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2,629,402

ANTIBURST TUBE FOR PIPES

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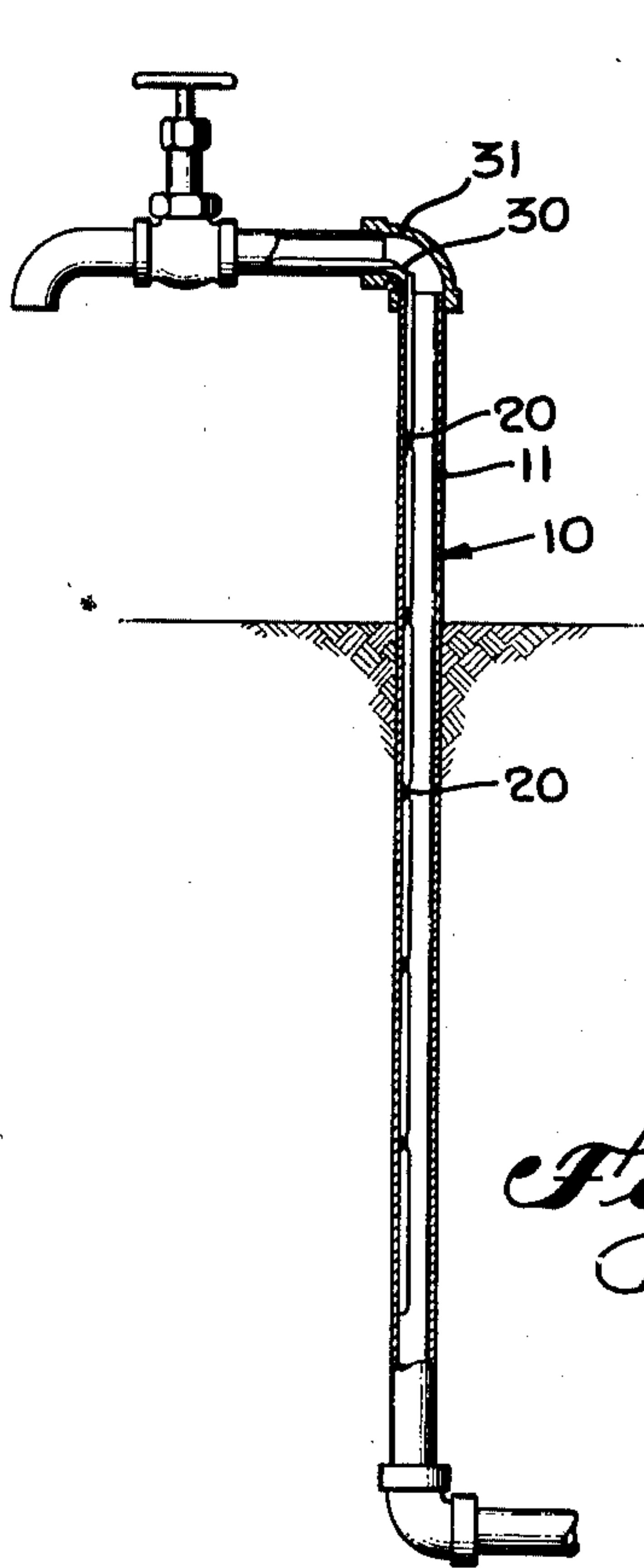


Fig. 1.

Fig. 2.

