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BACK GAUGE FOR PUNCHES

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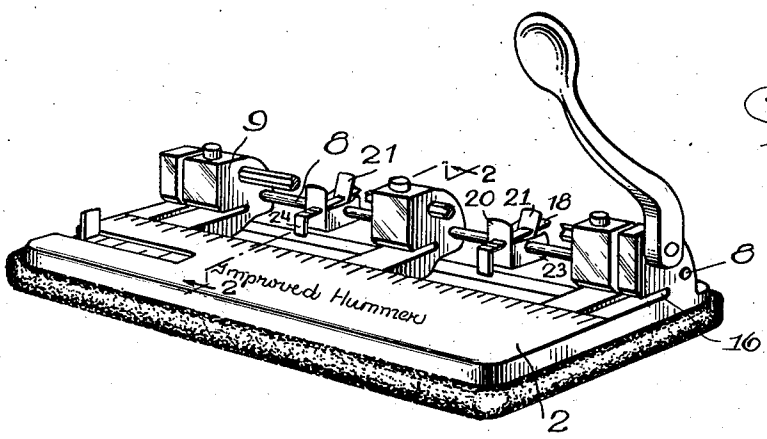


Fig. 1

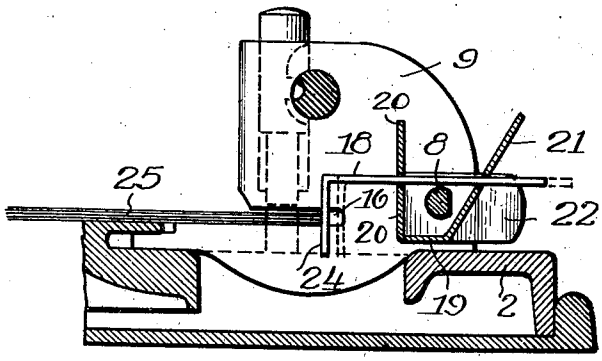


Fig. 2

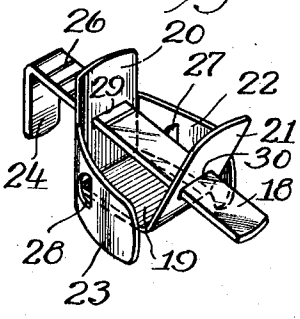


Fig. 4

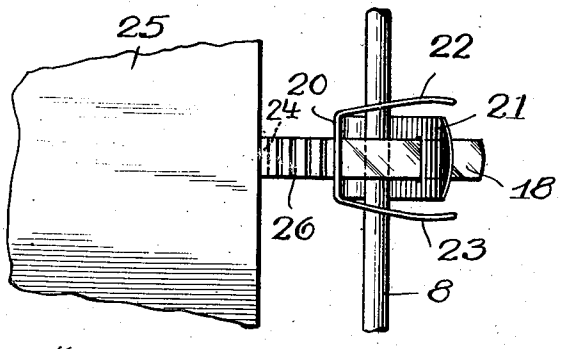


Fig. 3

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BACK GAUGE FOR PUNCHES

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3 Claims. (Cl. 164—59)

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This invention relates to a back gauge for punches, by means of which the distance between the punching and the back edge of the punched sheets may be regulated.

It is an object of my invention to provide simple and efficient means that may be quickly and accurately adjusted, without the use of any tools, to regulate the distance a sheet of material to be punched may be inserted into the mouth of the punch. It is a further object of my invention to provide a back gauge that is held in its set depth regulating position and in its lateral position by easily releasable frictional means. Other objects of my invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a perspective view of a punch embodying my invention, with parts broken away to facilitate illustration of the back gauges;

Figure 2 is a cross sectional view, taken along the line 2—2 of Figure 1;

Figure 3 is a fragmentary plan view showing the back gauge in its relation to a sheet to be punched; and

Figure 4 is a perspective view of the back gauge.

