Dec. 2, 1952 E. HUNZIKER 2,619,902

DEVICE FOR REMOVING PRINTED SHEETS FROM SWINGING PLATEN PRINTING PRESSES

Filed April 13, 1949 2 SHEETS—SHEET 1

Fig. 1.

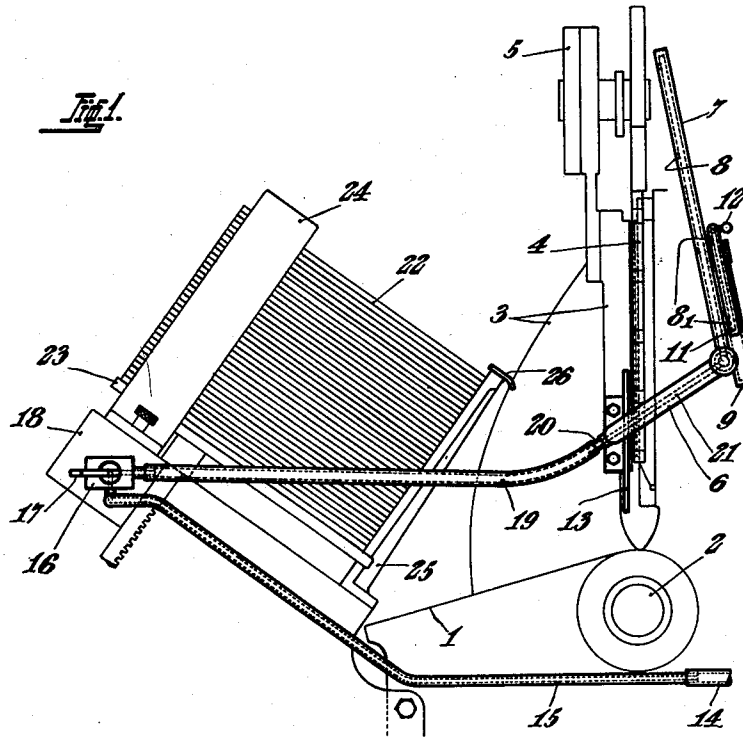

Fig. 2.

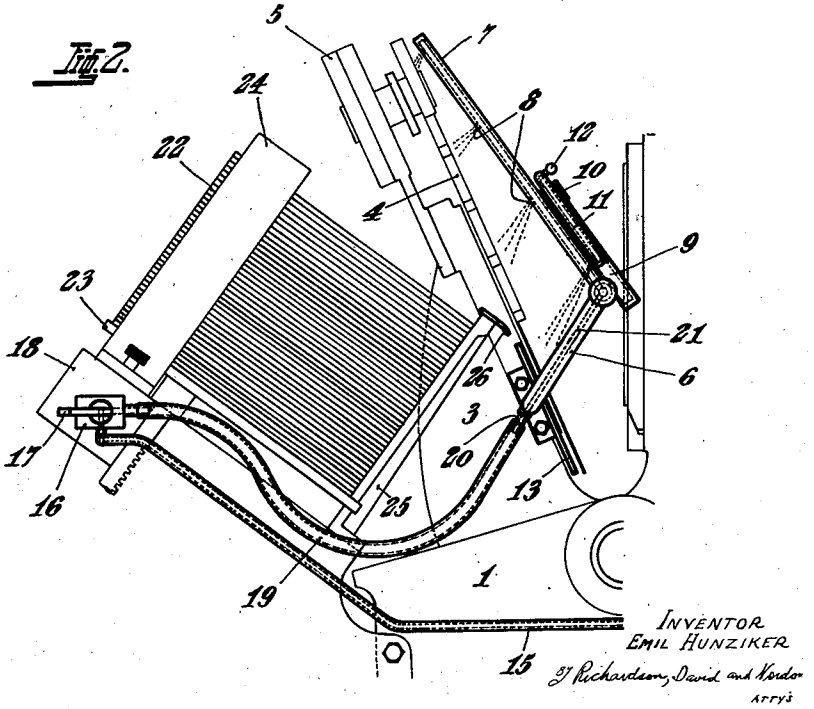

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Fig. 3.

