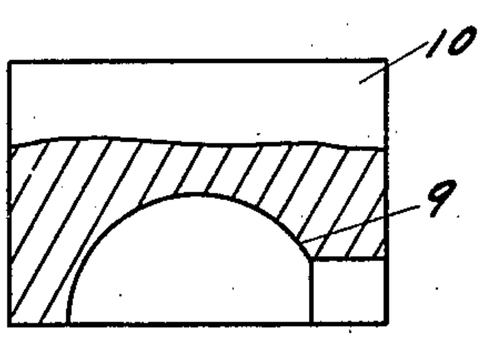
A. BAYTON.

HEADED ROD.

APPLICATION FILED JULY 31, 1914.

1,166,738.

Patented Jan. 4, 1916.



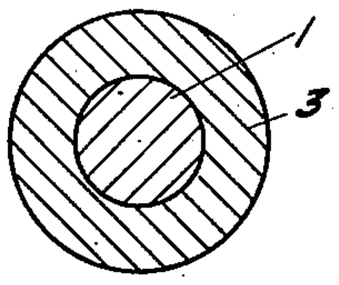


FIG. 1

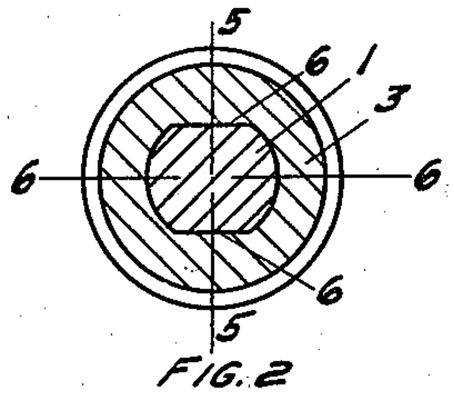


FIG. 2

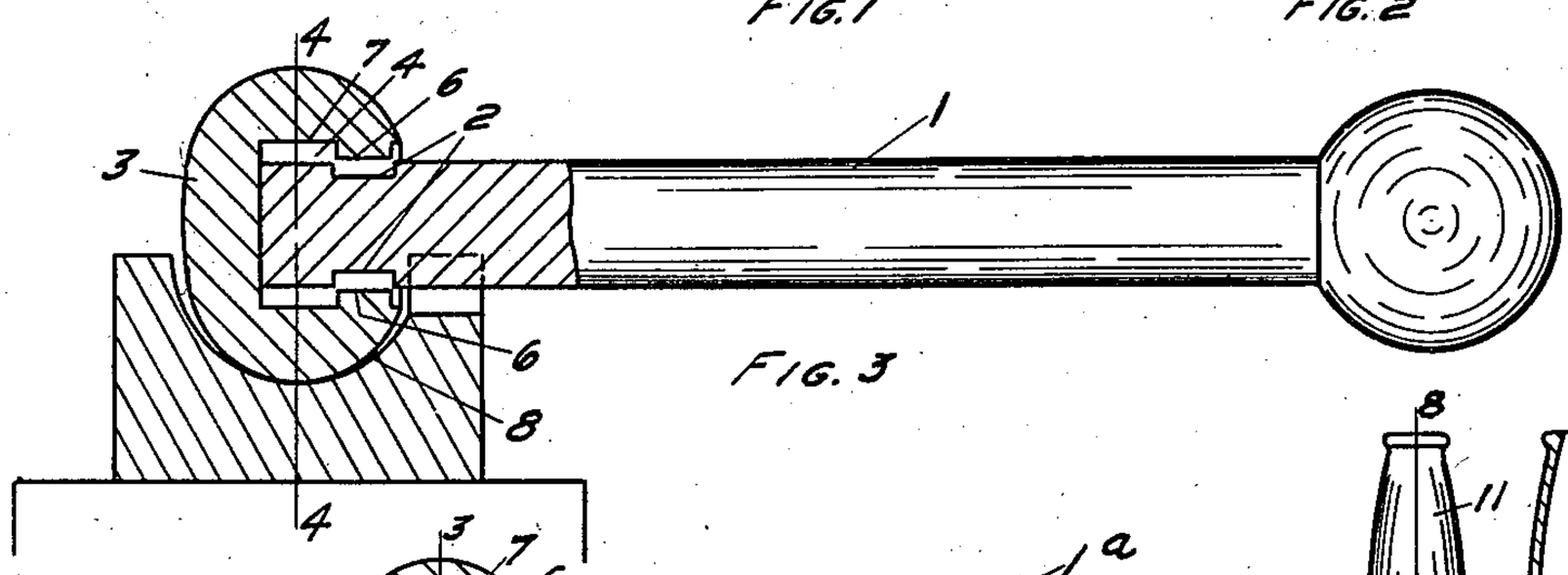


FIG. 3

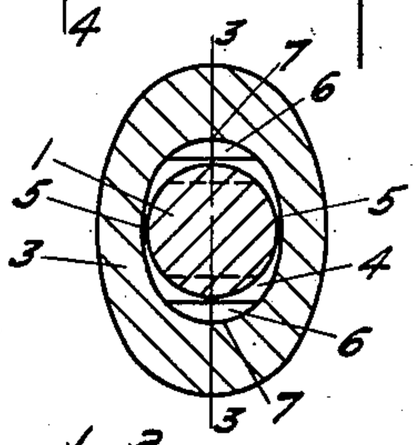


FIG. 4

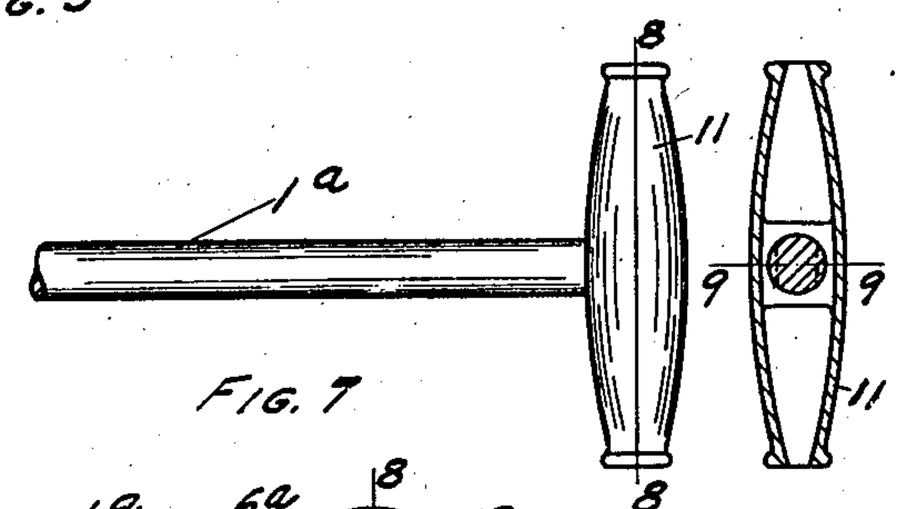


FIG. 7

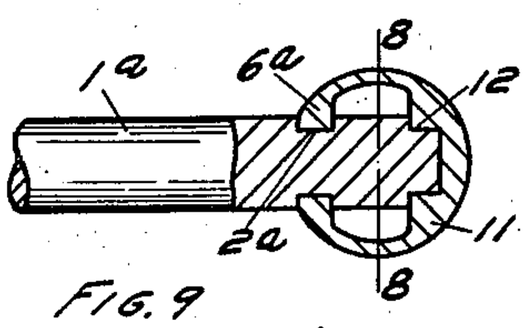


FIG. 8

FIG. 9

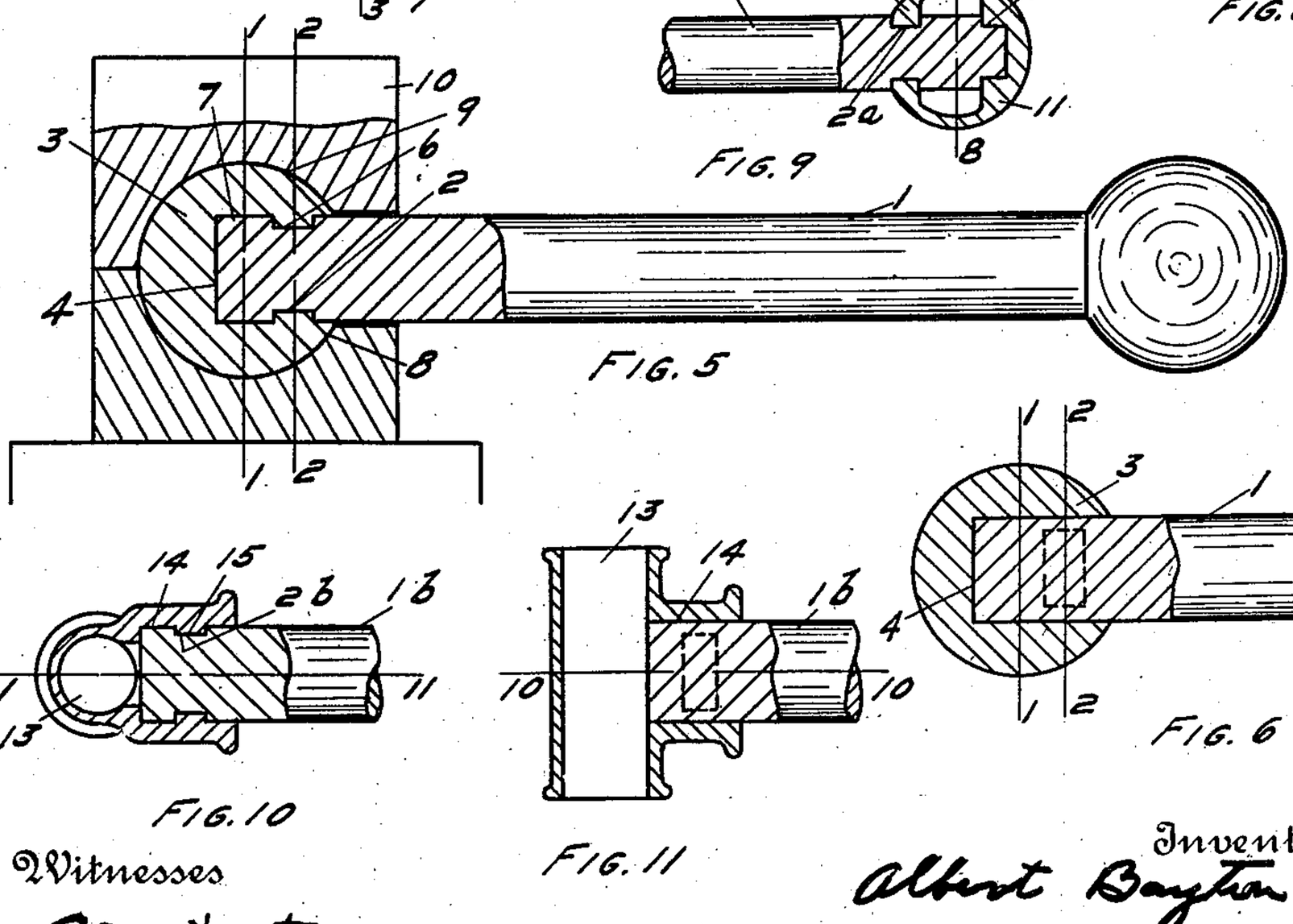


FIG. 5

FIG. 10

FIG. 11

FIG. 6

Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT BAYTON, OF ERIE, PENNSYLVANIA, ASSIGNOR TO REED MANUFACTURING COMPANY, OF ERIE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

HEADED ROD.

1,166,738. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed July 31, 1914. Serial No. 854,288.

To all whom it may concern:

