W. JOHNSON.

PUNCHING PRESS.

APPLICATION FILED DEC. 31, 1909.

966,689.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.

Fig. 4.

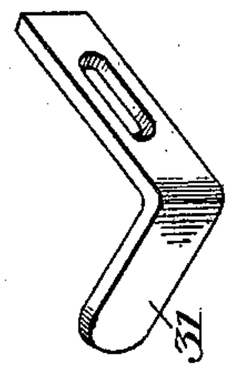

Fig. 1.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

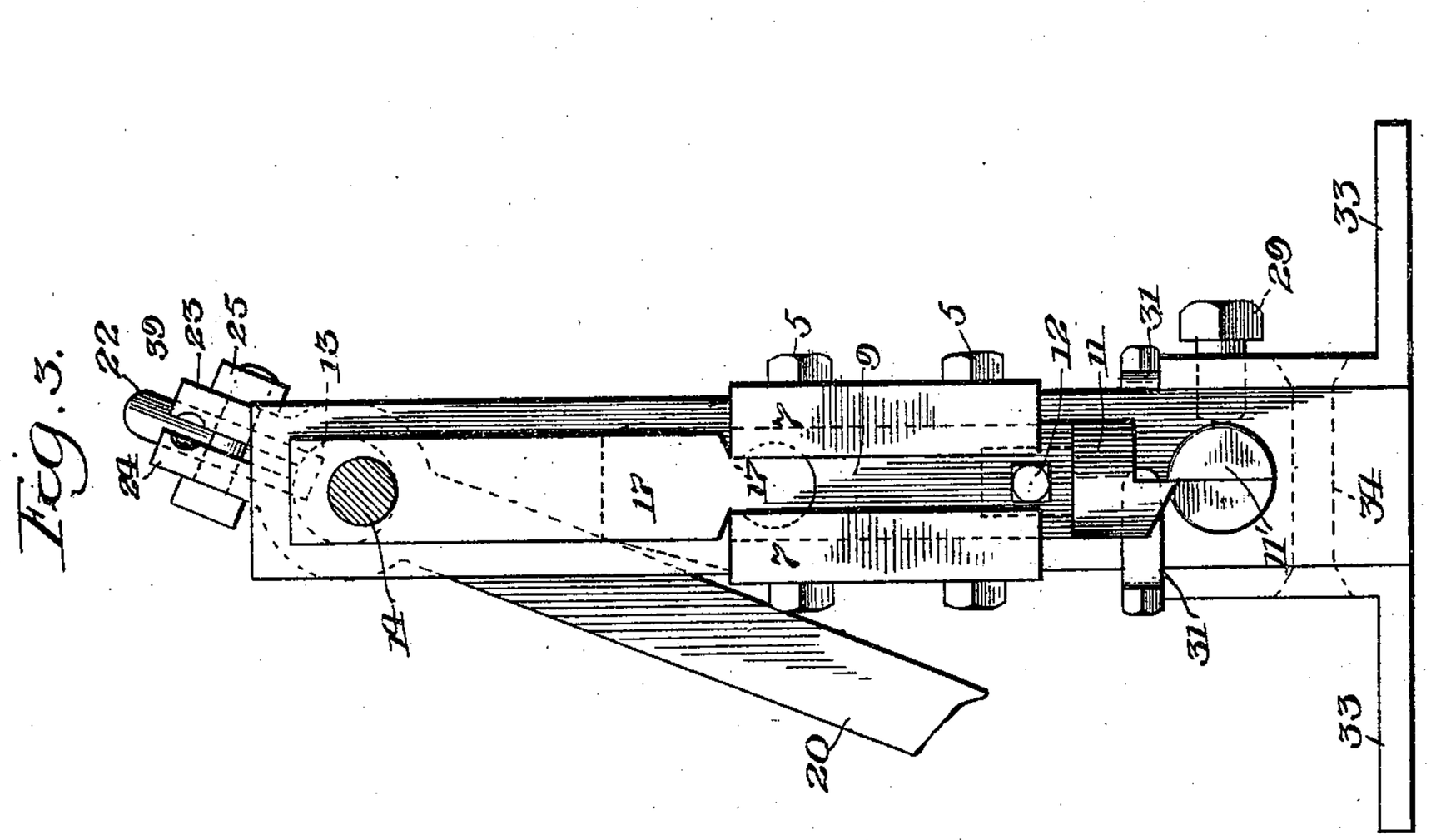
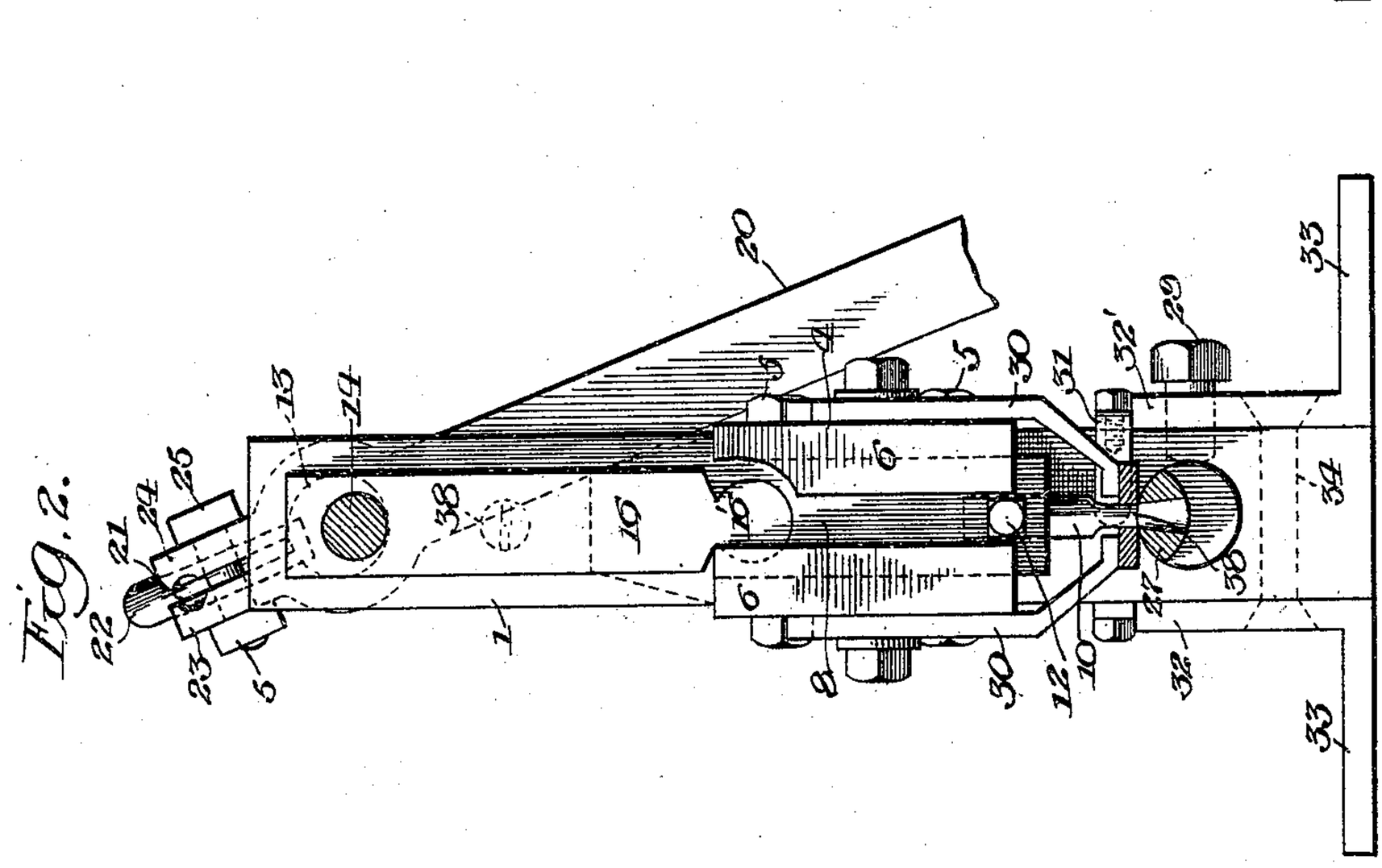


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM JOHNSON, OF CHICAGO, ILLINOIS.

