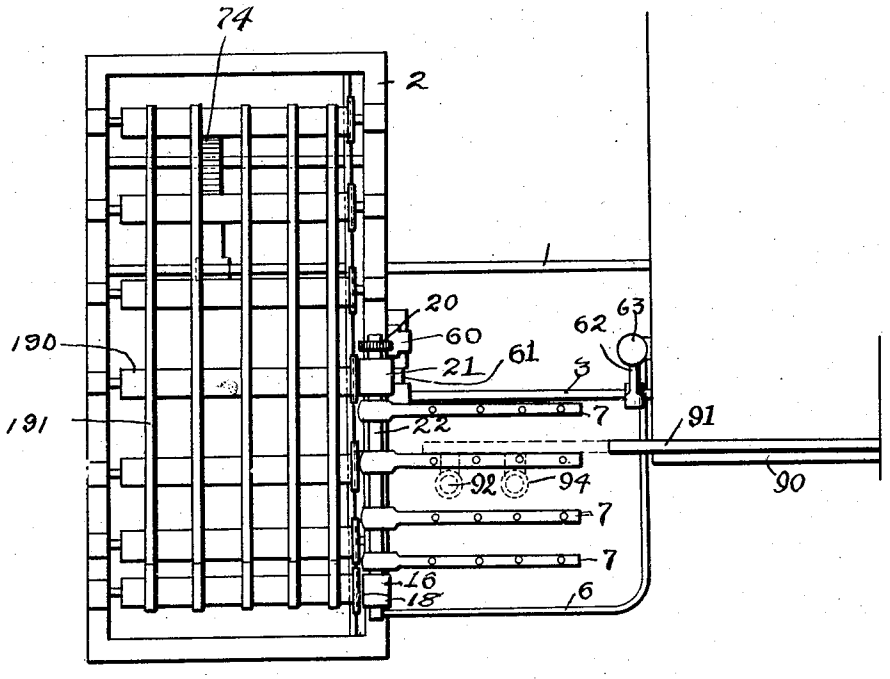


Fig - 2.

