

Aug. 14, 1945.

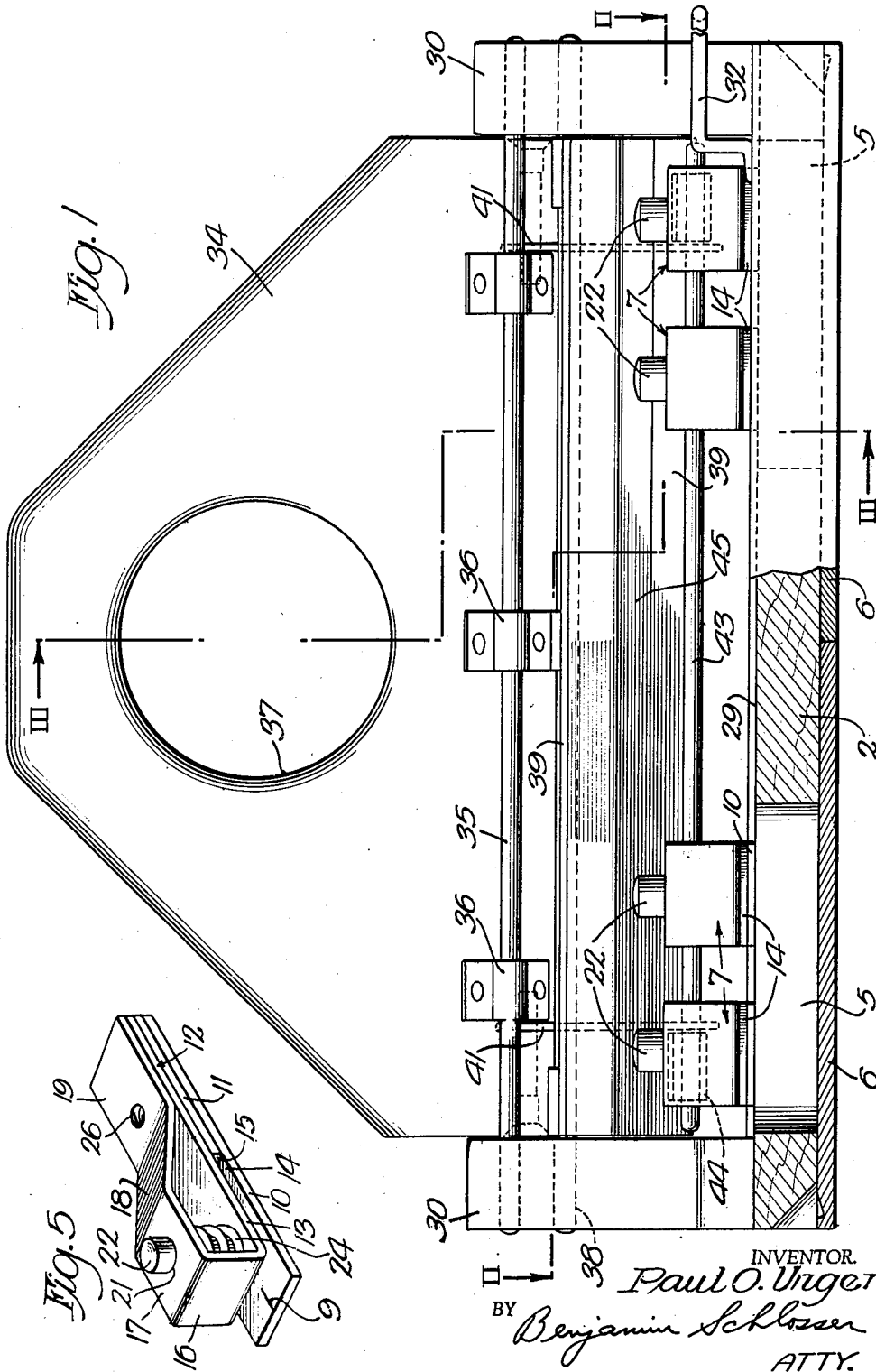
P. O. UNGER

2,382,523

PUNCH

Filed Dec. 23, 1943

3 Sheets-Sheet 1



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PUNCH

