Sept. 2, 1952 S. M. KASS 2,609,003

LEAK CLOSURE

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Fig. 1.

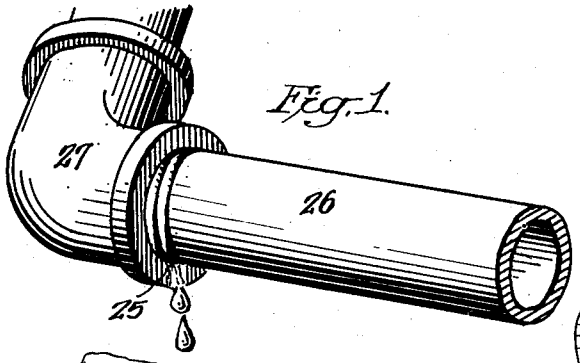



Fig. 7.

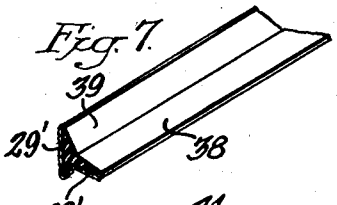



Fig. 8.

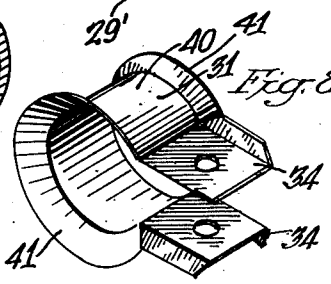



Fig. 2.

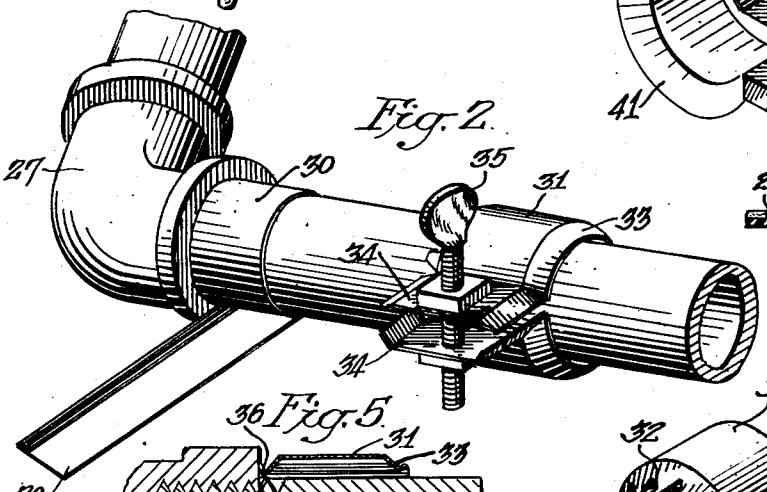



Fig. 3.

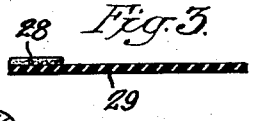



Fig. 5.




Fig. 4.

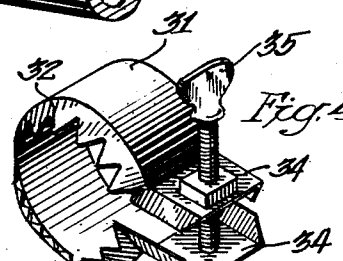



Fig. 6.

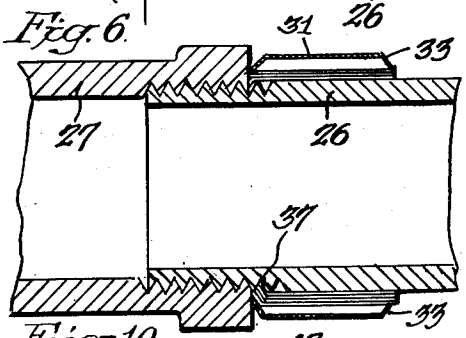



Fig. 9.