Be it known that I, ALBERT BAYTON, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Headed Rods, of which the following is a specification.

This invention relates to headed rods and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claim.

The invention relates to rods such as vise handles on which there is formed a head. With some of such heads, as for instance vise handles, a great consideration is to securely attach the head to the rod leaving a smooth surface. With other forms of heads such as a screw head for a vise, it is desirable not only to form the head so that it will remain on the rod but also that it may be locked against turning on the rod. In my Patent #1,106,860, issued August 11th, 1914, I have shown a process for forming headed rods which when carried out may form a rod in accordance with the invention of this application.

The invention is illustrated in the accompanying drawings as follows:—

Figure 1 shows a section on the line 1—1 in Fig. 5. Fig. 2 a section on the line 2—2 in Fig. 5. Fig. 3 a section on the line 3—3 in Fig, 4, the section showing the parts of a drop hammer for forming the head. Fig. 4 a section on the line 4—4 showing the rod in position to be assembled. Fig. 5 a section similar to the section shown in Fig. 3 but with the parts in their final position. Fig. 6 a section on the line 6—6 in Fig. 2. Fig. 7 a side elevation of a headed rod with a head differently shaped than that shown in the preceding figures. Fig. 8 a section on the lines 8—8 in Figs. 7 and 9. Fig. 9 a section on the line 9—9 in Fig. 8. Fig. 10 a section of a screw rod and head, the section being on the line 10—10 in Fig. 11. Fig. 11 a section on the line 11—11 in Fig. 10.