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3 Sheets-Sheet 2

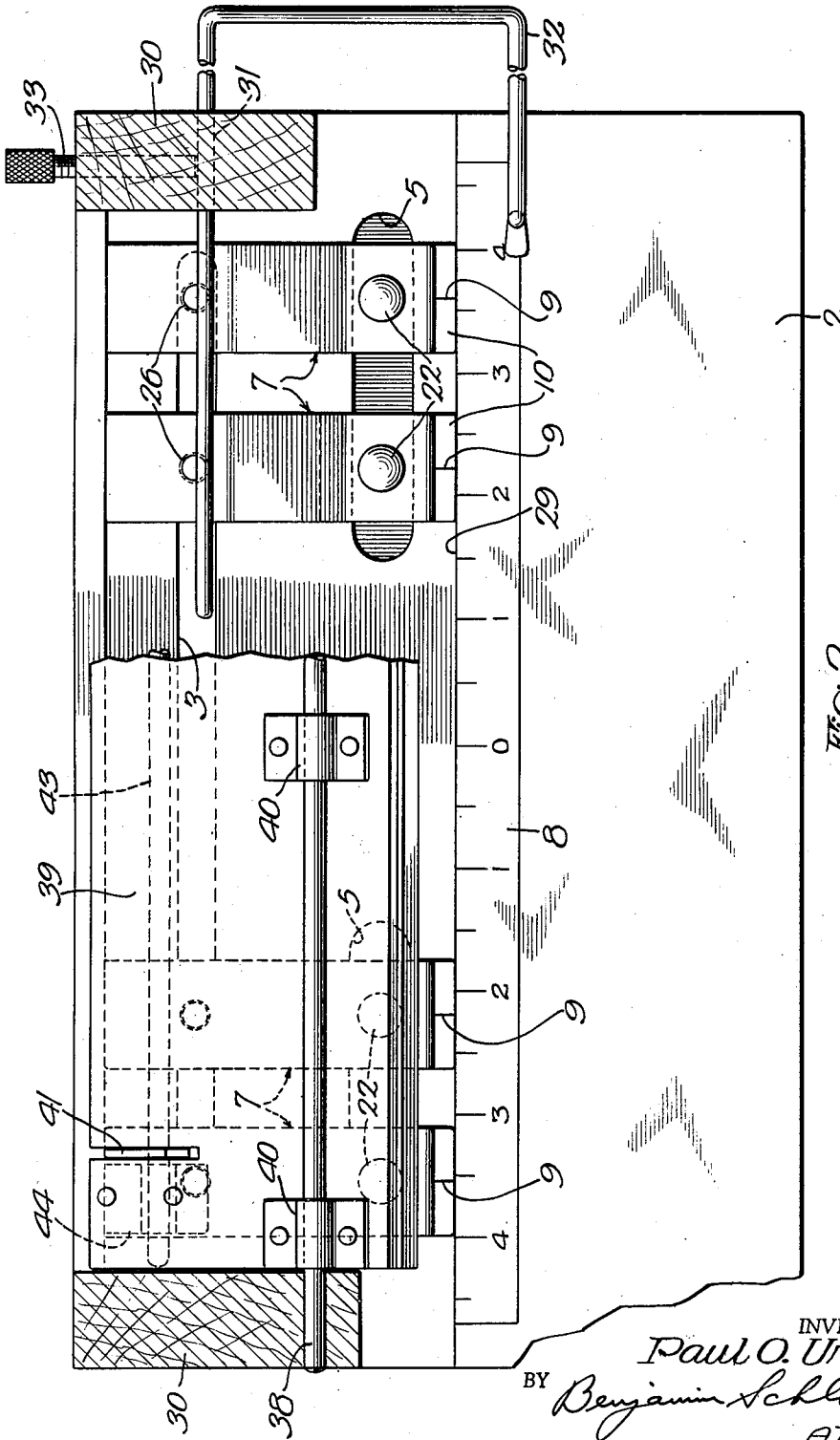


Fig. 2

INVENTOR.
Paul O. Unger
BY *Benjamin Schlosser*
ATTY.

Aug. 14, 1945.