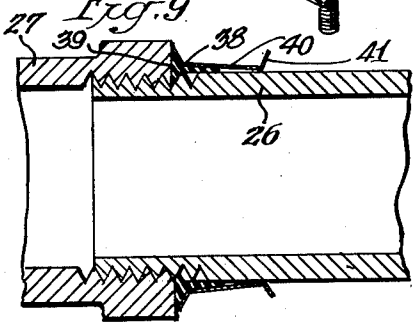
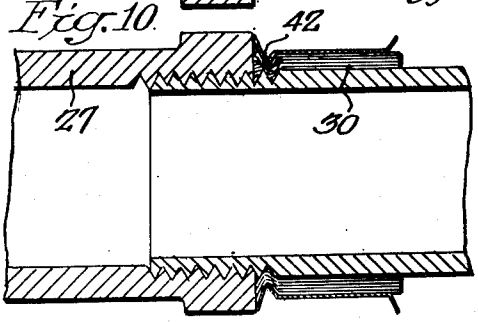



Fig. 10.




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Fig. 11.

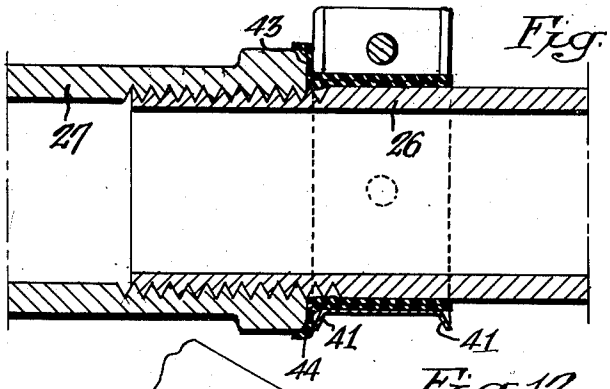



Fig. 12.

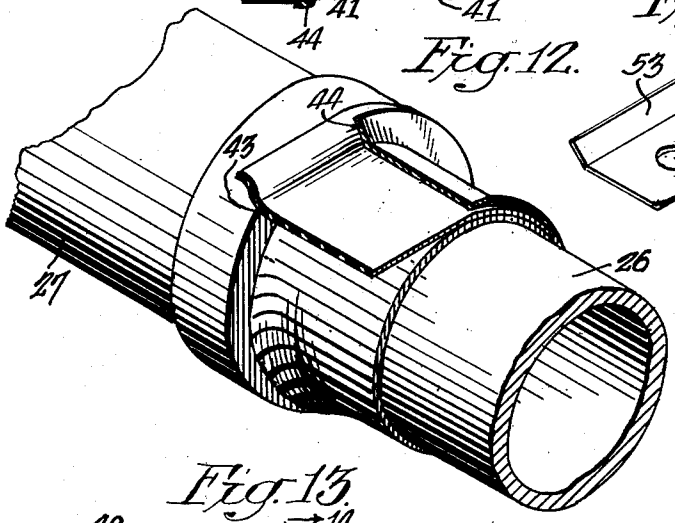



Fig. 17.

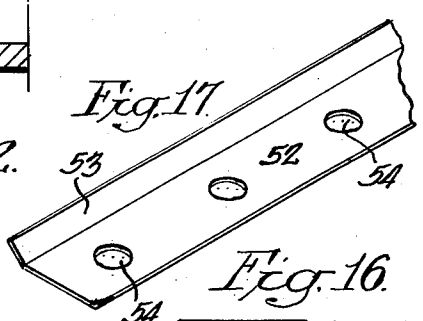



Fig. 16.

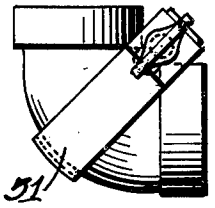



Fig. 13.

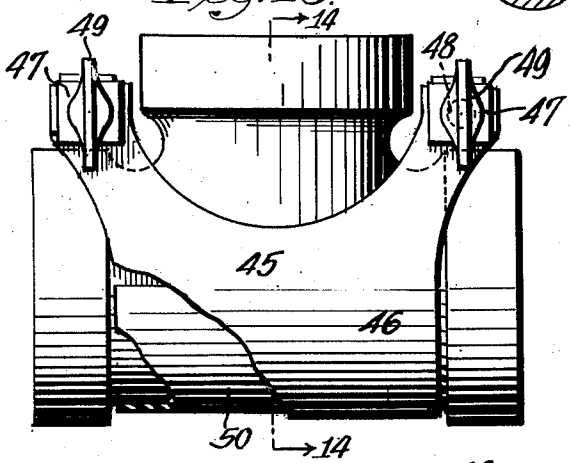



Fig. 15.

