

Feb. 9, 1954

S. D. PREEN
SEWER CLEANING BALL
Filed May 19, 1947

2,668,307

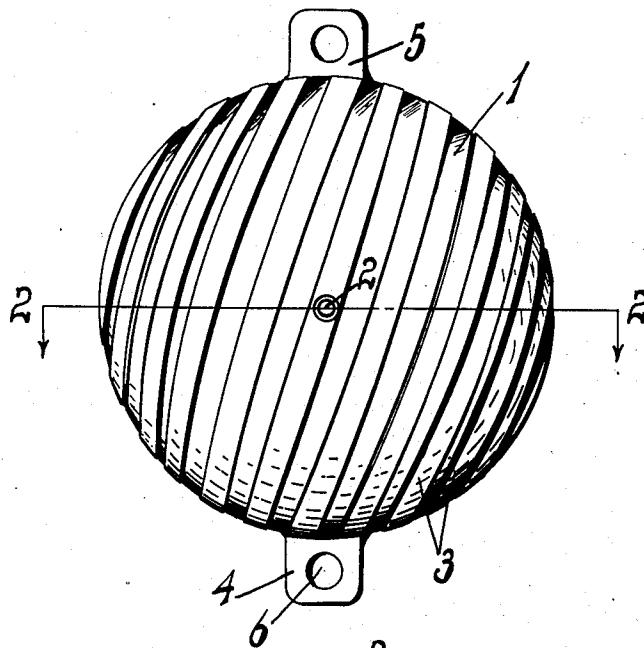


Fig. 1.

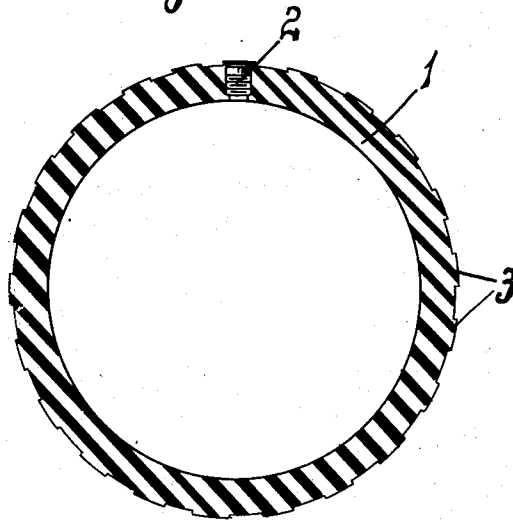


Fig. 2.

Inventor

Sydney D. Preen.

By

H. A. Druckman

Attorney

UNITED STATES PATENT OFFICE

2,668,307

SEWER CLEANING BALL

Sidney D. Preen, Long Beach, Calif.

Application May 19, 1947, Serial No. 748,899

2 Claims. (Cl. 15-104.06)

1

This invention relates to a sewer cleaning ball of an inflatable type which is adapted to be moved through the bore of a sewer pipe, or a like conduit, for the purpose of cleaning the same.

An object of my invention is to provide an inflatable sewer cleaning ball which is formed with external spiral ribs for the purpose of effectively cleaning the pipe, and also to cause rotation of the ball as it is moving through the pipe.

A further object of my invention is to provide a novel sewer cleaning ball which is inflatable, and which may partially collapse or distort under pressure, thus permitting water to bypass the ball.

A feature of my invention is to provide a novel sewer cleaning ball which is formed of a flexible material such as rubber or plastic, and which can be inflated through a valve, and the ball being formed with integral ears to which a control line is attached for the purpose of controlling the ball as it moves through the pipe.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:

Figure 1 is a side elevation of my cleaning ball.

Figure 2 is a sectional view taken on line 2-2 of Figure 1.

Referring more particularly to the drawing, the numeral 1 indicates a ball formed of rubber or plastic, the walls of which are relatively thick, and are thus impervious to air, and no inner tube or bladder is necessary to retain air within the ball. A valve 2 of the usual and well known design is provided in the front of the ball 1 so that the ball may be inflated to the desired pressure.

A plurality of spiral ribs 3 are provided on the periphery of the ball and these ribs project slightly above the outer surface of the ball, and act as a scraping element to contact the inner surface of the pipe to be cleaned, thus providing an effective means to remove all foreign substances from the inner surface of the pipe. A pair of ears 4-5 are integrally formed on the ball 1 and these ears are each provided with a hole 6, through which a control line is attached, in order to control the ball as it moves through the pipe. The ears 4 and 5 are diametrically arranged on the ball so that a control line can be attached to either side thereof. When the water pressure against the ball 1 becomes great enough, the ball will partially collapse, or distort, permitting water to by-pass the ball and jet against any material in the pipe. This distortion of the ball will oc-

2

cur if the load of material ahead of the ball becomes great enough and the partial collapsing or distortion of the ball will prevent the ball from becoming stuck in the pipe.

In operation, the ball is inserted into a length of pipe through a manhole, and the control line attached to the ball is pulled up through the manhole and is controlled by the workman, to control the movement of the ball through the pipe. A head of water will build up in the manhole, thus causing a pressure to be exerted on the back of the ball, and when this pressure becomes great enough to overcome the pressure of the air in the ball, it will then partially collapse, and in so doing, will form an orifice through which the water under pressure will jet. This water will then tend to wash the material away ahead of the ball, thereby effectively cleaning the pipe of sand, sludge, dirt and other material. The ribs on the periphery of the ball will act to scrape the inner surface of the pipe, thus removing slimes and other bacteria carrying materials. In this connection it should be noted that water jetting along the ribs where an outer central zone of the ball faces a closely surrounding pipe bore causes rotation of the ball because of the spiral arrangement of the ribs, and such rotation scrubs the ribs mechanically against the adjacent pipe bore to supplement the cleaning action of the relatively high velocity water escaping past the ribs. If an obstruction in the pipe is difficult to remove, the ball can be pulled back by the workman and then released, and the head of water will drive the ball against the obstruction, thus tending to loosen or break it away so that it can be removed.

Having described my invention, I claim:

1. A ball for cleaning adherent slime and other clogging material out of a pipe, comprising a generally spherical ball, means for attaching a control line to one side of the ball, and spaced ribs extending spirally along that outer central zone of the ball which is engageable with a close-fitting pipe bore when said attachment means is centered on the central axis of the bore, said ball being effective to release fluid between its ribbed zone and closely surrounding pipe bore for cleaning the bore when the ball is held by a line to said attachment means against fluid under pressure on said one side of the ball.

2. A ball for cleaning adherent slime and other clogging material out of a pipe, comprising a hollow, generally spherical, flexible ball, a valve in the ball for inflating it, an ear integrally formed on the ball for attaching a control line to the

3

ball, and spaced ribs integral with the ball and extending spirally along that outer central zone of the ball which is engageable with a close-fitting pipe bore when said ear is positioned at the central axis of the bore, said ball being effective to release fluid between its ribbed zone and a closely surrounding pipe bore for cleaning the bore, said fluid also acting on the ribs to rotate the ball and thereby scrub the ribs against the bore, when the ball is held by a line to said ear against fluid under pressure on said one side of the ball.

SIDNEY D. PREEN.

4

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
335,608	Messer -----	Feb. 9, 1886
646,545	Novotny -----	Apr. 3, 1900
1,634,094	Cook et al. -----	June 28, 1927
2,058,825	Rallet et al. -----	Oct. 27, 1936
2,258,174	Chawner -----	Oct. 7, 1941
2,539,354	Minyard -----	Jan. 23, 1951

FOREIGN PATENTS

Number	Country	Date
51,762	Norway -----	Nov. 7, 1932