V. RICH.

PUNCHING MACHINE.

APPLICATION FILED DEC. 18, 1919.

1,382,674.

Patented June 28, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

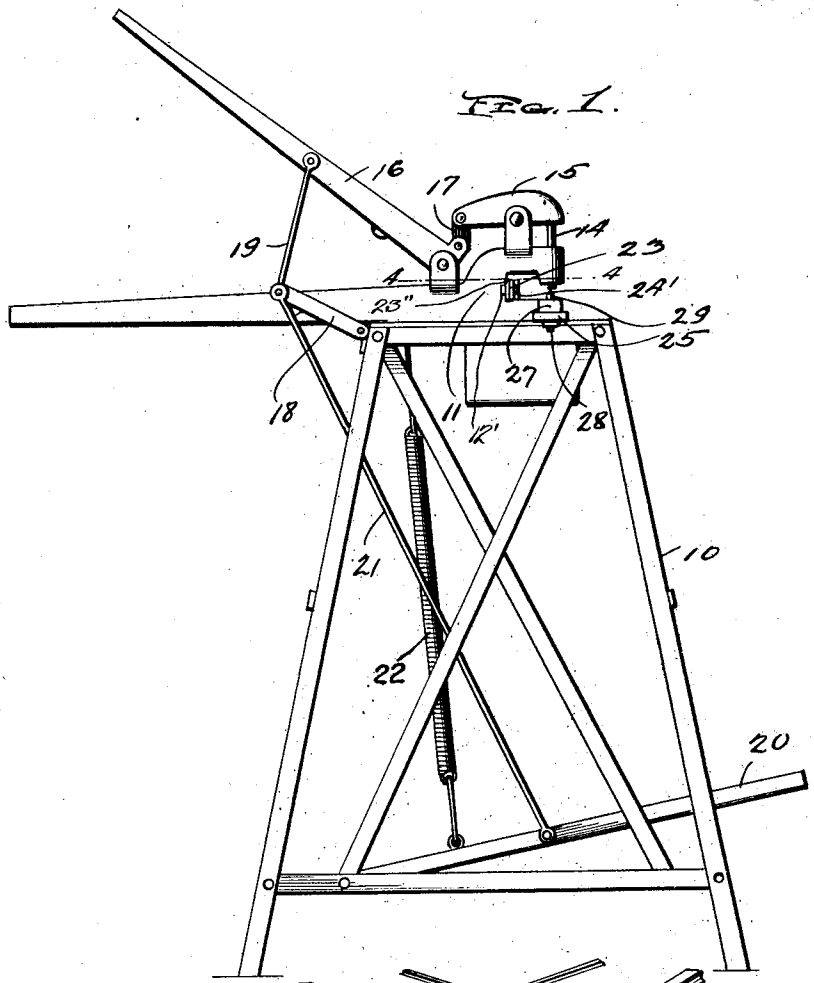
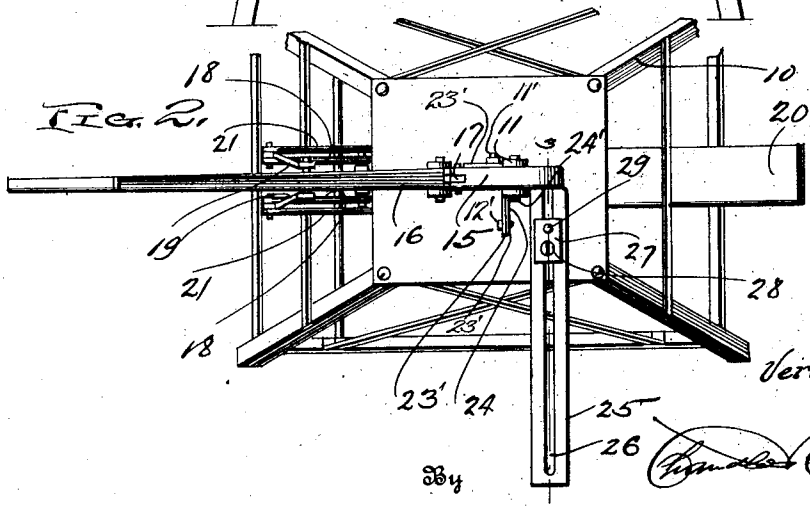


Fig. 2.



