Sept. 10, 1929. W. L. CLOUSE 1,727,698

FORGING MACHINE

Filed July 21, 1927 2 Sheets-Sheet 1

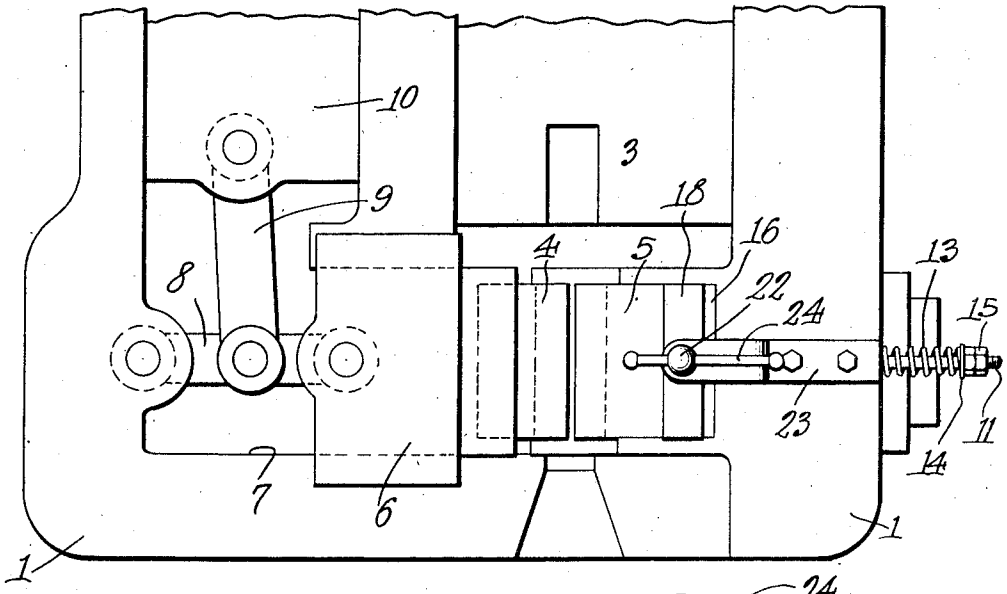


Fig. 1.

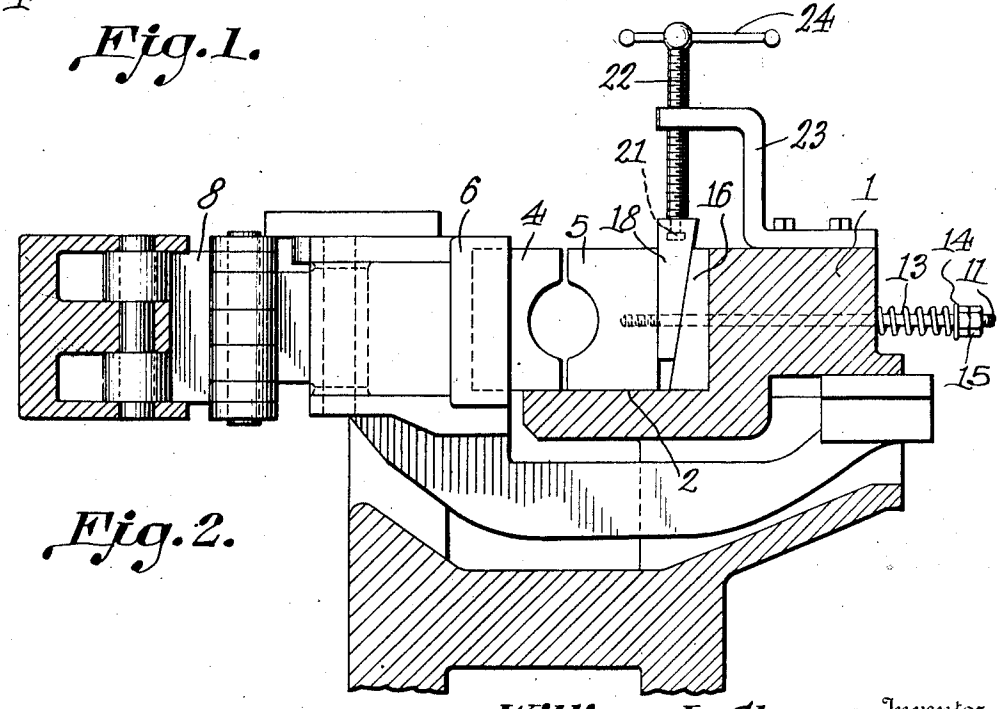


Fig. 2.

