Oct. 12, 1926. 1,602,687

E. LESCHHORN

DIE STRIP AND BED FOR SHEET PERFORATING MACHINES

Filed March 30, 1923

Fig. 2.

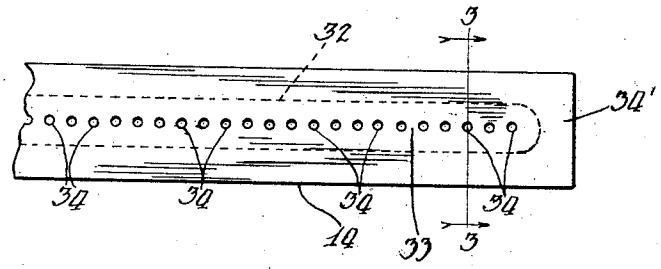


Fig. 1

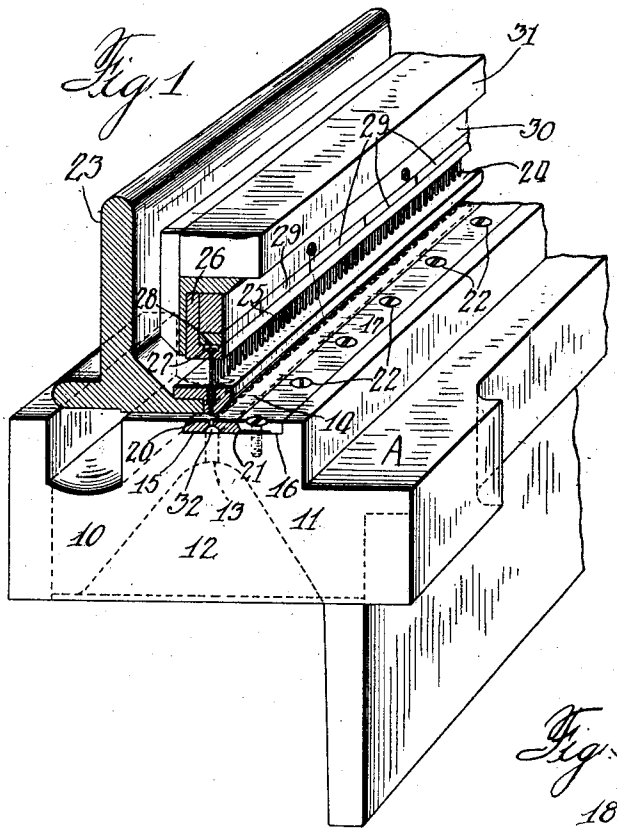
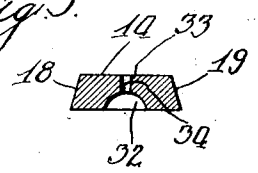


Fig. 3.



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Patented Oct. 12, 1926. 1,602,687

UNITED STATES PATENT OFFICE.

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DIE STRIP AND BED FOR SHEET-PERFORATING MACHINES.

Application filed March 30, 1923. Serial No. 628,724.

The invention relates to improvements in die strips and beds for punching presses for perforating sheets of paper or analogous material.

The primary object of the invention is to provide a die strip of such construction as to greatly reduce the cost of the manufacture thereof.

A further object of the invention is to provide a bed for a punching press to which a die strip may be readily attached and detached therefrom without weakening the body of the die strip by the removal of a portion of the metal thereof for the passage therethrough of means for attaching the die strip to the bed.

A further object of the invention is to provide a bed for a punching press having an integral part for co-operating with a clamping plate for securing a die strip to the punching press bed.

Other objects of the invention will appear from the following description which is directed to the preferred embodiment of the invention, which is illustrated in the drawing forming a part of the specification.

Fig. 1 is a perspective view of the improved bed and die strip and the associated parts of a punching press.

Fig. 2 is a top plan view of the improved die strip having a part thereof broken away.

Fig. 3 is a transverse sectional view of the improved die strip taken on line 3—3 of Fig. 2 looking in the direction of the arrows.

Like reference characters refer to like parts throughout the several views of the drawing.