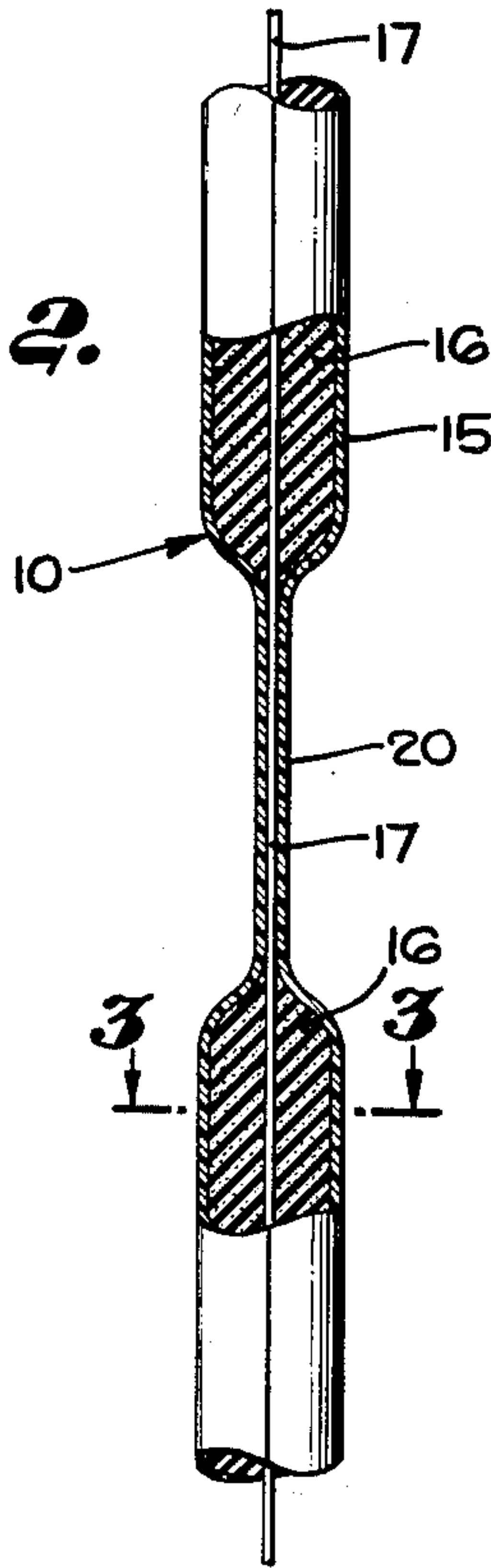


Fig. 3.