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Filed July 21, 1927 2 Sheets-Sheet 2

Fig. 3.

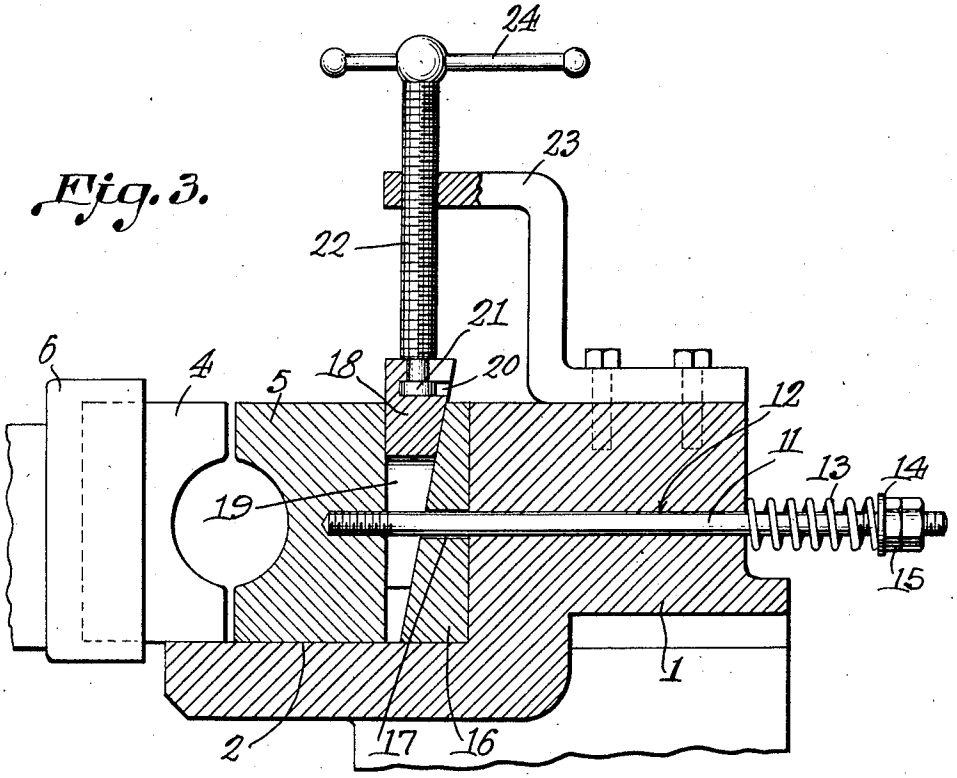


Fig. 4.

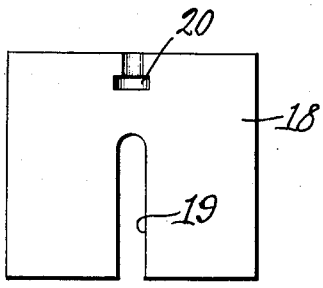
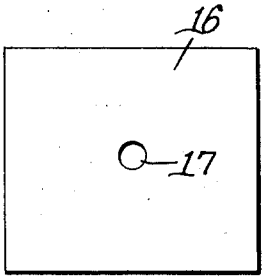


Fig. 5.



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Patented Sept. 10, 1929.

1,727,698

UNITED STATES PATENT OFFICE.

WILLIAM L. CLOUSE, OF TIFFIN, OHIO, ASSIGNOR TO THE NATIONAL MACHINERY CO., OF TIFFIN, OHIO.

FORGING MACHINE.

Application filed July 21, 1927. Serial No. 207,479.

This invention relates to forging machines and is designed more especially for the purpose of providing a means whereby the squeezing or swedging action of a die can be advanced or retarded at will so that bars of different sizes can be subjected to the squeezing action necessary to bring them all to the same length in the final products.

A further object is to provide a device of this character which is adjustable readily without necessitating any variations in the stroke of the movable die.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings,

Figure 1 is a top plan view of a portion of a forging machine embodying the present improvements.