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CARRY-OFF

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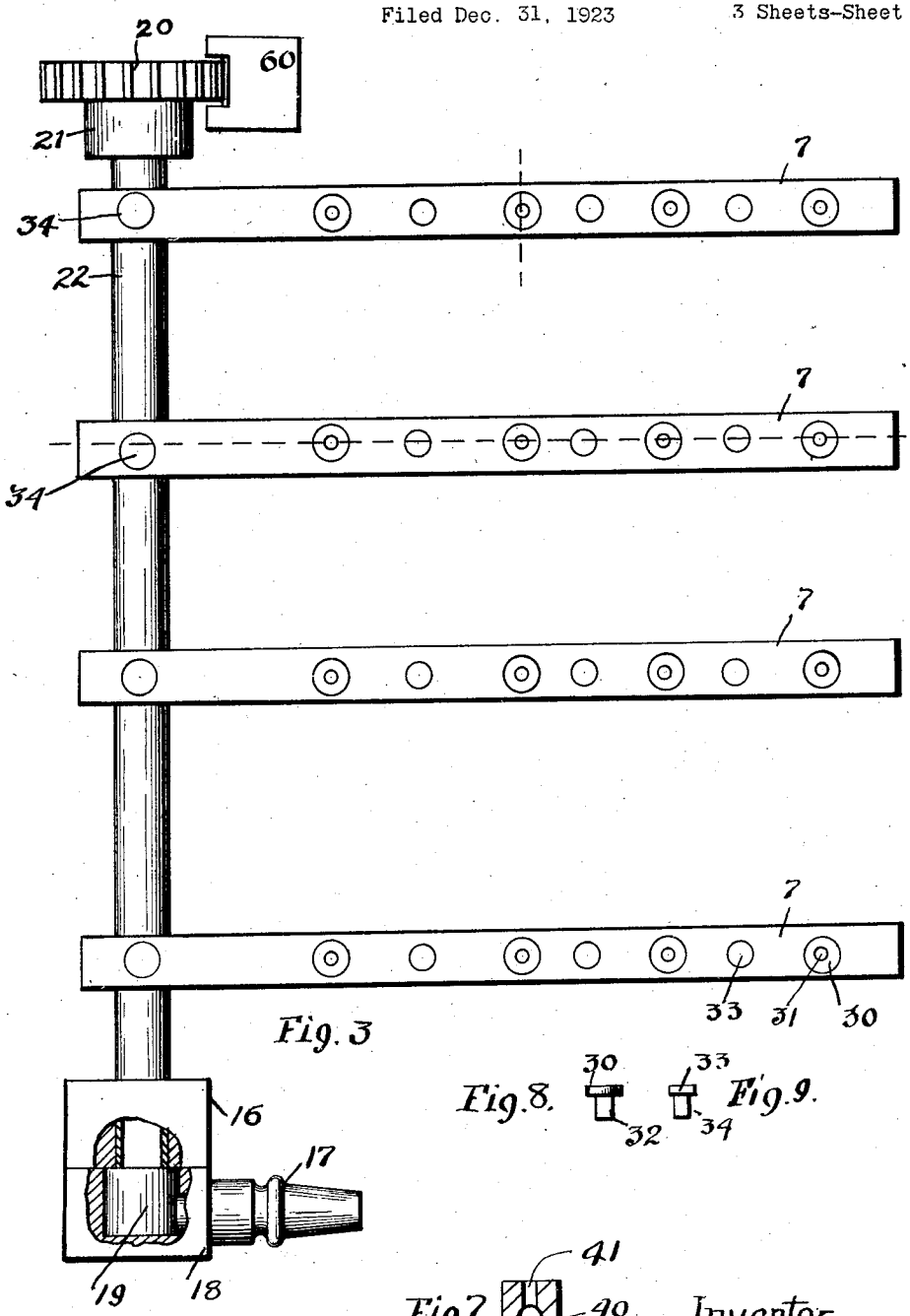


Fig. 3

Fig. 8.

Fig. 9.

Fig. 7.

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CARRY-OFF

Filed Dec. 31, 1923 3 Sheets-Sheet 3

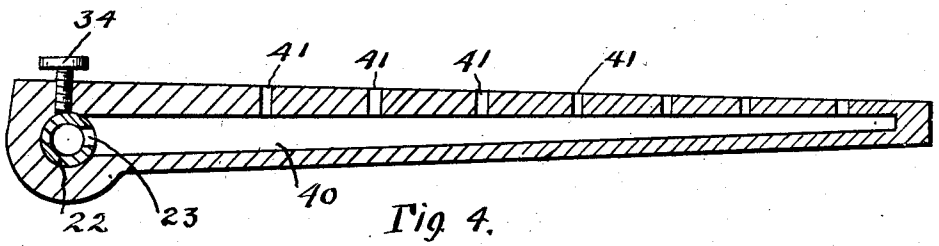


Fig. 4.

