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PUNCH DEVICE

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Fig. 1.

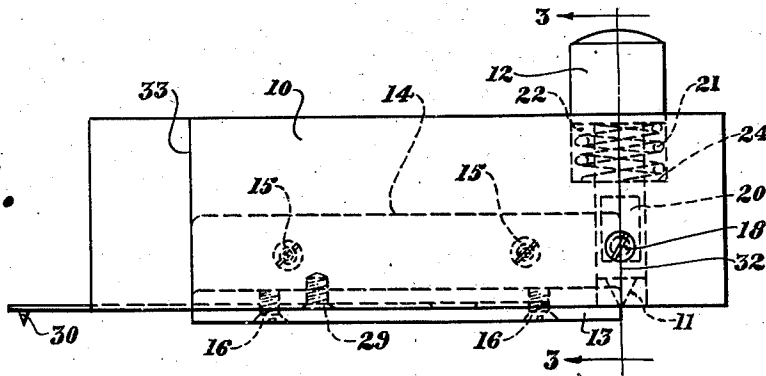


Fig. 2.

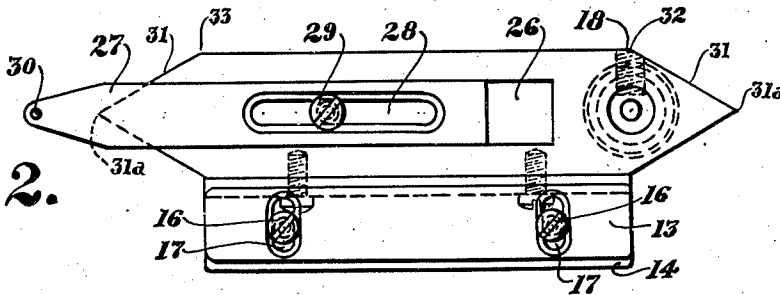


Fig. 3.

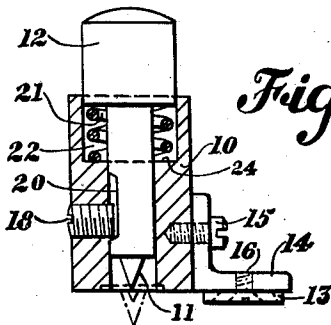


Fig. 4.

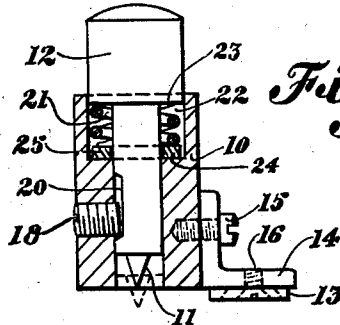
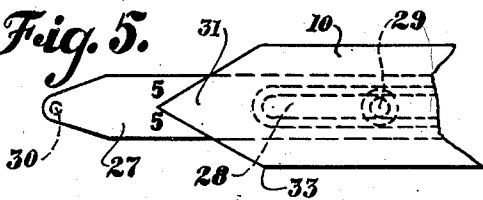


Fig. 5.



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PUNCH DEVICE

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13 Claims. (Cl. 164—119)

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This invention relates to a punch device.

The principal object of my invention is to provide a punch device that enables the user to quickly position said device to punch holes at any predetermined points he desires.

Punching of holes in a metal strap or other article is usually done by hand, and since the punch point is out of sight during the operation it is difficult to position the device to punch the holes in the correct location. It has been my particular object to provide a punch with guide means to enable the user to punch holes at certain points along a certain line at certain distances apart by merely observing and positioning visible guide means.

Another object is to provide guide or measuring members for my punch device that are adjustable, and whose position can be changed from one side to the other of my device as desired.

A further object is to provide means to vary the distance the punch of my device penetrates.

The foregoing and other objects which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and arrangement of parts such as is disclosed by the drawings and specification. The nature of the invention is such as to render it susceptible to various changes and modifications, and, therefore, I am not to be limited to said disclosure; but am entitled to all such changes therefrom as fall within the scope of my claims.

In the drawings:

Figure 1 is a side elevational view of my punch device.

Figure 2 is a bottom plan view thereof.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view the same as Figure 3 of a slightly modified form of my invention.

Figure 5 is a top plan view, broken away, of my device showing a scale attached to my device and extending beyond it.