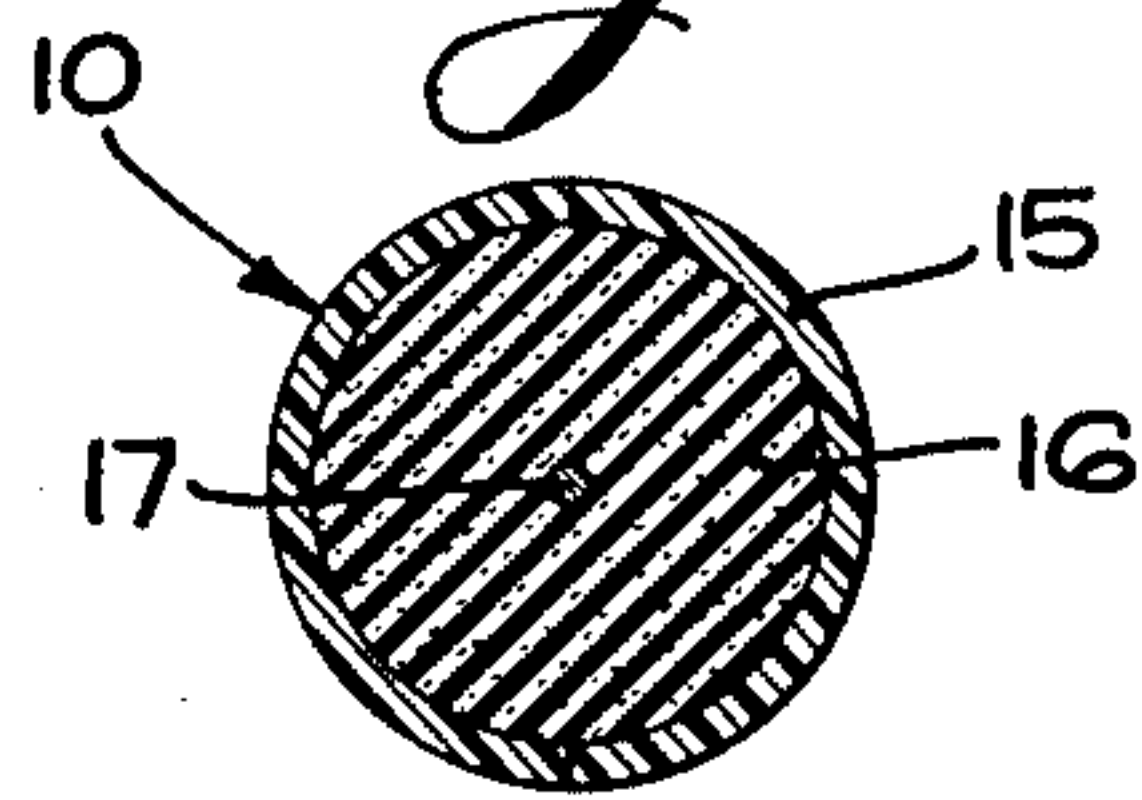


Fig. 4.

