J. P. WINTERS.

METAL BAR CUTTING MACHINE.

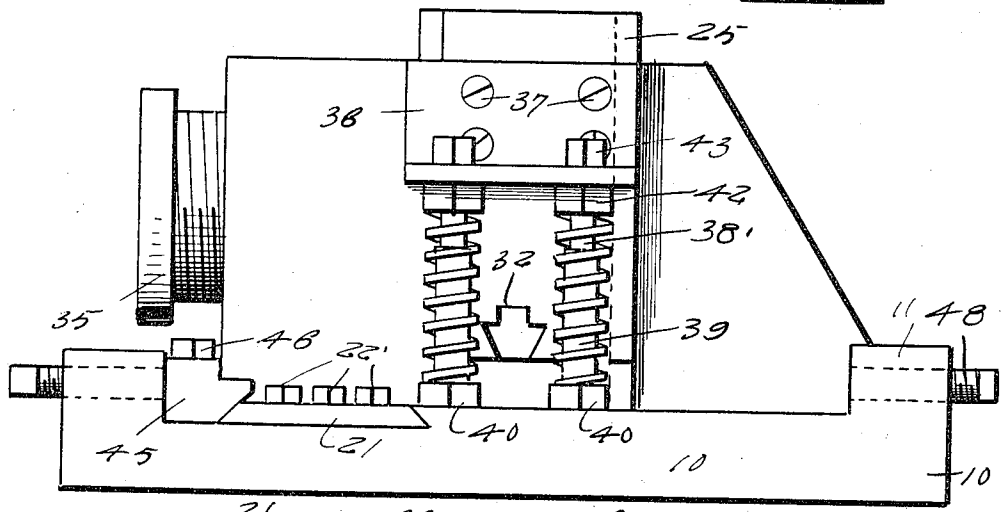
APPLICATION FILED MAY 24, 1918.

1,318,249.

Patented Oct. 7, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



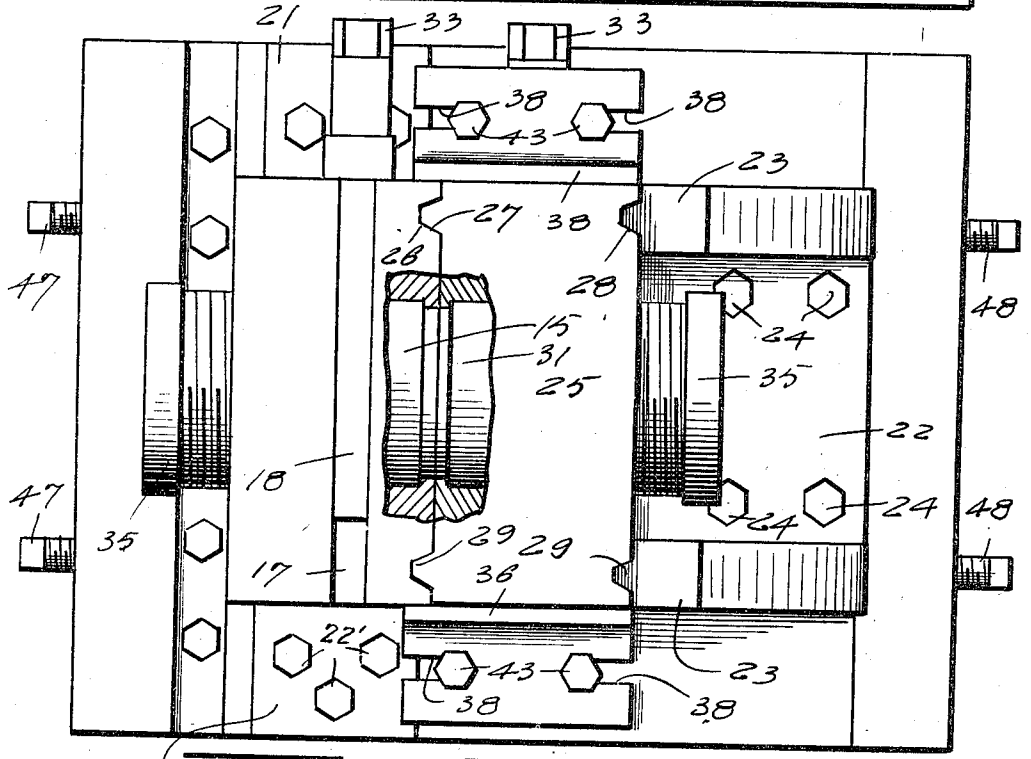


Fig. 2.