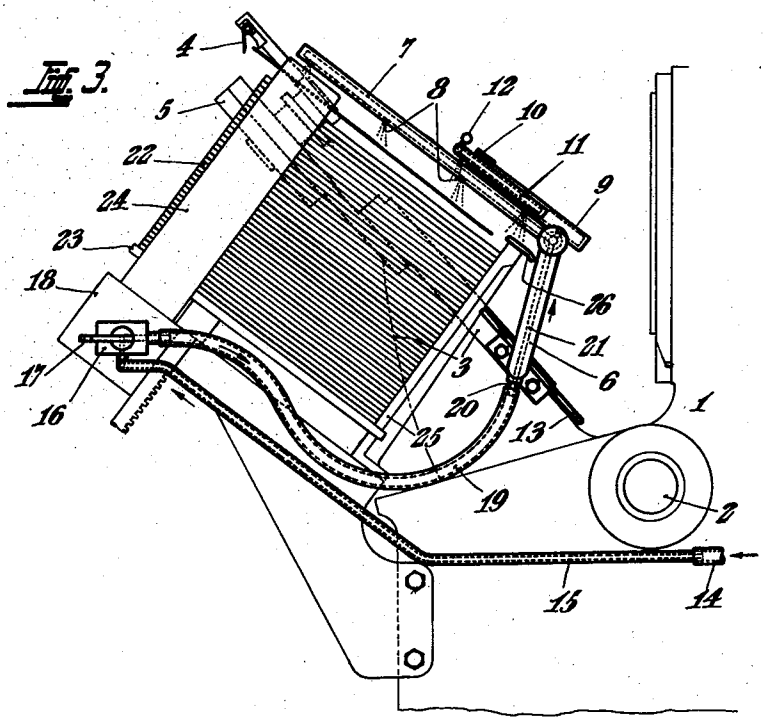
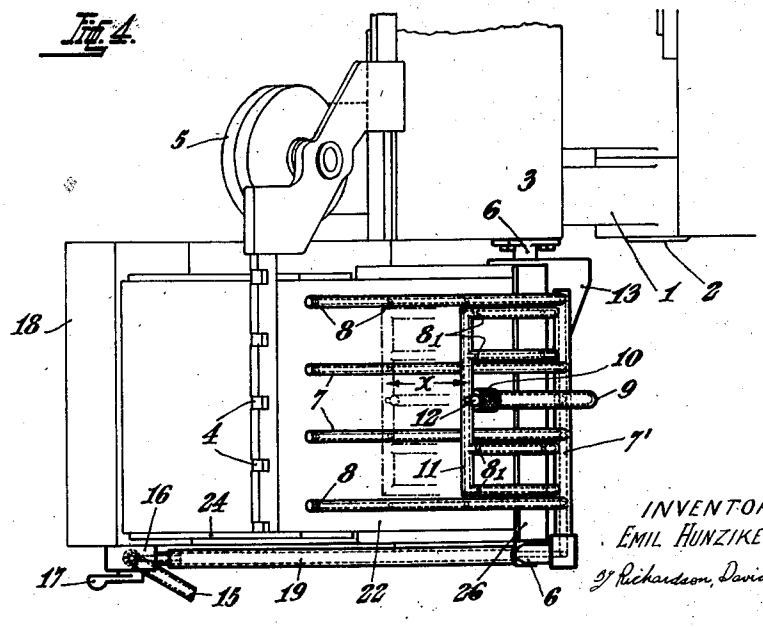


Fig. 4.



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UNITED STATES PATENT OFFICE

2,619,902

DEVICE FOR REMOVING PRINTED SHEETS FROM SWINGING PLATEN PRINTING PRESSES

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3 Claims. (Cl. 101—287)

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This invention relates to a blast device for use in removing sheets from automatically operating swinging platen printing presses, in which the sheets are automatically positioned on and removed from the platen by means of grippers which are mounted on the swinging platen and are periodically rotated parallel to the plane of the platen.

The present invention is an improvement over United States Patent, Gilke, No. 1,180,770.

In platen printing presses in which the sheets are transferred in this way it has hitherto not been possible to make full use of the maximum speed of operation of the machine, especially when working with thin paper. At high speeds of operation sheets of thin paper are not removed as required, since, in spite of the use of blast air emerging from stationary blast devices, the rear end of the sheet, which is not held by the gripper, tends to rise up.

With the blast device according to the present invention it is possible to make use of the maximum speed of operation of the machine even when using thin paper. The invention consists essentially in that blast means, which deliver blast air for pressing down the sheet when the latter is removed from the printing platen and held over the stacking table, follow from an initial position the movement of the sheet in the direction of the stacking table and revert to their initial position when the sheet has been stacked, the movement of the hollow blast means being controlled in dependence upon the movement of the parts of the machine which move the printing platen. During the removal of the sheet blast air is blown downwards from a number of holes from hollow bodies provided with nozzles, which blast air prevents the rear end of the sheet not held by the grippers from rising up and prevents also fluttering of the sheet and contact of the sheet with the hollow bodies, for example blast tubes. In this way, even with high speeds of operation, the sheet is carried smoothly and in a stretched condition on to the stack and is deposited as required.

In platen printing presses, in which the sheets are automatically positioned on and removed from the platen by means of grippers which are mounted on the swinging platen and are periodically rotated parallel to the plane of the platen, which printing presses represent a definite category within the class of automatic platen printing presses, it was previously only known to act upon the sheets as they were carried to the stack by means of rigidly arranged blast air devices,

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i. e. stationary devices. Full use could not however be made of the speed of operation of the machine with thin paper when using blast devices arranged rigidly above the stacked pile. The reason for this is that the blast air acts from a continually increasing distance upon the outwardly swinging sheet on its path to the stacked pile. According to the present invention the blast air acts on the sheet from a distance and with an effect which remains practically uniform, because the blast means follow the movement of the sheet to the stacked pile at a constant distance.