PUNCHING-PRESS.

966,689. Specification of Letters Patent. **Patented Aug. 9, 1910.**

Application filed December 31, 1909. Serial No. 535,737.

To all whom it may concern:

Be it known that I, WILLIAM JOHNSON, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Impovement in Punching-Presses, of which the following is a specification.

My invention relates to devices for metal working, and it is the object thereof to provide a simple and portable device for the purpose of punching, shearing or forming metal sheets and the like which shall be effective in operation and inexpensive in cost.

By means of my invention I am able to obtain great power for the uses mentioned in proportion to the size and weight of the machine. And it is especially a feature of my invention that I can use standard commercial forms of metal for nearly all the working parts thereof by simple and inexpensive operations of drilling and machining.

The principles of my invention are illustrated in the drawings, in which—

Figure 1 is a front view of my device; Fig. 2 is a view of the same looked at from the left of Fig. 1; Fig. 3 is a similar view looking from the right; Fig. 4 is a detail of a stop or gage.

Further describing my invention with reference to the drawings, 1 and 2 are upright members of rectangular section, and 3 is a spacing member, the whole being secured together by the tie-pieces 4. The latter are secured to the upright members by the tap bolts 5 and may be formed of comparatively thin metal strips or bars having the downturned end flanges 6. The flanged ends of the tie-pieces project far enough beyond the uprights 1 and 2 to form guides for the tool-carrying heads 8 and 9. Each of the said heads is provided with an axial socket (indicated by the dotted line in the drawings) into which the shank of a punch 10, as shown in Fig. 2, or of a shearing head 11, as shown in Fig. 3, may be inserted, and in which they may be secured by the set screw 12. The uprights 1 and 2 should be transversely drilled at their upper ends to provide bearings for the shaft 13. The latter may consist of a bar of steel of circular section turned down at either end to form a crank or eccentric 14. The latter should be tapped at its axial line and fitted with a tap bolt 14′ and washer 15, which are adapted to hold in position the connecting rods 16 and 17. The latter may also be of standard shape and size, preferably rectangular, and having transverse openings at their upper ends to take the cranks 14. The lower ends of the connecting rods may be shaped to form beads 16′ and 17′, which are partially cylindrical in section extending across the connecting rod and which are adapted to fit in the corresponding openings formed by drilling through the heads 8 and 9 at their upper ends. A handle 20 should be transversely drilled so as to form an opening of the same diameter as the bearings of the shaft 13. An open slot 21 leads from the end of the handle into said opening and a drill hole should extend longitudinally of said slot from the end of the handle into the transverse shaft opening, so as to take the round key 22.

It will be seen that in placing the parts last described in their proper relative positions the shaft 13 may be passed through the upright 2, the opening in the handle and the upright 1. The key 22 being placed in its seat so that the end extends down to the shaft and into a suitable key seat in the side thereof, the walls 23 and 24 of the slot are drawn together by the bolts 25 which thus have the function both of closing the handle upon the shaft and of holding the key securely in place. Transverse openings similar to those at the upper ends of the uprights 1 and 2 are drilled in the lower ends thereof. These openings also should be of such size as to take standard bars of steel suitable to form the die or knife beds with reference to which the tool-carrying heads 8 and 9 act and form sockets for the dies. As shown in Fig. 3 and the right hand portion of Fig. 1 such a steel bar may have one end so shaped as to form a lower knife 11′ to coöperate with the upper shear member 11. On the other side of the machine shown in Fig. 1, a similar bar having the shank 26 has the projecting end 27 formed into a die to take the punch 28. It will be seen that these members which form the beds of the device may be double ended and that the several ends may be provided with open-

ings of different sizes to take the different punches that may be inserted in the heads. It will also be seen that they may be adapted to receive dies of different sizes. They may be securely held in position by the tap bolts 29. The punching end of the press as illustrated in Fig. 2 is provided with pull-off members 30 and may also be fitted with a suitable guide or stop 31. A suitable standard or base for the device and which still further braces and secures the members together may consist of angle bars having vertical flanges 32 and the horizontal flanges 33. By selecting bars having one leg much longer than the other a very broad and substantial base for the device is afforded. The said angles may be secured to the machine by bolts or rivets 34 passing through the flanges 32 and 32′ in openings drilled through the uprights 1 and 2.

