

March 8, 1927.

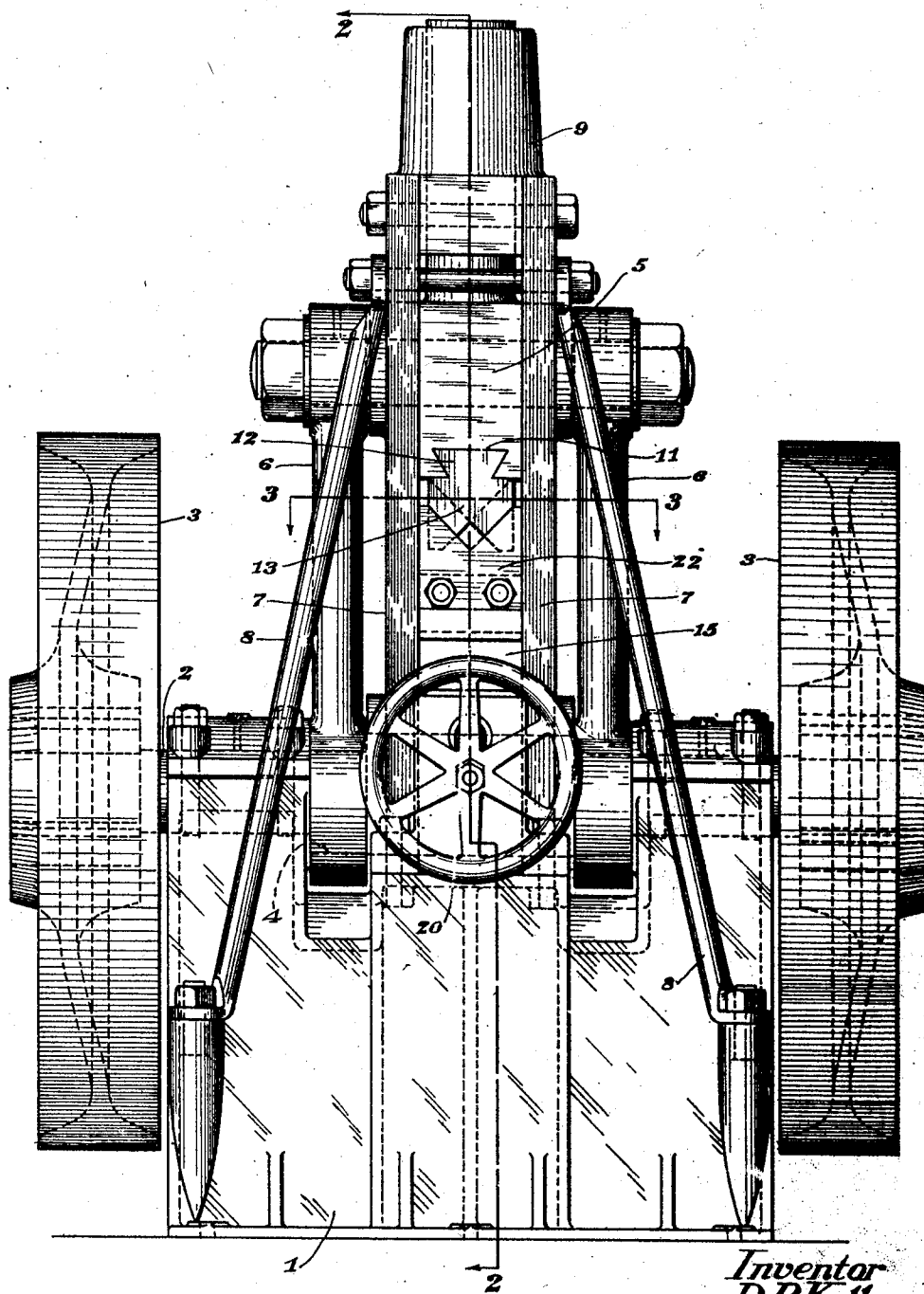
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BOLT OR ROD STRAIGHTENING MACHINE

