No. 811,707. PATENTED FEB. 6, 1906.

J. F. ELLIS.

CYLINDER FOR TREATING HEATED METAL.

APPLICATION FILED MAY 6, 1905.

Fig. 1.

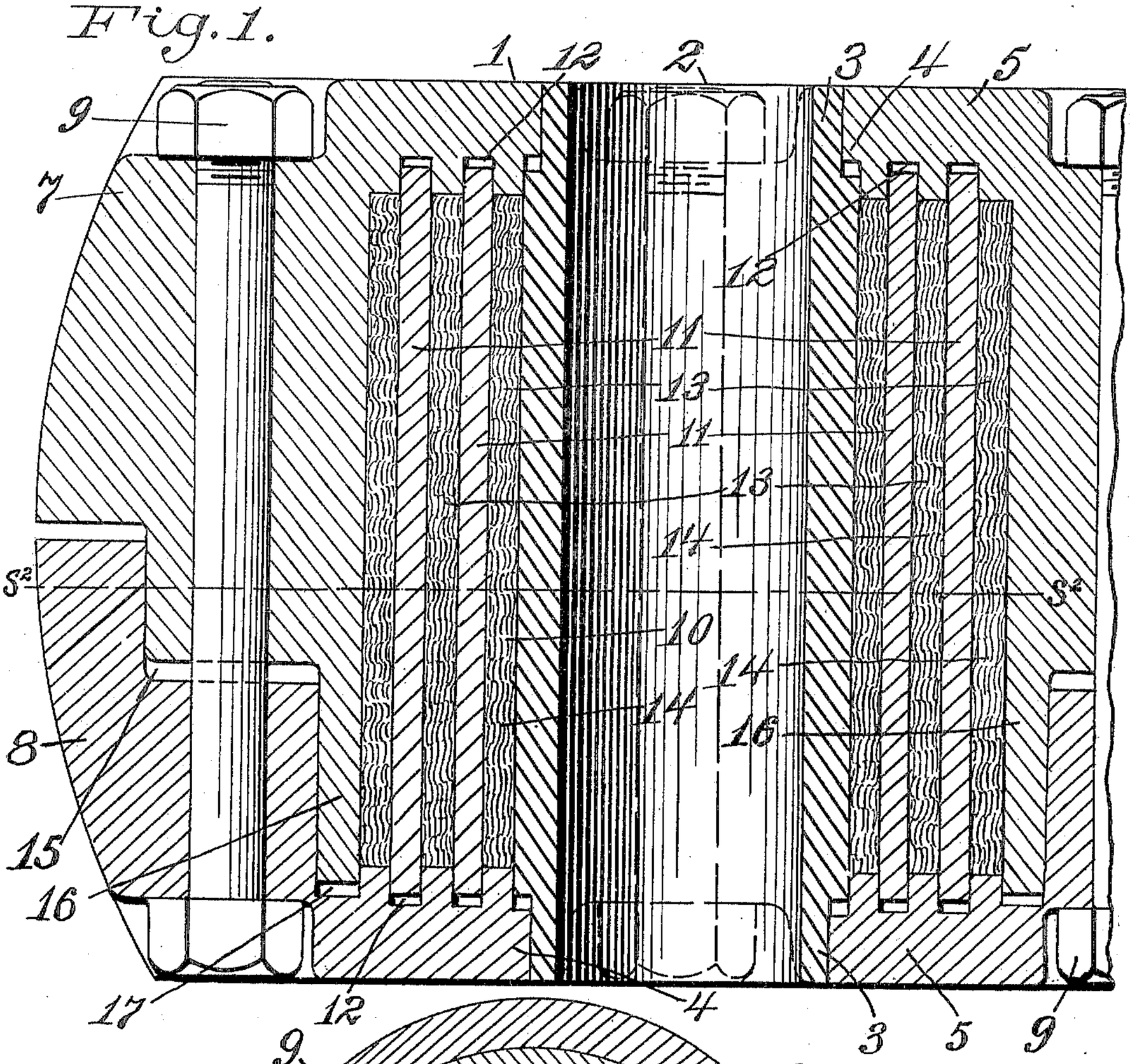
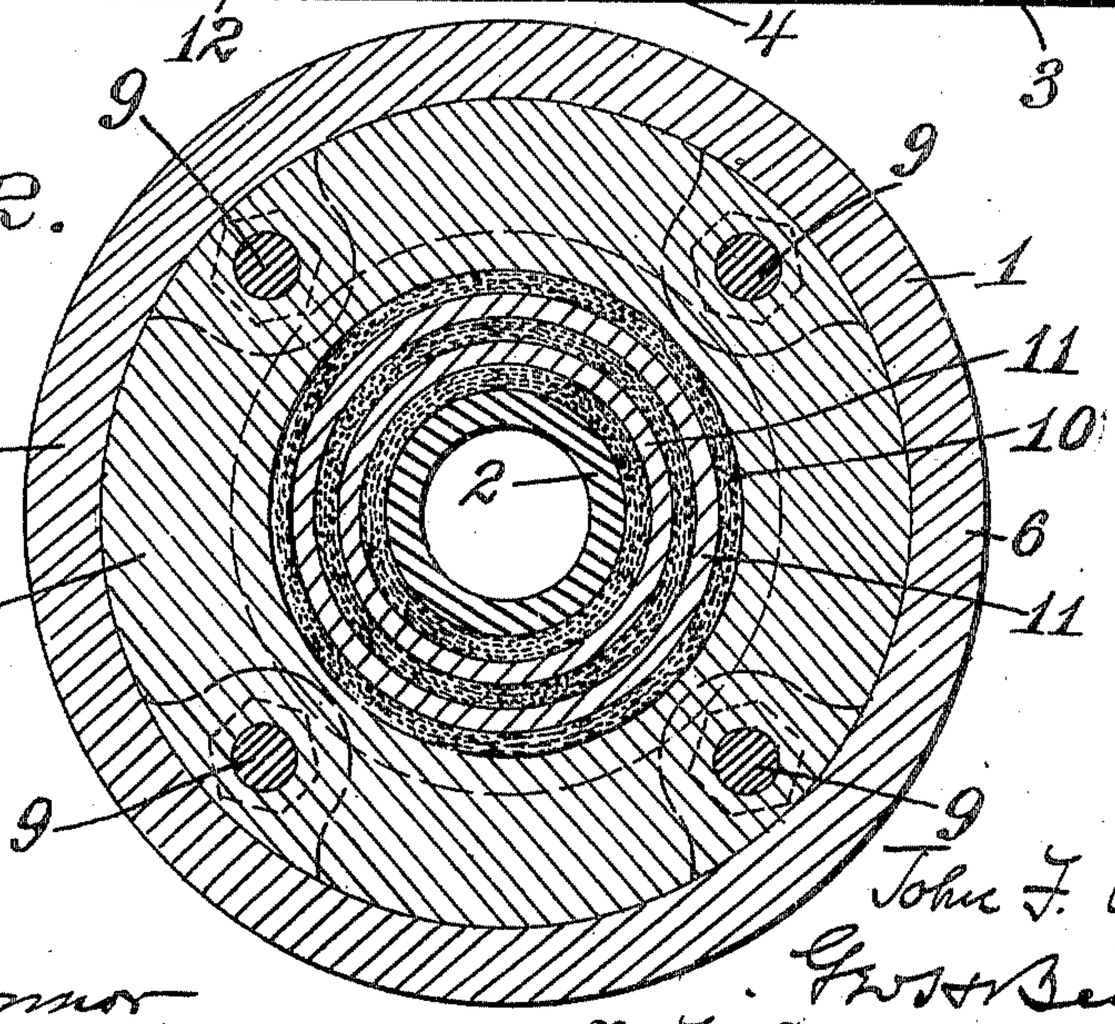


