Oct. 8, 1935. E. E. HESS 2,016,676

ATTACHMENT FOR RELOADING TOOLS

Filed Dec. 10, 1934

Fig. 1.

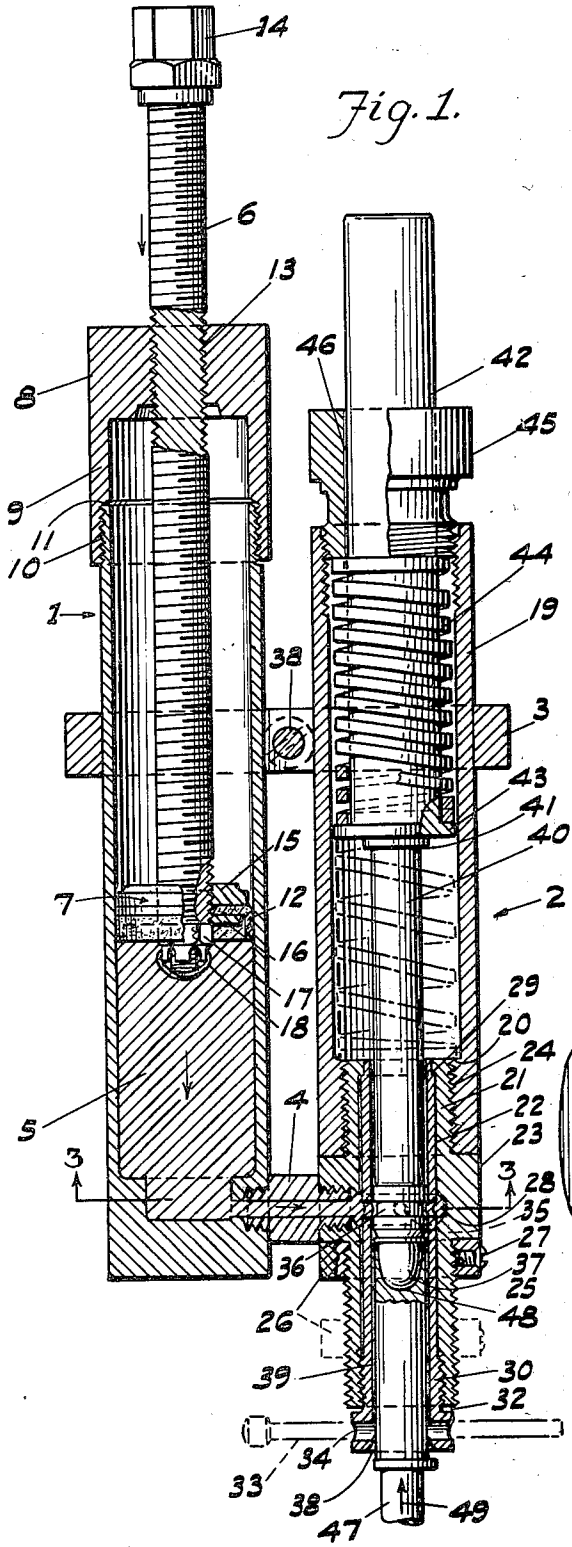



Fig. 2.

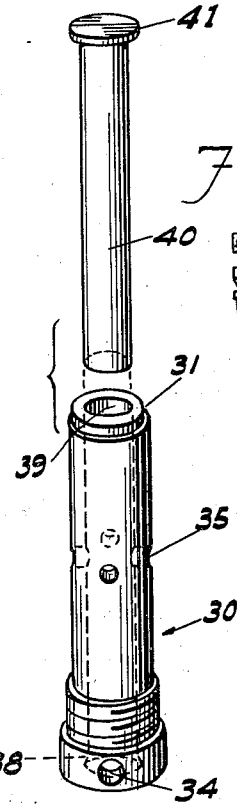



Fig. 4.

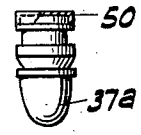
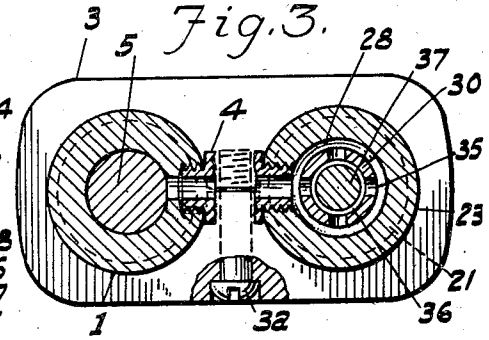



Fig. 3.