Filed Dec. 19, 1921

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

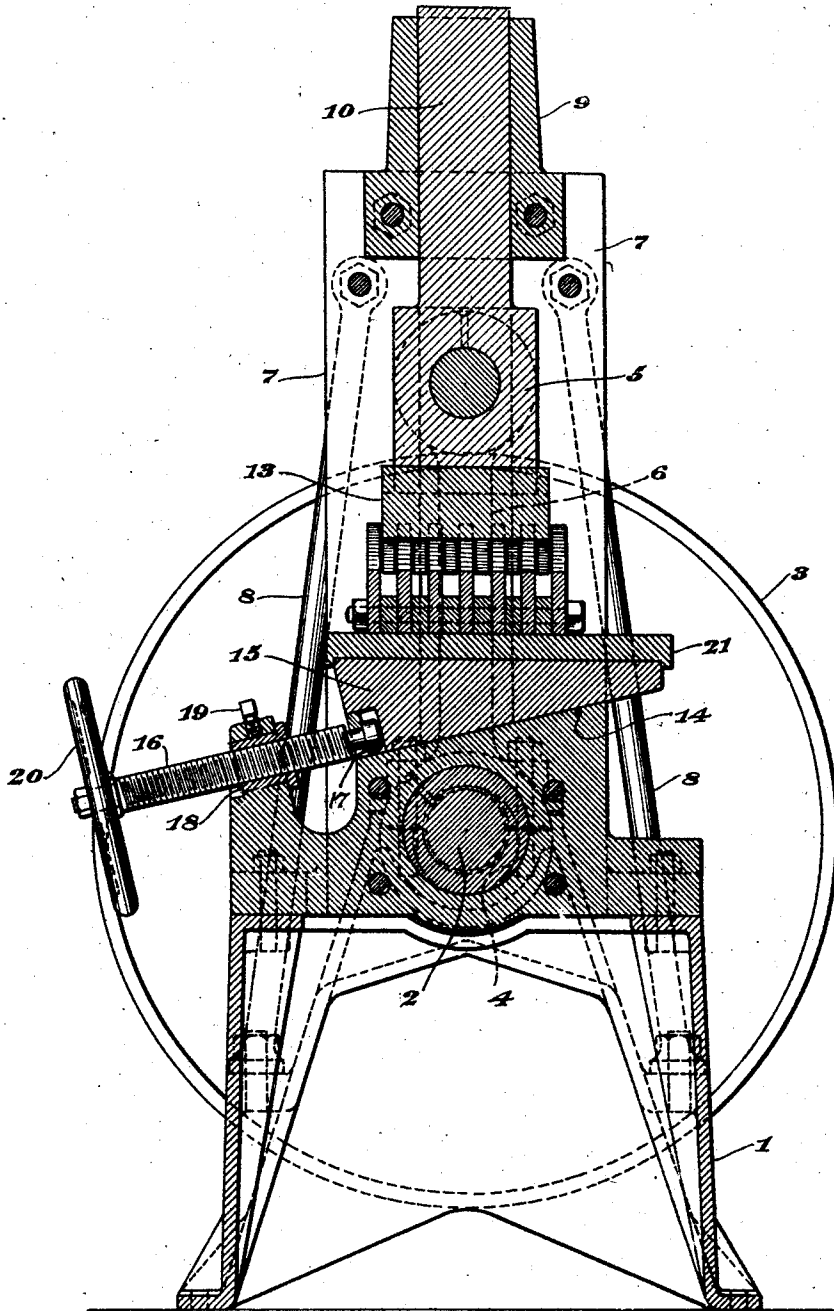


Fig. 2

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3 Sheets-Sheet 3

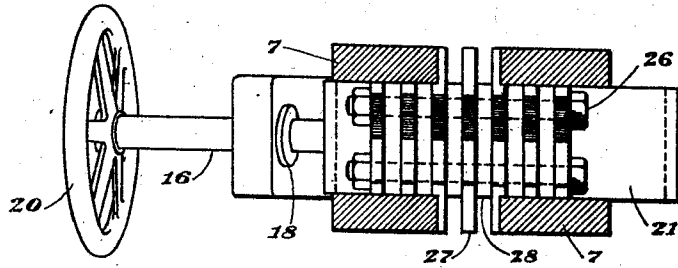


Fig. 3

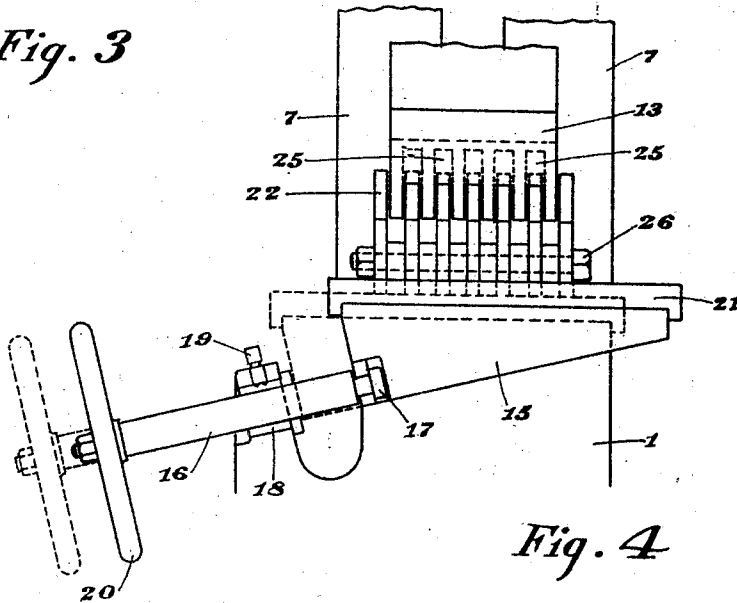


Fig. 4

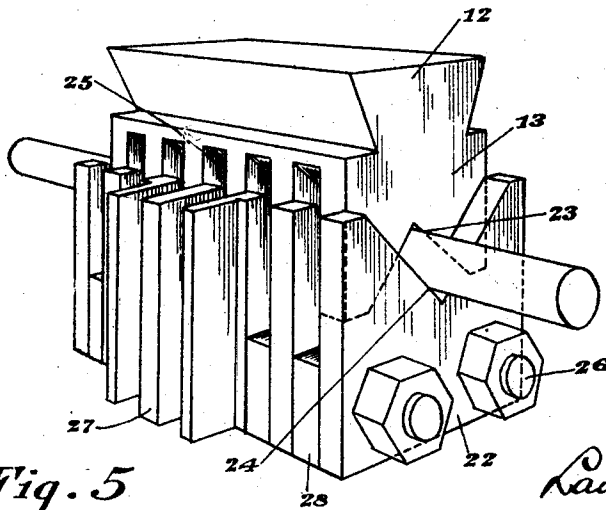


Fig. 5

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UNITED STATES PATENT OFFICE.

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BOLT OR ROD STRAIGHTENING MACHINE.

Application filed December 19, 1921. Serial No. 523,407.

This invention relates to improvements in machines for reclaiming material and more particularly to a bolt or rod straightening machine.

in guides 7 secured in upright positions by rods 8 and supporting a guide cap 9 through which travels a vertical projection 10 of the cross head.

5 In the disassembling of machinery and buildings or other structures most of the material may be used again and the metal parts which have been deformed by use or in disassembling are subject to reclamation for
10 this purpose.

The underside of the cross head is provided with an undercut groove 11 adapted to dove tail with a correspondingly cut projection 12 on the upper die block 13. The portion of the base between the eccentrics
65 and guides 7 is provided with an inclined surface 14 over which an adjusting block 15 is mounted to slide between the guides by means of a screw shaft 16 having a head 17
70 on one end rotatably engaging the block, as shown, and passing through a threaded block 18 held against rotation by a set screw 19 in the base and having a hand wheel 20
75 on the exterior end. The upper surface of the adjusting block is provided with a horizontal plate 21 for supporting the lower die block 22.

Heretofore bolts and other pieces of metal such as plates and rods have been straightened or reformed by hand which is a laborious and costly, as well as a lengthy method.