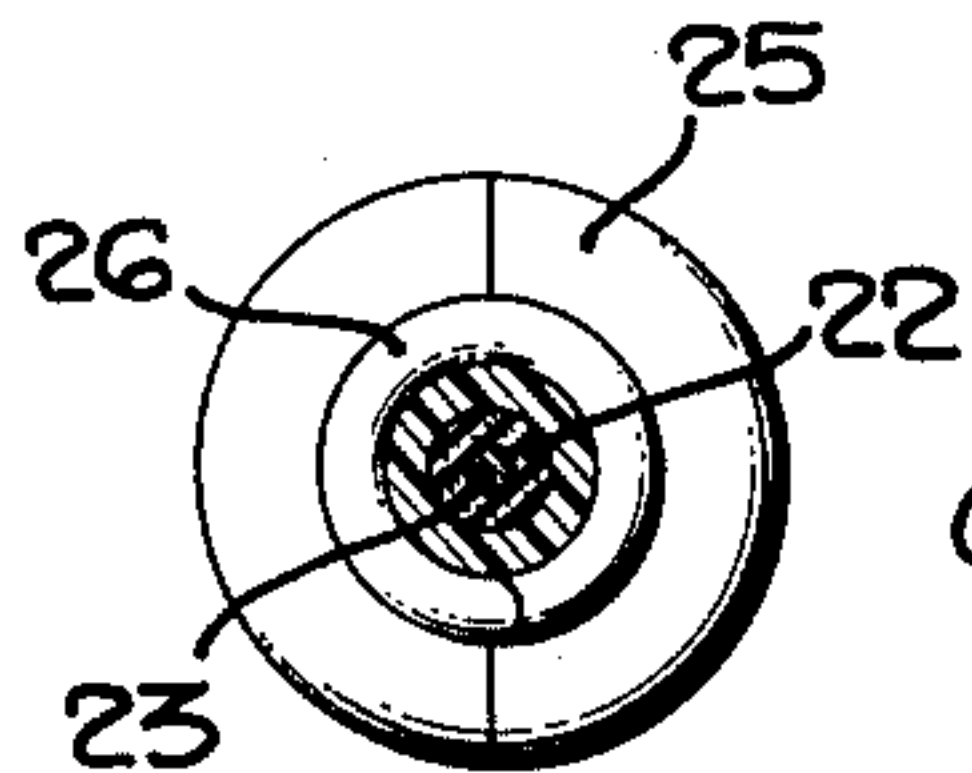
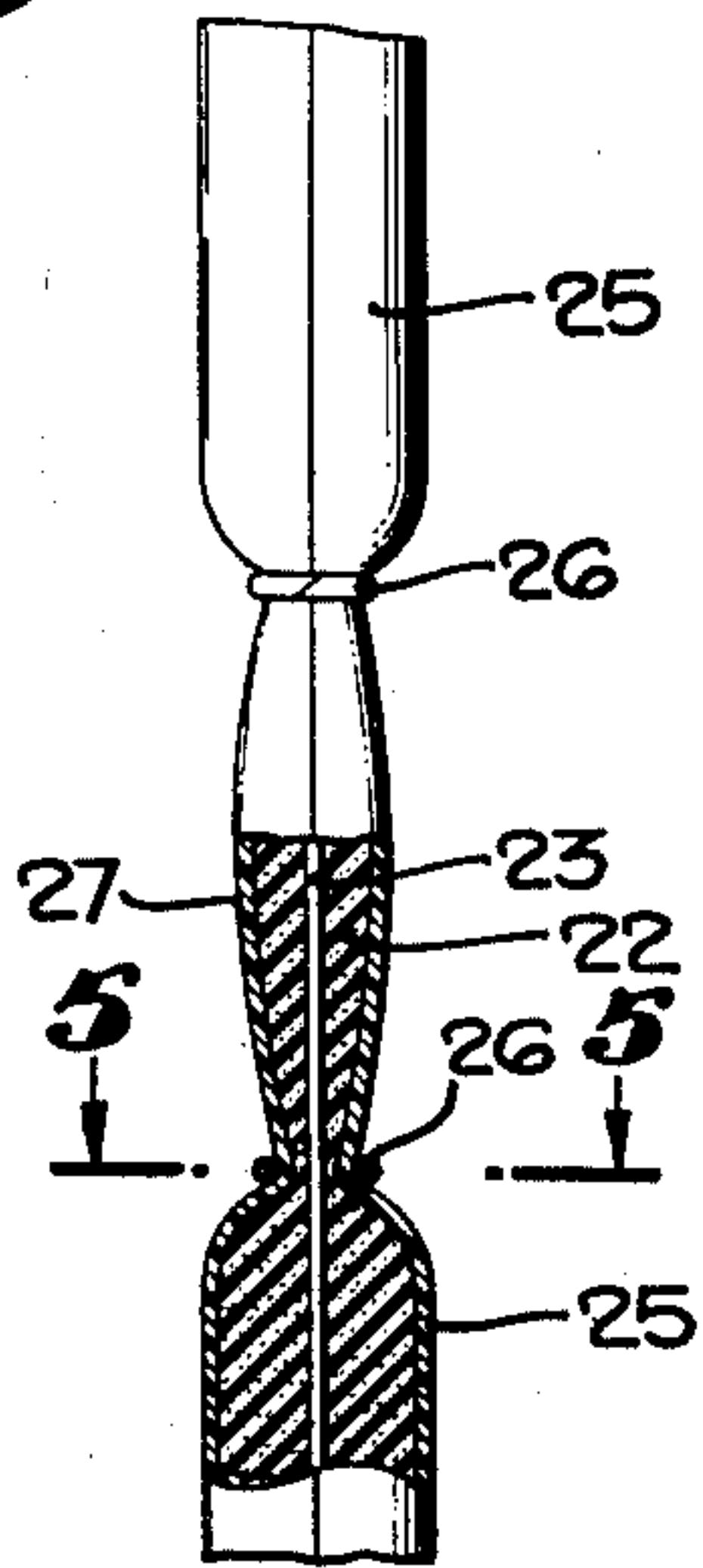


