

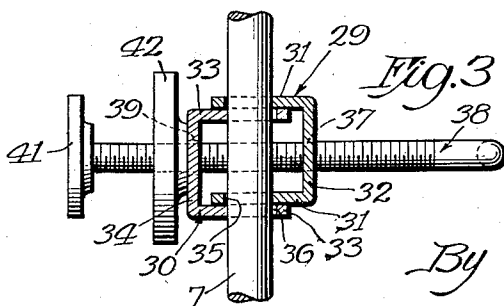
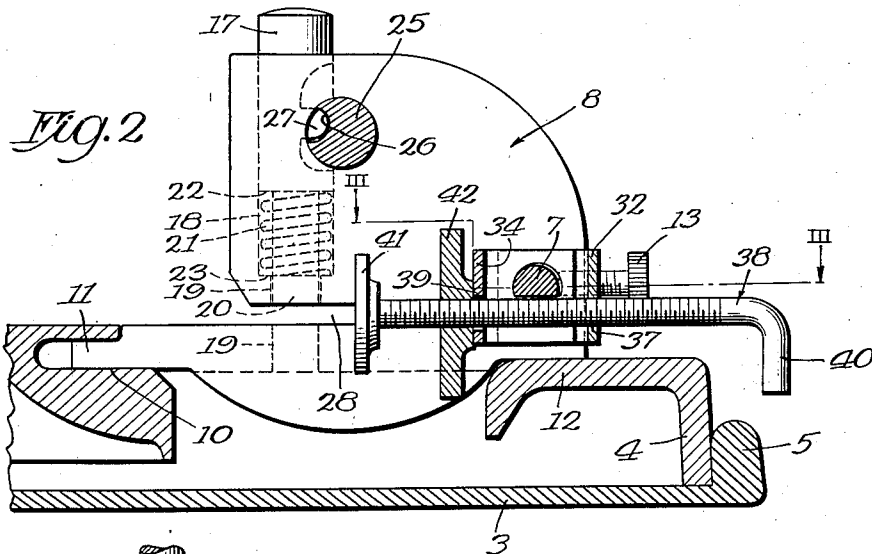
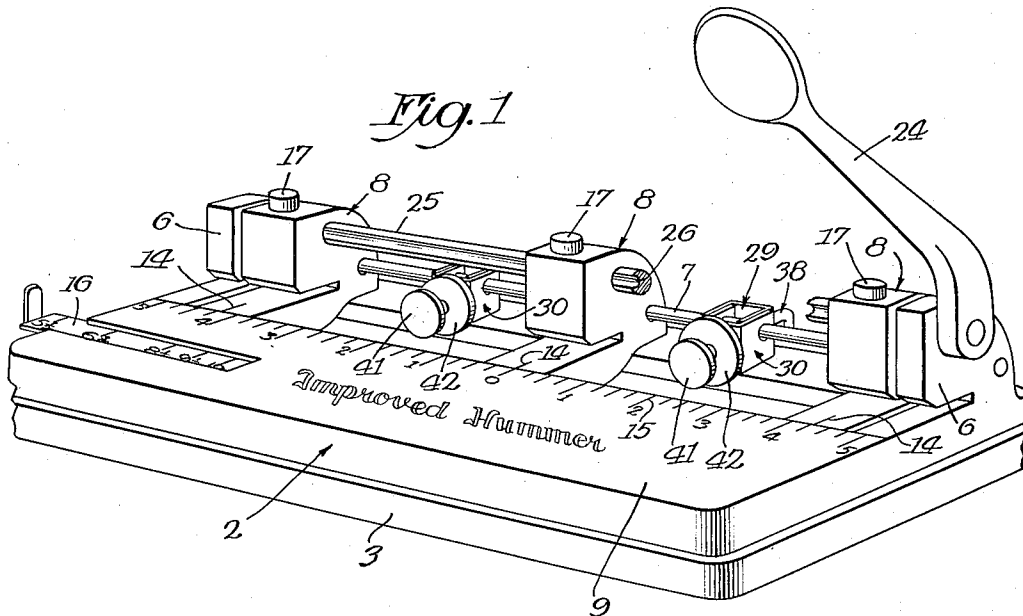
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C. V. ST. LOUIS ET AL

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BACK GAUGE FOR PUNCHES

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Inventors:
Charles V. St. Louis
George J. Rundblad

By Benjamin Schlosser
Atty.

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BACK GAUGE FOR PUNCHES

Charles V. St. Louis and George J. Rundblad,
Chicago, Ill., assignors to Wilson-Jones Com-
pany, Chicago, Ill., a corporation of Massa-
chusetts

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6 Claims. (Cl. 164—91)

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

5 It is an object of this invention to provide a simple and efficient gauge that may be easily 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 this invention to provide a gauge that will stay in any position to retain the exact adjustment desired. It is a further object of this invention to provide a gauge mounted on the base of the punch, rather than on the punch head, so that only two gauges will be required, regardless of the number of punch heads on the punch. Other objects of the invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawing in which

20 Figure 1 is a perspective view of a punch embodying the invention;

Figure 2 is an enlarged cross sectional view showing the back gauge; and

25 Figure 3 is a detail sectional view of the back gauge taken along the line III—III of Figure 2.

In the drawing, the reference numeral 2 indicates a base member provided with a removable chip pan 3. The side walls 4 of the base extend at a slight angle from the vertical, as shown in Figure 2, and the edges 5 of the chip pan are shaped so as to provide a resilient engagement between the chip pan and the base. The base member 2 is provided at each end with an integral upstanding ear 6. A rod 7 is supported in apertures positioned adjacent the rear of the ears 6.