15 It is an object of this invention to provide a machine in which by one or more operations rods or bolts may be quickly straightened or reformed to be capable of reuse. Articles of this kind have been reclaimed by
20 the use of a power hammer under which the article is turned constantly by hand until the former shape has been reproduced and it is a further object of this invention to so construct a machine that a single operation will
25 accomplish the reforming of the bolt or rod and at the same time construct the machine to adapt it to articles of this character of different diameters.

The under surface of the upper die block 13 is provided with a central longitudinal angular groove 23, the sides of which are at
80 right angles to each other and the lower die block 22 is provided with a similar groove 24. The upper die block 13 is divided by a number of equally spaced recesses 25 parallel to and between its longitudinal ends formed
85 by cutting through the side walls on each side, the tops of which are extensions of the opposite angular faces of the groove 23. The lower die block 22 is preferably formed of a plurality of sections secured together
90 by longitudinal bolts 26 with alternating sections 27 adapted to pass into the recesses 25 in the upper block and one section adapted to pass over the exterior of each longitudinal
95 end of die block 13. The other alternating sections 28 are in reality spacers and have horizontal upper surfaces which are below the lowermost normal end of travel of the
100 upper die. The vertical projection 10 of the cross head traveling in the guide cap 9 insures the constant alignment of the upper die block. Some of the sections 27 of the lower
105 die block are extended between the guides 7 on each side to engage the guides and insure the constant relation of the lower die to the upper die. The lower die block rests
110 upon the horizontal plate 21 of the adjusting block 15, so that movement imparted by the hand wheel 20 to the adjusting block will change the vertical relation of the lower die block to the upper die block without altering their horizontal relation to each other.

