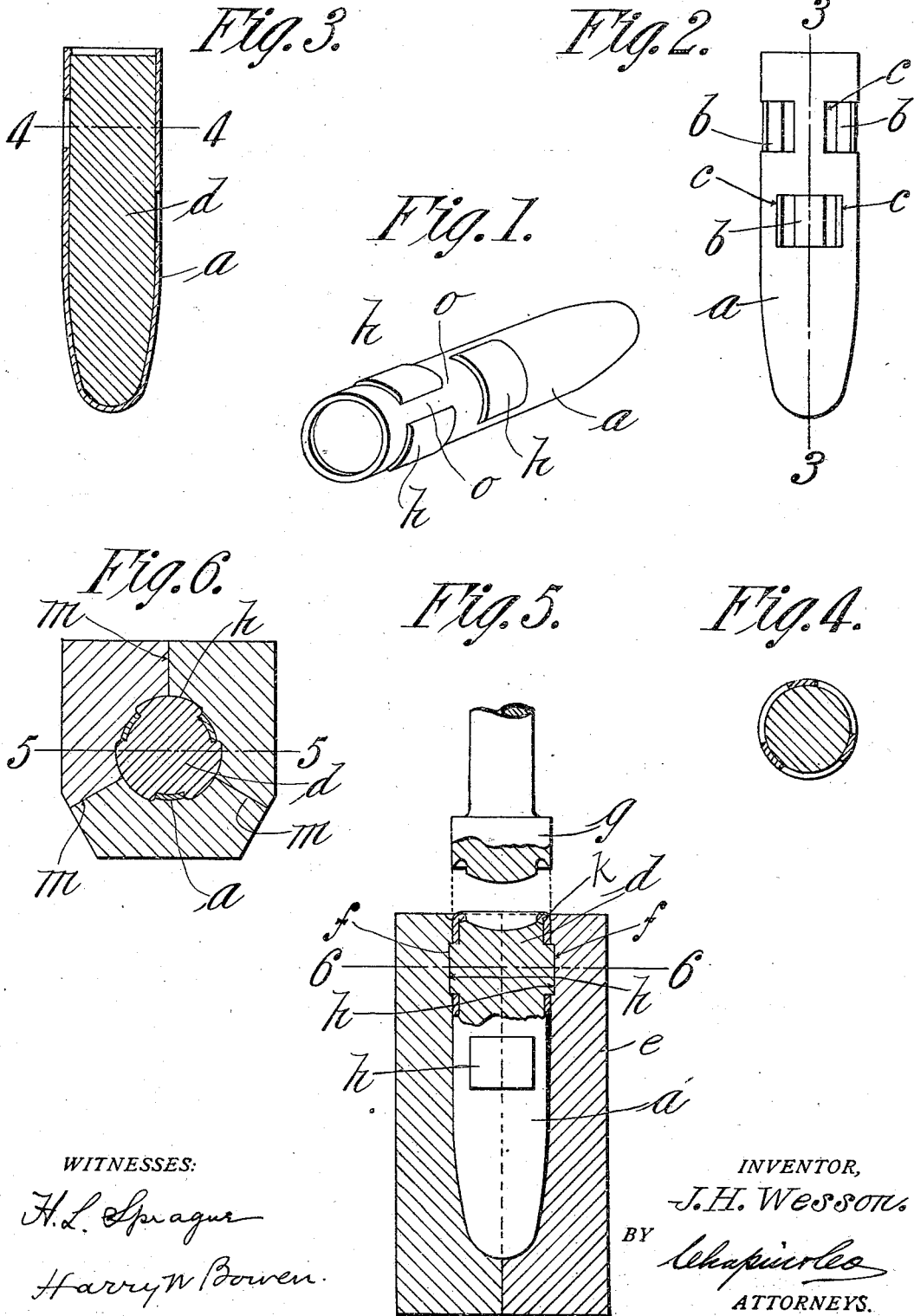


959,037.

Patented May 24, 1910.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## PROJECTILE.

959,037.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed June 18, 1909. Serial No. 503,035.

To all whom it may concern:

Be it known that I, JOSEPH H. WESSON, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Projectiles, of which the following is a specification.

This invention relates to projectiles for firearms, the object thereof being to provide a projectile having a soft metal core practically incased in a relatively hard metal jacket, so constructed as to provide soft metal bearing surfaces where the projectile will contact with the barrel of the arm in which it is used.

The projectile forming the subject matter of this application is essentially a small arms projectile, though not necessarily confined thereto.

It is a well known fact that a jacketed projectile, as ordinarily used in small arms, subjects the rifling of the barrel to great wear, and when used in a relatively short barrel, like that of a revolver, it must be fitted very closely in the barrel to provide an efficient gas check, for the reason that its passage through the barrel is so quickly effected that there is no time for the rifling to work into the surface of the metal jacket, as there would be when the projectile is used in a longer barrel, like that of a rifle. Consequently, the wear on the rifling of the barrel, when jacketed projectiles are used in revolvers, is very great.

By means of the projectile constructed as described herein, all of the advantage resulting from the use of the jacket is retained and at the same time that part of the surface of the projectile bearing on the barrel consists of the relatively soft metal of the core, and incidentally to the construction whereby these results are obtained, means being provided whereby the distribution of a suitable lubricant for the projectile may be effected over the entire surface of the barrel.