Inventor

Vern Rich

By

Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

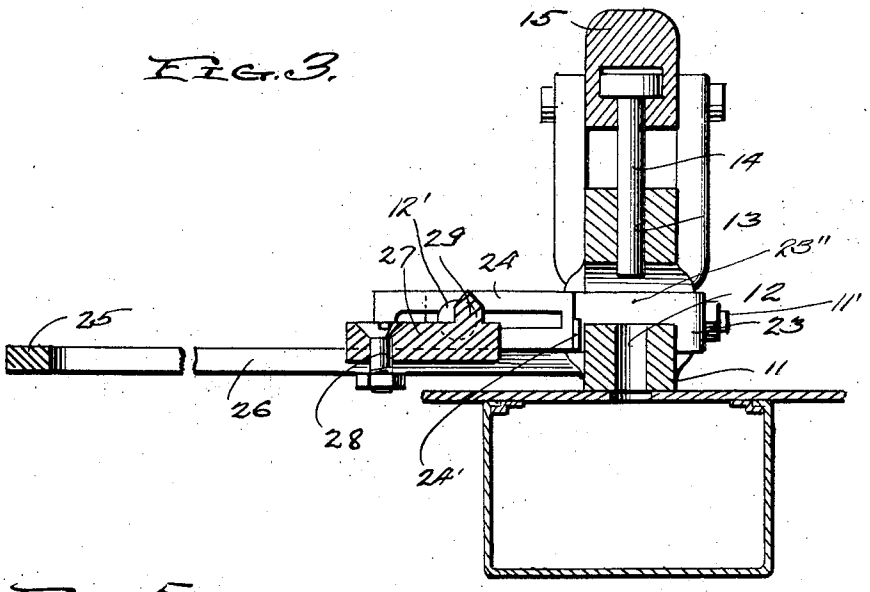


Fig. 5.

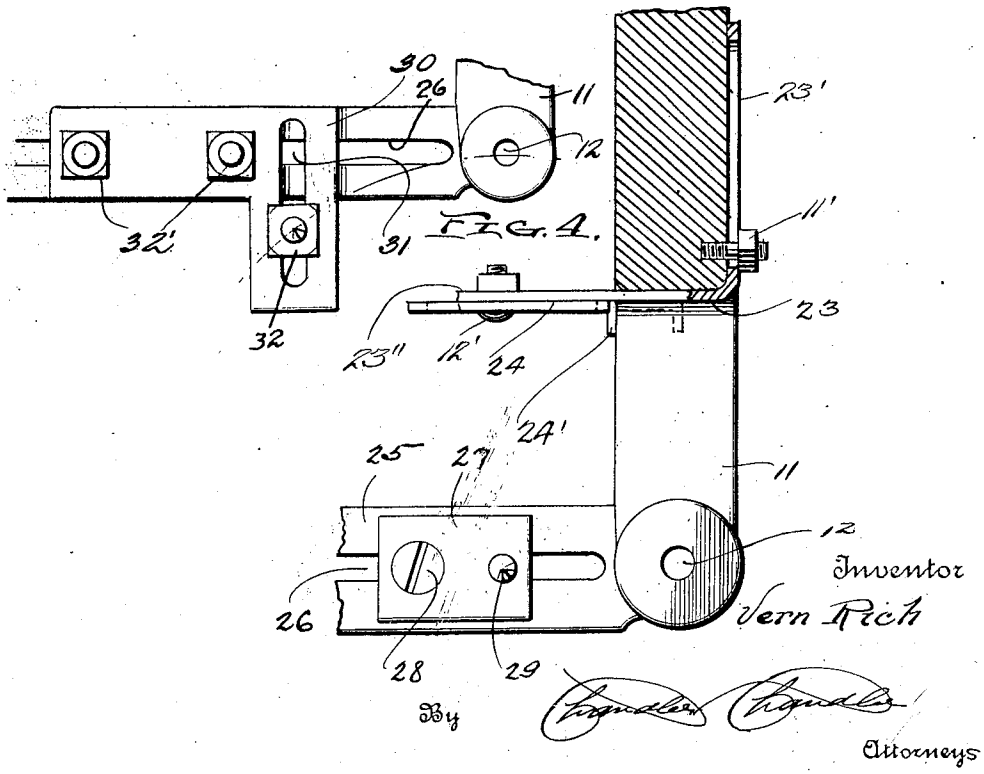


Fig. 4.

Inventor
Vern Rich

By Chandlers Chandlers

Attorneys

UNITED STATES PATENT OFFICE.

VERN RICH, OF MOUNT VERNON, SOUTH DAKOTA.

PUNCHING-MACHINE.

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Application filed December 18, 1919. Serial No. 345,817.

To all whom it may concern:

Be it known that I, VERN RICH, a citizen of the United States, residing at Mount Vernon, in the county of Davison, State of South Dakota, have invented certain new and useful Improvements in Punching-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in punching machines and particularly to metal punching machines.