Inventor
J. P. Winters.
By A. Kaufmann, Jr.
Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. P. WINTERS.

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2 SHEETS—SHEET 2.

Fig. 3.

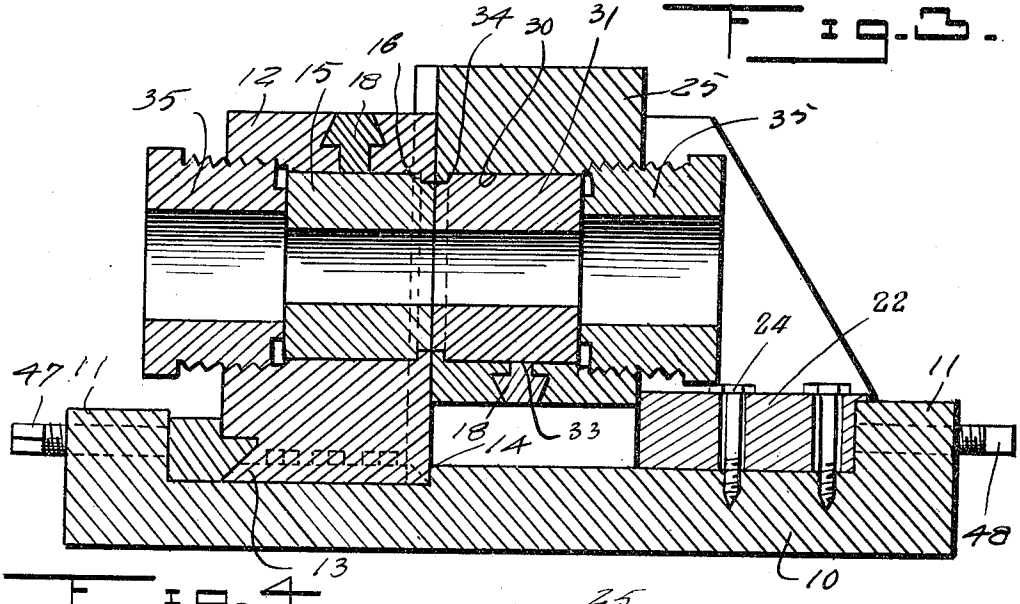


Fig. 4.

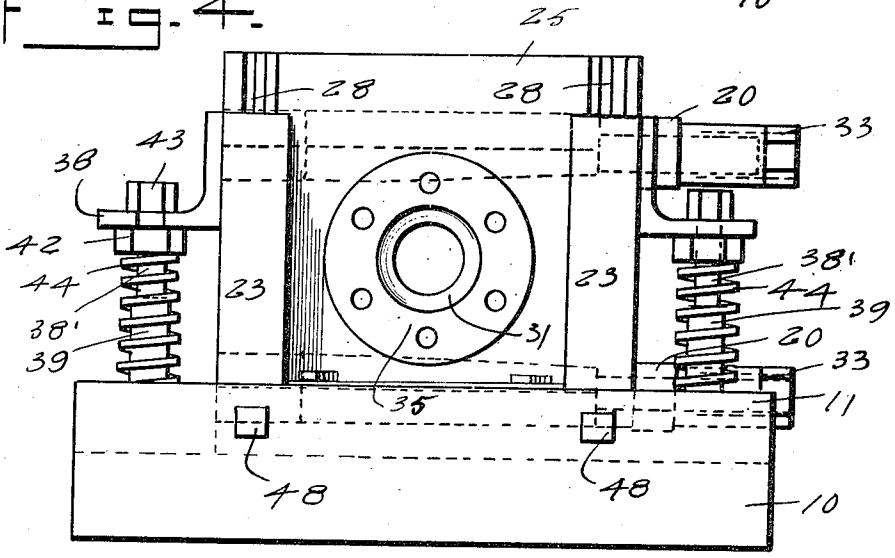


Fig. 5.

