

It is therefore of primary concern in connection with this invention to provide an improved and simplified welded type of device for pipeline repair in which a standard device will fit steel pipelines of various diameters and wherein the device may be made so as to be relatively small in size, thereby minimizing the welding.

Basically, the present invention utilizes a body of material having a bottom surface provided with a recess which presents a circumscribing footprint area or surface which is adapted to be clamped onto a pipe in circumscribing relationship to the defect. The recess presents a stepped portion around the inner periphery of the footprint surface which contains a resilient gasket. The resilient gasket is of a thickness to protrude below the footprint surface by an amount to make a pressure tight seal around the defect while the device is held in place while being welded.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

FIG. 1 is a vertical section taken through an exposed portion of a buried pipeline and illustrating the invention as applied to a pipeline and prior to welding;

FIG. 2 is an enlarged vertical section taken substantially along the plane of Section line 2--2 in FIG. 1;

FIG. 3 is a view similar to FIG. 2 but illustrating the valve means in section;

FIG. 4 is a view similar to FIG. 3 but showing the device after the vent opening has been plugged off; and

FIG. 5 is a vertical section taken substantially along the plane of Section line 5--5 in FIG. 4.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates an exposed section 10 of a buried pipeline, the trench 12 having been excavated to expose the section of the pipeline which has the defect 14 therein. The repair device according to this invention is indicated generally by the reference character 16 and will be seen to be held in place by means of the screw jack 18 reacting between the device 16 and a chain or similar endless member 20 disposed around the pipeline 10.

Referring simultaneously to FIGS. 2 and 5, the device 16 will be seen to comprise a body 26 made of steel or the like and which is substantially longer than it is wide, as will be evident from the two Figures. The body 26 is provided with a flat top surface 28 so as to provide a good surface against which the jack 18 may react and it is also provided with a bottom surface parallel to the top surface 28 and which bottom surface is provided with a recess 30 whereby the bottom surface of the body defines a footprint surface 32, see particularly FIG. 5, which surrounds the defect 14. The recess also provides the stepped portion 34 which extends around the inner periphery of the footprint surface 32 and which is of a prescribed, uniform depth. A resilient gasket 36 fits within the stepped portion 34 and initially is of a thickness so as to protrude well below the footprint surface 32. The purpose of this construction is to allow the gasket 36 to seal between the device 26 and the pipeline 10, as will be clearly evident from FIG. 5.

The top wall of the body is provided with a threaded vent opening 38 as will be seen most clearly in FIG. 3 and valve means indicated generally by the reference character 40 is disposed within the recess 30. The valve means 40 includes a valve block 42 which is connected, by means of a bolt 44 to the top wall of the body 26, the spacer 46 being disposed between the block 42 and the body 26, as shown. The block 42 may be provided with one or more fluid flow passages 48 and is additionally provided with a bore 50 within which the valve member 52 is slidably fitted, the valve member 52 being disposed in alignment with the vent opening 38. The upper end of the valve member 52 is closed and its periphery is beveled as shown to engage against a gasket 54 fitted within the stepped portion 56 of the vent opening 38. The spring 58 seats within the bore 50 and projects within the bore 60 in the valve member 52 and seats upon a washer 62 normally to force the valve member 52 upwardly and into sealing engagement within the gasket 54 as is shown in FIG. 3. The top of the valve member is provided with one or more projections 64 whose purpose will be presently apparent.

