May 21, 1935. W. H. HANCOCK 2,002,289

NUT CRACKING MACHINE

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Fig-1-

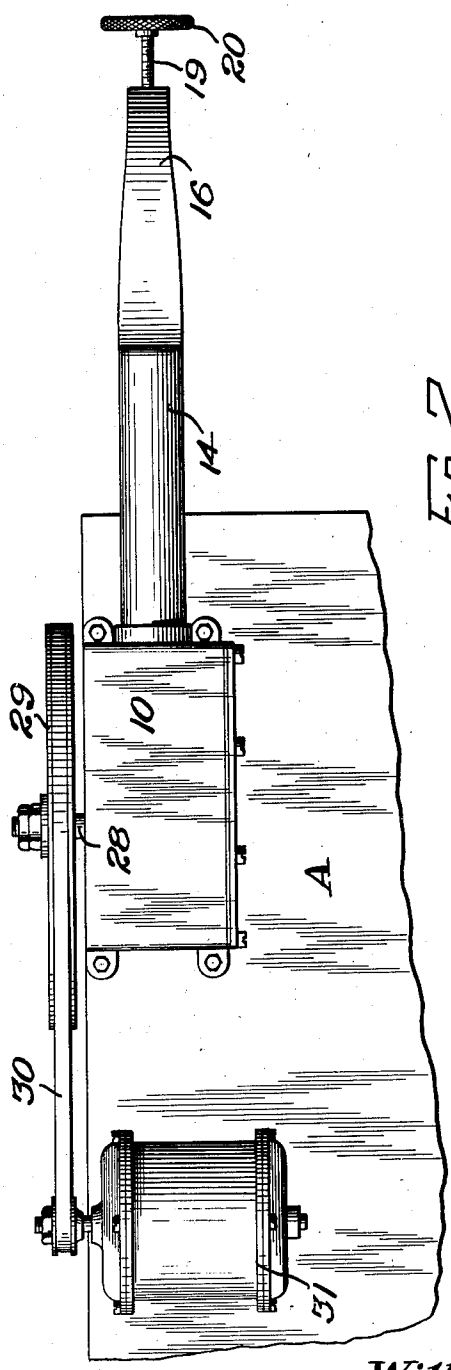
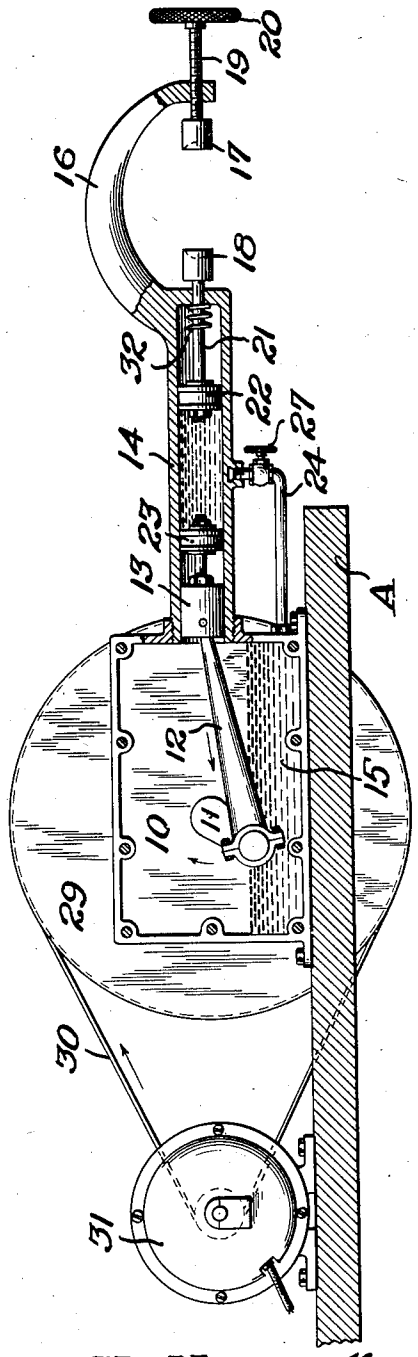