One embodiment of the invention will be described with reference to the accompanying drawings, in which:

Fig. 1 is a side view of the device shown in combination with the relevant parts of an automatic platen printing press with the printing platen in the printing position,

Fig. 2 shows a side elevation with the printing platen half open,

Fig. 3 shows a side elevation with the printing platin wholly open at the moment when the printed sheet is deposited on the stacked pile, and

Fig. 4 is a plan view of the device seen from above at the moment when the sheet is deposited.

Referring now to the drawings, 1 denotes a part of the base frame of an automatic platen printing press. The printing platen 3 is moved by known driving means (not shown) from the vertical printing position of Fig. 1 into the open position according to Fig. 3 and back again, about the axle 2 which is rotatably mounted on the base frame 1 and is rigidly connected to the printing platen 3. A known intermittent drive 5 associated with two of the grippers 4 is arranged on the printing platen. The sheet grippers 4 for removing the printed sheet participate also in the movement of the printing platen and are periodically advanced in the direction shown by the arrow in Figure 4 by steps of 90° by the intermittent drive 5 secured to the printing platen.

The bracket 6 is secured to the narrow side of the printing platen 3 facing the stacking table 23. The bracket 6 carries hollow blast means 7 formed from light tubes, the means 7 having the form of a rack and being non-adjustable. Blast holes 8 are provided below the blast tubes 7. A tube 9 is welded to the cross tube 7'. When the knurled nut 10 is released, a more lightly constructed blast tube in the form of a rack 11, adapted to be grasped by means of a knob 12, is slidable in the tube 9 along the path X away from and towards the gripper 4. Both the blast tube racks are formed of light steel tubing with closed

ends. The rack 11 is adjusted for the removal of small sheets and the downwardly directed blast holes 8' are simultaneously adjusted according to the size of the sheet. A sheet guiding plate 13 is screwed to the bracket 6 in such a way that for example it lies preferably a few millimeters below the printing face of the printing platen, so that the printed sheet can swing out over it at a small distance when the gripper 4 swings out.

Pressure air is supplied from an air pump, not shown, of known construction through the flexible tube 15 secured to the base frame of the machine to a regulating housing 16, which is screwed to a casting 18 on the front side of the machine where the operator stands. By turning a cock 17 the strength of the blast air can be adjusted as required in accordance with the thickness and size of the paper. The supply of blast air leads from the cock housing 16 through a flexible tube 19 to a tube extension 20 which is screwed rigidly into the bracket 6. A tube 21 leads to the blast racks 7 and 11.

The table 23 with the stacked pile 22 is automatically lowered in known manner so that the upper face of the stack remains constantly at a uniform height. The stack is guided at the sides by side standards 24. The stacking table 23 is inclined so that sheets released one after the other by the gripper 4 slide downwards a little until the rear edge of the sheets abuts the abutment standards 25. A polished sheet guiding plate 26, over which the sheet is drawn during removal, is secured to the standard 25.

The mode of operation of the blast device as described and shown during the removal of sheets is very simple.

As the printing platen moves from the printing position shown in Fig. 1 to the open position shown in Fig. 3, the gripper 4 swings with the printed sheet to the stacking pile. The blast air emitted from the blast tubes meanwhile holds the sheet stretched over its whole length and, since the blast tubes participate in the movement of the platen, acts from a uniform distance on the sheet until the sheet is released by the gripper 4 in the open position of the platen and slides on to the stack. Although the rack 7 is only a small distance above the sheet, the air streaming out prevents contact of the printed sheet with the blast tube rack.

In this way, by using the movement of the printing platen to effect corresponding movement of the blast tube rack, the speed of operation is increased considerably, especially when using thin paper, with satisfactory removal of the sheets. Hence use can be made of the maximum speed of operation of the machine even when working with thin paper.

What I claim is:

1. A device for removing printed sheets from swinging platen printing presses provided with grippers which are secured to the swinging platen and are rotated stepwise to convey printed sheets in an extension of the plane of the swinging platen to a sheet-stacking table, wherein hollow blast means, which deliver blast air for pressing down the printed sheet on the stacking table, follow the movement of the sheet in the direction of the stacking table and revert to their initial position after each sheet has been deposited, and means securing said hollow blast means to said swinging platen, thereby causing the movement of the hollow blast means to be controlled by moving parts of the machine.

2. A device as claimed in claim 1, in which the means for securing said hollow blast means is a bracket carrying the hollow blast means is secured to the swining printing platen.

3. An apparatus as claimed in claim 2, wherein the hollow blast means are tubes having a longitudinally adjustable part provided with blast holes to permit of varying the action of the blast air in accordance with the length of the sheet to be removed.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,381,806	Cunningham	June 14, 1921
1,427,002	Lorig et al.	Aug. 22, 1922
1,692,597	Vicum	Nov. 20, 1928
1,746,414	Brandl et al.	Feb. 11, 1930
2,145,056	Rossger	Jan. 24, 1939

FOREIGN PATENTS

Number	Country	Date
388,234	Great Britain	Feb. 23, 1933
465,633	Germany	Sept. 6, 1928