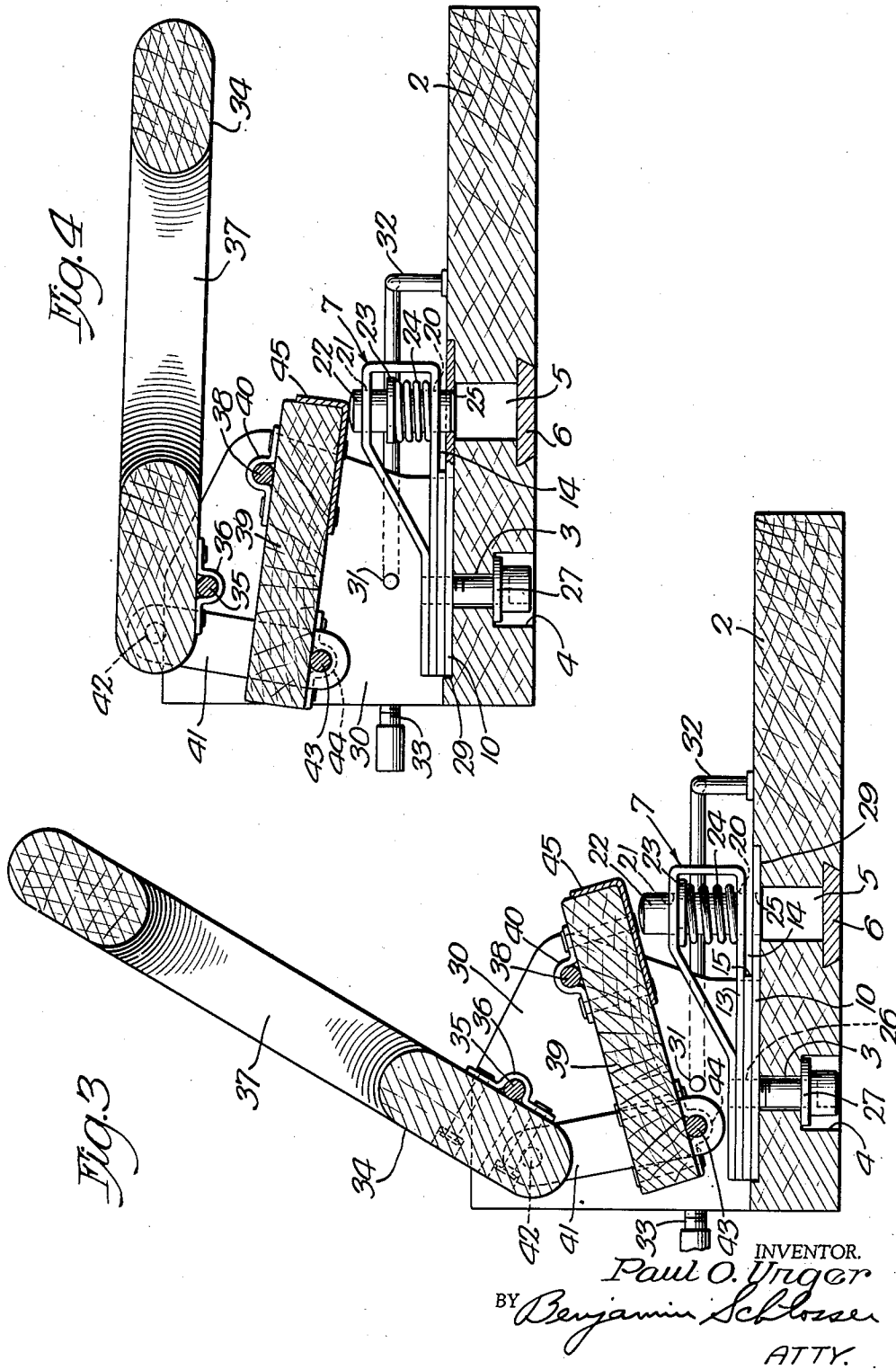
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,382,523

PUNCH

Paul O. Unger, Elmhurst, Ill., assignor to Wilson-Jones Company, Chicago, Ill., a corporation of Massachusetts

Application December 23, 1943, Serial No. 515,358

1 Claim. (Cl. 164-91)

This invention relates to a punch for perforating loose sheets of paper or similar material.

It is an object of this invention to provide a punch with means for applying increased power to the cutting punches. Other objects of this invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a front elevation of a punch embodying my invention, with parts broken away to facilitate illustration of the structure;

Figure 2 is a longitudinal sectional view taken along the line II-II of Figure 1;

Figure 3 is a cross sectional view taken along the line III-III of Figure 1;

Figure 4 is a cross sectional view, similar to Figure 3, showing the punch parts in depressed condition; and

Figure 5 is a detailed perspective view of the punch head.

In the drawings, the reference numeral 2 indicates a base member. The base member is provided with a laterally extending cut out portion 3. This cut out portion is provided with an enlarged portion 4 for a purpose hereinafter described. The base member is also provided with a pair of transversely extending apertures 5 parallel to the aperture 3. The apertures 5 constitute receptacles for the chips punched out of the sheets perforated by the punch and are each provided with a sliding bottom closure member 6. Although a pair of separated apertures 5 is shown, it will be understood that one long aperture may be substituted for the two shorter apertures. In this event a single closure member would replace the pair of closure members 6.

A plurality of punch heads 7 is positioned on the base member 2. A scale 8 is provided on the top surface of the base member 2 adjacent the punch heads to facilitate lateral adjustment of the punch heads. The punch heads are each provided with a center line 9 to facilitate the proper positioning of the punch heads relative to the scale 8.

