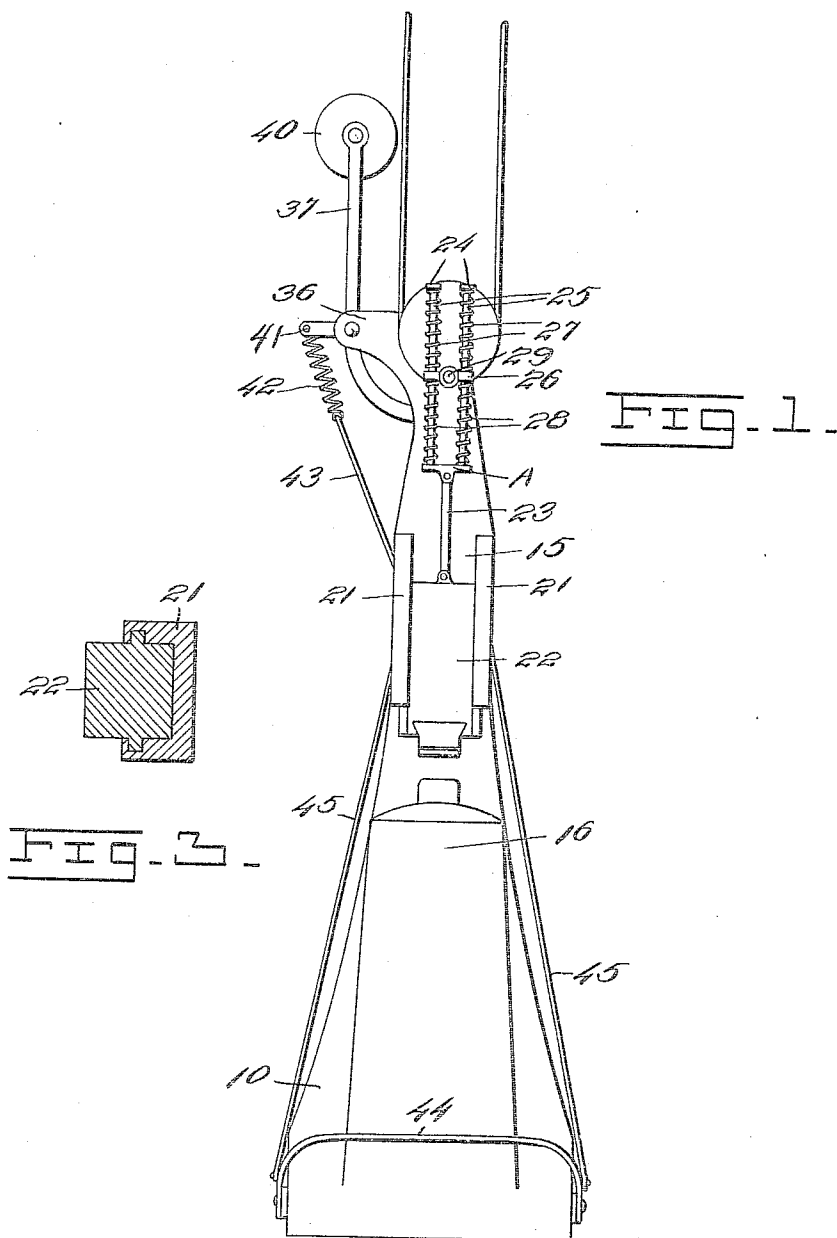


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APPLICATION FILED DEC. 11, 1908.

Patented Apr. 5, 1910.
2 SHEETS—SHEET 1.