Fig. 5.

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ANTIBURST TUBE FOR PIPES

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1 Claim. (Cl. 138—28)

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This invention relates to anti-burst devices for water pipes and the like.

Heretofore various devices have been provided for preventing water pipes from bursting when the water within these water pipes freezes, and these means have taken various forms including tubes which are adapted to be compressed by the freezing liquid within the pipes. However, it has been difficult to use prior devices due to the fact that the manner of application to the pipes was very awkward in that the lengths of the devices to be applied cannot be varied without damaging the devices.

A main object of the present invention is to provide an anti-burst device, and in particular an anti-burst device in the nature of a tube which is divided into a plurality of sealed compartments so that upon application a desired length can be cut from a long strip of tubing and applied without damaging the anti-burst characteristics of the device.

Another object of the present invention is to provide an improved anti-burst device.

Another object of the present invention is to provide an anti-burst device which has substantially rigid axially disposed wire to support the anti-burst device in a water pipe or the like.

Another object of the present invention is to provide improved means for sealing off a length of the anti-burst device into a plurality of compartments.

Heretofore, a number of anti-burst devices have utilized a covering or the like of rubber and this has proved in general unsuccessful because after a short period of time the rubber reacts with the water with the accompanying disadvantages. Another object of the present invention is to provide an anti-burst device with a covering which will not react with water or the like.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claim, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Figure 1 is an anti-burst device embodying the present invention as applied to a water pipe;

Fig. 2 is an enlarged sectional view of a portion of an anti-burst device embodying the present invention;

Fig. 3 is a sectional view along lines 3—3 upon Fig. 2, on an enlarged scale;

Fig. 4 is a view similar to Fig. 2 of a modified form of the invention, and

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Fig. 5 is a sectional view along lines 5—5 of Fig. 4.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout, Fig. 1 discloses an anti-burst device, generally entitled 10, as applied to a water pipe 11. The anti-burst device 10 is extended down into the water pipe 11 to a point below the freeze line in the ground below which the water will not freeze and above which the water will freeze within the pipe. The anti-burst device 10 is of compressible construction so that when the water freezes the anti-burst device will be compressed thereby relieving the pipe from the strain of the freezing water.

The anti-burst device disclosed in Fig. 2 has a plastic covering 15 and a plurality of spaced sponge rubber cores 16 and there is a substantially rigid axial wire 17 extending through the anti-burst device. The covering 15 is sealed around the wire 17 between the spaced cores 16 to thereby provide a plurality of separate compartments. By this construction suitable lengths of anti-burst tube can be provided by cutting at the reduced neck portion 20 shown in Fig. 2, without allowing the water to enter the compartments. The cores 16 though preferably of sponge rubber, are water adsorbent and therefore if water were allowed to enter the compartment the compressibility of the compartments would be diminished.

By providing an axial wire 17 through the elongated anti-burst device a support for the anti-burst device is provided since the wire being substantially rigid will prevent the water during the normal use of the water pipe from carrying the anti-burst device out of the nozzle of the pipe.

Any suitable means of fastening the anti-burst device within a water pipe can be provided, one manner being to strip the covering 15 off a reduced neck portion 20 without destroying the sealing quality of the adjacent compartment and to solder or otherwise fasten this exposed wire to the water pipe.

Another form of the invention is disclosed in Fig. 4, wherein it is contemplated that instead of having a plurality of spaced cores 16 that a single continuous core 22 will be provided with an axial wire 23 extending through the device. There will be a plastic covering 25 and clamps 26 which clamp the plastic covering about the core 22 and the axial wire 23, thereby providing a plurality of sealed compartments and the reduced neck 27 can be severed without destroying the sealing quality of the adjacent compartments.

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When it is desired to apply the anti-burst device of the present invention to a pipe the freezing line is determined and the length of the anti-burst tube desired computed and then from a long strip of the anti-burst tube the desired length is cut off by severing through a neck portion, thereby maintaining the sealing quality of the adjacent compartments. The length of the anti-burst tube is then applied to the pipe and since it is of the correct length no special operations or adjustments have to be made.

When the anti-burst device of the present invention is applied to a horizontal pipe having right angle joints at the ends it may not be fastened within the pipe but may merely be placed within the pipe and because of its rigid characteristics will not be carried out of the water pipe due to the flow of water therein. When applying to a pipe as disclosed in Fig. 1, it is contemplated that the upper joint or joints will be bent as at 30 and the elbow 31 removed while applying the anti-burst device to the pipe.

By providing a plastic covering 15 which is inert to the actions of water, the anti-burst device of the present invention can be used for long periods of time without any of the disadvantages accompanying the use of rubber within water pipes.

The sponge rubber 16 although being compressible serves to resist the pressure within the water pipe a sufficient extent so that it will be suitably compressed whenever the pipe freezes to relieve the pipe from the effects of the freezing liquid.

The concepts of the present invention can also be used to provide anti-burst devices for water

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heaters or the cooling systems of gasoline motors and the like, and also for radiators, and in such case, a suitable material to withstand heat would be used to provide the anti-burst tube. The material may take the form of a plastic or one of the silicones.

Various changes may be made in the details of the construction without departing from the spirit and scope of the invention as defined by the appended claim, wherein I claim:

An anti-burst device for water pipes and the like comprising a compressible elongated member having an axially extending wire, a plurality of sponge rubber core pieces arranged along the wire at spaced intervals, a plastic sheath inert to the chemical action of ordinary water enclosing the wire and core pieces and sealed to and around the wire between the core pieces to provide a plurality of watertight compartments.

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