As illustrated, my punch device has a main body or block 10 having a vertical hole 22 therein, later described, into which a movable punch member 12 extends having an integral punch point 11. At one side of said body 10 is a guide plate 13 which serves to guide my device so it will punch holes a predetermined distance inwardly from a side of my device. Said guide plate 13 is laterally adjustable and extends below the bottom surface of said body 10. It is held in position and adjusted by means of an angle member 14 which is removably attached to said

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body 10 by screws 15 so it can be attached to either side of said body.

Said guide plate 13 has laterally extending slots 17 therein through which screws 15 extend and screw-threadedly enter screw-threaded holes in the bottom part of said angle member 14 to hold said guide plate 13 in any desired position laterally. Since said guide plate is intended to contact and slide along a side edge of the material to be punched the lateral distance between its inner side edge and the point of the punch determines the lateral position or location of the hole to be punched. This assures the operator that the holes made in said material will be in line with each other as my device is slid along the material to be punched with said guide plate in contact with the side edge of said material.

At one side of said body 10 a screw 18 enters and it can be screwed inwardly until it extends into said vertical hole 22 in said body 10. Said punch 12 is provided with an intermediate, vertically extending recess 20 in the lower portion thereof into which said screw 18 is intended to enter and thereby permit vertical movement of said punch in said body; but preventing said punch from coming out of the hole 11 therein.

A coil spring 21 extends into said vertical hole in said body and its lower end rests on a shoulder 24 formed in said body between the upper and larger portion of said vertical hole and the lower and smaller portion thereof. Said coil spring surrounds part of the lower and smaller portion of said punch, which is of less width than the upper portion thereof, and its upper end rests on a shoulder 23 formed between the larger and smaller portions of said punch. This spring 21 automatically causes return of said punch to normal position after the punching operation.

In order to limit and yet be able to vary the distance the punch point 11 can move below the bottom surface of said body 10 and thus limit the depth of the hole to be punched in the material being worked upon, or, if desired, only prick punch or make a mark on said material, I provide an adjusting means consisting of a spacer member 25, shown in Figure 4 of the drawings, which rests on said shoulder 24. This spacer 25 may be of any thickness desired, depending upon the maximum distance it is desired to allow the punch point 26 to move below said body 10.

I preferably provide a recess 26 in the bottom of said body 10 as illustrated in Figure 2 of the drawings into which recess slidably fits a scale 27 preferably of the flexible, steel type on which

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inches or fractions thereof can be marked thereon, or other gradations. A long slot 28 is provided in said scale 27 to permit adjustment. It is attached to said body 10 by means of a screw 29 that extends through said slot 28 into a screw threaded hole in the bottom of said body 10. Said scale has an angularly extending pointed portion 30 near one end which extends downwardly below the rest of the scale when my device is in the position of use shown in Figure 1 of the drawings. Said pointed portion 30 can be inserted into a hole in the material to be punched, or in other anchoring means, and the distance between it and said punch point 11 will determine the point at which the next hole will be punched in said material. Thus it will be seen that with this scale 27 to determine the longitudinal distance between holes to be punched and said guide plate 13 to determine the lateral distance from the edge of the material the holes are to be punched, means are provided to locate the holes in predetermined positions without the necessity of measuring each time. And should it be desired to vary the distance either longitudinally or laterally said scale 27 and said guide plate 13 are readily adjustable as explained.

Said pointed portion 30 may also be used as an anchor or central point when holes are to be punched along the circumference of a circle or for an arcuate portion thereof.

As a quick aid to determine with the eye where said punch point 11 will strike I preferably taper the front and rear end portions 31 of said body 10 so that they gradually narrow in width until both side portions merge in front and rear ridges 31a which are formed at the longitudinal axial line of said body. Said tapered portion 31 at the front end of my device commences at an edge or ridge 32 which is opposite the center of said vertical hole 22, so that said ridge 32 is in lateral alinement with said punch point 11. Thus said ridge 32 serves as an exact indicator to determine the longitudinal point where the hole will be punched and a said ridge 31a will indicate the lateral point where said hole will be punched. At the rear of said body another ridge 33 is formed at the point in said body where said punch commences to taper rearwardly.