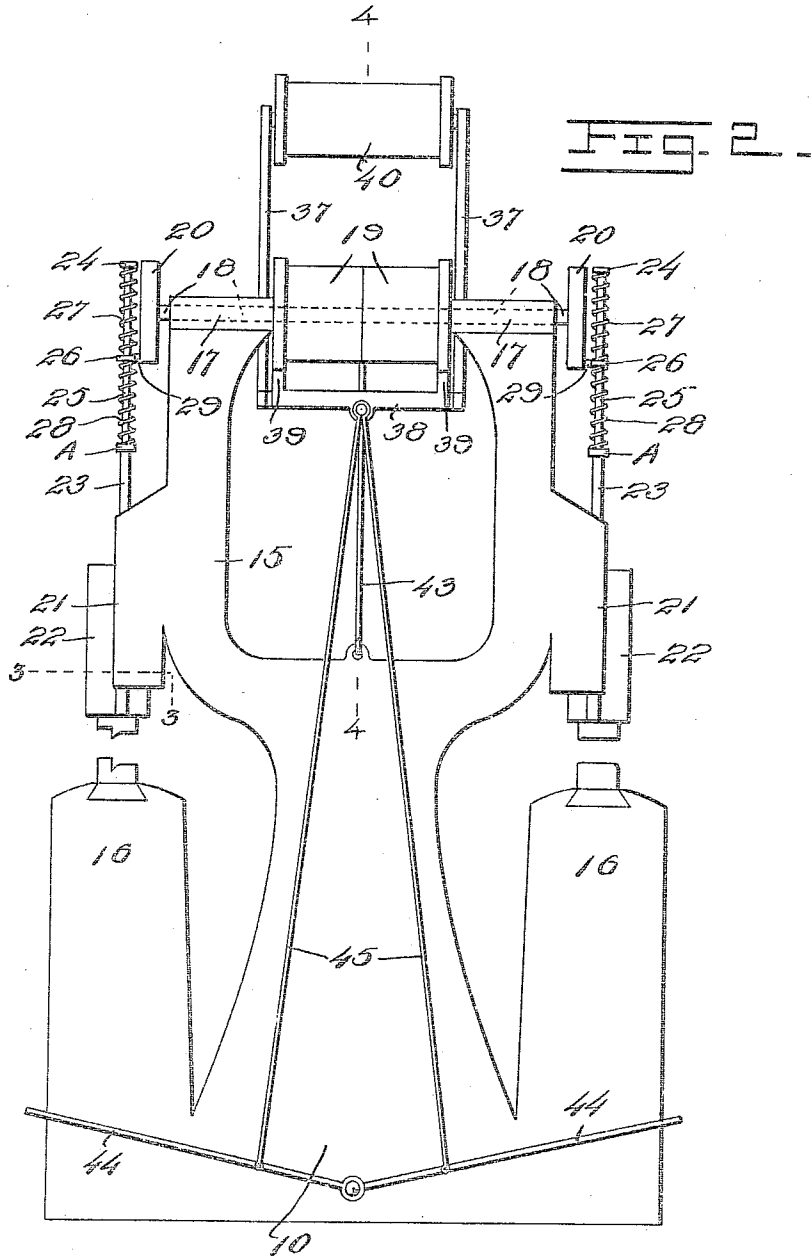
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UNITED STATES PATENT OFFICE.

JACOB DELZER, OF FREEMAN, SOUTH DAKOTA.

FORGING AND CUTTING MACHINE.

953,737.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed December 11, 1908. Serial No. 467,102.

To all whom it may concern:

Be it known that I, JACOB DELZER, a citizen of the United States, residing at Freeman, in the county of Hutchinson and State of South Dakota, have invented certain new and useful Improvements in Forging and Cutting Machines, of which the following is a specification.

This invention relates to machines for forging and cutting metal and more particularly to the driving mechanism thereof and has for its object to provide a machine in which a number of machine tools may be brought into operation simultaneously and without the usual jar occasioned thereby.

A further object of this invention is to provide means for interchangeably securing the tools and dies, so that any desired operation, as cutting, punching, or welding, may be carried on on either side of the machine, thus considerably reducing the space required and rendering the machine equal in efficiency to a series of separate machine tools.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claim, and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 is a side view of the machine, Fig. 2 is a side view at right angles to Fig. 1, Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2.

