W. A. LEDDELL.

REDUCING BODY.

APPLICATION FILED MAY 11, 1920.

1,398,970. Patented Dec. 6, 1921.

Fig. 1.

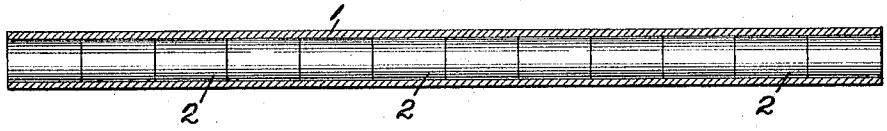


Fig. 2.

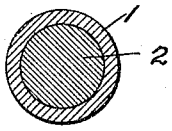


Fig. 3.

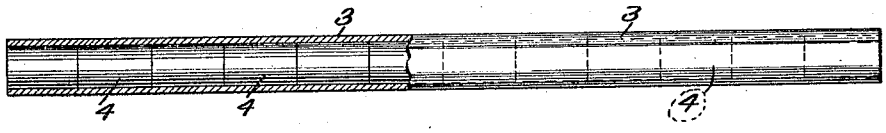
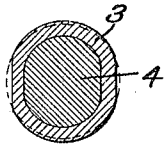


Fig. 4.



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UNITED STATES PATENT OFFICE.

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REDUCING-BODY.

1,398,970. Specification of Letters Patent. Patented Dec. 6, 1921.

Application filed May 11, 1920. Serial No. 380,482.

To all whom it may concern:

Be it known that I, WILLIAM A. LEDDELL, a citizen of the United States, and a resident of Denver, county of Denver, and State of Colorado, have invented certain new and useful Improvements in Reducing-Bodies, of which the following is a specification.

My invention relates to reducing bodies for use in ore-reducing mills and the like, wherein the material is reduced to the desired degree by confining the same, together with the reducing bodies, within a rotating drum or container.

Reducing bodies of various kinds have been used, such as steel balls, Danish pebbles and rods, and it is to the latter that the present invention is directed.

In order that the advantage of the construction of my reducing body may be appreciated, it may here be mentioned that one difficulty with the rods as now constructed is that after they have worn down somewhat they often become twisted and the mill must be shut down to remove them. This, of course, is annoying and causes considerable loss of time.

The reducing body forming the subject-matter of the present invention has been illustrated in the accompanying drawings,—Figures 1 and 2 showing a preferred form; while

Figs. 3 and 4 show a modification.

Referring to the reducing body of Figs. 1 and 2, it will be seen that the same comprises a tube 1 which is preferably of a high-grade steel, this tube containing a number of plugs 2 which may be of a cheap grade of steel, these plugs being arranged longitudinally of the tube and frictionally held in place therein in this embodiment of my invention by shrinking the tube upon the plugs which may be done readily by merely heating the tube, filling the same with plugs and then allowing the tube to cool.

With this construction after a certain amount of wear, the outer tube will break at the junction of the ends of the plugs and these short pieces will float out of the mill without causing any interruptions in the operation thereof or necessitating shutting down of the mill.

In the embodiment of Figs. 3 and 4 I have shown a similar construction, the reducing body of this construction comprising a tube 3 containing plugs 4, the tube in this instance, after being filled with the plugs, being pressed or hammered on opposite sides thereof so as to frictionally hold the plugs in place.

It will be observed from the foregoing that the junction of the plugs employed in the present invention constitute fractural zones at which the body will fracture in time, thereby effectually eliminating danger of the bodies kinking and becoming entangled in the mill, this construction providing a further advantage in that the short lengths of rod or reducing body after the reducing body has fractured may float out of the mill without interrupting or interfering in any way with the operation thereof.

It is to be understood that I am not to be limited to the precise construction herein illustrated inasmuch as in its broadest aspects the invention is directed to a reducing body having fractural zones which obviously might be accomplished in ways other than those here described in detail.

What I claim is:

1. As an article of manufacture, a reducing body for use in mills comprising a tube containing plugs arranged longitudinally of the tube and held therein.

2. As an article of manufacture, a reducing body for use in mills comprising a tube containing plugs arranged longitudinally of the tube and secured thereto.

3. As an article of manufacture, a reducing body for use in mills comprising a tube containing plugs arranged longitudinally of the tube and frictionally held thereto.

4. As an article of manufacture, a reducing body for use in mills comprising a plurality of plugs arranged end to end and a tube shrunk upon said plugs to retain the plugs within the tube.

This specification signed this 5th day of May, 1920.

WILLIAM A. LEDDELL.