Each punch head comprises a base plate 10, a spacer 11 positioned on said base plate, and a frame 12. The frame is formed from a continuous strip of sheet metal having one portion 13 which constitutes a stripper plate positioned on said spacer 11 and extending over the base plate 10 where it projects beyond the spacer 11 to provide a throat 14 between the base plate 10 and the stripper plate 13. The front edge 15 of the spacer 11 constitutes the back of the throat 14. The strip of sheet metal forming the frame 12 is

bent upwardly to provide a front wall 16 and is then bent at right angles to provide a top wall 17 for the punch heads. The strip is then bent downwardly, as indicated at 18 to form a tail portion 19 which engages the rear portion of the stripper plate 13. The base plate 10, the spacer 11, the rear portion of the stripper plate 13, and the portion 19 are all welded together to form a rigid structure.

The stripper plate 13 and the top wall 17 are provided with registering apertures 20 and 21 which are adapted to receive a punch pin 22. A flange 23 is secured to the punch pin 22 adjacent the under surface of the top wall 17. A coiled spring 24 encircles the punch pin 22 below the flange 23 and is operable to force the punch pin upwardly upon release of the handle after the punch pin has been depressed. The base plate 10 is provided with an aperture 25 in registration with the apertures 20 and 21 to receive the cutting end of the punch pin 22 when it is depressed, as indicated in Figure 4. The aperture 25 is positioned directly over the chip receptacle 5.

The rear portion of punch head 7 is provided with a threaded aperture 26 which is positioned directly over the aperture 3 when the punch head is positioned on the base member 2. A screw 27 having an enlarged head fitting in the wide portion 4 of the aperture 3 is adapted to engage the screw threaded aperture 26 to maintain the punch head in any desired lateral position on the base member. When the screw 27 is tightened, the punch head 7 is positioned in a slight depression 29 formed in the top surface of the base member 2. This depression 29 extends transversely across the entire width of the punch and is of the same depth as the thickness of the base plate 10 so that the top surface of the base plate 10 is flush with the top surface of the base member 2 to facilitate the insertion of sheets into the punch. When it is desired to remove any punch head 7 from the base member the screw 27 is disengaged from the aperture 26, and the punch head may then be lifted off the base member.

A pair of upstanding supports 30 is secured to the opposite ends of the base member 2 adjacent the rear edge thereof. One of said supports 30 is provided with an aperture 31 and a conventional wire side gauge 32 has one leg secured in said aperture 31 by means of a thumb screw 33. An operating handle 34 is pivotally mounted on a rod 35 which has its opposite ends mounted in the supports 30. The handle is mounted on the rod by means of a plurality of straps 36 in the

embodiment shown in the drawings, but any suitable means for mounting the handle on the rod 35 might be used. The handle 34 is provided with a hand hole 37 to facilitate the manipulation of the handle.

A rod 38, similar to the rod 35, also has its opposite ends mounted in the upstanding supports 30, and has a pressure plate 39 pivotally mounted thereon by means of a plurality of straps 40. The rear edge of the pressure plate 39 is operatively connected to the rear edge of the operating handle 34 by means of a plurality of links 41. A rod 42 projecting through the handle 34 engages one end of each of said links 41, and a rod 43, secured to the pressure plate 39 by means of a plurality of straps 44, engages the opposite end of each link 41. A metal plate 45 is secured to the edge of the pressure plate 39 where the pressure plate is in engagement with the top of the punch pin 22.

The operation of the punch will be clear from a study of Figures 3 and 4 of the drawings. When the punch is in the position indicated in Figure 3, a sheet or sheets to be perforated may be inserted into the throat 14 formed between the base plate 10 and the stripper plate 13 of the punch heads. Downward pressure on the operating handle 34 lifts the links 41, and with them the rear edge of the pressure plate 39. The force applied to the top of the punch pins 22 is increased by the compound leverage between the

operating handle 34 and the pressure plate 39 so that the punch pins may perforate a greater number of sheets in a single operation than would be possible if the handle pressed directly against the punch pins.

Although I have described a preferred embodiment of my invention in detail, it will be understood that the description thereof is illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. For example, the embodiment illustrates a punch constructed substantially of wooden parts, and it will be obvious that when the parts are made of metal the finished appearance of the punch would be improved if the various rods pass through the handle and the pressure plate instead of being secured on the outside thereof. Accordingly, I do not desire to be restricted to the exact construction described, except as limited by the appended claim.

I claim:

In a desk type hand operated punch, a base member, a pair of upstanding supports secured to opposite ends of said base member, a pair of rods each having its ends mounted in said supports, a pressure plate pivotally secured to one of said rods, an operating handle pivotally secured to said other rod, and a link connecting said operating handle to said pressure plate.

PAUL O. UNGER.