One object of the present invention is to provide a novel and improved machine of this character whereby holes can be punched in a sheet of metal at different equally spaced distances apart, accurately.

Another object is to provide a novel and improved machine of this character wherein means are provided by means of which the first hole can be properly punched so that the succeeding ones will be accurately spaced apart and from the edges of the sheet.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawing.

In the drawing:

Figure 1 is a side elevation of a punching machine made in accordance with my invention.

Fig. 2 is a top plan view of the same.

Fig. 3 is an enlarged vertical longitudinal sectional view taken on the line 3—3 of Fig. 2, showing the adjustable gage block and pin carried thereby.

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 1, showing the means for gaging the back of the sheet of metal to determine the distance from the edge the hole is to be punched.

Fig. 5 is a plan view of the block support showing the means for gaging and spacing holes on a circular line.

Referring particularly to the accompanying drawings, 10 represents a stand on the top of which is secured the die block 11, said block having the usual opening 12, in the lower portions of the bifurcation and the opening 13 in the upper portion thereof which registers with the opening 12, for the passage therethrough of the male portion 14 of the die. Pivotally mounted on the upper portion of the die block is a rock lever 15, the outer end of which carries the said male die 14, while the inner end is pivotally connected to an operating lever 16, pivotally mounted on the die block, said connection being made by the intermediate pivoted link 17. Pivotally mounted on the upper portion of the stand is a rearwardly extending arm 18 which is pivotally connected with the operating lever 16 by means of the link 19. Pivotally mounted in the lower portion of the stand is a pedal lever 20 which is connected to the arm 18 by means of the link 21, a spring 22 being also connected to the pedal lever at one end while its other end is connected to the upper end of the stand. Thus, when the pedal lever is depressed, the lever 16 will be pulled down to rock the lever 15 and force the male die through the metal sheet which is placed in the bifurcation of the block.

Secured to the die block, within the bifurcation, is an angular stop plate 23 which has a longitudinally slotted arm 23′ through which is engaged the clamping screw 11′ carried by the support of the die block, said plate being thus adjustable inwardly and outwardly so as to properly gage the distance of the hole to be punched from the edge of the sheet. Adjustably carried by the other arm of this plate is an angle plate 24, the laterally turned end 24′ of which is disposed for engagement by the end of the metal sheet, for the purpose of gaging the distance from the end of the sheet the first hole is to be punched. The plate 24 is longitudinally slotted and receives the clamping bolt 12′ of the arm 23″ of the plate 23. Thus the positioning of the first hole can be accurately determined.

Extending laterally from one side of the lower portion of the die block is an arm 25 having a longitudinally extending central slot 26. Slidably disposed in this slot is a gage block 27, a clamping bolt 28 being carried by the block for holding the block at different adjusted distances from the die block. Projecting from the upper face of this gage block is a pointed pin 29 which is adapted to be received in the successive holes which are punched in the sheet, and whereby the holes are spaced equal distances apart. By setting the gage block 27 at different distances from the die block, and engaging the pin 29 successively in the holes already

punched, the act of punching a series of holes in a plate can be quickly and accurately done.

When it is desired to gage the distances of holes in a circular line the gage block 27 is removed and the angle plate 30 substituted. This plate has a longitudinal slot 31 in one of its arms for the reception of the adjustable pin block 32. The other arm has the bolts 32 for engagement in the slot 26, so that the plate can be disposed at different angles, in a horizontal plane on the slotted arm 25.

What is claimed is:

1. A punching machine comprising a stand having punching dies thereon, a laterally extending and longitudinally slotted arm carried by one of the dies, an angle plate adjustable longitudinally with respect to the slotted arm toward and away from the die and having one of its arms slotted, and a block having a vertical pin and slidably adjustable on the slotted arm of the angle plate.

2. In a punching machine, male and female dies, the female die having a laterally extending and longitudinally slotted arm, an angle plate on the slotted arm and slidably adjustable therealong toward and away from the female die, the transverse arm of the angle plate being longitudinally slotted, and a block adjustable longitudinally in the slot of the said transverse arm toward and away from the first slotted arm.

3. In a work guide for a punching machine, the combination with the male and female dies of the machine, of an angle plate having a longitudinally slotted arm engaged with one side face of the support of the male die and the other arm extending across the adjacent meeting face of said support, a screw in the support and engaging in the slot of the arm, and a plate having one end turned laterally and adjustable longitudinally on the said other arm of the angle plate.

In testimony whereof, I affix my signature, in the presence of two witnesses.

VERN RICH.

Witnesses:

E. D. COLTINGHAM,

ADDIE BROMWELL.