1 marks the rod. The rod is put under a press or hammer and has a slot 2 cut in each side of it, these slots extending straight across the rod with parallel bottoms and preferably parallel sides, the bottoms forming square shoulders with the sides of the slots and the sides forming engaging surfaces at right angles to the axis of the rod. A head 3 is formed of cast malleable iron and has an opening 4 formed in it of a size sufficient to permit the entry of the rod 1. The cross dimension of the opening between the sides 5 is approximately the diameter of the rod 1. The opening as will be observed is oval. The ribs or shoulders 6 are arranged within the opening 4 and extend transversely of the head so that when the head is in place in the opening, these ribs or shoulders 6 will register with the slots 2. The shoulders are of a depth to correspond to the depth of the slots and are of a length in an axial direction to make a close fit with the side walls of the slots. The cross dimension of the opening between the end 7 of the opening 4 is greater than the diameter of the rod 1 in order to permit of the shoulders 6 approximating the depth of the slot 2 to clear the rod when the rod is placed in the opening 4. The rod is placed in the opening as shown in Fig. 3 and the head placed in a die 8, a similar die 9 being carried by the plunger 10 of the hammer. The hammer is of sufficient force to swage or press the head 3 into spherical shape, the action being practically a drop forging one and the original shape of the head being just sufficiently oval so that when the shoulder 6 is forced into the groove 2 and the end 7 into contact with the rod, the head as a whole assumes spherical shape, the malleable metal having sufficient ductility to take on the new shape and form a continuous contact with the rod, the shoulders being forced into the slots and forming a close fit with the sides of the slots and also with the bottoms of the slots. It will be observed that the metal back of these shoulders in effecting this result is somewhat condensed, the metal of the head being so proportioned that with the drop forging action the final shape is given and the slots 2 completely filled.

Heretofore the common practice of forming vise heads has been to drill the head and put a reduced end of the rod through the head and rivet the end of the rod. The difficulty with this process has been that if it was not nicely done, a bur formed along the edge of the riveted portion making an undesirable head and at the same time the head was not as securely fastened to the rod as with the present method. Furthermore, the forging action of the hammer tends to polish the head so as to practically

finish the same simply by the process of assembling the rod and head. Heads have also been cast on rods but this, of course, is not practical with both ends of vise handles because this would involve the insertion of the part of the vise into which the handle is put in the mold. The casting of the head on the rod does not result in the head here formed. While the radial contraction of the head poured around the rod tends to tighten it on the rod, the axial contraction tends to loosen the shoulders from the slots in the rod if such slots are formed. With this device the shoulders form a tight fit in an axial as well as a radial direction and this makes a very desirable union.

In Figs. 7, 8 and 9 I show the invention applied to a pipe cutter handle. With this construction not only it is desirable to have the handle securely fastened to the rod and in fixed relation therewith but it must be capable of sustaining considerable turning strain. In this construction 1^a marks the rod and 2^a the slot in the rod. The rod preferably has the reduced end 12. A head 11 has the rib 6^a adapted to fit into the slot 2^a. The handle is assembled in a manner similar to the construction shown in the preceding figures.

In Figs. 10 and 11 I show a screw head, the screw being of the type used for vises. In it the rod 1^b is provided with the slots 2^b. The head 14 has the shoulders or ribs 15 which are adapted to be forced into the slots 2^b and form a union between the rod and the head. This head as in the head shown in Figs. 7, 8 and 9 is designed to sustain twisting strain on the rod. The head is provided with the usual opening 13 through which a handle such as formed by the rod 1 is placed.

What I claim as new is:—

An article of manufacture consisting of a rod having a transverse slot therein and a head having an opening with an internal transverse shoulder engaging said slot, the walls of the opening engaging the rod outside the slot, the metal of the head being compressed transversely thereby securing a close fit of the shoulder in the slot and of the walls of the opening in the head on the rod.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBERT BAYTON.

Witnesses:
A. P. Yochim,
P. W. Smith.