

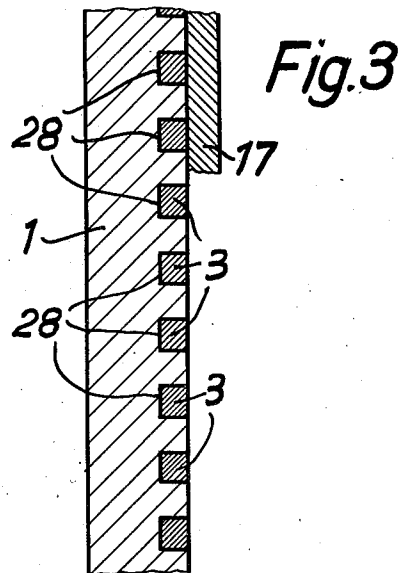
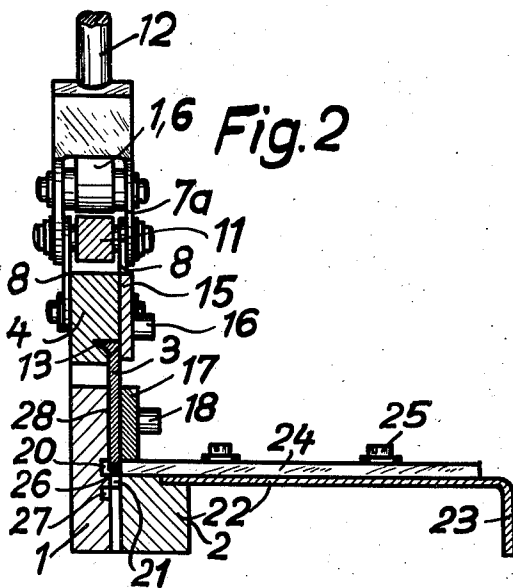
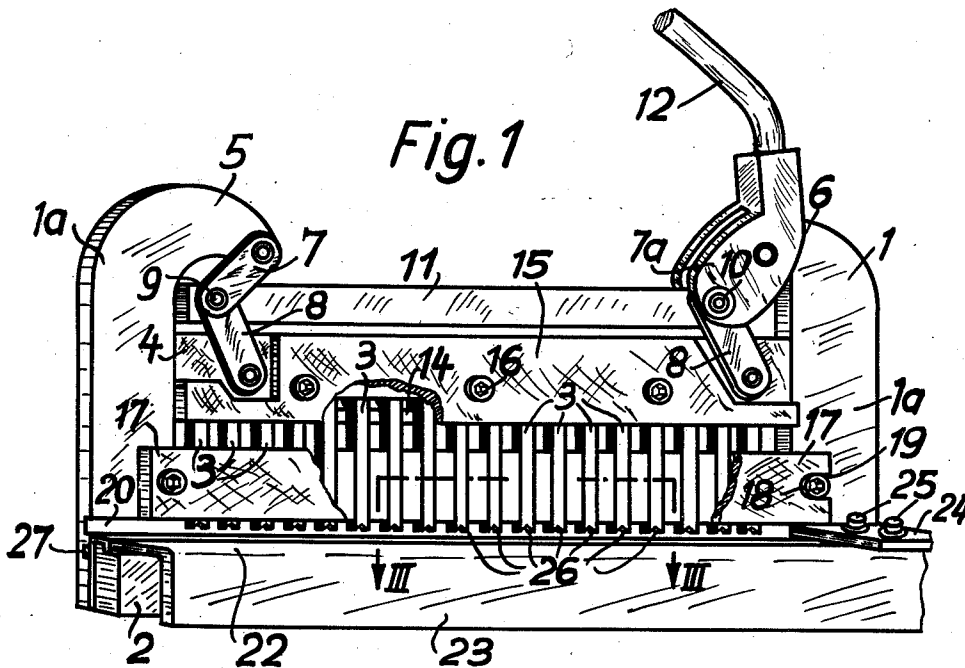
Nov. 26, 1957

A. JAUSS

2,814,346

PUNCH PRESS

Filed June 20, 1955



INVENTOR
ALBERT JAUSS
By *Karlmann*
att'y

1

2,814,346

PUNCH PRESS

Albert Jauss, Stuttgart-Bad Cannstadt, Germany, assignor
to Bohm & Co., Stuttgart, Germany

Application June 20, 1955, Serial No. 516,543

Claims priority, application Germany June 23, 1954

3 Claims. (Cl. 164—91)

This invention relates to punch presses, more especially adapted for use in perforating paper staples for ring books and the like.

Hitherto the punching of a greater number of holes near the edge of a pile of papers designed to be stitched together to form books was effected with the aid of devices requiring considerable force for their operation. If such rows of perforations are to be made wholesale in a factory the punch presses are operated by motors or with the aid of pedal levers.

The punch press according to this invention is particularly adapted for use by hand.

Hand punches hitherto provided to produce a plurality of holes at each operation, were provided as a rule with two hand levers which had to be operated simultaneously.

The multi-hole punch press according to this invention is designed for a simple and easy operation, while considerable force is available for its operation by hand.

This is provided for by the fact that the device comprises an open frame serving as a support for the operating lever and for the guiding of the punch rail. This rail is formed with open notches for the individual punches and these notches are covered by a single rail, while the operating lever is supported at one end of the frame and is operatively connected by several links with the punching rail which is guided in the frame.

The punches for the formation of perforations of right-angular holes can be covered in a simple manner by an easily removable plate, below which the perforations guiding the punches are arranged.

