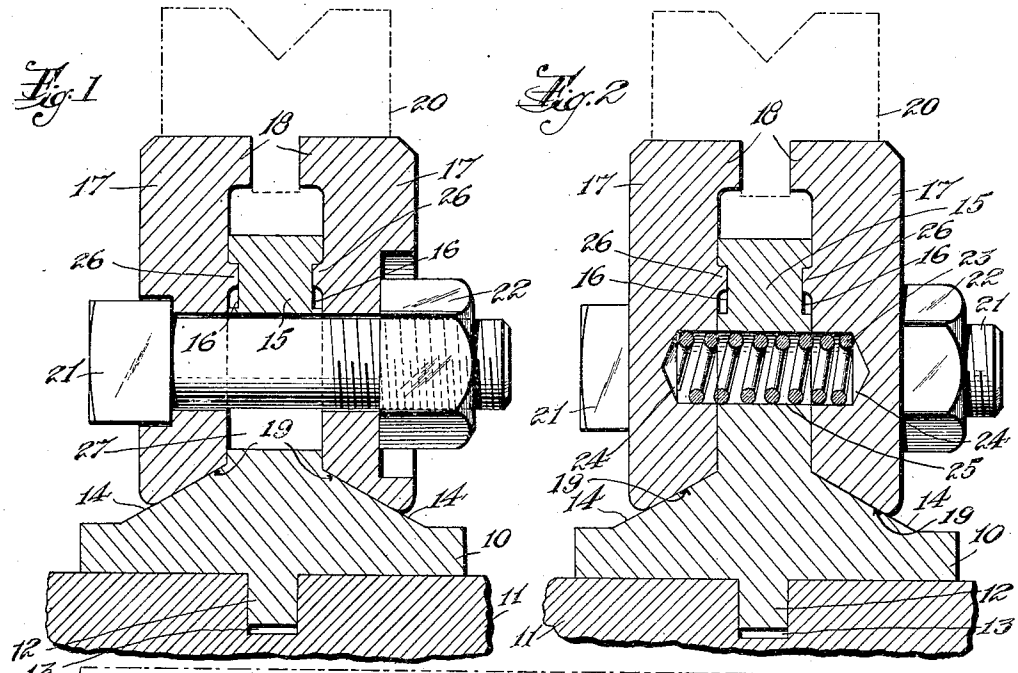
June 21, 1932. A. RAFTER 1,863,729

DIE HOLDER

Filed June 30, 1931



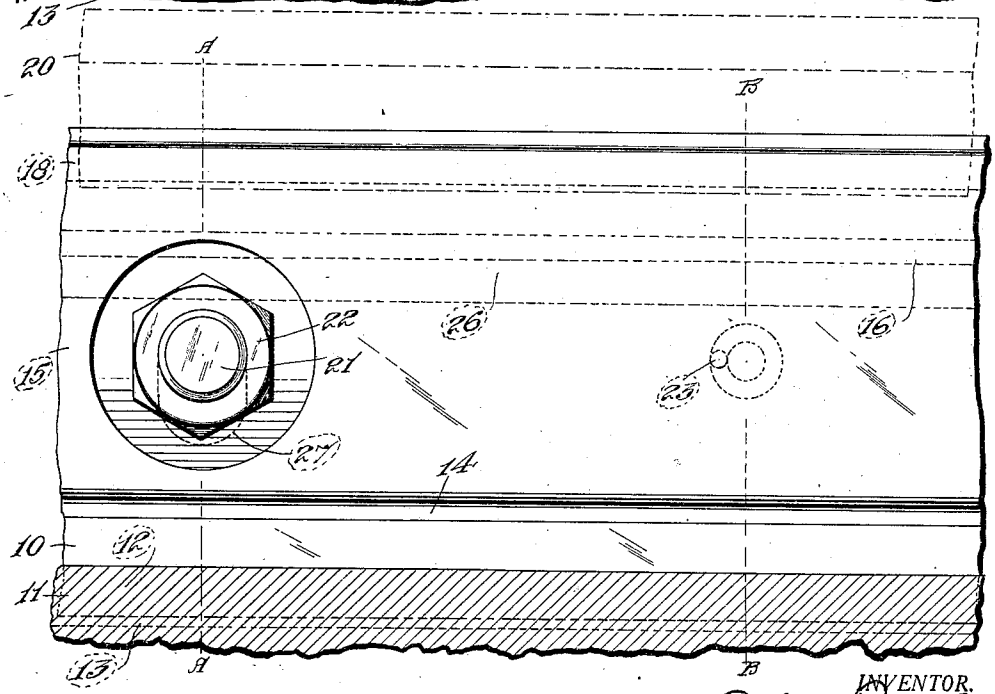


Fig. 3

INVENTOR.
Albert Rafter
BY Frank O. Fischer.
ATTORNEY.

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UNITED STATES PATENT OFFICE

ALBERT RAFTER, OF BELLEVILLE, NEW JERSEY, ASSIGNOR TO RAFTER MACHINE COMPANY, OF BELLEVILLE, NEW JERSEY, A PARTNERSHIP COMPOSED OF ALBERT RAFTER AND JOHN C. RAFTER, JR.

DIE HOLDER

Application filed June 30, 1931. Serial No. 547,826.

This invention relates to machines for stamping sheet metal in desired shapes, and more particularly to a clamping die holder of novel and simple construction so arranged that the die may be readily inserted and removed.

