April 19, 1927. 1,625,748

F. SCHIESS

MACHINE FOR CUTTING OR SEVERING METALLIC BARS

Filed Jan. 25, 1923

Fig. 1

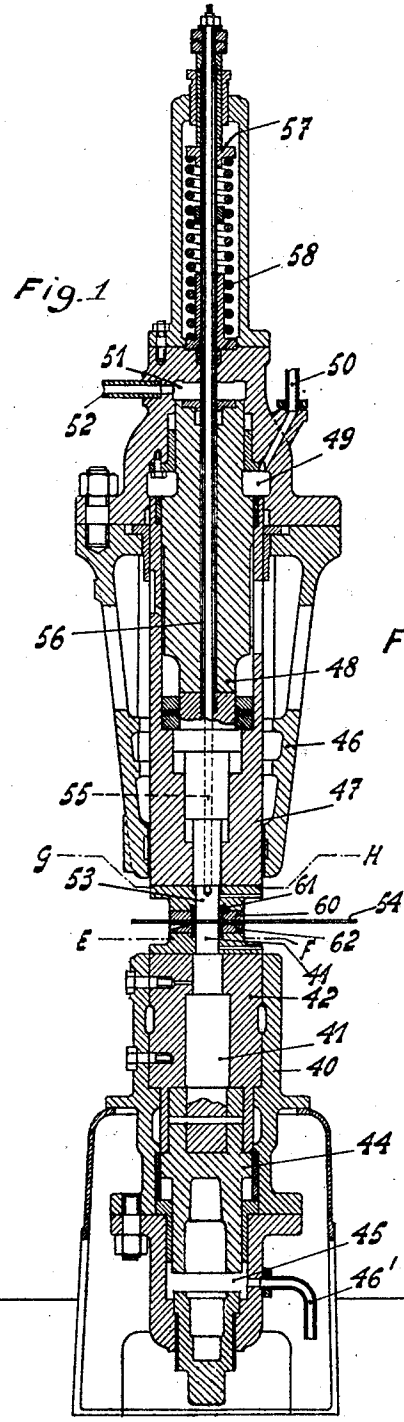
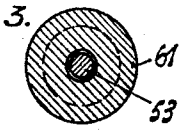


Fig. 3.



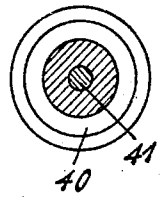


Fig. 2.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING OR SEVERING METALLIC BARS.

Application filed January 25, 1923. Serial No. 615,131.

The present invention relates to a new and improved machine for cutting or severing metallic bars and cutting or punching metal bars, sheet metal and so on.

The object of the invention is to provide an improved machine for the purpose stated which will produce a smooth fracture and no deformation of the parts of the bar, etc., adjacent the position of the break or cut.

I attain this and other objects by means of a machine having two pairs of dies inclosing the bar etc. to be severed and means to move the dies of each pair with reference to each other and moreover one pair of dies with reference to the second pair.

A further feature of my invention consists in the means for closing the dies and moving one pair of dies with reference to the other by hydraulic means.

The preferred embodiments of my invention are shown in the accompanying drawings in which,

Figure 1 is a sectional elevation of a machine constructed in accordance with my invention.

Figures 2 and 3 are sections of the same respectively on the lines E—F and G—H.

In the construction shown in the drawings a machine is shown adapted to pierce sheet metal of great thickness. In the base 40 a cylindrical die 41 is slidably mounted within a guide block 42 fixed to the casing 40. The die 41 is connected to a piston 44 projecting into a chamber 45. Said chamber 45 is connected by a pressure pipe 46′ to a pump not shown in the drawings. Above the base 40 in a casing 46 two pistons 47, 48 are shown one, 48, within the other 47. The pistons 47, 48 slide independently of each other. Piston 47 projects into a chamber 49 which is connected by a pipe 50 to a hydraulic pressure pump and piston 48 projects into a chamber 51 which by means of a pipe 52 is connected to another hydraulic pressure pump. Piston 48 operates a die 53 corresponding in diameter to the diameter of the die 41 and to the diameter of the hole which is to be pierced in the sheet metal piece 54. Die 53 is screwed on to a spindle 55 which passes through a bore or piston 48 and through a pipe 56 screwed into the upper portion of the die 53. The upper ends of spindle 55 and of the pipe 56 are connected to a sleeve 57 on which a spring 58 acts. The said spring 58 tends to lift the dies and the piston 47. The lower end of the piston 47 carries a press plate 60 of hard material with adjustable ring 61 said parts 60, 61 pressing the working piece 54 against press plate 62 of the die 42.

The machine works as follows:

After the piece 54 has been brought on the die 42 the pressure in chamber 49 is raised and the piston 47 is pressed on to the working piece 54. The pressure is raised up to a point on which the piece 54 would be deformed. The pressure in the chamber 51 is raised above that point and is made to exceed that in chamber 45 in such a manner that the die 53 passes through the piece 54. The cut is quite clean. The means to vary the pressure on the several pistons are known to anyone versed in the art.

Having thus described my invention, what I claim as new is:—

In a machine of the class described, the combination of a fixed die, a pair of independently operable dies opposite said fixed die, independently operable fluid pressure actuated means for actuating said independently operable dies, and comprising a pair of pistons, arranged one within the other, and means to yieldingly resist the movement of one of said pair of dies.

In witness whereof I affix my signature.

FRITZ SCHIESS.