

Feb. 21, 1928.

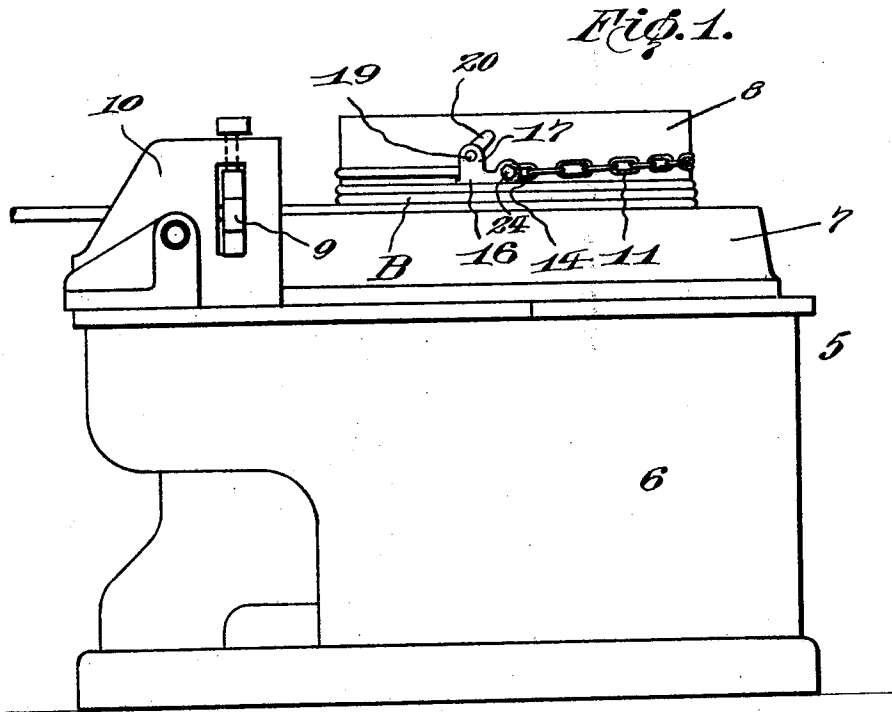
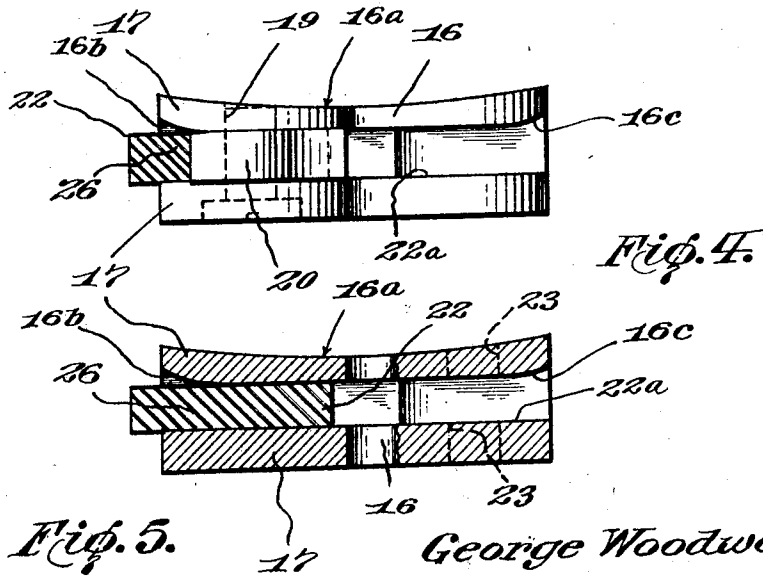
1,660,111

