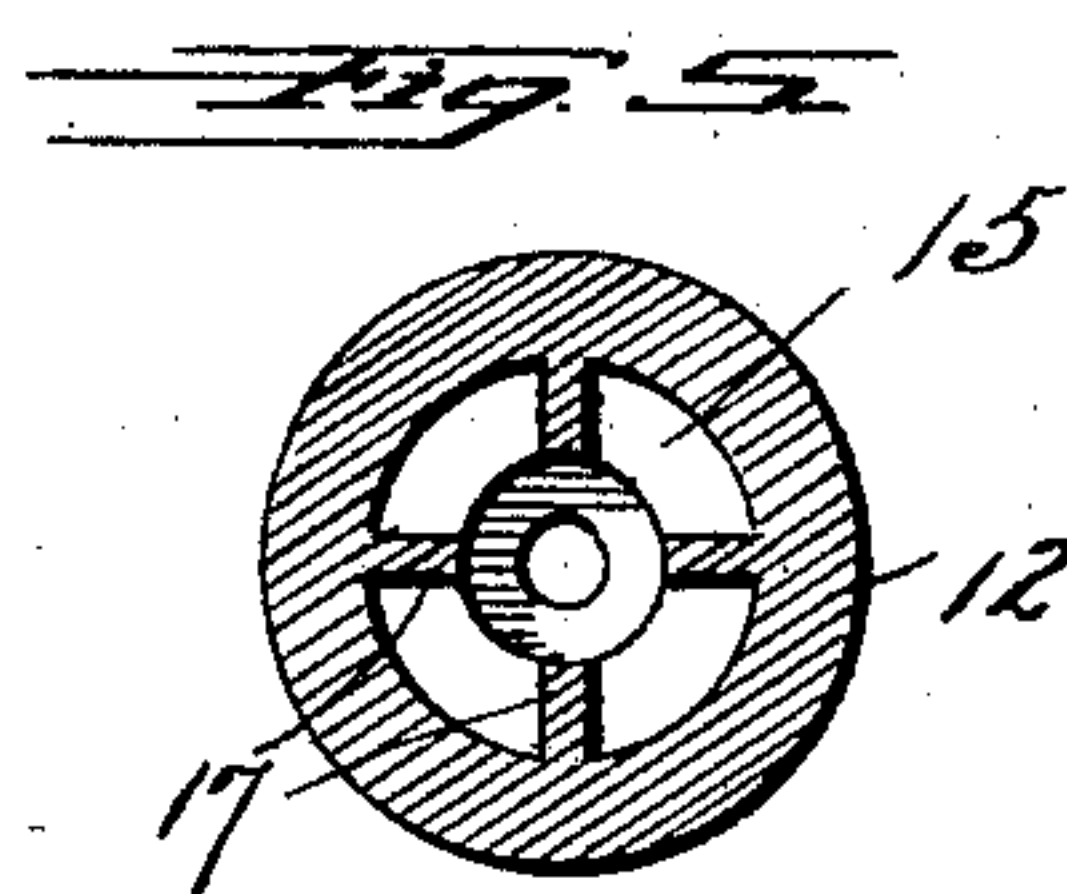