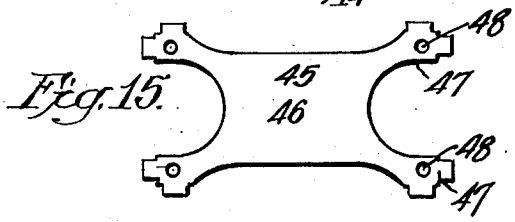
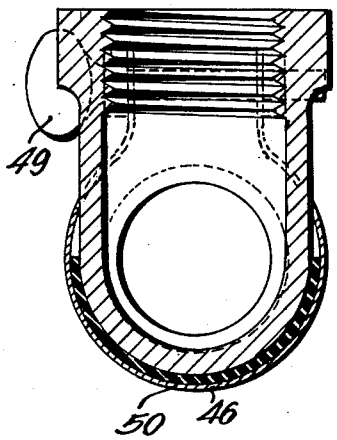



Fig. 14.




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Patented Sept. 2, 1952 2,609,003

# UNITED STATES PATENT OFFICE

2,609,003

## LEAK CLOSURE

Samuel M. Kass, Philadelphia, Pa.

Application December 4, 1945, Serial No. 632,759

2 Claims. (Cl. 138—99)

1

My invention relates to an improved emergency leak seal for pipe fittings and pipes.

The subject matter relating to the sealing compound is being embodied in a copending application, Serial No. 112,164, filed August 11, 1949, for Sealing Compound.

A purpose of my invention is to employ a mixture of fish oil and rosin as a pipe sealing composition, desirably suitably backed up by a resilient cushion such as rubber.

A further purpose is to force a rubber or similar resilient cushion into the space at which a pipe fitting joins a pipe, forcing a sealing compound desirably consisting of a mixture of fish oil and rosin into the space to seal leaks.

A further purpose is to apply pressure at a desired point against a resilient pipe sealing cushion by pressure fingers on a pressure clamp.

Further purposes appear in the specifications and in the claims.

Figure 1 is a diagrammatic perspective view of a leaking pipe to which my invention may be applied.

Figure 2 shows the same pipe in perspective with the cushion material and clamp in process of application.

Figure 3 is a section of the cushion material in one desirable form.

Figure 4 is a perspective of one form of clamp.

Figure 5 is a fragmentary section of a pipe to which a clamp has been applied.

Figure 6 illustrates in longitudinal section a portion of the pipe after pressure has been brought to bear on the cushion material.

Figure 7 illustrates in perspective a modified form of cushioning material.

Figure 8 is a perspective view of a modified form of clamp.

Figure 9 is a fragmentary section showing the modified clamp applied to a pipe fitting.

Figure 10 is a section showing a further modification in clamp design.

Figure 11 is a section showing the clamping of Figure 9 somewhat differently used.

Figure 12 is a perspective of the structure of Figure 11.

Figure 13 is a side elevation showing my invention applied to a T.

Figure 14 is a section of Figure 13 on the line 14—14.

Figure 15 is a developed view of the saddle clamp of Figures 13 and 14.

Figure 16 is an elevation showing my clamp applied in one manner to an elbow.

Figure 17 illustrates a slightly variant form of clamp.

2

In the drawings like numerals refer to like parts.

Describing in illustration but not in limitation and referring to the drawings:

It has been found that pipe leaks, especially in water pipes are very prevalent at the points at which fittings join the pipe sections. For example, a very common leak location as shown in Figure 1 is the point 25 where pipe section 26 is threaded into fitting 27. This is an extremely difficult point at which to stop a leak using conventional types of patching devices.

In accordance with my invention I use an improved leak sealing compound 28 desirably consisting of equal proportions of fish oil such as sardine, menhaden, cod, berbet oil and rosin, suitably heated together until the mass is homogeneous.