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## ATTACHMENT FOR RELOADING TOOLS

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2 Claims. (Cl. 86—25)

The present invention relates to attachments for reloading tools wherein the operation of lubricating, sizing and affixing gas checks may be completed in a single work cycle using a pacific reloader press or similar tool.

First, it is an object of the invention to provide a suitable tool for accomplishing the purpose stated supra which is particularly adapted for use in connection with the tool described in U. S. Letters Patent #1,933,940 dated November 7, 1933, and known in the trade as the "pacific reloader".

Second, it is one of the objects to provide in a tool of the above character an improved automatically regulated shut-off grease valve and bullet ejector.

Third, it is another object to provide in a tool as set forth in the second object, improved means whereby an undercalibre bullet may, by upsetting, be increased in size to the proper calibre, or an over calibre bullet may be resized to yield the proper tolerance for accurate shooting.

Fourth, it is an object to provide in conjunction with that which was stated in objects two and three, improved means which at the completion of the work cycle of sizing and greasing will properly perform the operation of affixing a gas check to the bullet.

Fifth, it is an object of the invention to provide improved means for preventing access of the grease to the base of the bullet during the operation of greasing.

With the foregoing major objects in view as well as still others which will obviously become apparent as the invention is disclosed in detail, the invention consists in certain novel details of construction and combinations and arrangements of parts all as will hereinafter be more fully described, and the novel features thereof particularly pointed out in the matter claimed.

In the accompanying drawing forming a part of this specification,

Fig. 1 is a vertical mid-section of my improved tool as now reduced to practice; Fig. 2 is a perspective view combining the sizing die and grease valve; Fig. 3 is a section taken on line 3—3 of Fig. 1; and Fig. 4 is a side view of a bullet with the gas check applied.

Generally stated, the attachment comprises a pair of vertically extending barrels 1 and 2 suitably joined together by means of an adjustable clamp 3 and held in position therewith by means of the screw 3a. There is also a nipple 4 which is screwed into the side walls of the lower extremity of the barrels whereby their interiors may be connected.

Barrel 1 is a grease barrel wherein is stored a lubricant 5 to be fed under pressure, by means of the adjusting screw 6 and valve structure 7, thru the nipple 4 into the barrel 2. The grease barrel is provided with a closure cap 8 which has an annular depending skirt 9 partially threaded at 10 to screw onto the barrel. The skirt 9 has a shoulder 11 which abuts the end of the barrel chamber when the cap 8 is snugly screwed onto the barrel.

The internal diameter of the skirt adjacent the threaded portion is the same as that of the barrel so that when the valve assembly is caused to pass the joint at the shoulder 11 no damage will occur to the leather gate washer 12.

The cap 8 has an axially threaded portion 13 into which is screwed, concentric of the barrel 1, the adjusting screw or bolt 6. The screw 6 has a polygonal head 14 for the application of a suitable wrench whereby the lubricant thru the medium of the valve structure 7 may have pressure applied thereto.

After the adjusting screw 6 is screwed thru the threaded portion 13 the valve structure 7 is added to the screw.

The valve structure 7, in addition to the washer 12 aforementioned, includes a valve seat 15, a washer 16 for positioning the gate washer relative to the seat, a clamp nut 17, and a cotter pin 18.

Barrel 2 comprises a cylinder 19 each end of which is threaded and the lower end adjacent the threaded portion is provided with an annular shoulder 20. Into the lower end is screwed a part 21, having an internal bore 22 extending longitudinally therethru, whereby the attachment is secured to the reloading tool. Part 21 has a central cylindrical portion 23 whose external diameter is by preference made equal to that of the cylinder 19. Above and below this cylindrical portion 23, part 21 is externally threaded, the upper threaded portion 24 being the end which is screwed into the cylinder 19. The lower threaded portion 25 of the part 21 is adapted for screwing into a suitable reloading tool not shown and an adjusting nut 26, including a set screw 27, is mounted on the threaded portion 25 whereby the attachment is attached to the reloading tool. The portion 23 is provided with a circumferential groove 28 which communicates with the opening in the nipple 4. Through the use of the adjusting nut 26 different length bullets may be accommodated. The bore

22 at the upper end of the part 21 is diametrically reduced to provide an annular shoulder 29. Bore 22 at its lower end is internally threaded to accommodate the screwing thereinto of the die 30. The upper end of the die is provided with an annular recess 31 (Fig. 2) which cooperates with the shoulder 29 to provide a leak proof joint whereby grease will be prevented from leaking into the cylinder chamber thereabove. There is provided between the lower end of the part 21 and the die 30 a suitable clearance 32 whereby the shoulder 29 may be insured of being tightly seated in its cooperating recess when a manual force is applied to the wrench 33 after being seated in the hole 34 provided for that purpose.