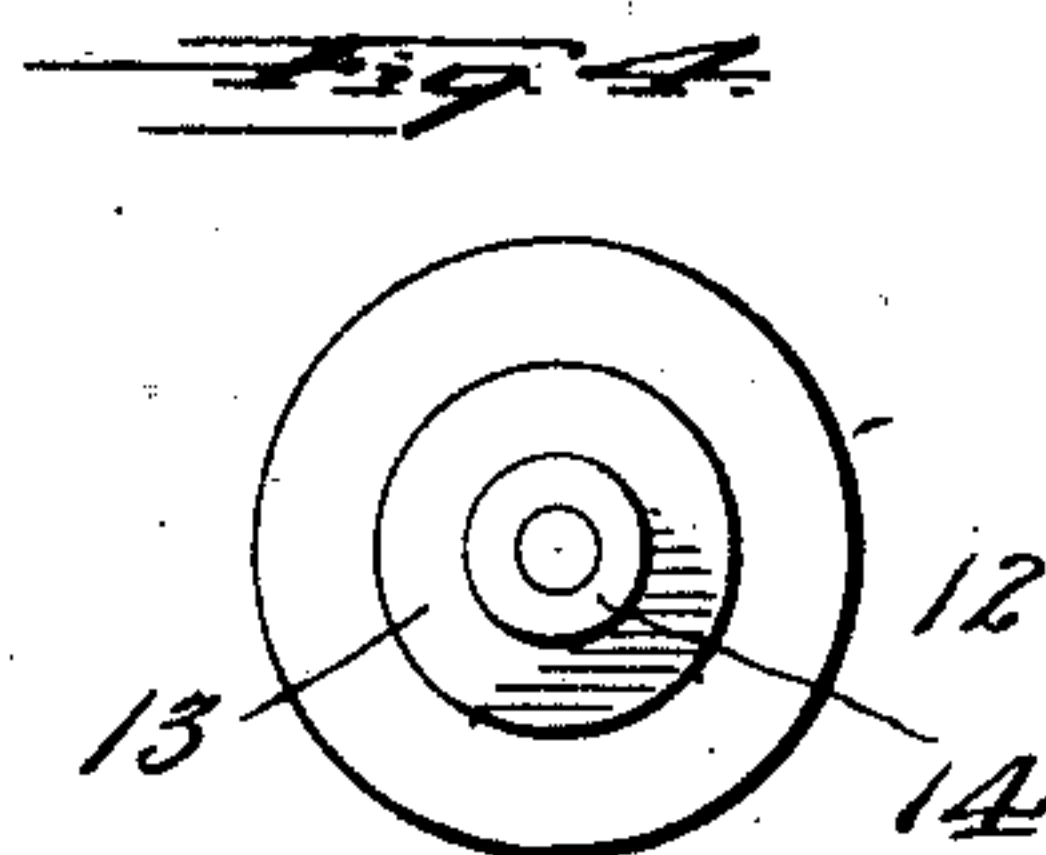
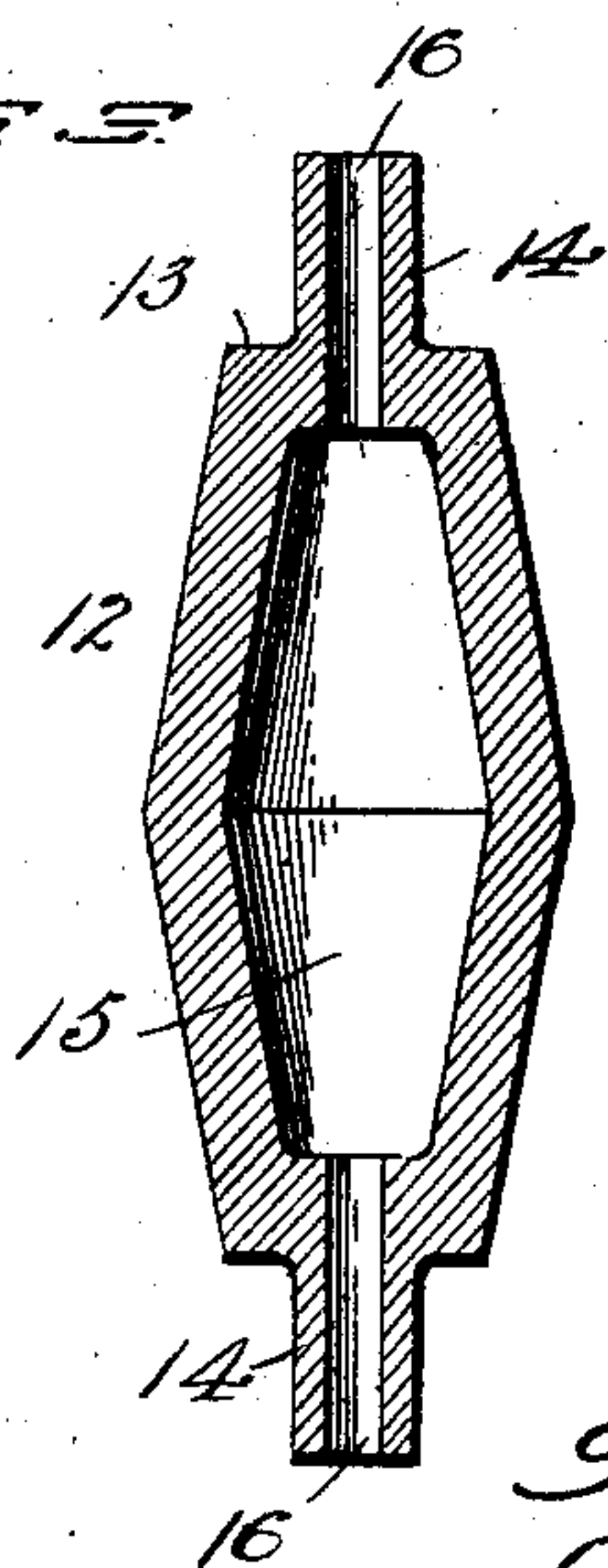