The fish oil and rosin is mixed together preferably in equal proportions, but permissibly with one in greater proportion than the other.

The mixture is cooked about an hour or until the ingredients are sufficiently dissolved.

In order to force the sealing compound 28 into the recesses of the contour adjacent the leak, I apply a cushion material 29, suitably of rubber or synthetic rubber tape, similar or identical with the common rubber electrical wireman's tape. The sealing compound may desirably be applied at one edge along the tape, as shown in Figure 3, and the tape wrapped around the pipe against the location of the leak as shown at 30 in Figure 2, or sealing compound may be used over the entire tape.

My preferred clamp is of resilient material such as sheet metal as best seen in Figures 2 and 4. It consists of a collar portion 31, pressure fingers 32, and rear skirt 33, clamp extensions 34 and a suitable threaded tightening means 35. The clamp suitably loosened will be slipped over the pipe to the location of the leak as shown in Figure 5, being careful that the pressure fingers 32 bear upon the cushion material 29 and do not dig in beyond it at 36.

The clamp is then tightened, reaching a condition as shown in Figure 6, forcing the sealing material and the cushion at 37 into any imperfections or irregularity of the pipe or fitting adjoining the leak and sealing off the leak. In some cases, it is desirable to use a specially formed cushion material as shown in Figure 7, where the cushion has sealing material 29' coated on one side of the body portion 38 and also on the bottom of the flange portions 39. When wrapped around the location of the leak, as shown in Figure 9, with the sealing material

against the pipe and pipe fitting, the cushion 29 is well suited to seal corner at 25 between the pipe section and the fitting. The clamp 40 shown in Figures 8 and 9 has a collar portion 31 and outwardly flaring front and rear portions 41 desirably identical. As seen in Figure 9, one of the flaring portions 41 tends to set against the side of the body 38 and the side of the flange 39, forcing the other into recesses in the contour of the pipe.

In some cases it is desirable to have an annular pressure ridge on the clamp, as shown at 42 in the modification of Figure 10. This pressure ridge, when used with the cushion material is pressed firmly in against the pipe and seals against the pipe fitting.

In some cases, the pipe fitting of Figure 8 is advantageously used with a sheet of cushion material extending over the end of the fitting as shown at 43 in Figure 11. This cushion material will be coated with sealing compound 28 on its inner edge and wound or extended up over the end of the fitting, so that with tightening of the clamp the flaring portion 41 will force the cushion material against the end of the fitting and make a thorough seal at 44.

In the case of a T which is leaking around some point of the body of the T, it is desirable to employ a saddle clamp 45 having a body 46 and clamp extensions 47 provided with openings 48 which receive clamping members 49 locking on either side of the base of the T. Inside the body portion of the clamp, cushion material 50 coated with my sealing compound is provided.

In certain cases, it is desirable to employ a special clamp 51 diagonally across an elbow, bringing pressure on sealing compound and cushion material wrapped underneath the clamp, as shown in Figure 16.

For a variety of purposes where special clamps must be made, it is found to be advantageous to use clamping strip material 52 having a flaring edge 53 and a number of suitably spaced openings 54 for application of the clamping means.

It will be evident that in all of the forms shown, the sealing compound is backed up by a resilient cushion and where required is especially pressed into any disconformity of the pipe or pipe fitting by a suitable ridge on the clamp.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a temporary pipe seal for sealing a leak in a pipe system including a shoulder, a cushion material of general T-section extending around the pipe and having the base of the T in contact with the shoulder, and a clamp extending around the pipe outside of and in contact with the cushion material pressing against the base of the T on the side remote from the shoulder and also pressing against the body of the T and adapted to force the T down and endwise for sealing purposes adjacent the shoulder.

2. In a temporary pipe seal for sealing a leak in a pipe system including a shoulder, a cushion material of general T-section surrounding the pipe and having the base of the T against the shoulder and a clamp surrounding and engaging the cushion material, having an outwardly flared portion behind the shoulder and engaging the base of the T to press it against the shoulder and also engaging the body of the T to force the T down and endwise against the shoulder.

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