What I claim is:

1. A punch device comprising a body, an opening therein, a punch extending into and operable in said opening, said body having an end portion that commencing at a point laterally opposite said opening tapers towards an end extremity thereof and forms a ridge at said extremity in line with the longitudinal axis of said body.
2. A punch device comprising a body, an opening therein, a punch extending into and operable in said opening and embodying a punch point adapted upon actuation of said punch to pass beyond said body, said body having an end portion that tapers towards an end extremity thereof, said tapering portion commencing at a point directly and laterally opposite said punch point.
3. A punch device comprising a body, an opening therein, a punch extending into and operable in said opening and embodying a punch point adapted upon actuation of said punch to pass beyond said body, said body having an end portion that tapers towards an end extremity thereof, said tapering portion commencing at a point laterally and directly opposite said punch point and terminating at a point forward of and directly in line with said punch point.
4. A punch device comprising a body, a punch

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operably associated with said body, an angle member associated with said body, a guide plate attached to said angle member, said guide plate extending beyond the adjacent surface extremity of said body.

5. A punch device comprising a body, a punch operably associated with said body, an angle member associated with said body, a guide plate having a slot therein, and removable means extending through said slot and attached to said angle member to hold said guide plate to said member, said guide plate extending beyond the adjacent surface extremity of said body.

6. A punch device comprising a body, a punch operably associated with said body adapted upon actuation to pass beyond a surface extremity of said body, an angle member attached to said body a portion of which extends laterally beyond the adjoining surface extremity of said body, said laterally extending portion having a hole therein, a guide plate having a laterally extending slot therein, and means extending through said slot into said hole to hold said guide plate to said member, said guide plate extending beyond said first-mentioned surface extremity.

7. A punch device comprising a body, a punch operably associated with said body adapted upon actuation to pass beyond the bottom surface extremity of said body, an angle member attached to said body a portion of which extends laterally outward at substantially a right angle to the adjoining portion of said member, said laterally extending portion having a hole therein, a guide plate having a laterally extending slot therein, and means extending through said slot into said hole to hold said guide plate to said member, said guide plate extending below said bottom surface extremity.

8. A punch device comprising a body, a punch operatively associated with said body, a scale attached to said body and extending beyond it, said extending portion having a part extending at substantially a right angle to the adjoining part of said extending portion and tapering towards an end extremity.

9. A punch device comprising a body, an opening therein adjacent the front portion thereof, a punch extending into and operable in said opening and embodying a punch point adapted upon actuation of said punch to pass beyond said body, said body having a front end portion that tapers towards an end extremity thereof, said tapering portion commencing at a point laterally and directly opposite said punch point and terminating at a point forward of and in direct line with said punch point, a guide plate at one side of said body and rearwardly of said front end extremity, said guide plate extending lower than the bottom surface of said body and spaced laterally from said punch point and means attaching said guide plate to said body.

10. A punch device comprising a body, an opening therein adjacent the front portion thereof, a punch extending into and operable in said opening and embodying a punch point adapted upon actuation of said punch to pass beyond said body, said body having a front end portion that tapers towards an end extremity thereof, said tapering portion commencing at a point laterally opposite said punch point and terminating at a point forward of and in direct line with said punch point, a guide plate at one side of said body and rearwardly of said front end extremity, said guide plate extending lower than the bottom surface of said body and spaced laterally from said punch

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point and means attaching said guide plate to said body, a scale attached to the bottom of said body and extending rearwardly beyond the said bottom.

11. A punch device comprising a body, an opening therein adjacent the front portion thereof, a punch extending into and operable in said opening and embodying a punch point adapted upon actuation of said punch to pass beyond said body, said body having a front end portion that tapers towards an end extremity thereof, said tapering portion commencing at a point laterally opposite said punch point and terminating at a point forward of and in direct line with said punch point, a guide plate at one side of said body and rearwardly of said front end extremity, said guide plate extending lower than the bottom surface of said body and spaced laterally from said punch point, and means attaching said guide plate to said body, the bottom of said body having a recess therein, a scale extending into said recess and attached to said body, said scale extending beyond said bottom rearwardly and having a portion extending at substantially a right angle to the adjoining portion of said scale and being rearwardly and directly in line with said punch point.

12. A punch device comprising a body, a punch operatively associated with said body, a scale attached to said body and extending beyond it, said scale having a longitudinally extending slot there-

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in, and means extending through said slot into said body to attach said scale to said body.

13. A punch device comprising a body having an upper opening and a lower opening in communication with and smaller than said upper opening, a shoulder formed between said openings, a punch movable in said openings, a spacer member to limit the stroke of said punch resting on said shoulder, and a spring around a portion of said punch one end of which bears against said punch and the other end resting on said spacer member, said spring being wholly located in said upper opening, said upper opening being enclosed laterally and serving as a guide for said punch.

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