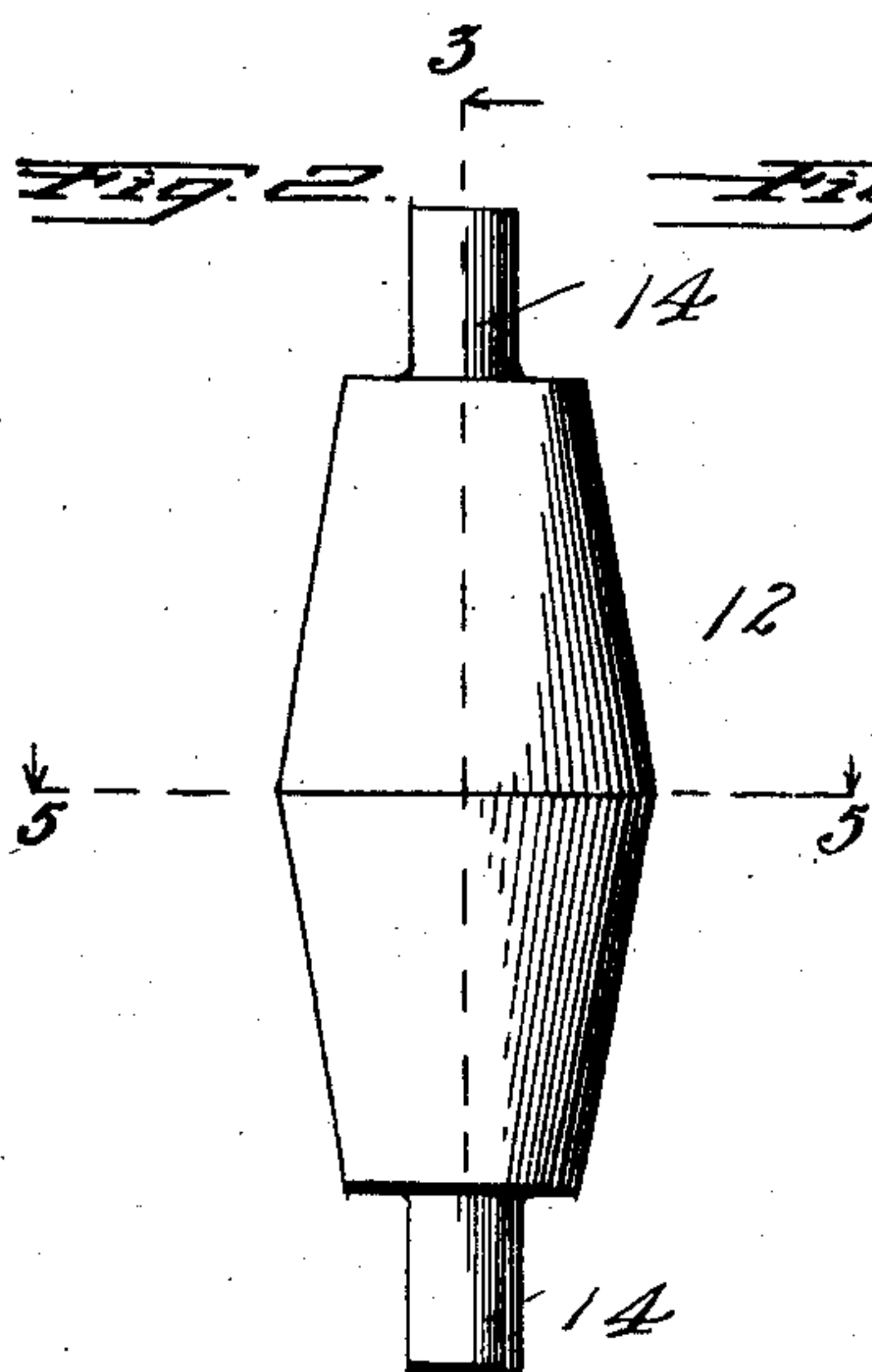