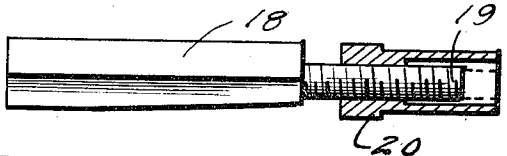


Fig. 6.



Inventor

J. P. Winters.

By A. Landreth Jr.

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH PETER WINTERS, OF EAST LIVERPOOL, OHIO.

METAL-BAR-CUTTING MACHINE.

1,318,249. Specification of Letters Patent. Patented Oct. 7, 1919.

Application filed May 24, 1918. Serial No. 236,326.

To all whom it may concern:

Be it known that I, JOSEPH PETER WINTERS, a citizen of the United States, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Metal-Bar-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in metal bar cutting machines.

An important object of this invention is to provide a machine for cutting metal bars, in a highly expeditious and efficient manner.

A further object of this invention is to provide a machine for cutting metal bars, which comprises in part a pair of co-acting female dies removably held in the machine and capable of being quickly replaced by dies of other sizes.

A further object of the invention is to provide a machine of the character described, having means for effecting clean cuts of metal bars, and one which will not deform or flatten the end portions of the bars, thus preventing them from being fed through a collet of a screw machine.

A further object of the invention is to provide a machine for cutting metal bars adapted to be used in connection with punch presses as a source of power.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of my improved bar cutting machine,

Fig. 2 is a plan view of my improved bar cutting machine, parts thereof being cut away,

Fig. 3 is a central vertical longitudinal sectional view through my improved bar cutting machine,

Fig. 4 is a front elevation of my improved bar cutting machine,

Fig. 5 is a side elevation of a tapered key adapted to retain the dies in a set position, parts thereof being shown in section, and,

Fig. 6 is a section through the same.

In the drawings, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 10 designates a base plate, which may be of machine steel, and is provided at its opposite ends with upstanding flanges 11. A stationary die holder 12 has its lower portion thereof provided with a dovetail joint 13, adapted to fit within a dovetail groove 14 in the base 10 near one end thereof. As clearly shown in Fig. 3, the die holder is provided with a centrally arranged opening for the reception of a female die 15 engaging on its inner ends, an annular shoulder 16, adapted to restrict the inward movement of the die. A tapered dovetail slot 17 extends transversely of the upper portion of the die holder 12, and is adapted for the reception of a tapered dovetailed key 18. As clearly shown in Fig. 5, the tapered end of the key 18 is provided with a screw threaded shank 19 of reduced width, and is adapted for threaded engagement with a screw threaded collar 20. With reference to Fig. 2 it will be seen that the reduced end of the tapered key 18 is introduced into the slot 17 at the enlarged end thereof and screw threaded shank 20 extended through the opposite sides of the die holder, thus permitting of the threaded collar 20 to partake of engagement with the shank 19 to draw the tapered key 18 into the tapered slot 17 as far as possible. The particular function of the tapered key 18 is to engage the die 15 and prevent the same from partaking of a rotary movement within the die holder 12.

As clearly shown in Figs. 1 and 2, plates 21 are adapted to fit in the dovetailed slots 14 at opposite sides of the base 10, and are adapted to prevent lateral movement of the die holder 12. Cap screws 22′ serve to hold the plates 21 securely in place.

Arranged adjacent the rear portion of the base 10 is a plate 22, having upstanding sides 23. Cap screws 24 serve to secure the plate 22 to the base 10. The openings in the plate 22, through which the cap screws 24 extend, are slightly elongated, thus permitting of the longitudinal adjustment of the plate. Slidably arranged between the stationary die holder 12 and the plate 22 is a second die holder 25. Slots 26 in the die holder 12 are adapted for the reception of ribs 27 in the slidable die holder 25, while on the opposite side of the slidable die holder are grooves 28, adapted for the reception of ribs 29 of the upstanding side 23. The die holder 25 is provided with a centrally ar-

ranged opening 30 for the reception of a second die 31, co-acting with the die 15. As clearly shown in Figs. 2 and 3 the inner faces of the dies 15 and 31 contact. An annular shoulder 34 in the centrally arranged opening 30 is adapted to restrict the inward movement of the die 31. A tapered dovetail slot 32 is provided in the lower portion of the die holder 25 and is adapted for the reception of a second tapered dovetail key 33, of the same construction as the tapered key 18, and adapted for the same purpose, *i. e.*, in preventing the die from partaking of a rotary movement. Screw threaded collars 35 extending into the die holders 12 and 25, serve to retain the dies 15 and 31 in their respective positions.