While the preferred form of this invention is illustrated on the accompanying sheets of drawings, yet it is to be understood that minor detail changes may be made without departing from the scope thereof.

In the drawings:

35 Fig. 1 is a view in front elevation of the complete machine constructed in accordance with this invention.

Fig. 2 is a view in vertical cross section taken on the lines 2—2 of Fig. 1.

40 Fig. 3 is a view in horizontal cross section taken on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged detail view in side elevation illustrating the adjustability of the dies.

45 Fig. 5 is an enlarged detail view in perspective of the dies, detached from the machine, illustrating the mode of operation.

In carrying out this invention the base 1 mounts a horizontal driven shaft 2 having
50 pulley wheels 3 on each end adjacent the exterior of the base either one or both adapted to be connected by a belt to a power shaft, and eccentric cams 4 arranged equidistant on each side of the center of the base. The eccentrics operate a cross head 5 by connecting rods 6 to travel to and from the base

The operation of the driven shaft 1 through the medium of the eccentrics 4, connecting rods 6, and cross head 5 will cause the sections of the upper die block 13 to reciprocate between the sections 27 of the lower die block 22 and as the lower die block is adjustable the distance the bottom of the groove in the upper die block approaches the bottom of the groove in the lower block may be changed to suit the size of rod or bolt to be straightened.

Fig. 5 illustrates clearly the manner in which the dies straighten a bolt or rod. The cross head is brought to its uppermost end of travel, the rod or bolt inserted between the dies, resting on the lower one, the distance of approach between the dies adjusted to the diameter of the rod and the descent of the upper die will straighten the portion of the rod embraced by the two dies. The application of power to the machine may be continuous or regulated by any of the well known power press controlling means. It is obvious that a bolt which is completely embraced by the dies may be straightened by a single operation, while a rod will be straightened by a series of successive operations by advancing the rod less than the length of the dies between each application of power or reciprocation of the upper die.

What I claim is:

1. A machine for reforming rods or cylindrical objects, including a pair of die blocks having correspondingly alined angular intermeshing die elements adapted to receive the object to be reformed between them, and means for applying pressure to the die blocks to reform the object, each die block having a series of similar recesses of equal width and parallel sides alternating with the recesses in the other die block so that the portions of one die block will be received within the recesses of the other, said recesses extending through the sides of their respective die blocks, the bottoms of the recesses in one block extending as prolongations of the surfaces of the angular die elements and the other block being formed with the bottoms of the recesses parallel to the apices of the angular die elements thereof.

2. A machine for reforming rods or cylindrical objects including a pair of die blocks

having correspondingly alined intermeshing die elements adapted to receive the object to be reformed between them, means for reciprocating one of the die blocks including guides for both blocks and a cross-head traveling between said guides to which the reciprocable block it attached, a projection extending from said cross-head and a stationary guide for said projection for maintaining constant relation of the die block carried by the cross-head, and means for applying pressure to the cross head to reform the object.

3. A machine for reforming rods or cylindrical objects, including a pair of die blocks having correspondingly alined intermeshing die elements adapted to receive the object to be reformed between them, means for reciprocating one of the die blocks including guides for both blocks, one of said die blocks having portions engaging two sides of each guide, and a cross-head traveling between said guides to which the reciprocable block is attached, a projection extending from said cross-head and a stationary guide for said projection for maintaining constant relation of the die block carried by the cross-head, and means for applying pressure to the cross-head to reform the object.

4. A machine for reforming rods or cylindrical objects, including a pair of die blocks having correspondingly alined intermeshing die elements adapted to receive the object to be reformed between them, means for reciprocating one of the die blocks including guides for both blocks, one of said die blocks having portions engaging two sides of each guide, a cross-head traveling between said guides to which the reciprocable block is attached, a projection extending from said cross-head and a stationary guide for said projection for maintaining constant relation of the die block carried by the cross-head, and means for applying pressure to the cross-head to reform the object, the die block having portions engaging two sides of each guide, a movable wedge supporting said die block, and means for operating the wedge to vary the relation between the die blocks.

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