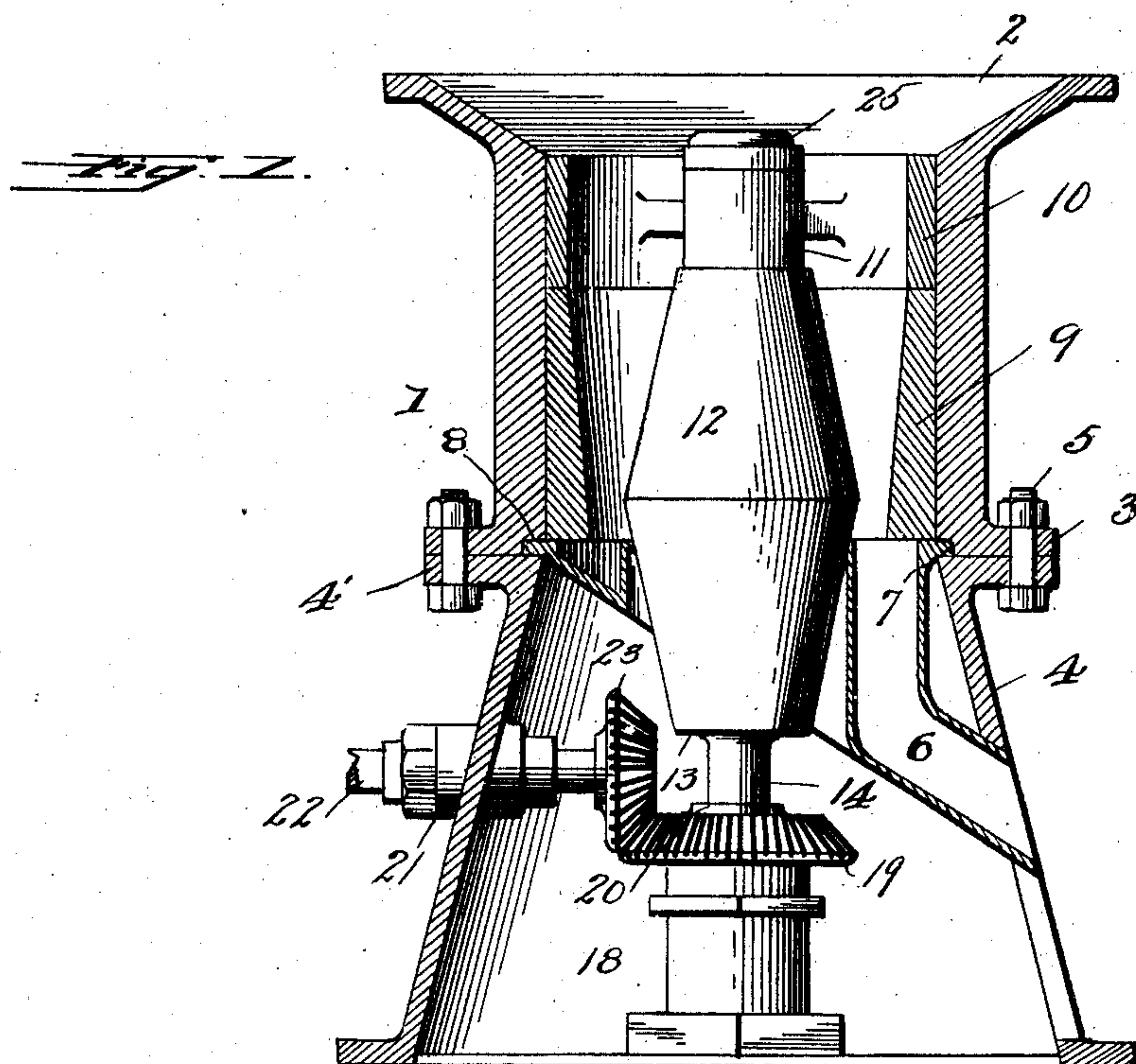


