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R. P. STOUT.

SHRAPNEL.

APPLICATION FILED SEPT. 29, 1903.

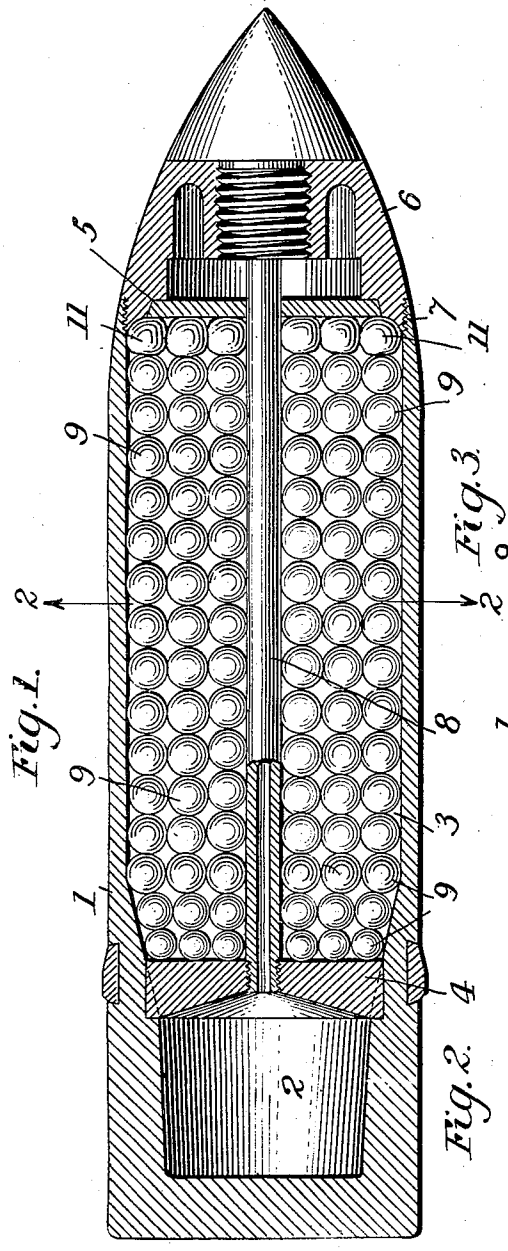


Fig. 1.

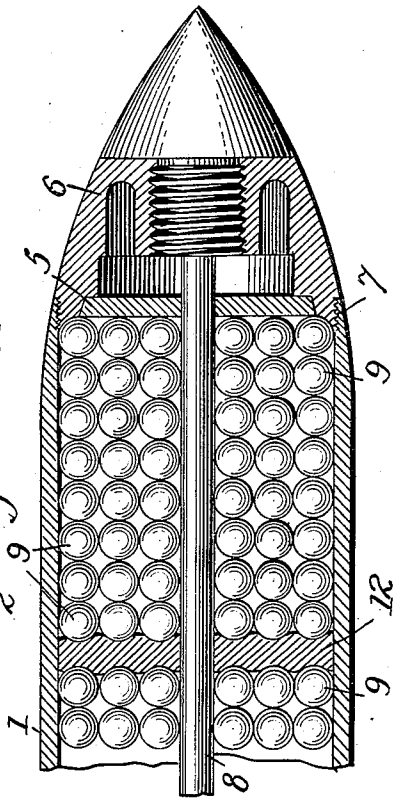


Fig. 3.

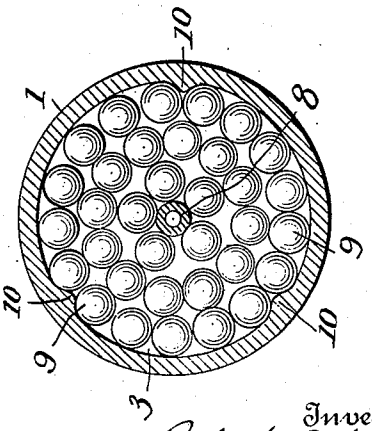


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT P. STOUT, OF SOUTH BETHLEHEM, PENNSYLVANIA, ASSIGNOR TO THE BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SHRAPNEL.

No. 810,582. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed September 29, 1903. Serial No. 175,056.