As described in Patent No. 1,778,339, granted to me October 14, 1930, machines for stamping sheet metal are usually very heavy, often weighing in the neighborhood of 35,000 pounds and exerting pressures up to 200,000 pounds.

The stamping operation is accomplished by bringing a male die member or punch into engagement, under high pressure, with the metal plate positioned on the female die member.

Frequently, the machine is not properly adjusted in advance, and when the die members are brought together under the tremendous pressure employed, they bind together with such a force as to prevent further operation of the machine.

Heretofore, it has been necessary to employ considerable labor and time to release the dies, the releasing process in many instances requiring one or two days, which obviously resulted in the stamping machine remaining idle for that time.

It is an object of this invention to provide a die holder for stamping machines, which die holder is formed from a plurality of relatively adjustable parts which enable the easy release of the male and female dies when they bind.

A further object is the provision of a readily releasable die holder which may be applied to standard stamping machines without material alteration.

These and other objects are attained by the novel construction, combination and arrangement of parts hereinafter described and shown in the accompanying drawing, constituting a material part of this disclosure and in which:

Figure 1 represents a cross sectional view of the die holder when in clamped position, taken on line A—A of Figure 3.

Figure 2 represents a cross sectional view of the die holder, taken on line B—B of Figure 3, and

Figure 3 represents a side elevation of the die holder as mounted on the bed of a stamping machine.

Referring to the drawing, the die holder in its preferred form consists of a longitudinal support 10 adapted to be secured to the bed 11 of the stamping machine in any desired or convenient manner, preferably by means of an integral tenon 12 extending longitudinally of the bottom thereof which fits into the groove 13 but is preferably of a height slightly less than the depth of the groove, or the die holder can be secured to the hammer of the machine (not shown), if so desired.

The support 10 is provided with surfaces 14 which are inclined inwardly and upwardly, said surfaces connecting with the upwardly extending central portion 15 and extending longitudinally of the support 10.

Located near the top of the central portion 15 are diametrically opposed grooves 16—16 also extending longitudinally of the support 10.

Secured to and carried by said support 10 are clamping plates 17—17, the upper portion of each plate being provided with a jaw 18 and the lower portion of each plate with an inclined surface 19, these inclined surfaces 19 coinciding with the inclined surfaces 14 of the support 10 so that the clamping plates have sliding contact with the support.

The inner surface of each clamping plate 17 is further provided with a longitudinally arranged gib 26 which has sliding engagement with the groove 16 of the central portion 15 of the support 10 and which also serves to limit the movement of the clamping plate 17.

The die member 20 shown in dotted lines is clamped between the jaws 18 of the clamping plates 17 by means of the bolts 21 having threaded thereon the nuts 22.

A plurality of spiral springs 23 are located in suitable recesses 24 in the clamping plates and pass through suitable apertures 25 in central portion 15 of the support 10 which exert their pressure for normally sepa-

rating the clamping plates when the nuts 22 are loosened from the bolts 21.

In operation when the die members bind, the nuts 22 are loosened on bolts 21, thus allowing the clamping plates 17—17 to separate under the pressure applied by the springs 23 permitting the plates to move down on the inclined surfaces 14 of the support 10 and also permitting the bolts 21 to drop in the elongated apertures 27 in the central portion 15. Usually it is only necessary to move the clamping plates outwardly a few thousands of an inch to release the bound dies.

From the above description, it will be readily seen that I have provided a clamping die holder which will enable the easy release of bound dies and permit the normal operation of a stamping machine in a short time.

The die holder is so constructed that it may be applied to the bed of any standard stamping machine without material alteration.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many modifications without departing from the general scope herein indicated and denoted in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A die holder for a stamping machine, comprising a support provided with a central portion and inclined surfaces connecting the central portion with said support and extending longitudinally thereof, clamping plates carried by said support provided with inclined surfaces coinciding with the inclined surfaces of the support and means for adjustably connecting said clamping plates and support.

2. A die holder for a stamping machine, comprising a support provided with a central portion and inclined surfaces connecting the central portion with said support and extending longitudinally thereof, spring actuated clamping plates carried by said support provided with inclined surfaces coinciding with the inclined surfaces of the support, and means for adjustably connecting said clamping plates and support.

3. A die holder for a stamping machine, comprising an apertured support provided with inclined surfaces extending longitudinally thereof, clamping plates having correspondingly inclined surfaces having sliding engagement with said support, and means passing through said apertured support for adjustably connecting said clamping plates and said support.

4. A die holder for a stamping machine, comprising a support provided with an apertured central portion and inclined surfaces extending longitudinally thereof, apertured clamping plates provided with jaws at their upper ends and inclined surfaces at their lower ends having sliding engagement with the inclined surfaces on said support and means passing through the said apertured support and apertured clamping plates for adjustably connecting the same.

5. A die holder for a stamping machine, comprising a support provided with a central portion extending longitudinally thereof and having oppositely arranged grooves, recessed clamping plates carried by said support provided with means engaging said grooves and having sliding engagement therewith to limit the movement of the clamping plates on said support, resilient means passing through said central portion and located in the recesses of said clamping plates for normally separating the clamping plates, and means for adjustably connecting said clamping plates and said support.

This specification signed this 18th day of June, 1931.

ALBERT RAFTER.