Fig-2-



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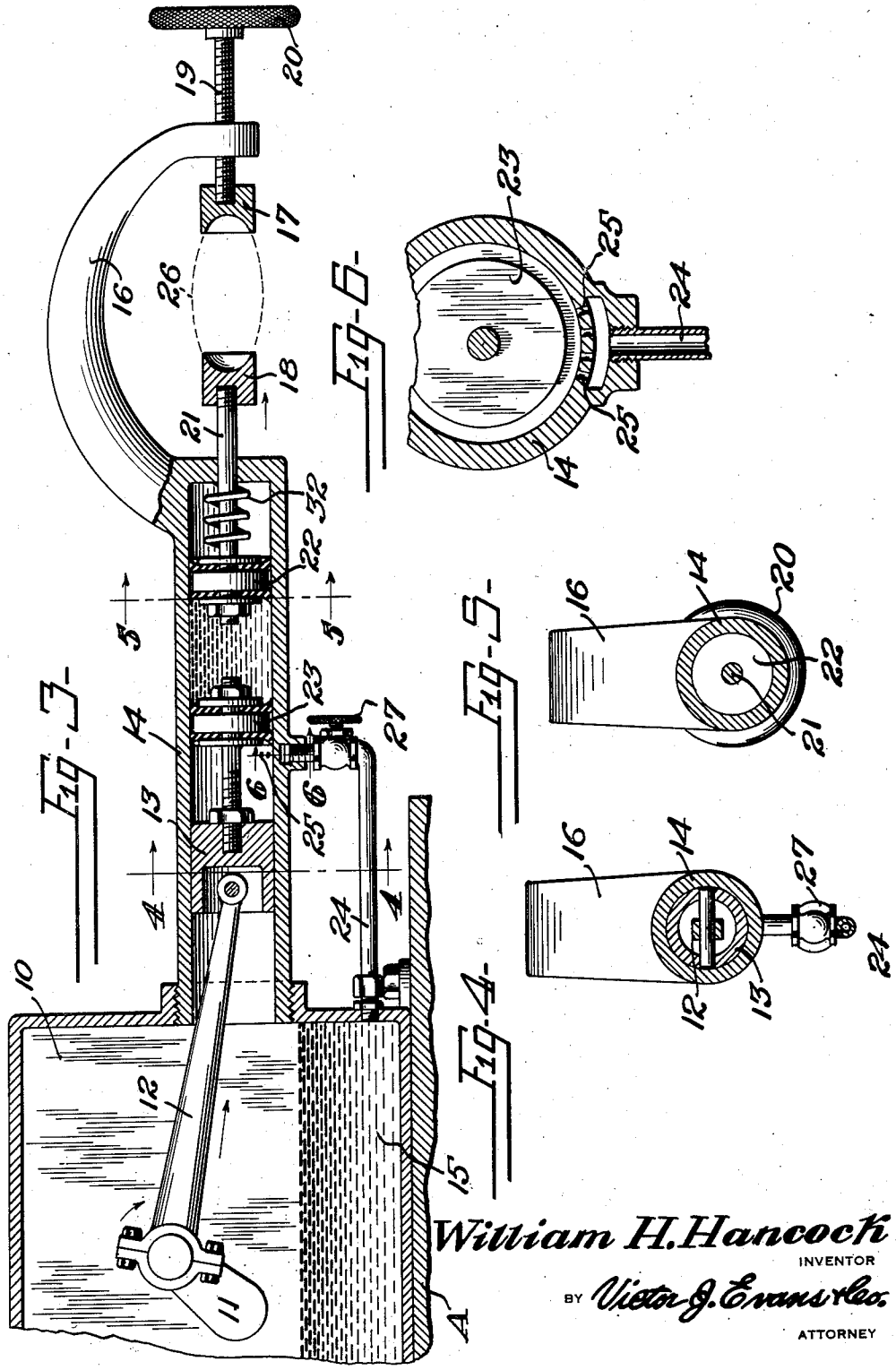


Fig-3-

Fig-6-

Fig-5-

Fig-4-

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NUT CRACKING MACHINE

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Application March 19, 1934, Serial No. 716,403

1 Claim. (Cl. 146—12)

The invention relates to a nut cracking machine and more especially to that type of machine adaptable for punching, riveting, bursting, or cracking nuts or the like.

The primary object of the invention is the provision of a machine of this character wherein, through the medium of liquid delivered to a piston cylinder, direct hydraulic pressure may be had, so that the work anvil will adjust itself to the work and give the same stroke on all sizes of work, as for example, nuts to be cracked, the liquid being delivered from a reservoir, constituting a crank case, to the said cylinder and the flow of such liquid may be regulated.

Another object of the invention is the provision of a machine of character, wherein the make-up of the same is novel in form and is positive of action, strong, durable, thoroughly reliable and efficient in its operation, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention, and pointed out in the claim hereunto appended.