An automatic device for holding the handle in the upright position is shown in the broken away portion of the upright 1 in Fig. 1. A socket opening is made transversely to the said upright. A plunger 35 having the stud 36 is inserted therein. A spring 37 is placed in the rear thereof and held in place by the screw 38. A small recess 39 in the handle is adapted to take the stud 36 when the handle is placed in the vertical position.

I claim:

1. In a punch press, a frame work comprising a plurality of uprights spaced from each other, said uprights being provided with alined shaft openings at their upper ends and with similar openings at their lower ends, tie-pieces to secure the uprights together having their ends projecting therebeyond to form tool-head guides, a shaft journaled in the upper openings of the uprights, tie-pieces adapted to be received in the lower openings of the uprights, a tool-head slidable in the guides, and means for operatively connecting the shaft to said heads.

2. In a punch press, a frame work comprising a plurality of uprights spaced from each other, said uprights being provided with alined shaft openings at their upper ends and with similar openings at their lower ends, tie-pieces to secure the uprights together having their ends projecting therebeyond to form tool-head guides, a shaft journaled in the upper openings of the uprights, a lever attached to the shaft between the uprights, die-supports adapted to be received in the lower openings of the uprights, a tool-head slidable in the guides, and means for operatively connecting the shaft to said heads.

3. In a punch press, a frame work comprising a plurality of uprights spaced from each other, said uprights being provided with alined shaft openings at their upper ends and with similar openings at their lower ends, tie-pieces to secure the uprights together having their ends projecting therebeyond to form tool-head guides, a shaft provided with cranks at its ends journaled in the upper openings of the uprights, die supports adapted to be received in the lower openings of the uprights, a tool-head slidable in the guides, and a connecting rod attached to the said head and the crank of said shaft.

4. In a punch press, a frame work comprising a plurality of uprights spaced from each other, said uprights being provided with alined shaft openings at their upper ends and similar openings for die supports at their lower ends, and tie-pieces secured transversely to the uprights and having their ends projecting therebeyond to form tool-head guides.

5. In a punch press, a frame work comprising a plurality of uprights spaced from each other, said uprights being provided with alined shaft openings at their upper ends and similar openings for die supports at their lower ends, tie-pieces secured transversely to the uprights and having their ends projecting therebeyond to form tool-head guides.

6. In a device of the character described having upright members spaced from each other and provided with transverse die sockets, movable tool-carrying heads, and means for actuating the same; the combination therewith of die members adapted to be received in said sockets, and means for securing the same therein.

7. In a device of the character described having upright members spaced from each other and provided with transverse die sockets, movable tool-carrying heads, and means for actuating the same; the combination therewith of reversible die members adapted to be received in said sockets, and means for securing the same therein.

8. In a device of the character described having an actuating shaft and provided with a key-seat; the combination therewith of a handle having an opening to take the said shaft, members extended from said openings having a slot therebetween and grooved to form a longitudinal key-way, a key adapted to seat in said key-way and in the key-seat in the shaft, and means for closing said members together to clamp the key and close the handle opening on the shaft.

9. In a device of the character described; the combination of an upright having a transverse socket, a shaft journaled in the upright, a part on the shaft movable therewith, and provided with a notch or depres-

sion, a plunger having a stud adapted to project through said socket and engage the movable part on the shaft, a spring to actuate said plunger, and means for retaining said spring within the said socket.

In witness whereof, I have hereunto set my hand, this 21st day of December A. D. 1909, in the presence of two subscribing witnesses.

WILLIAM JOHNSON.

Witnesses:
C. K. CHAMBERLAIN,
A. S. PHILLIPS.