Dec. 9, 1924. 1,518,272

H. H. OLMSTEAD

RESILIENT RING

Filed July 21, 1924

Fig. 1.

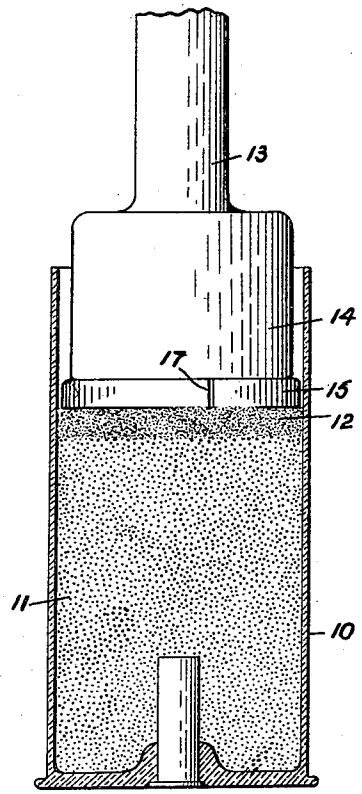


Fig. 1a.

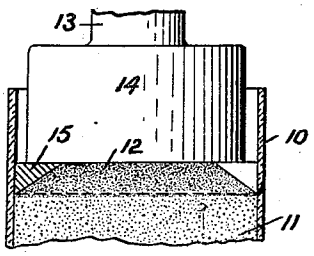


Fig. 2.

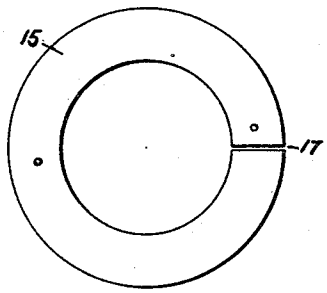


Fig. 3.

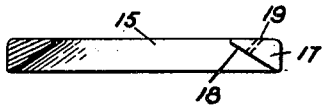


Fig. 4.

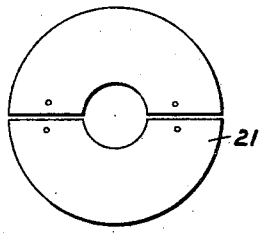


Fig. 5.



Fig. 6.

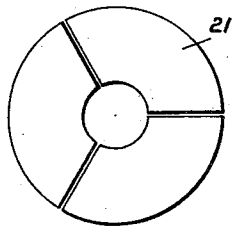
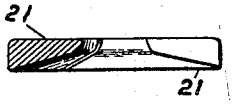


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RESILIENT RING.

Application filed July 21, 1924. Serial No. 727,333.

(FILED UNDER THE ACT OF MARCH 3, 1883, 22 STAT. L., 625.)

To all whom it may concern:

Be it known that I, HENRY H. OLMSTEAD, a citizen of the United States, and a resident of Wharton, county of Morris, and State of New Jersey, have invented an Improvement in Resilient Rings, of which the following is a specification.

The invention described herein may be used by the Government, or any of its officers or employees in prosecution of work for the Government, or by any other person in the United States, without payment to me of any royalty thereon, in accordance with the act of March 3, 1883.

The subject of this invention is a resilient ring.

In ramming or tamping materials such as explosives in cartridge cases or shell bodies with the object of pressing them to high densities, it has been found that some materials which have little or no bridging power, such as guanidine picrate, when subjected to pressure have the faculty of freely flowing up between the ram and the container wall unless the ram is of sufficient size to tightly fit in the container. However, when the ram is so fitted, the material sometimes forms such a compact mass between the ram and the container walls that it is very difficult to withdraw the ram.

The function of my improved ring is to aid the ram in forming a crown of dense material at or near the top of an increment and to retain the balance beneath until the desired density has been attained.

As it is not practical to make all inside container walls parallel and as some are formed with varying diameters, especially shell bodies, it is necessary in practice to utilize rams of different sizes. This undesirable feature is obviated by my improved ring which supplies the need between the different sized rams.

In certain instances, the orifice of a container is of considerably less diameter than the main cavity and to provide for this contingency, I may form the ring in two or more segments to be conveniently dropped in the container and there reassembled.

My invention therefore resides in the provision of a resilient crowning ring which is capable under pressure of adjustment to different diameters and which may be removed from the container without difficulty.

To these and other ends, my invention consists in the construction, arrangement, and combination of elements, described hereinafter and pointed out in the claims forming a part of this specification.

A practical embodiment of my invention is illustrated in the accompanying drawing, in which,

Fig. 1 is a longitudinal sectional view of a container, showing the ram and crowning ring before pressure is applied;

Fig. 1ª is a fragmentary view partly in section, showing the crowning ring after pressure has been applied;

Fig. 2 is a plan view of the ring;

Fig. 3 is a vertical sectional view of the ring taken through the split portion;

Figs. 4 and 5 are views in plan and elevation, respectively, of a segmental ring and segment thereof; and

Figs. 6 and 7 are views in plan and section, respectively, of a further modified form.

Referring to the drawing by numerals of reference:

A container 10, herein shown as cylindrical in form, is filled with an explosive material 11, which has been compressed to the required density. To this is added an increment 12, such as guanidine picrate, which is to be pressed to a high density and which is to have its upper surface crowned.

Pressure is applied through a ram 13, formed with a foot 14, of less diameter than the container so that the ram may be readily operated. A crowning ring 15 may be either loosely fitted to the foot of the ram or entirely separate therefrom and is formed with a diameter slightly less than the container. In the tamping operation the ring rests upon the upper circumferential portion of the increment 12. The ring is preferably of a fiber or metal possessing sufficient resiliency so that when split as at 17 and pressure applied the ring may be spread or deformed to engage the container wall and prevent the material from flowing between the ring and the wall. If a steel or iron ring is used, it should be plated to obviate the danger of striking a spark.

The ring is triangular in cross section, its under face being beveled as at 18 to provide for forming a crown on the upper portion of the increment 12 with a uniform density as pressure is applied.

If the ring is to be used detached from the ram it may be provided with inclined apertures 19, as shown in Figure 3, or inclined recesses 20, as shown in Figure 5, for the reception of a hooked instrument (not shown) to facilitate withdrawal of the ring from the container.

For use with containers in which the orifice is of less diameter than the cavity the ring may be formed of segments 21, as shown in Figures 4 to 7. The segments may be individually inserted in the container and assembled therein in any suitable manner.

While in the foregoing there has been illustrated and described such combination and arrangement of elements as constitute the preferred embodiment of my invention, it is nevetheless desired to emphasize the fact that interpretation of the invention should only be conclusive when made in the light of the subjoined claims.

I claim:

1. A device for compressing explosives in a container embodying an expansible crowning ring, and means for applying pressure to said ring.

2. A device for compressing explosives in a container embodying a segmental crowning ring, and means for applying pressure to said ring.

3. A device for compressing explosives in a container embodying a crowning ring, and means for applying pressure to said ring.

HENRY H. OLMSTEAD.