In the accompanying drawings:

Figure 1 is a top plan view of the machine constructed in accordance with the invention.

Figure 2 is a vertical longitudinal sectional view thereof.

Figure 3 is an enlarged fragmentary vertical longitudinal sectional view alike to that shown in Figure 2.

Figure 4 is a sectional view on the line 4—4 of Figure 3 looking in the direction of the arrows.

Figure 5 is a sectional view on the line 5—5 of Figure 3 looking in the direction of the arrows.

Figure 6 is a sectional view on the line 6—6 of Figure 3 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, A designates generally a portion of a suitable support, such as a table, for the mounting of the machine constituting the present invention and hereinafter fully described.

This machine comprises a crank case 10 having working therein a crank 11 for actuating a connecting rod 12, the same having a piston 13 reciprocated within a piston cylinder 14, the latter being joined with the crank case 10 which constitutes a reservoir for oil or other liquid 15, the desired quantity thereof being introduced into said crank case in any suitable manner.

Formed on the outer end of the piston cylinder 14 is an arched arbor 16 in which are arranged the oppositely disposed anvils 17 and 18, respectively. The anvil 17 is carried upon an adjusting stem 19 having a knurled turning head 20 at its outermost end so that the anvil 17 can be manually adjusted. The anvil 18 is carried by the slidable stem 21 of a floating piston 22 fitted within the piston cylinder 14 and outwardly with respect to an adjustable piston head 23 carried by the piston 13, the piston head 23 being also slidable in the cylinder 14, as is clearly apparent from Figures 2 and 3 of the drawings.

Leading from the reservoir 10, below the piston cylinder 14, is a by-pass pipe 24 which leads to the cylinder 14 for the admission of liquid, through holes 25, thereinto, the liquid being drawn into the cylinder by the piston head 23 when the same recedes from the piston 22. Thus it will be seen that when the crank 11 turns it will move the piston 23 forward, forcing the anvil 18 against the work and such work will stall the anvil 18, letting liquid pass out through the holes 25 until the piston head 23 passes onto the holes 25, closing them. Then a direct hydraulic pressure may be had on the advance stroke of the crank 11, so that the anvil 18 in cooperation with the anvil 17 will fracture or break the nut 26, as shown by dotted lines held between said anvils 17 and 18 in Figure 3 of the drawings. After the piston head 23 reaches the end of the forward strokes it will start back, forming a vacuum that pulls the piston 22 back and fills the cylinder 14 with the fluid or liquid again and the machine is ready for the next stroke, as should be obvious.

Provided in the pipe 24 is a hand operable valve 27 for regulating the flow of liquid through said pipe.

The axle 28 of the crank 11 carries a belt wheel 29 over which is trained the belt 30, the same being driven from a suitable power source, such as an electric motor 31.

One of the advantages of the machine is that it adjusts itself to any size work and gives the same breaking stroke on all sizes thereof. The breaking stroke of the machine or the distance the breaking anvil 18 travels after the holes or openings 25 are closed may be regulated by adjusting the valve 23.

Carried by the stem or rod 21 of the piston 22 is a coiled spring 32 which functions as a stop to limit the out stroke of the piston 22, partic-

ularly should there be vacated work from between the anvils 17 and 18 of the machine.

It is obvious that the anvil 17 can be manually adjusted for the setting thereof.

It is, of course, understood that in lieu of the liquid being held within the crank case 10, a suitable container independently thereof may be employed and also the piston 23 may be adjusted by suitable provision therefor as a part of the connecting rod 12. In other words, the connecting rod can be of an adjustable type. Furthermore, in lieu of the holes 25 there may be provided a valve port in substitute.

What is claimed is:

A machine of the character described comprising a piston cylinder open at one end and closed at its other end and having a horn at the closed end, the free end of the horn being in the same plane with the cylinder, an anvil adjustably connected with the free end of the horn which constitutes an arbor, oppositely arranged pistons within the cylinder, a crank case connected with the open end of the cylinder, a crank shaft journalled in said case, a connecting rod operated by the crank shaft and working through the open end of the cylinder and having connection with the piston next thereto, an adjustable piston head on the last-named piston, a reservoir formed with the cylinder midway thereof, a by-pass connected with the reservoir and said crank case at a point below the cylinder, the reservoir having plural communication with the cylinder, a cushioning element coactive with the other piston, an anvil connected with said other piston, a valve in said by-pass, and a power medium connected with said crank shaft.

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