G. WOODWARD

WIRE GRIPPING MECHANISM

Filed Feb. 2, 1927

2 Sheets-Sheet 1



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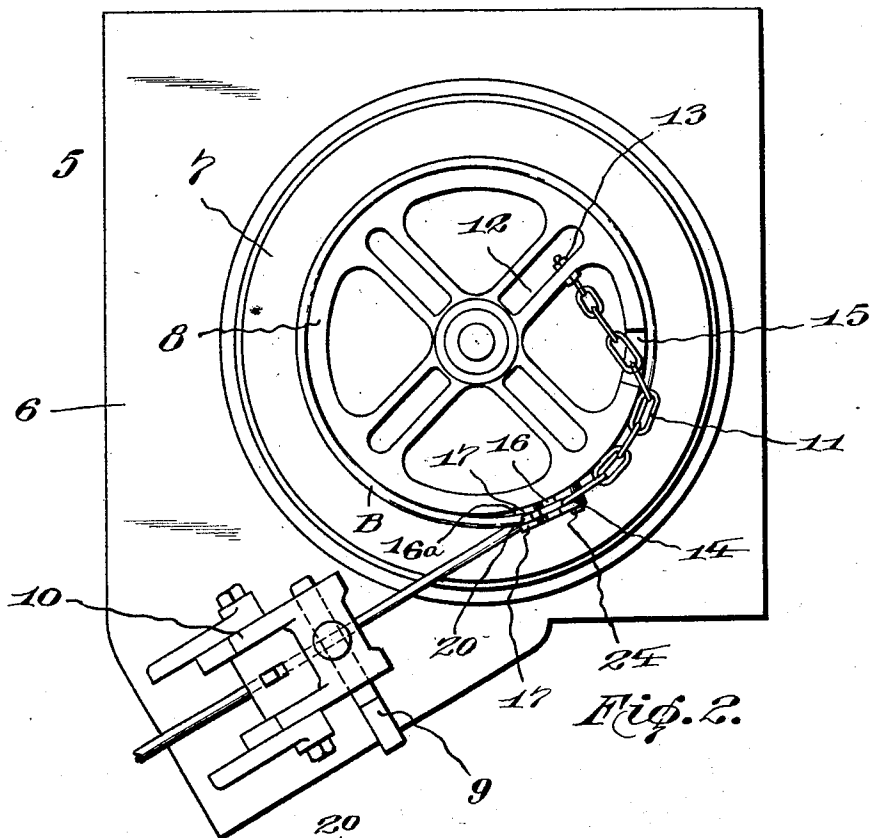
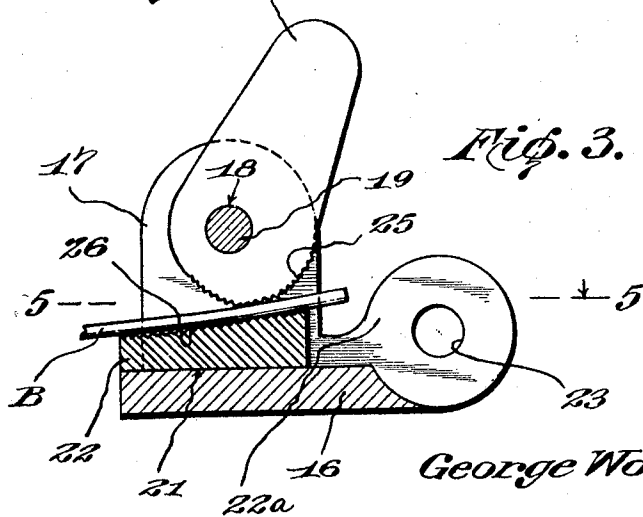
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

GEORGE WOODWARD, OF NEWARK, NEW JERSEY.

WIRE-GRIPPING MECHANISM.

Application filed February 2, 1927. Serial No. 165,325.

The subject-matter of the present invention relates generally to the wire-drawing art, but more specifically has to do with a gripping mechanism used in connection therewith.

The main purpose of the invention is to dispense with the use of grippers, or pullers, which were attached to a lever pivoted at one end and operated by a cam, and substitute therefor a simple and efficient mechanism embodying an eccentric device for gripping the end of the wire to be drawn.

In these older devices it is frequently necessary to take three or four pulls to get sufficient wire through the die to fasten to the gripper, whereas by the use of my gripper the end of the wire is securely gripped and held in place during the winding of the drawn wire upon a block, as will presently appear.

Another object of the invention resides in the provision of an obliquely serrated member adapted to cooperate with a transverse serrated member for gripping the wire as aforesaid.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination, and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

In said drawings:

Figure 1 is an elevation of a drawing machine and its drawing drum or block to which my invention is directly applicable.

Fig. 2 is a plan view thereof.

Fig. 3 is a central vertical longitudinal sectional view of the gripping mechanism.

Fig. 4 is a plan view thereof; and

Fig. 5 is a horizontal section on the line 5-5 of Fig. 3.

Referring now more in particular to the accompanying drawings, let 5 denote generally the wire drawing apparatus depicted in Figs. 1 and 2, said apparatus comprising essentially a support 6, carrying a guard ring 7 on the top thereof, the latter pivotally sustaining the well-known drawing block 8. The die 9 of the apparatus is mounted in a holder 10, positioned adjacent said block and is adapted to operate on a stretch of wire in a manner well-known to those versed in this art, and hence a detailed description thereof seems hardly necessary.