It is however also possible to provide a special matrix formed with corresponding indentations which adjoins a smooth face of the frame and covers the holes on the side where they are open.

In the drawings affixed to this specification and forming part thereof an embodiment of the invention is illustrated diagrammatically by way of example.

In the drawings,

Fig. 1 is a perspective view of the device with the punches lifted almost to their highest point,

Fig. 2 is a corresponding cross section, and

Fig. 3 shows a detail of Fig. 1, namely a partial horizontal section along the dot-and-dash line shown in Fig. 1 illustrating the notches on the frame.

Referring to the drawings, 1 is the U-shaped frame and 2 is a rail adjoining the bottom part of the frame. This rail is formed with guides for the punches 3. The punches themselves are held in position by a punch head 4 extending between the vertical parts of the frame. Inwardly bent end portions 5 and 6 of the vertical frame members support, pivotally, the upper ends of the toggle levers 7 and 8, the lower ends of which are pivoted to the punch head 4. The pivots 9 and 10 of two pairs of levers 7 and 8 are connected with each other by a rod 11. The upper member of the toggle lever 8, which is pivoted to the arm 6, supports a lever arm 12 for the operation of the device.

2

The punches 3 which are supported in spaced notches 14 in the punch head 4 are provided with heads 13 which engage corresponding recesses. The punches are held in place by a plate 15 which is mounted on the punch head 4 by means of screw bolts 16.

The grooves or notches 28 of the frame 1, in which the punches are held for reciprocation, are covered by a rail 17 fixed in position on the frame 1 by means of screw bolts 18. Only one of the screw bolts 18 need to be loosened if it is desired to interchange the punches. When the other bolt is loosened also, the rail, which is provided at 19 with an open indentation, can be removed.

The rail 17 and a corresponding notch 20 in the frame 1 form together with the punch rail 2 passages 21 formed with a slot for the introduction of the paper. The rail 2 is broadened by a plate 22 in such a manner as to afford a comfortable support for the paper. The plate 22 also forms, by means of its vertical pass 23, a support for the device. At one end of the plate 22 a check 24 is provided at right angles to the introduction slot. After the screw bolts 25 have been loosened, this check can be shifted sideways by the width of a punch 3.

This adjustability is provided for the purpose of allowing the position of the paper staple relatively to the last punches to be so varied, that the two sides of the paper, which remain over beyond the outer punch holes, will become equal in width.

The device here described is particularly adapted for the production of rectangular holes. In order to obtain a uniform cutting of the paper, the punch knives may be formed with triangular indentations, so that first the narrow side and then the edges extending and producing a shearing effect thereto at an angle can cut simultaneously in the paper.

A longitudinal groove 27 underneath the openings 21 in the bottom part of the rails prevent the paper from being compressed unduly during the punching.

When lifting the lever 12, the toggle levers 7 and 8 are moved towards the left by means of the rod 11 and carry the punch head 4 together with the punchknives 3 upwardly, so that the cutting edges 26 disappear altogether from the groove 20.

The paper to be perforated can be inserted along the check 24, by forcing downwards the lever 12, the toggle levers 7 and 8 are returned towards their inclined position by means of the rod 11, so that, when the punch frame is moved downwardly, the punches 3 perforate the paper.

No separate return springs are provided, which might lower the force exerted by means of the levers. The return of the punches into their inoperative position is effected by lifting the lever 12.

All the parts are formed with notches for the guiding of the punches which produce rectangular holes and can be covered in a simple manner by a plate.

In leaving free an introduction slot, openings of the notches for the punches can be formed in the frame in a similar manner. Alternatively a separate matrix may be provided with indentations for the formation of right-angular holes.

A long row of punch guiding notches may be provided without any difficulty and with great precision in the several parts of the frame. The holes may be round, oval or angular.

I wish it to be understood that I do not desire to be limited to the details of construction described in this specification and shown in the drawing, for obvious modifications will occur to a person skilled in the art.

I claim:

1. Punch press, particularly adapted for use as paper punch, comprising a frame including vertical portions and inwardly bent end portions, a pair of toggle levers pivoted

3

at their upper ends to each of said end portions, one of said upper toggle ends including an extension to serve as manual operating lever for the press, a rod interlinking the center pivots of said toggle levers, a punch head linked to the lower ends of said toggle levers, said punch head comprising spaced notches, open toward the material feed side of the press, punches inserted with their tops in said notches, and a removable cover plate mounted on said punch head and disposed to lock said punches in said notches.

2. The punch press according to claim 1, wherein the frame comprises a material insert slot, punch guide notches arranged in said frame, in register with the punch head notches, and likewise open toward the material feed side of the press, and a second removable cover plate, mounted on the frame and disposed to close said guide notches.

3. The punch press according to claim 1, wherein the

4

punch head notches include horizontal recesses, and the punch tops include projections engaging said recesses, said cover plate securing said projections in said recesses whereby to firmly secure the punches in the punch head.

References Cited in the file of this patent

UNITED STATES PATENTS

629,862	Langjahr	Aug. 1, 1899
712,547	Kittredge	Nov. 4, 1902
806,262	Joslin	Dec. 5, 1905
1,060,772	Lenihan	May 6, 1913
1,409,742	Ling	Mar. 14, 1922
2,336,528	Canter	Dec. 14, 1943
2,587,749	Misson	Mar. 4, 1952
2,601,108	Emmer	June 17, 1952