Sept. 27, 1966 J. C. VECCHI 3,274,878

APPARATUS FOR MOUNTING PIERCING PUNCHES

Filed Oct. 23, 1964

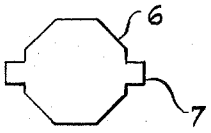


Fig. I

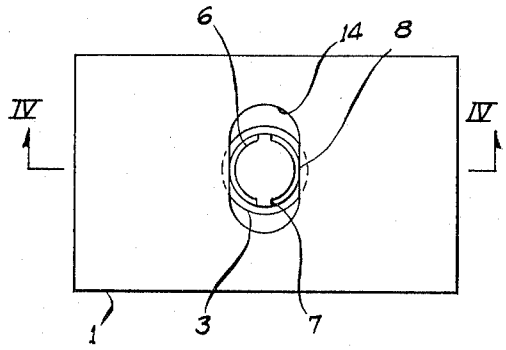


Fig II

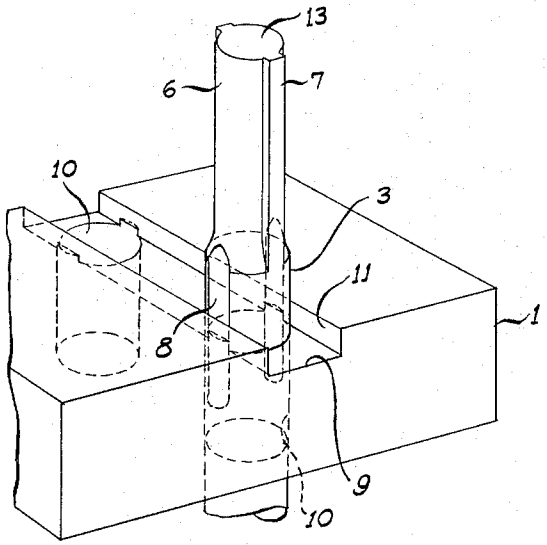


Fig. III

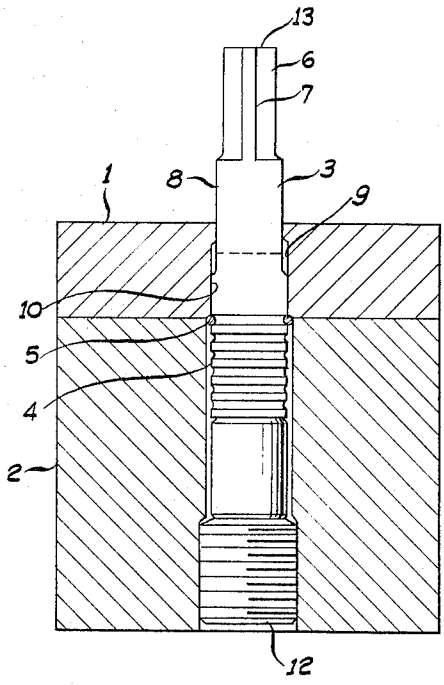


Fig. IV

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United States Patent Office

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APPARATUS FOR MOUNTING PIERCING PUNCHES

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1 Claim. (Cl. 83—698)

This invention relates to new and useful improvements in method of mounting piercing punches and the present application is a modification of the piercing punch mounting disclosed in my Patent No. 3,149,524 issued September 22, 1964.

In my former patent, I have shown a combination punch block and punch holder with bores in alignment for receiving piercing punches that have cutting faces and cylindrical shanks mounted in the bores with means for adjusting the ends of the punches and for securing the punches in the punch blocks.

In accordance with the present invention, such punches are mounted in punch blocks in a manner to maintain relative alignment of specially designed die faces of the punches with the punch holders.

The invention will become more apparent from a consideration of the accompanying drawing constituting a part hereof in which like reference characters designate like parts and in which:

FIGURE 1 is a top plan view of a piercing punch of octagonal shape with key-like projections;

FIGURE 2 a top plan view of another form of piercing punch mounted in a punch holder in which it is seated in a manner to maintain alignment of the octagonal and key-shaped cutting edges with the punch block and in proper relation with other piercing punches in any such blocks when a plurality of such punches are used in a single block, which is the customary practice;

FIGURE 3 discloses a view in perspective of a punch block and piercing die embodying this invention, and;

FIGURE 4 is a view, partially in cross section and partially in elevation, of the die and block of FIGURE 3 with the punch holder and punch block in assembled position.

In the drawing, the numeral 1 designates a punch holder and the numeral 2 a punch block; 3 generally designates a piercing punch having a series of grooves 4 for engagement by a retaining ring 5 to secure the piercing punch in the manner described and disclosed in my aforementioned patent.

As shown in the plan view of FIGURE 1, the piercing punch 3 may be of octagonal shape, as shown at 6, provided with key-like projections 7 and the cylindrical body portion 3, as shown in FIGURE 4, may be provided with flats 8, FIGURES 3 and 4. These flat portions are likewise shown in FIGURE 2 where the piercing punch is of

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cylindrical shape with the exception of the projecting key-like elements 7.

With reference to FIGURE 3, the punch holder 1 is slotted, as shown at 9, and cylindrical bores 10 are provided to receive the cylindrical body portion of the piercing punch 3. As shown in FIGURE 3, the flats 8 of the piercing punch engage the square vertically disposed faces 11 of the slots 9 to keep the piercing punch from turning, so that the shape of the punch, as in FIGURE 1, is always in proper alignment with the shapes and position of other piercing punches that are secured in the punch holder and punch block. When the piercing punches are assembled in the manner shown in FIGURES 3 and 4, they are secured in place by set screws 12, FIGURE 4, after they have been adjusted to have the punching face 13 at the proper height from the punch blocks 2. Once they have been adjusted, the set screws 12 hold them in place.

As shown in FIGURE 3, any number of cylindrical bores 10 may be made for spacing the piercing punches relative to one another, and as shown in FIGURE 2, the slots 9 may be elongated slots as designated by the numeral 14, instead of the cut through slot 9, as shown in FIGURE 3.

It is evident from the foregoing description of this invention that piercing punches of irregular designs and shapes may be mounted in a common punch holder and secured by punch blocks in proper relation to each other to jointly produce a punching in which the specifically designed shapes of holes or openings are properly spaced and properly aligned with one another.

Although one embodiment of the invention has been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

In a punch holder and punch block for mounting a plurality of piercing dies having cylindrical body portions with grooves disposed in a cylindrical bore of said block, means for securing said piercing dies in said block and holder, said piercing dies having shaped cutting faces and having a flat side in fixed relation to the shapes of the cutting faces, and said punch holders having a slot common to a plurality of dies, the walls of which constitute flat body portions for engaging the flat side of said piercing dies to maintain alignment of the cutting faces relative to the punch holder and shaped faces of other piercing punches mounted in said holder.

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WILLIAM S. LAWSON, *Primary Examiner.*