The mechanism for gripping the end of

the wire is operated in conjunction with said block 8 and is secured thereto through the intermediary of a short length of chain 11, one end thereof being secured to a spoke 12 of said block, as indicated at 13, while its other end is removably secured to the gripping mechanism as at 14. As observed in the drawings the position of said gripping mechanism is along the periphery of said block and in order that it may rest at the base thereof during the beginning of the drawing operation, I have arranged a recess 15 for the reception of the chain 11, (see Fig. 2). It will, of course, be understood that as the drawing operation proceeds the said gripping mechanism rotates about the periphery of the block during the building up of the turns of the drawn wire, as shown in Fig. 1 of the drawings.

The gripping mechanism above referred to has been designed to hold the end of the wire exceedingly firm and increasingly so, and as the pull becomes greater the eccentric action assures a grip absolutely unbreakable.

Said gripping mechanism comprises a body portion 16 embodying upstanding parallel ears 17 having alined apertures 18 for the reception of a pin 19 pivotally carrying a detent or dog 20. The body portion 16, adjacent the base of said ears 17, is recessed, as indicated at 21, (Fig. 3), for the reception of a slidable wedge plate 22, and in order to effect connection with the chain 11, said body portion is bifurcated rearwardly, as shown at 22^a and provided with apertures 23 to receive a bolt 24 passing through the outermost link of said chain 11. This construction will be readily understood upon inspection of Figs. 1 and 3 of the drawings.

Certain features of the invention will now be described in detail in order that the importance and adaptability of my device may be clearly understood. As observed in Fig. 3, said detent 20 is provided with serrations 25 extending transversely at the base thereof and is further eccentrically disposed with respect to the pivotal point to cooperate with the oblique serrations, (see Fig. 5) on said wedge member 22.

In the operation of said gripping mechanism the detent 20 is swung to the left of the position shown in Fig. 3, whereupon the end of the wire B is inserted between said ears 17 and onto said wedge member 22. The detent is now turned to the right, gripping

said wire between the serrations 25 and the serrations 26 on said wedge member 22, the latter, however, under the influence of the rotative movement of said detent slides outwardly within said recess 22 to the position indicated in Fig. 3. It is quite manifest that due to the eccentric positioning of said detent and the adaptability of said wedge member to slide, the pull on the wire ever tends to draw the cooperative members into action and thus the clamping action is increased as the resistance itself increases.

In devices of the above-mentioned character it is highly essential that the drawn wire, encircling the block 8, be substantially in contact therewith during the winding operation. To materially assist in bringing about this desired object, I have concaved one side of the gripping mechanism, as indicated at 16^a, (Figs. 4 and 5), the radius thereof being substantially equal to the radius of said block. This condition is further facilitated by rounding off the inner portions of the gripper, as shown at 16^b and 16^c to contact the end of the wire B and the outermost link of said chain 11, respectively.

While the present is a disclosure of the preferred embodiment of the invention, it is to be understood that the invention is not limited thereto, as various changes in the minor details of construction, proportion and arrangement of parts may be resorted to without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. A wire gripping mechanism comprising a body portion having spaced vertical ears, a detent eccentrically pivoted to said ears and having serrations arranged on the base thereof, and a wedge plate positioned below said detent and having oblique serrations

adapted to cooperate with the serrations on said detent for gripping the wire.

2. A wire gripping mechanism comprising a body portion having spaced vertical ears, a detent eccentrically pivoted in said ears and having serrations arranged on the base thereof, and a sliding wedge plate positioned below said detent and having oblique serrations adapted to cooperate with the serrations on said detent for gripping the wire.

3. The combination with a rotatable block, of a wire gripping mechanism comprising a body portion having spaced vertical ears, the inner side of said body portion being concaved to engage the periphery of said block, a detent eccentrically pivoted between said ears and a sliding wedge plate positioned below said detent and adapted to cooperate with said detent for gripping the wire.

4. A wire gripping mechanism adapted for attachment to a rotatable block, comprising a body portion having its inner side concaved to snugly engage the periphery of said block, a detent eccentrically pivoted to said body portion and having serrations arranged on the base thereof and a wedge plate positioned below said detent and adapted to cooperate with said detent for gripping the wire.

5. A wire gripping mechanism comprising a body portion having spaced vertical ears, a detent eccentrically pivoted to said ears and having serrations arranged on the base thereof, and a sliding wedge plate positioned below said detent and adapted to cooperate with said detent for gripping the wire.

In testimony whereof I affix my signature.

GEORGE WOODWARD.