To all whom it may concern:

Be it known that I, ROBERT P. STOUT, a citizen of the United States, residing at South Bethlehem, Northampton county, Pennsylvania, have invented certain new and useful Improvements in Shrapnel, of which the following is a specification.

This invention relates to various improvements in shrapnel, whereby the charge of bullets or balls contained within the shell are securely retained in position during the firing and flight of the shell.

The invention will be described in connection with the accompanying drawings, in which—

Figure 1 is a longitudinal central section of a shell embodying the present invention. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a section corresponding to a part of Fig. 1 and showing a different method of securing the balls in position.

Referring to the drawings, 1 indicates a shell of ordinary construction having a chamber 2 for the bursting charge and a chamber 3 for the bullets. The chambers 2 and 3 are separated by a strong metal diaphragm 4, which is detachably seated in the base of the shell. Near the point of the shell is a second diaphragm 5, forming the other end of the chamber 3. This latter diaphragm is seated in the head 6 of the shell, which head is preferably united with the body of the shell by the screw-joint 7. Extending through the diaphragms from a cavity in the head to the chamber 2 is a tube 8, through which the flash of fire is carried from the time-fuse to the bursting charge.

The balls 9, with which the cavity 3 is filled, are of iron, steel, or other suitable metal. It is desirable to so connect the charge of balls with the shell that they will revolve with the shell when the latter is fired, the same as if they were integral with it. To prevent the shell from rotating more rapidly than the balls, due to the inertia of the latter, I provide the interior of the wall of the shell with suitable ribs or projections 10. To cause these ribs or projections to properly engage the balls, the latter must be packed solid in the shell and clamped in position. As this is difficult to attain when the balls are all of hard metal, I provide each shell with at least one layer of compressible material. I preferably use a layer of lead balls 11, which, as shown in Fig. 1, are next to the upper diaphragm 5. When the shell is filled with hard-metal balls and the upper layer of lead balls, the head 6 is tightly secured down, compressing the lead balls on the hard balls and clamping the entire contents of the chamber 3 into one solid mass. This clamping operation holds the balls tightly against the ribs or projections 10, and when the shell is fired the entire contents turn with it as a solid mass.

Instead of putting the layer of balls 11 at the top they may be arranged at any other part of the chamber 3. It is preferable, however, to place them at the top, as they could then be arranged to the best advantage.

Instead of the lead balls 11 a sheet of lead or other suitable compressible or ductile material may be used. Thus, as illustrated in Fig. 3, a sheet 12 of lead or other suitable material is placed in an intermediate position in the chamber 3 and the balance of the chamber filled with balls. The latter slightly project above the plane of the diaphragm 5 when the shell is filled, and the head is then screwed down until it is firmly seated, thus driving the balls adjacent to the layer of lead into the latter and compacting the entire mass.

Without, therefore, limiting myself to the precise construction and arrangement illustrated and described, I claim—

1. In a shrapnel, the combination with a shell having chambers for the bursting charge and for the charge of balls, of a charge of hard-metal balls within said shell, a portion of ductile or compressible material within said shell and in contact with said charge of hard-metal balls, and means for clamping the balls upon said ductile or compressible material, whereby relative rotation of the balls and shell is prevented.

2. In a shrapnel, the combination with a shell having chambers for the bursting charge and for the charge of balls, of a charge of hard-metal balls within said shell, a layer of ductile or compressible balls within the shell and in contact with the charge of hard-metal balls, and means for clamping the hard balls upon said ductile or compressible balls, whereby relative rotation of the balls and shell is prevented.

3. In a shrapnel, the combination with a

shell having chambers for the bursting charge and for the charge of balls, of longitudinal ribs upon the interior of said latter chamber, a charge of hard-metal balls within said chamber, a portion of lead balls within said chamber, and means for clamping said lead and hard balls tightly within the chamber and in engagement with said ribs, for the purpose set forth.

4. In a shrapnel, the combination with a shell having chambers for the bursting charge and for the charge of balls, of a charge of hard-metal balls within said shell, a layer of ductile or compressible balls between one end of the charge of hard balls and the chamber of the shell within which said charge is arranged, and means for clamping the hard balls upon said ductile or compressible balls, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT P. STOUT

Witnesses:
EMIL A. GATHMANN,
J. F. PELLY.