Flanges 36 are secured to the sides of the die casing 25 by screws 37 and are provided with longitudinal slots 38. Pins 38′ extending through the slots 38 are secured thereto by nuts 42 and 43. The lower ends of the pins 38′ extend into collars 39 secured to the base 10, as at 40. The pins 38′ are adapted to partake of a reciprocatory movement within the collars 39. Coil springs 44, clearly shown in Figs. 1 and 4, are arranged on the pins 38′ and the collars 39 and serve to normally hold the die casing 25 in an upward position, thus alining the die 31 with the die 15. To maintain the die 31 exactly in alinement with the die 15, the nuts 42 and 43 may be adjusted to regulate the tension of the coil springs 44.

A grooved member 45, bolted to one end of the base 10 by cap screws 46, is adapted to take up the end thrust of the die casing 12. Set screws 47 serve to force the die casing 12 firmly into contact with the die casing 25, thus insuring a more perfect cut of the metal. Similar set screws 48 are in threaded engagement with the opposite end flange 11, and are adapted to engage the plate 22, and function the same as the screws 47.

The operation of my improved bar cutting machine is as follows:

The machine is placed in a punch press to permit of the power being exerted downwardly on the die casing 25. The bar to be cut is positioned within the female dies and by reason of the downward force exerted on the die casing 25, the bar is severed at the point of contact between the several dies. The die casing 25 is forced downwardly for approximately half the diameter of the bar to be cut and is returned to its alining position by the coil springs 44.

The interior diameter of the dies 15 and 25 is slightly larger than the bar to be cut, thus permitting of the free sliding of the same therethrough. To replace the dies shown, for dies especially adapted for cutting squares, hexagon, flat, or any other shape metal bars, it is merely necessary to remove the collars 35 and replace the annular dies 15 and 31 with dies of the shape desired. To secure the necessary cutting qualities and degree of hardness, tool steel is employed for making the several dies, while the remainder of the machine may be of machine steel.

While I have shown and described the preferred embodiment of my invention, it is understood that I may make such minor changes in arrangement and construction of parts as will remain within the spirit of the invention and the appended claims.

Having thus described my invention, what I claim is:

1. A bar cutting machine including a base, a die holder rigidly carried thereby, a slidable die holder flatly abutting said rigid die holder, each of said die holders being provided with an opening having its inner end portion provided with an inwardly extending annular shoulder, dies removably mounted in said openings and engaging said annular shoulders, collars having threaded engagement with the side walls of the openings of the die holders and engaging said dies for detachably securing the same in position, and means to normally retain said dies in alinement.

2. A bar cutting machine including a base, a die holder rigidly carried thereby, a slidable die holder flatly abutting said rigid die holder, each of said die holders being provided with an opening having its inner end portion provided with an inwardly extending annular shoulder, dies removably arranged in said openings and engaging said annular shoulders, collars having threaded engagement with the side walls of the openings of the die holders and engaging said dies for detachably securing the same in position, means to normally retain said dies in alinement, and means to adjust said die holders with relation to each other to position the opposed sides of the same in contact.

3. A bar cutting machine including a base, a die holder rigidly carried thereby, a slidable die holder flatly abutting said rigid die holder, each of said die holders being provided with an opening having its inner end portion provided with an inwardly extending annular shoulder, dies removably arranged in said openings and engaging said annular shoulders, collars having threaded engagement with the side walls of the openings of the die holders and engaging said dies for detachably securing the same in position, and a support mounted on the base adjacent the slidable die holder and having upright side walls, said slidable die holder and the adjacent walls of said support and said rigid die holder being provided with interfitting vertical tongues and grooves.

4. A metal bar cutting machine including a pair of die holders having longitudinal openings, dies removably arranged in said

die holders, said die holders having transverse tapered dove-tail slots, tapered dove-tailed keys arranged in said slots and having screw threaded shanks, and screw threaded collars having threaded engagement with the shanks of said keys for locking the keys within the slots.

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

JOSEPH PETER WINTERS.

Witnesses:
RUTHERFORD BURGHER,
EMIL GLASER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."