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CYLINDER FOR TREATING HEATED METAL.

No. 811,707. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed May 6, 1905. Serial No. 259,247.

To all whom it may concern:

Be it known that I, JOHN FRANCIS ELLIS, a citizen of the United States, residing at Torrington, county of New Haven, State of Connecticut, have invented a Cylinder for Treating Heated Metal, of which the following is a specification.

My invention relates generally to apparatus for shaping heated metal under pressure—that is to say, to apparatus such as is ordinarily employed in the manufacture of solid or hollow wire, rods, bars, &c. The invention has particular reference to the construction of that part of the apparatus known as the "pressure-chamber" or "container," in which the heated metal is placed and maintained at a proper temperature to yield under the action of hydraulic or other pressure-applying means employed to force it from the container through a die.

The accompanying drawings illustrate a cylindrical container constructed in accordance with my invention. I do not wish to be understood, however, as limiting myself to the same, as various changes may be made therein without departing from the spirit and scope of my invention.

In the drawings, Figure 1 is a vertical sectional view thereof; and Fig. 2, a horizontal sectional view, on a smaller scale, taken on the line s^2 s^2 of Fig. 1.

Referring now to the drawings, I have shown the container or pressure-chamber in the form of a cylinder 1, open at both ends and reversible, being equally effective when turned end for end. The container is formed of steel or other metal suitable for withstanding the high temperature of the metal introduced therein and the pressure applied to force such metal from the container through a die in the usual manner. In its preferred form the container is constructed of alternate layers of pressure and heat resisting material varying in length and thickness. As shown, it consists of an inner cylinder 2, the ends 3 3 of which are reduced or shouldered and fitted in counterbored openings 4 4 in the opposing heads 5 5 of a sectional or two-part jacket or housing 6. The members 7 and 8 of the jacket are arranged to telescope one within the other and are secured together by bolts 9 9, or other suitable fastening means may be employed, if desired. The jacket or housing 6 is shaped internally, as shown, to form between the heads 5 5 thereof and the inner cylinder 2 a closed annular space or chamber 10, suitable for containing a filling made up of alternate thicknesses of metal and asbestos or equivalent material, such as will withstand the high temperature and pressure to which the container is subjected in use. In making up the filling the metal and asbestos may be arranged in concentric or spiral layers or in any other manner desired relatively to the inner cylinder 2. Preferably a series of metal cylinders 11 11 are employed which are somewhat shorter than the cylinder 2 and are held properly spaced and concentrically disposed in the chamber 10 by having their ends fitted in annular grooves 12 12, formed in the heads 5 5 of the jacket. The chamber 10 is thus divided into a number of annular compartments 13 13, which are filled with hard-packed asbestos or other non-heat-conducting material 14, as shown. The body of metal necessary for resisting lateral pressure is preferably put in the jacket or housing, the wall of which is given a greatly-increased thickness over that of the cylinders 2 and 11. As further tending to resist lateral pressure the joint between the members of the jacket is stepped, as indicated at 15 in Fig. 1; but it may obviously be otherwise formed, if desired. For convenience in packing the asbestos it is desirable to form the various annular compartments 13 complete within one of the members of the jacket. This is readily effected in the present instance by reducing the inner end of the member 7 to a comparatively thin shell 16 and giving it a length equal to that of the cylinders 11, so that it will enter a groove 17, formed in the head of the opposite member.

In assembling the container the member 7 thereof is first set up in a reversed position from that shown in Fig. 1, and after the cylinders 2 and 11 are fitted therein the intervening spaces or compartments formed are filled with closely-packed asbestos. The member 8 is then placed in position and secured by the bolts 9, which are tightened as the members of the jacket are forced together under pressure subsequently applied to further compress the asbestos filling. This re-

sults in reducing the asbestos to a mass sufficiently unyielding to withstand the high pressure to which it is subjected in use.

Having thus described my invention, I claim—

1. A container for treating heated metal under pressure comprising a series of concentrically-disposed cylinders, and a filling of non-heat-conducting material interposed between the cylinders, the outer cylinder of said series being formed of telescoping sections.

2. A container for treating heated metal under pressure comprising a series of concentrically-disposed cylinders, and a filling of non-heat-conducting material interposed between the cylinders, the outer cylinder of said series being formed of adjustable telescoping sections shaped to engage and compress said filling.

3. A container for treating heated metal under pressure comprising a series of concentrically-disposed cylinders, and a filling of non-heat-conducting material interposed between the cylinders, the outer cylinder of said series being formed of telescoping sections recessed to serve as an inclosing jacket for the other cylinders.

4. A container for treating heated metal under pressure comprising a cylinder, a covering therefor consisting of alternate layers of pressure and heat resisting material, and a sectional inclosing jacket for the covering having inwardly-extending flanges encircling the cylinder, the sections of said jacket being movable relatively to each other to exert pressure upon the layers of heat-resisting material.

5. A container for treating heated metal under pressure comprising a cylinder, a covering therefor consisting of alternate layers of pressure and heat resisting material, a sectional inclosing jacket for the covering having flanges encircling the cylinder at its ends, and means for giving said sections movement relatively to each other.

6. A container for treating heated metal under pressure comprising a cylinder, a sectional jacket therefor, the sections of the jacket being movable relatively to each other and having flanges arranged to close the ends of an annular chamber formed between the cylinder and its jacket, and a suitable filling for the chamber.

7. A container for treating heated metal under pressure comprising a series of pressure-resisting cylinders concentrically arranged, a suitable filling interposed between the cylinders, and a two-part inclosing jacket, the members of said jacket being movable relatively to each other and having integral portions shaped to encircle the cylinder at its ends and exert pressure in opposite directions upon the filling.

8. A container for treating heated metal under pressure comprising a series of cylinders arranged one within the other, and an inclosing jacket formed in sections and each section provided with an integral flange shaped to interlock with the inner cylinder of said series and having annular recesses therein to receive the ends of the outer cylinders.

9. A cylinder for treating heated metal under pressure comprising a series of concentrically-disposed cylinders varying in length and thickness, and a filling of non-heat-conducting material interposed between the cylinders, the outer cylinder of said series being formed of telescoping sections bolted together and each section provided with a head recessed to receive the ends of the other cylinders.

10. A container for treating heated metal under pressure comprising a series of pressure and heat resisting cylinders concentrically arranged in alternating relation, and a sectional inclosing jacket therefor, the sections of said jacket being provided with flanges having annular ribs extending between the pressure-resisting cylinders and exerting pressure upon the heat-resisting cylinders interposed between the same.

11. A container for treating heated metal under pressure comprising a cylinder, a covering for the cylinder consisting of a series of cylinders arranged concentrically with said first-named cylinder, non-conducting material interposed between said concentric cylinders, a two-part telescoping jacket inclosing the covering, and means for moving the parts of the inclosing jacket relatively to each other.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN FRANCIS ELLIS.

Witnesses:
W. H. PUMPHREY,
M. G. CRAWFORD.