Figure 2 is a transverse section therethrough, the dies and parts cooperating therewith being shown in elevation.

Figure 3 is an enlarged vertical transverse section through the adjustable die.

Figure 4 is a face view of the adjusting wedge.

Figure 5 is a face view of the stationary wedge.

Referring to the figures by characters of reference 1 designates the frame of the forging machine, this frame being provided with a recess 2 into which stock is adapted to be fed so as to be acted on by the heading or forging die 3 and the gripping or squeezing dies 4 and 5 for any of them. The gripping die 4 is carried by a gripping slide 6 movable in a guideway 7 provided therefor and adapted to be actuated by any suitable mechanism, such as a toggle 8 connected by a link 9 to a slide 10. This slide can be reciprocated by the usual or any preferred mechanism provided for this purpose and which does not constitute any part of the present invention. Arranged for cooperation with the gripping die 4 is an adjustable stationary gripping die 5 mounted in the recess 2 and having a rod 11 extending therefrom through an opening 12 in the frame 1. This rod has a spring 13 on the projecting end portion thereof one end of which bears against the side of the frame 1 while the other end bears against a washer 14 held adjustably on the rod by nuts 15. Obviously these nuts can be used for holding the spring 13 under compression so that the die 5 is normally drawn toward the end wall of the recess 2.

Arranged within the recess 2 between said end wall and the gripping die 5 is a stationary wedge 16 through which the rod 11 extends there being an opening 17 in this wedge for the rod as shown particularly in Figure 5. Another wedge 18 arranged oppositely to the wedge 16 is located between the die 5 and the wedge 16 and has a slot 19 whereby the wedge 18 can straddle rods 11. A recess 20 is provided in the outer ends of the wedge 18 and removably mounted in this recess is the head 21 of an adjusting screw 22. This head is swiveled in the recess 20 and the screw 22 is carried by a bracket 23 fastened in any suitable manner in the frame 1. The screw 22 can be rotated by any suitable means provided for that purpose. For example the rod or handle 24 can be connected to one end of the screw. Obviously when the screw is rotated in one direction the wedge 18 will be elevated and the die 5 will therefore be drawn backwardly by spring 13 away from the die 4. By adjusting screw 22 downwardly, however, the wedge 18 will be forced between the die 5 and the stationary wedge 16 so as to force the die 5 away from said wedge 16 and closer to the die 14. During this adjustment of the die 5 the spring 13 will be placed under increased compression.

The stroke of the slide 6 is always the same and, consequently, the advancing or front face of the gripping die 4 always comes to a predetermined point when the die is in one extreme position. Obviously by adjusting the wedge 18 the gripping die 5 can be ad-

vanced toward or retracted from the die 4 with the result that the stock placed between the two gripping dies can be squeezed to any desired extent, dependent upon the position of the wedge 18. The adjustment of the wedge can be effected without interfering with the operation of the machine in any way and, consequently, stock of different diameters can be properly squeezed so as to be brought to a predetermined length. A mechanism of this kind is particularly desirable for example, in reclaiming worn car axles wherein that portion of the forging back of the wheel seat can be lengthened by squeezing to permit the worn portion to be upset. Axles of this kind are made from rough forgings but must have a definite overall length. Thus by providing a means whereby variations in the squeezing action can be effected, the desired result can be obtained readily.

It is to be understood of course that this mechanism will be found desirable in all cases where it is desirable to vary the squeezing action during successive forging operations upon articles of a like nature but of different proportions.

What is claimed is:

In a forging machine the combination with a frame, a movable gripping die, and means for advancing the gripping die intermittently to a predetermined limit of movement, said frame having a recess, of a second gripping die in the recess, a wedge seated in the recess and bearing against the end wall thereof, a rod secured to the movable die and extending through said wedge and through a portion of the frame for holding the wedge against displacement within the recess, a spring adjustably mounted on the rod for drawing the movable die constantly toward the wedge, a slotted wedge disposed oppositely to the first named wedge and straddling the rod between the movable die and the first named wedge, said rod constituting means for holding the slotted wedge against lateral displacement, and means for adjusting the slotted wedge into and out of the recess to vary the distance between the other wedge and the movable die.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

WILLIAM L. CLOUSE.