No. 859,735.

PATENTED JULY 9, 1907.

W. BRINTON & O. E. BROWN.
STONE CRUSHER.

APPLICATION FILED MAR. 29, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

WALTER BRINTON, OF HIGH BRIDGE, NEW JERSEY, AND OWEN E. BROWN, OF EASTON, PENNSYLVANIA.

STONE-CRUSHER.

No. 859,735.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed March 29, 1906. Serial No. 308,681.

To all whom it may concern:

Be it known that we, WALTER BRINTON and OWEN E. BROWN, citizens of the United States, residing, respectively, at High Bridge and Easton, in the counties of Hunterdon and Northampton and States of New Jersey and Pennsylvania, have invented certain new and useful Improvements in Stone-Crushers, of which the following is a specification.

Our invention relates to improvements in stone crushers, of the class known as compound or gyratory, and refers more particularly to the crusher head of the machine.

The object of our invention is the provision of an integral crusher head and shaft for stone crushers, which will be inexpensive of production and manufacture, and will be thoroughly practical and efficient.

Another object of the invention is the provision of a crusher head which may be reversed to provide double the wearing surface of the heads now in use, thus giving twice the service of the ordinary crusher head.

A further object of the invention, is the provision of a double integral crusher head so designed that special heat treatment may be applied successfully thereto to increase its strength to the desired requirement, and thus enable it to withstand the extreme hard service to which these parts of the machines are subjected to.

With these and other objects in view, our invention consists of a double tapered gyratory crusher head, and shaft integral therewith, said head and shaft molded or forged hollow their entire length.

Our invention further consists in certain other novel features of construction, combination and arrangement of parts substantially as disclosed herein.

Figure 1, is a vertical sectional view of the complete stone crusher, the crusher head being shown in elevation. Fig. 2, is an elevation of the integral crusher head and shaft. Fig. 3, is a longitudinal sectional view of our improved crusher head. Fig. 4, is a top plan view thereof. Fig. 5, is a central transverse sectional view of a modified form of the crusher head designed for extra heavy work, taken on line 5—5 of Fig. 2.

Heretofore, crusher heads and shafts in common use, have caused great inconvenience and expense to the users by breakage of shafts, loosening of segments on centers, the centers becoming loose on the shafts, or the mantles becoming loose on centers, but with our improved form of crusher head, all these disadvantages are eliminated, as the casting or forging is of one integral part, as the head and shaft are either cast or forged in one piece, as will hereinafter appear.

In the drawings: The numeral 1, designates the casing

or shell of the crusher, having the hopper or funnel portion 2, formed integral therewith. The lower edge of the casing is flanged at 3, and engages a corresponding flange 4', on the base 4, of the machine, and securing bolts 5, pass through said flanges. A chute 6, formed with an annular rim 7, is mounted upon and engages the interior annular shoulder 8, at the base of the casing. Mounted within the casing and resting upon the chute, is the crushing ring 9, of usual construction, and upon this ring, is mounted a bearing ring 10, provided with the central bearing or hub 11.

As before stated, our improved crusher head and shaft is of one integral piece, consisting of the body portion 12, of greatest diameter at the center or mid-length, and tapering toward the ends, said ends terminating in a bearing shoulder 13, and shaft or spindle 14. The body portion is hollow forming a chamber 15, and the spindles have communicating openings or passages 16, therein. This opening through the head, extending from end to end of the shaft, is of great importance for successfully treating or tempering the casting or forging after the same has been formed into the finished shape. For extra heavy work, webs or ribs 17, (see Fig. 5) may be formed on the interior walls of the crusher head to strengthen the same.

Centrally mounted in the base, is a foot block 18, upon which is supported a crown gear 19, carrying the eccentric bearing 20, common to such machines. Mounted in a suitable journal bearing 21, and extending through the wall of the base, is a shaft 22, carrying on its inner end, a gear wheel 23, to engage the crown gear. This shaft is the driving shaft and is suitably connected with a prime mover or other source of power.

Our improved crusher head is centrally mounted within the casing, and is supported at the lower end, in the eccentric bearing 20, and at the upper end, is engaged in the hub of the bearing ring. A cap 25, is fitted to the hub to exclude dust and dirt and prevent clogging of the eccentric bearing.

When one end of the head has been used a length of time to wear it down to a point that its value for crushing has become so reduced as to render it inefficient, it is simply taken out of the crusher and reversed, or turned end for end, and an entire new wearing surface is provided and rendering the head capable of the same amount of service again. These combined heads and shafts may be made up, either by casting or forging, of any suitable material for the work they are intended to perform, preferably a high grade of special steel.

From this description taken in connection with the drawings, it will be obvious that we have accomplished all the objects herein set forth, and have provided a crusher head combining the requisites of compactness, stability and solidity.

We claim:

1. A crusher head having conical grinding surfaces tapering from the center toward each end thereof and terminating in a shouldered portion, integral spindles extending from the shouldered portions, only the grinding surface at one end of the head being in immediate use, so that the head may be reversed end for end to present a new grinding surface and integral strengthening ribs extending longitudinally on the inner walls of the head.
2. A hollow crusher head having conical grinding surfaces tapering from the center toward each end thereof, hollow spindles integral with the head, the interior walls of the head being provided with longitudinal integral strengthening ribs.

3. A crusher head of greatest central diameter having conical grinding surfaces tapering from the center toward each end thereof and terminating in shouldered portions, said shouldered portions adapted to co-operate with bearing supports for the head, integral spindles extending from the shouldered portions, the head being hollow its entire length and the ends of the head being identical in formation so that it may be reversed end for end.

In testimony whereof we affix our signatures in presence of two witnesses.

WALTER BRINTON.
OWEN E. BROWN.

Two witnesses:

ABRAM L. BEAVERS,
FREDERICK T. CRAMER.