The die 30 is provided with a series of circumferentially arranged apertures 35 near its midlength which register with the groove 28 to permit the entrance of the lubricant 5 to fill the grooves 36 of the bullet 37. It also is provided with a flared mouth 38 so that the bullet may be easily fed into the die.

Die 30 is provided with an axial bore 39 into which is mounted with a working fit the automatic grease shut-off valve and bullet ejecting member 40. Said member includes a head part 41 which normally overlies the upper end of the die 30. In the cylinder 19 above said head is slidably mounted a plunger 42 and the plunger is provided with an annular flange 43 on which is mounted a spring 44 to restore the position of the member 40 and automatically close the apertures 35 after said member has been elevated to permit the performing of the greasing operation. Into the upper end of the cylinder 19 is screwed a nut 45. This nut may be adjusted to vary the tension in the spring whereby a greater or less force may be applied to the automatic shut-off as deemed expedient. The nut 45 is provided with an opening 46 thru which the upper end of the plunger may extend.

The reloading tool to which this attachment is applicable will have mounted thereon a suitable plunger which will support the punch 47. The punch has a cavity 48 into which the ogive end of the bullet 37 rests during the operation of greasing.

Operating the plunger so as to force the punch 47 upwardly in the direction of the arrow 49 will cause the spring 44 to move from dotted line to full line position storing tension therein at the time. As soon as the bullet groove 36 registers with the ports 35 the grease under pressure will flow into the groove.

As soon as the pressure is relieved on the plunger and the punch is retracted, the member 40 actuated by the spring 44 will immediately and automatically close the ports until the operation is repeated.

The bullet is easily guided into the die by means of the flare 38 though it be over calibre and on its upward travel theerabove it is sized to the proper tolerance suitable for loading incident to reaching the ports 35.

One feature of the construction resides in the fact that the member 40 is pressed so intimately into contact with the head 41 on account of the pressure of spring 44 that no grease will be permitted to flow between the contacting surfaces and thus grease is prevented from getting on this base of the bullet as it passes the lubricating point. One twist of the screw 6 will provide sufficient pressure to lubricate several bullets.

A gas check may be placed on the end of the bullet, as for example bullet 37*a*, Fig. 4, before it is driven into the die. At the top of the up stroke the compression in the spring 44 may be regulated whereby the gas check 50 will be forced into place.

Should it be desirable to increase the calibre of an under-calibre bullet, this may be accomplished by increasing the tension in the spring similar to the manner in which an adjustment is made for the application of gas checks. This is an added feature of my improvement. For example, if a person using a mold casting bullets of a diameter .358 had only a .360 sizing die at his disposal the bullets could, by upsettage, be compressed so as to calibrate a diameter of .360 in a manner as set forth above.

I claim:

1. Two companion vertically disposed barrels, means uniting said barrels as a unit, one of said barrels constituting a reservoir for containing a lubricant and the second barrel including an attaching part having externally screw threaded ends whereby to connect it to the latter barrel and the combination of barrels to a reloading tool, said attaching part having a bullet sizing and greasing die provided with an axial bore screwed thereinto, means fluidly connecting the interior of said lubricating barrel with the bore of said die, a closure for said lubricating barrel, a screw adjustably mounted in said closure, a valve structure carried by said screw, said valve structure thru the medium of said screw exerting a pressure on said lubricant whereby to force it from said lubricating barrel, thru said connecting means, into the grease grooves of a bullet momentarily projected into said die, and means mounted in the second barrel yieldably opposing the projecting of said bullet in said die.

2. An attachment for reloading tools including a detachable part for attaching said attachment with said tools, a cylinder to which said part is affixed, a cap secured to said cylinder, said cap being provided with an opening, a retractible plunger including a shoulder mounted in said cylinder, a portion of said plunger normally extending thru said opening, a spring mounted on said plunger between said shoulder and said cap to oppose the plunger's retraction, said attaching part being provided with an opening extending therethru and having an annular chamber which borders said opening, a die having a bore, means to mount said die in said part, there being a circumferential series of apertures whereby the bore in said die communicates with the chamber in said part, a shut-off valve slidably mounted in said bore, a head on said valve which normally overlies the bore of said die and abuts said plunger, said valve being retractible to a position wherein said apertures may be momentarily opened, and grease feeding means operatively related to said part to supply a lubricant under pressure to said chamber, to when said apertures are opened force grease into the bore of said die.

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