Referring to the drawings, there is shown a base 10 of cast metal comprising a central portion carrying outwardly set standards 15, and anvils 16 disposed therebelow. The base is arranged to be secured to a floor in a suitable manner. The standards 15 carry registering bearings 17 at their upper ends, in which there are engaged shafts 18 having pulleys 19 engaged on their inner ends, and carrying disks 20 keyed to their outer ends and having outwardly extending wrist pins 29. Outwardly of the standards 15 there are formed guideways 21 having slidably engaged therein hammer blocks 22 having pivotally engaged to their upper ends connecting rods 23 extending upwardly and having cross pieces A secured to their upper

ends as shown. Upwardly extending spaced rods 25 are carried rigidly by the cross pieces A and have slidably engaged thereon a cross head or guide arm 26. Helical springs 27 and 28 are engaged around the rods 25 on each side of the head 26, the springs 27 being seated against collars 24 carried at the extremities of the rods 25 and the springs 28 are seated against the cross pieces A. The springs bear inwardly against the head 26 to hold it in yieldable spaced relation with the opposite ends of the rods 25. The heads 26 are provided with bearing openings having revolubly engaged therein the wrist pins 29 carried by the disks 20 as shown. The anvils 16 are arranged to receive dies or other tools of various kinds by means of sliding dove tail engagement and the blocks 22 are similarly arranged.

It will be seen that normally when the wrist pins 29 are at the lower extremity of their movement the hammer blocks 22 will be held in spaced relation with the anvils 16, the weight of the blocks being supported by the engagement of the springs 27 between the heads 26 and the collars 24 carried by the rods 25. Upon rotation of the disk 20 the inertia of the blocks 22 will be taken up gradually by the springs 27, and it is desirable to run the machine at such a speed that when the wrist pins are at the upper extremity of their movement the momentum of the hammer blocks 22 will carry them some distance above the limits of movement of the disks 20 causing the lower one of the springs 27 to engage downwardly against the cross pieces A giving the hammer blocks a momentum greatly in excess of that of the disks 20 and causing them to fall heavily upon the anvils 16 or any material disposed thereon. The last portion of their fall will be against resistance of the springs 28 which however will not interfere materially with the force of the blow, and the engagement of the springs 27 between the wrist pins and the collars 24 will immediately begin to overcome the inertia of the block 22 even while the wrist pins are passing their lower dead center, thus economizing the power required for the operation of the machine.

Spaced horizontal arms 36 are carried by the standards 15 adjacent to their upper ends and have pivoted thereto vertical side bars 37 of a belt tightening mechanism now

to be described. The bars 37 are bent to project inwardly between the standards 15 at their lower ends and carry a cross bar 38 having springs 39 thereon arranged to engage with the pulleys 19. At their upper end, the bars 37 carry revolubly therebetween a pulley 40 arranged to engage inwardly against a power belt passing downwardly and around the pulleys 19. A cross piece 41 is carried by the bars 37 inwardly of the pulley 40 and offset outwardly as shown. A helical spring 42 is carried midway of the rod and is connected by a suitable tie piece 43 to the frame 11 to hold the pulley 40 normally out of engagement with the power belt. Foot levers 44 are pivoted midway of the sides of the frame 11 and comprise yokes extending oppositely and engaged around the bases of the anvils 16 in spaced relation therewith, in order to provide foot engaging means at any point convenient for an operator. Wires 45 are connected by their upper ends midway of the bar 38 and engaged by their lower ends outwardly of the pivot points of the levers 44. It will be seen that upon engagement of an operator's foot with the lever 44 the brake 39 will be brought out of engagement with the pulley 19 and the pulley 40 brought to bear against a belt when engaged down-

wardly around the pulley 19 to cause engagement of the belt with the pulley to induce rotation of the shafts 18. This movement will be communicated to the disks 20 and thus oscillative movement imparted to the blocks 22 as above described.

What is claimed is:—

A machine of the class described comprising a base carrying a guide-way, a tool carrying member slidable in the guide-way, an anvil disposed beneath said tool carrying member, a revoluble crank member, a cross head engaged revolubly on said crank member, said cross head having spaced openings therethrough at its opposite ends, spaced rods engaged slidably through said openings, springs secured at the outer ends of said rods and bearing against the cross head to hold it yieldingly midway of the rods, a connecting portion carried rigidly at one end of the rods, a connecting rod pivoted to said connecting portion and the sliding tool carrying member and means for operating said crank member.

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

JACOB DELZER.

Witnesses:

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J. J. WALTNER.