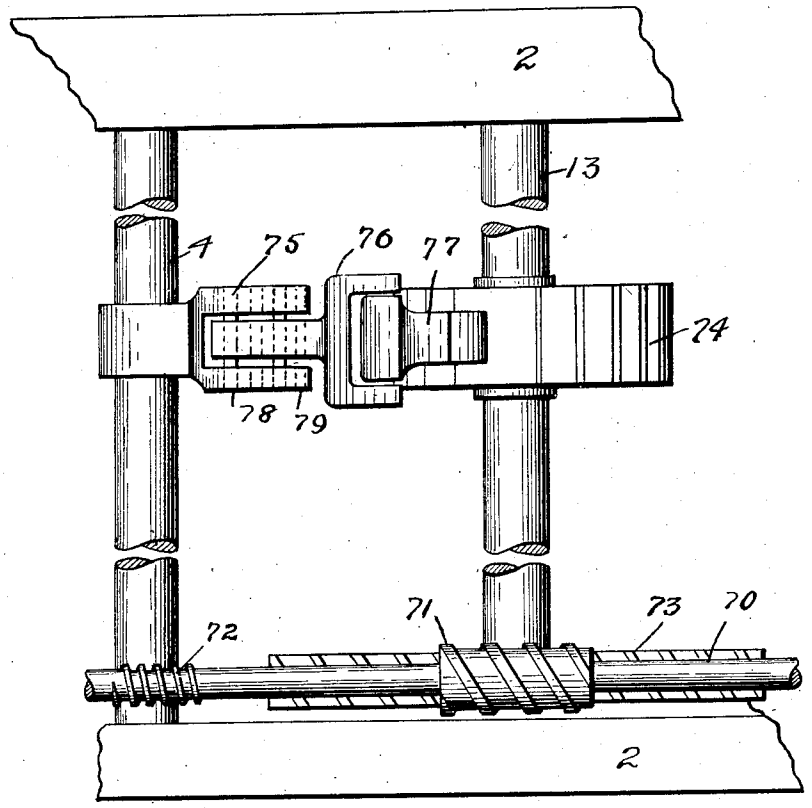


Fig. 5

Fig. 6.

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UNITED STATES PATENT OFFICE.

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CARRY OFF.

Application filed December 31, 1923. Serial No. 683,832.

The carry off hereinafter described is intended to meet the requirements of plate printing presses. The product of these presses is not stacked but is laid out, after it has been through the press, so that the printed portions of each sheet are uncovered. The printed area is usually small, and indeed the sheets themselves are almost invariably of much less size than are the sheets of ordinary printing. The accepted machines for carrying off the product of plate printing presses carry this product off horizontally and across the face of the press and with the printed sheet face downward, and then deposits them on a fly that reverses them and places them face upward upon a moving bed, which usually is given a step by step forward movement, so that each sheet lies a little back of the one delivered to the bed previously to it. As the fly must lie beneath the carrier while the latter moves over it and delivers the printed sheet and gets out of the way so that the carrier can turn the fly has to move rapidly. Hence the sheet is likely to slip along the fly sticks; especially when a stiff or smooth material is being used, such for instance as smooth bristol board. I have accordingly provided the fly sticks with suction devices that hold the sheet on the sticks while the fly is turning with the sheet, (the loaded turn) and release it so that it falls on the bed to which it is delivered by the fly.

Fig. 1 is a front elevation of the device; Fig. 2 is a plan view of the same; Fig. 3 is a greatly enlarged plan view of the fly and the parts of the mechanism immediately around it; Fig. 4 is a section of a fly stick on the line 4—4 of Fig. 3; Fig. 5 is a plan view of a step by step mechanism; Fig. 6, is a section of a sucker; Fig. 7, is a section of a fly stick on the line 7—7, of Fig. 3; Fig. 8 is an elevation of a sucker, and Fig. 9 is an elevation of a plug.

The press is an ordinary form of a plate printing press with the usual form of plunger, neither of which form any portion of my invention. The carry off has the carrier mechanism mounted on this plunger (not shown) which consists of the guides, 90, the horizontally reciprocation carriage 91, the suction lifters, 92, 92, with their air exhausting tubes and their suckers 94, the contact directly with the paper or card in order to remove it from the press. When the carriage 91 is delivering the paper to the fly, it, necessarily, lies above the fly sticks 7 and would prevent the latters turning on their half revolution before the carriage has been reciprocated back out of the way. The fly can not start moving until the carriage has been reciprocated over it, released the paper or card and moved back to clear it. This shortens the time required for the movement of the fly very considerably.