The invention is clearly illustrated in the accompanying drawing, in which—

Figure 1 is a perspective view of the completed projectile showing the soft metal bearing surfaces which extend beyond the surface of the jacket. Fig. 2 is a side elevation of the jacket before the core had been inserted therein and shows openings through the walls of the jacket. Fig. 3

is a sectional elevation of the metal jacket and core. Fig. 4 is a cross section of the projectile on line 4—4, Fig. 3. Fig. 5 is an elevation, partly in section, of a die into which the projectile, as shown in Fig. 3, is placed, and wherein it is subjected to end-wise pressure, the plane of the section being indicated by line 5—5, Fig. 6. Fig. 6 is a cross sectional view of the die and projectile taken in the plane of line 6—6, Fig. 5.

Referring now to these drawings, the jacket *a* is made of some suitable ductile metal in the usual manner, by drawing it up from a circular blank. This jacket is then fitted over a suitably prepared mandrel having openings therein to permit the punching out of rectangular openings *b* through the wall of the jacket, which openings are so located in staggered relation to the other that their borders at the sides thereof, will overlap, these side borders being lettered *c* for purposes of identification. While these openings *b* in the wall of the jacket have been referred to here as rectangular, it is quite immaterial whether in practice they may be made rectangular or of any other form, provided that the form thereof is such that the borders of the sides thereof shall overlap.

The jacket *a*, having been perforated as described, a suitably formed core *d* of lead or alloy thereof, which fits closely the interior of the jacket, is forced into the latter substantially filling it, and this projectile is then put into a die *e* in which it fits closely. On the inner wall of the die are recesses *f* with which the openings *b* in the jacket register accurately. When the projectile is in position in the die, a plunger *g* is brought down onto the base thereof, this plunger being of such shape that it will first force the core into the jacket causing the metal thereof to be pushed out through the openings *b* into the recesses *f* in the wall of the die registering therewith to form the bearing projections *h*, on which the projectile is supported in the barrel of the arm. These recesses are very shallow to the end that only enough of the metal of the core shall be pressed out beyond the wall of the jacket to provide, in the total area of these projections, a proper bearing surface for the projectile in the barrel of the arm, and so positioned as to hold the projectile in true axial position in the barrel. When the plunger *g* descends, as described, the border of the

jacket at the base of the projectile, is crimped in over said base, as at *k*, in the manner well known. As the projections *h* extend radially through the wall of the jacket, the die *e* is made in such a number of parts as may be necessary to permit the removal of the projectile when finished, the division lines being indicated by *m*, Fig. 6, which permits the projectile to be readily removed from the die on the separation of the latter.

It will be observed, by referring to Fig. 1, that the location of the bearing projections *h* in their distribution over the surface of the projectile, is such as to leave, between the sides and the contiguous borders thereof, channels *o* which may serve to hold a lubricant for the projectile, and as that part of the projectile on which the projections *h* are located would be inclosed in the shell, this lubricant would be entirely protected until the cartridge is fired. In the drawings, the area of the projections *h* and the width of the channels *o* between these projections have been magnified for the sake of clearness, as has also the height of the projections beyond the border of the jacket.

From the foregoing description, it is apparent that an ample bearing surface of relatively soft metal may be provided for the projectile without in any way impairing the value of the jacket as such, and therefore a jacketed projectile may be used in a barrel like that of a revolver, without injury to the latter. Furthermore, the distribution of the bearing projections *h* over the surface of the projectile in such manner that their borders will overlap, will provide an efficient gas check since these soft projections will take the rifling immediately, and in this manner the lubricant, as soon as the projectile is properly seated in the barrel beyond the chambered part thereof, will be pocketed in the channels *o* in such manner as to insure its proper distribution over the surface of the barrel as the projectile passes out.

What I claim, is:—

1. A projectile for firearms consisting of a relatively soft metal body and an inclosing jacket of harder metal, there being perfora-

tions in said jacket through which the metal of the body portion extends beyond the surface of the jacket, to constitute bearing surfaces for the projectile in the barrel of the arm.

2. A projectile for firearms consisting of a relatively soft metal body and an inclosing jacket of harder metal, there being perforations in said jacket disposed in staggered relation over that part of the projectile having a bearing on the barrel of the arm, the metal of the body portion extending through said perforations and somewhat beyond the surface of the jacket, the channels between the soft metal areas constituting receptacles for a lubricant.

3. A projectile for firearms consisting of a relatively soft metal body, and a jacket therefor of harder metal, said jacket having perforations therein disposed circumferentially around that part of the projectile bearing on the barrel of the arm, the soft metal of the body being forced out through said perforations to provide bearing points for the projectile beyond the surface of the jacket.

4. A projectile for firearms consisting of a sheet metal jacket having perforations therein disposed over the cylindrical area of the projectile from the base forward, and a body of softer metal than the jacket pressed into the latter, whereby the body metal may fill said perforations and extend beyond the outer surface thereof to provide bearing surfaces for the projectile in the barrel of the arm.

5. A projectile for firearms consisting of a relatively soft metal body inclosed in a relatively hard metal jacket, the body metal extending through perforations in the wall of the jacket and beyond the surface thereof, whereby areas of soft metal are provided to support the projectile in the barrel of a firearm with its hard metal jacket out of contact therewith.

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Witnesses:

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