In the drawings the improved punching press bed is indicated by the reference character A generally and has two inwardly and upwardly inclined side walls 10 and 11 forming an arched or dome-like compartment 12. The upper extremities of the walls 10 and 11 are spaced apart forming a slot 13 therebetween, throughout the entire grooved length of the die strip 14. The side walls 10 and 11 have recesses 15 and 16 in their respective upper or horizontal faces for receiving therein the die strip 14 and clamping plate 17. The die strip 14 has upwardly converging sides 18 and 19, one of which converging sides is adapted to interlock with the undercut side wall 20 of recess 15 in the horizontal face of wall 10 of bed A. The other of the converging sides of the die strip is adapted to interlock with the undercut side 21 of the clamping plate 17 when the clamping plate is secured in position as shown in Fig. 1. It will be seen by reference to Fig. 1 that the die strip is dovetailed between the undercut side wall 20 of recess 15 and the undercut side 21 of the clamping plate 17. Clamping plate 17 is secured to wall 11 of bed A by screws 22. Stripper bar 23 supports stripper plate 24, which plate is for the purpose of stripping the sheet of material being perforated by the punch pins 25 therefrom in the upward or withdrawal movement from the sheet of material being perforated, of the punching pins, after having passed through the sheet, thereby providing against tearing or marring the sheet and maintaining the same in a positive and definite position. Punch pin holder 26 is provided with a longitudinal recess 27 in the lower portion thereof for receiving therein the heads 28 of the punch pins 25, as is the usual construction in such devices. Pin slugs 29 are interposed between the top of recess 27 and the pin bar 30 for firmly seating the heads 28 of punch pins 25 on the bottom of recess 27 during the downward movement of the punch pins. Head 31 is of the usual construction in such devices.

Die strip 14 may be made of a comparatively thick piece of tool steel and recessed or grooved as at 32 which will require only the comparatively thin portion 33 of the strip to be drilled for forming the apertures 34 for the passage therethrough of the punch pins 25, thus reducing the amount of drilling to form the apertures 34 to a minimum. The recesses 32 in the die strip 14 should extend only sufficiently far longitudinally of the strip to embrace the respective end apertures 34, thus strengthening the ends of the strip 34′ as shown in Fig. 2.

It will be seen from the foregoing disclosure that the invention provides not only a simple and secure means for securing a die strip to the bed of a punching press, but it also provides a die strip that can be produced at a greatly reduced expenditure of time in the manufacture thereof and therefore at a greatly reduced cost, as the thickness of the hard tool steel necessary to be drilled for making the apertures 34 for the passage of the punch pins 25 is greatly reduced, which reduction is accomplished with-

out endangering the strength of the die strip, as I have discovered that the strip will be of sufficient strength if the outer or peripheral portions thereof be left intact or uncut as shown and further strength is given to the strip by drilling for fastening purposes. The slot 13 between the upper extremities of the walls 10 and 11 of bed A is to form a clearance for punch pins 25 in their downward movement and through which the punchings or small discs punched from the sheet of material being perforated may descend by gravity into compartment 12 from which they may be removed and disposed of in any desired manner.

What I claim is:—

1. The combination with a bed for a punch press having a groove in the face thereof, one of the walls of the groove being undercut, a slot through the bottom of the groove, of a die strip having upwardly converging walls, one of which walls is adapted to contact with the undercut wall of the groove in the bed, a clamping plate having an undercut wall adapted to contact with the other converging wall of the die strip, the die strip having a groove in the underside thereof, and perforations from the top face of the die strip to the groove in the under side thereof, and means for securing the clamping plate to the bed.

2. The combination with a bed for a punch press having a groove in the face thereof, one of the walls of the groove being undercut, a compartment in the bed and beneath the groove, the groove having a slot in the bottom thereof and communicating with the compartment, of a die strip having upwardly converging walls, one of which walls is adapted to contact with the undercut wall of the groove in the bed, a clamping plate having an undercut side adapted to contact with the other converging wall of the die strip, the die strip having a groove in the under side thereof and perforations from the front face of the die strip to the groove in the underside thereof, and means for securing the clamping plate to the bed.

3. A die strip for a punch press consisting of a longitudinally extending member having upwardly converging walls, there being a longitudinally extending groove formed on the under side of said strip, said groove being positioned centrally with respect to the longitudinal edges of said strip and spaced from the ends thereof so as to form a continuous uniform cross section of material around said groove, a plurality of perforations extending through said strip into said groove and said upwardly converging walls forming the contacting portions of the die whereby the die is clamped in the press.

In testimony whereof I have signed my name to this specification on this 22nd day of March A. D. 1923.

ERNEST LESCHHORN.