In the drawings, the reference numeral 2 indicates a conventional punch having a plurality of punch heads 9. Each punch head has a throat 16 of uniform depth which limits the distance sheets may be inserted under the punch pins. The depth of this throat governs the maximum distance between the perforations and the adjacent edge of the punched sheet and therefore must be great enough to provide enough space for the maximum depth of punching that may be required. Whenever sheets are to be punched with the perforations closer to the punched edge of the sheet, back gauges are required to provide uniform depth.

A pair of back gauges is mounted on the rod 8 and are separated laterally a distance sufficient to provide adequate guide means for the edge of the sheets to be punched regardless of the length of the sheets. The back gauges are duplicates and therefore only one will be described.

The back gauge comprises a gauge bar 18 and a holder which is formed of a single piece of resilient material, preferably steel, bent to provide a bottom 19, front wall 20, rear wall 21 and side walls 22 and 23. The gauge bar is preferably of rectangular cross section and has one end 24 bent downwardly to intersect the plane of a sheet 25 inserted into the throat 16 of the punch. As may be seen in Figure 2, a projection of the down-

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turned portion 24 completely transverses the throat 16 when portion 24 is positioned forwardly of the closed end of the throat. A plurality of transverse marks 26 on the top surface of the gauge bar 18 serves to facilitate positioning of each gauge bar with respect to its holder to insure alignment with the other gauge bar.

The side walls 22 and 23 of the holder extend rearwardly from the lateral edges of the front wall and are provided with laterally aligned apertures 27 and 28, respectively. The apertures 27 and 28 are of the same general configuration as the cross sectional area of the rod 8, which is circular except for one flat side. The apertures 27 and 28 are of slightly larger cross section than the rod so that the holder may be slid laterally on the rod 8 when the side walls 22 and 23 are at right angles to the rod. The resilience of the side walls urges them outwardly, as shown in Figures 3 and 4, so that when the side walls are not held substantially parallel they will bind on the rod 8 to frictionally hold the back gauge in any lateral position. If it is desired to move the back gauge laterally along the rod 8 it is necessary only to press the side walls 22 and 23 inwardly to substantial parallelism and slide the back gauge freely in either direction.

The front wall 20 of the holding member is provided with an aperture 29 of substantially the same cross sectional area as the gauge bar 18 which may be slid therethrough. The rear wall 21 has a similar aperture 30 and the gauge bar may be freely slid through said apertures 29 and 30 when the front wall and the rear wall are parallel. The front wall remains vertical so as to maintain the downturned end 24 of the gauge bar at right angles to the throat of the punch, but the back wall 21 is urged outwardly by the resilience of the holder and binds on the gauge bar 18 at the aperture 30 so as to hold the gauge bar frictionally in any set depth regulating position. When it is desired to change the depth regulating position of the gauge bar it is necessary only to press the front and rear walls to substantial parallelism and the gauge may be freely slid through the apertures 29 and 30 in either direction.

Although I have described a preferred embodiment of my invention in considerable 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. Accordingly, I do not desire to be limited to the exact construction described, except as limited by the appended claims.

I claim:

1. In a punch, a transverse rod, a back gauge comprising a gauge bar and a holder, said holder having a pair of resilient side walls frictionally holding said gauge in any lateral position on said rod, a front wall, and a resilient rear wall cooperating with said front wall to hold said gauge bar in any depth regulating position.

2. In a punch, a back gauge comprising a gauge bar and a holder, said holder having a pair of opposed walls apertured to receive said gauge bar, said opposed walls being normally urged outwardly to frictionally hold said gauge bar in adjusted position, said opposed walls being movable by finger pressure to substantial parallelism to release said gauge bar for sliding movement in a plane perpendicular to one of said walls.

3. In a punch, a transverse rod, and a back gauge slidably mounted on said rod, said back gauge comprising a gauge bar and a holder, said holder having two pairs of opposed walls, the walls of each pair being normally urged outwardly, one pair of said walls holding said holder frictionally in any lateral position on said rod, the other pair of walls holding said gauge bar frictionally in any depth regulating position, each pair of walls being movable inwardly into substantial parallelism to release its frictionally held member for sliding movement.

RALPH R. UHRMACHER.

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