The fly sticks are provided with suction devices, actively operating while the fly sticks are in motion, but releasing the suction when the fly has turned over the sheet, and has it above the table so that it falls on the table. In practice, I make the fly shaft, 22, hollow, and connect it with a suction device, operating intermittently, and provide ports, 23, leading into air passages, 40, running longitudinally in the sticks, 7, from which opening, 41, extend the upper surface of the fly sticks. I find it advantageous to place in these openings, 41, suckers having the face, 30, and the stem, 32, perforated with the hole, 31, and also to make the openings, 41, more numerous than is needed, and to fill those not needed with plugs, having the flange, 33, and unperforated stem, 34. The sticks, 7, can be adjusted around the shaft, 22, and set in position by the set screw, 34. The housing, 16, can adjoin an abutment, 18, having a chamber, 19, that communicates with the interior of the tube forming the shaft, 22, and with the nozzle, 17, adapted to have a flexible tube, 66, fitted over it, that leads to the air exhausting device. The fly is turned, very conveniently, by a rack, 60, gearing with the wheel, 20, set on shaft, 22, on the outside of the housing, 21. The rocker arm, 61, on shaft, 3, serves to reciprocate the rack, 60, and the rocker arm, 62, to reciprocate the plunger in the exhaust mechanism, 63, the two being so timed that the turn of the fly and the active action of the suction will coincide and will cease substantially together.

A movable bed to receive the cards from the fly is provided. It has a step by step movement so that each of the cards or sheets is deposited a little back of the preceding one, so that the newly printed surface will not be smeared. It is usually made so that the amount of this step movement can be adjusted. In practice it is carried on a table and has the series of rollers, 190, carrying the tapes, 191, and is moved by worm engaging

wheels, 73. The spindle, 13, has the worms 72, engaging with the wheels, 92, and is driven by the worm, 71, engaging with the worm driving gear wheel, 73. This latter is set on a suitable shaft, 3, and is driven by a pawl and ratchet movement from the rock shaft, 4. To make the movement of the ratchet wheel, 74 adjustable, the arm carrying the pawl 77, can be made in two pieces; the part, 75, secured to the shaft, 4, and the part, 70, to the pawl can be adjusted to each other by means of the openings, 79, and pins, 78. The whole can be held by a frame, 2, forming the frame of a table.

No matter how swiftly the fly turns or how slippery the card, the latter will be deposited on the table in the proper position.

I claim—

1. In a carry off for plate presses, the combination with a horizontally moving carriage and a moving bed having a step by step movement on which bed printed material is deposited by a fly, of a fly receiving the printed material from the carriage and depositing it upon the bed the sticks of which fly are provided with suction devices actively operating when the fly is turning and released when it is positioned above the bed.

2. The device as defined in claim 1, with this additional element:—the fly remaining stationary so long as the carriage is in a position over the fly sticks.

3. In a plate press carry off, the combination with a carrier, of a fly having a hollow shaft and hollow fly sticks extending therefrom, said fly sticks having suction openings therein, the said carrier carrying the sheets from the press and depositing them on the fly.

4. In a plate press carry off, the combination with a carrier having suction devices thereon, of a fly having a hollow shaft and hollow fly sticks extending therefrom, said fly sticks having suction openings therein, and air exhausting devices for producing the suction in the fly and carrier, said carrier carrying the sheets from the press to the fly.

5. In a plate press carry off, the combination with a reciprocating carrier having suction devices thereon, of fly carrying suction devices, and air exhausting carriers for producing the suction in the fly and carrier, said carrier conveying the sheet from the carrier to the fly.

6. The device as defined in claim 3 with the following additional element, namely:—"and a movable bed upon which the sheets are deposited by the fly."

7. The device as defined in claim 4, with the following additional element, namely:—"and a movable bed upon which the sheets are deposited by the fly."

8. The device as defined in claim 5 with the following additional element, namely:—"and a movable bed upon which the sheets are deposited by the fly."

CHARLES J. GUTBERLET.