35 The rod 7 helps to support a plurality of punch heads 8. The top surface 9 of the base member is provided with a ledge 10, Figure 2, to support the front end 11 of each punch head. Another ledge 12, positioned at the rear of the base member 2, has its forward edge terminating adjacent the rear of the punch heads to provide an open space through which the punchings may reach the chip pan. The punch heads 8 are slidable along the rod 7 and may be secured in any desired position by means of thumb screws 13. The punch heads may be marked, as indicated at 14, to be used in conjunction with the markings of a scale 15 provided on the edge of the surface 9 to facilitate proper lateral spacing of the punch heads. The punch base is also provided with a side gauge 16 of any desired construction.

Each punch head is provided with a punching pin 17 having its cutting edge of any desired shape. The punching pin 17 fits in a recess 18 having a portion 19 of reduced cross sectional area. The lower portion 20 of the punching pin is reduced in cross sectional area to fit the restricted passage 19. A coiled spring 21 encircling the reduced portion 20 of each punching pin bears against the shoulder 22 of the punching pin and the shoulder 23 of the punch head to exert a constant force tending to raise the punching pin. The punching pins 17 are operated simultaneously by pressure on a lever 24 secured to one end of an operating shaft 25 which passes through each punch head 8 and the two upstanding ears 6. The shaft 25 is provided with a longitudinal notch 26 adapted to engage a projection 27 on each punch head to force the punching pins downwardly against the action of springs 21. When the lever 24 is released, the springs 21 force the punching pins and the lever back to their initial position.

Each punch head is provided with a horizontal slot 28 passing through the restricted passage 19 of each punch head to form a mouth or jaw into which the sheets to be punched are inserted. The distance the sheets move into the mouth determines the spacing of the apertures from the edge of the paper. A pair of back gauges, spaced a suitable distance apart, regulate the distance the sheets to be punched may be inserted into the mouth of the punch heads.

Each back gauge includes a pair of U-shaped members 29 and 30. The member 29 consists of a pair of side walls 31 and a connecting wall 32. The member 30 consists of a pair of side walls 33 and a connecting wall 34. The side walls 31 and 33 are apertured, as indicated at 35 and 36, respectively, and are slidably mounted on the rod 7 with the walls 32 and 34 positioned on opposite sides of the rod 7. The wall 32 is provided with an internally threaded aperture 37 through which a screw 38 is threaded. The wall 34 is provided with an aperture 39 large enough to allow the screw 38 to move there- through freely.

The screw 38 is provided at one end with a bent end portion 40 to facilitate rotation of the screw. A flat disk 41 is permanently secured to the other end of the screw 38 in any suitable manner. The disk 41 is in the same horizontal plane as the mouth 28 of the punch heads. Rotation of the screw moves the disk 41 forwardly or backwardly to regulate the distance sheets may be inserted into the mouth of the punch

heads. A lock nut 42 threaded on the screw 38 between the wall 34 and the flat disk 41 may be tightened against the wall 34 to hold the screw in any desired position. The size of the aperture 39 permits the U-shaped member 30 to move toward the member 29 until both members 29 and 30 bind tightly against the rod 7. When the members 29 and 30 bind against the rod 7, sliding movement of the back gauge on the rod is prevented as well as the movement of the screw relative to the members 29 and 30.

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

We claim:

1. In a punch, a back gauge comprising a pair of U-shaped members, a screw extending through said U-shaped members, a flat disk permanently secured to the forward end of said screw, and a lock nut operable to prevent movement of said screw relative to said U-shaped members.

2. In a punch, a rod extending the length of said punch, a back gauge slidably mounted on said rod, said back gauge including a pair of apertured U-shaped members, a screw passing through said apertured U-shaped members, and means operable to bind said U-shaped members against said rod to prevent movement of said screw relative to said U-shaped members, and also to prevent sliding movement of said U-shaped members relative to said rod.

3. In a punch, a rod extending the length of said punch, a back gauge slidably mounted on said rod independently of said punch head, said back gauge including a lock nut operable to prevent movement of said back gauge in any direction.

4. In a punch, a back gauge, a rod extending the length of said punch and passing through said back gauge, said back gauge being slidable on said rod, said back gauge including a flat disk mounted on a screw movable at right angles to said sliding movement and a lock nut operable to prevent movement of said back gauge and said flat disk.

5. In a punch, a back gauge comprising a pair of U-shaped members, corresponding walls of said U-shaped members being provided with registering apertures of different sizes, the smaller of said apertures being internally threaded, a screw threaded through said smaller aperture, a flat disk permanently secured to the forward end of said screw, and a lock nut threaded on said screw between said flat disk and the U-shaped member having said larger aperture.

6. In a punch, a punch head provided with a jaw of fixed depth adapted to receive sheets to be punched, a back gauge slidable laterally of said punch independently of said punch head, said back gauge including a stop member intersecting the horizontal plane of said jaw, a screw adapted to move said stop forwardly or backwardly to vary the effective depth of said jaw, and means to lock said screw against movement in either direction, said means being operable to prevent sliding movement of said back gauge.

CHARLES V. ST. LOUIS.
GEORGE J. RUNDBLAD.