I. N. JONES.

METHOD FOR FORMING SHEET METAL BODIES.

APPLICATION FILED JAN. 28, 1909.

939,702. Patented Nov. 9, 1909.

Fig. 1

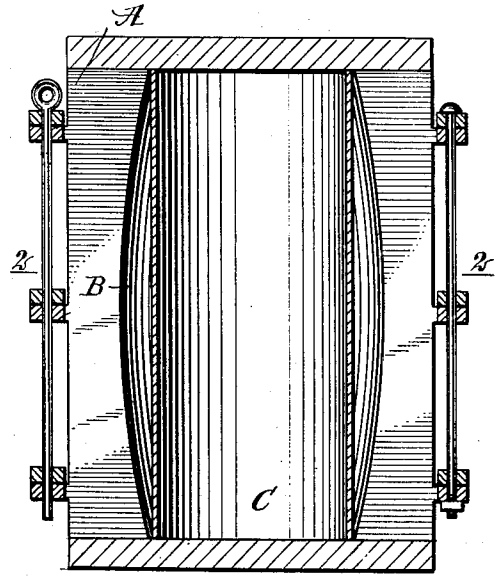


Fig. 3

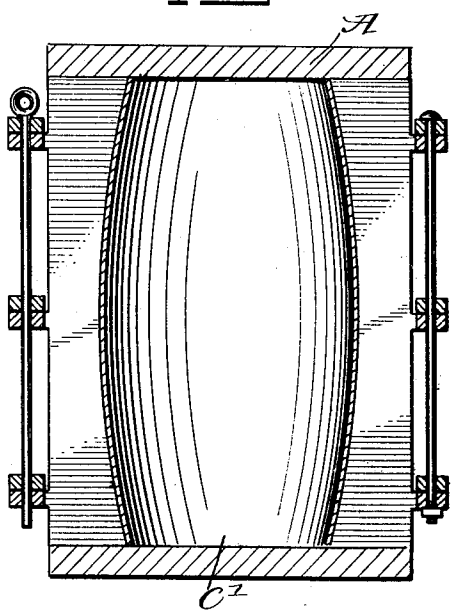
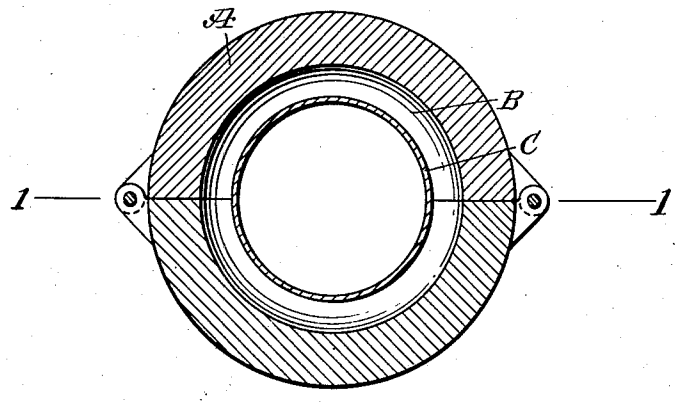


Fig. 2



WITNESSES

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METHOD FOR FORMING SHEET-METAL BODIES.

939,702. Specification of Letters Patent. Patented Nov. 9, 1909.

Application filed January 28, 1909. Serial No. 474,665.

To all whom it may concern:

Be it known that I, ISAAC NEWTON JONES, a citizen of the United States, and a resident of Defiance, in the county of Defiance and State of Ohio, have invented a new and Improved Method for Forming Sheet-Metal Bodies, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved method for forming sheet metal bodies in a very simple and economical manner and without danger of rupturing the sheet metal, and permitting the formation of regular shaped sheet metal bodies without the use of expensive machinery.

The method consists in subjecting a sheet metal blank to the pressure of a high explosive, and while said blank is contained in the mold, so as to press the sheet metal to the shape of the mold.

In order to carry out this method, I proceed in detail as follows, reference being had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of a sheet metal blank held in a mold, the section being on the line 1—1 of Fig. 3; Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1; and Fig. 3 is a sectional side elevation of the sheet metal body formed in the mold.

As shown in the drawings, the mold A is made in sections, and is provided with an interior bilge-shaped opening B, and in the said opening is set a cylindrical sheet metal blank C, within which is ignited a quantity of dynamite or other explosive, so that the sheet metal is expanded to conform to the wall of the bilge-shaped opening B, as plainly indicated in Fig. 1, thus forming a bilge-shaped body C′ for a barrel or a like receptacle. The body C′ can be readily removed from the mold on opening the latter.

Although I have shown and described the mold with a bilge-shaped opening, it is evident that molds of different shape for forming different sheet metal bodies can be employed, it being understood that with the method above set forth the sheet metal is subjected to the pressure of a high explosive, to cause the sheet metal to expand to the form of the mold.

The bilge-shaped body C′ may be produced gradually, that is, the sheet metal blank may be subjected successively to the pressure of high explosives in graduated molds until the sheet metal blank is expanded to the full extent in the last mold. By proceeding in this manner rupture of the sheet metal is not liable to take place.

The mold may be closed at one or both ends during the firing of the charge, and the latter may be ignited by suitable means, preferably a fuse or an electric igniting device of any approved construction.

In carrying out the process set forth, a heavy mold of metal is made use of, of a sufficient thickness to stand the strain to which it will be subjected, the mold being made in two halves so that it may be opened for the removal of the article after the forming thereof. The inside of the mold should be in the shape of a barrel or keg, that is of the article to be formed, and it may be provided with a solid bottom, or it may rest upon a heavy iron plate, and be fastened thereto in any suitable manner.

A sheet of metal of sufficient size to form the body of the article is rolled into shape so that it will set in the mold, permitting the ends of the sheet to lap sufficiently to permit them to be riveted or brazed after the operation is completed, or secured in any other suitable manner. The sheet is then placed in the mold resting upon the bottom thereof. A sufficient quantity of the explosive is suspended therein at approximately the center of the article, after which a lid or cover of very heavy metal is placed on top of the mold, which need not be fastened, but should be secured to the mold by a chain or the like to prevent its being thrown any distance from the mold. After the cover is placed, the explosive is set off by any suitable means, and the force of the explosion acts directly on the sheet of metal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The herein described method of forming sheet metal bodies, consisting in inserting in a mold a cylindrical blank, supporting an explosive at approximately the center of the mold, closing the ends thereof, and igniting the explosive whereby to expand the blank into contact with the inner surface of the mold.

2. The herein described method for forming sheet metal bodies, consisting in placing a cylindrical blank into a bilge shaped mold, closing the ends thereof, supporting an explosive at approximately the center of the blank and igniting the same.

3. The herein described method for forming hollow sheet metal bodies, which consists in placing the blank in a mold whose internal surface is shaped to correspond with the external surface of the body to be formed, sealing the mold, suspending a high explosive therein at substantially the center thereof, and exploding the same whereby to forcibly press every part of the blank into intimate contact with the internal surface of the mold.

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

ISAAC NEWTON JONES.

Witnesses:

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