

No. 749,955.

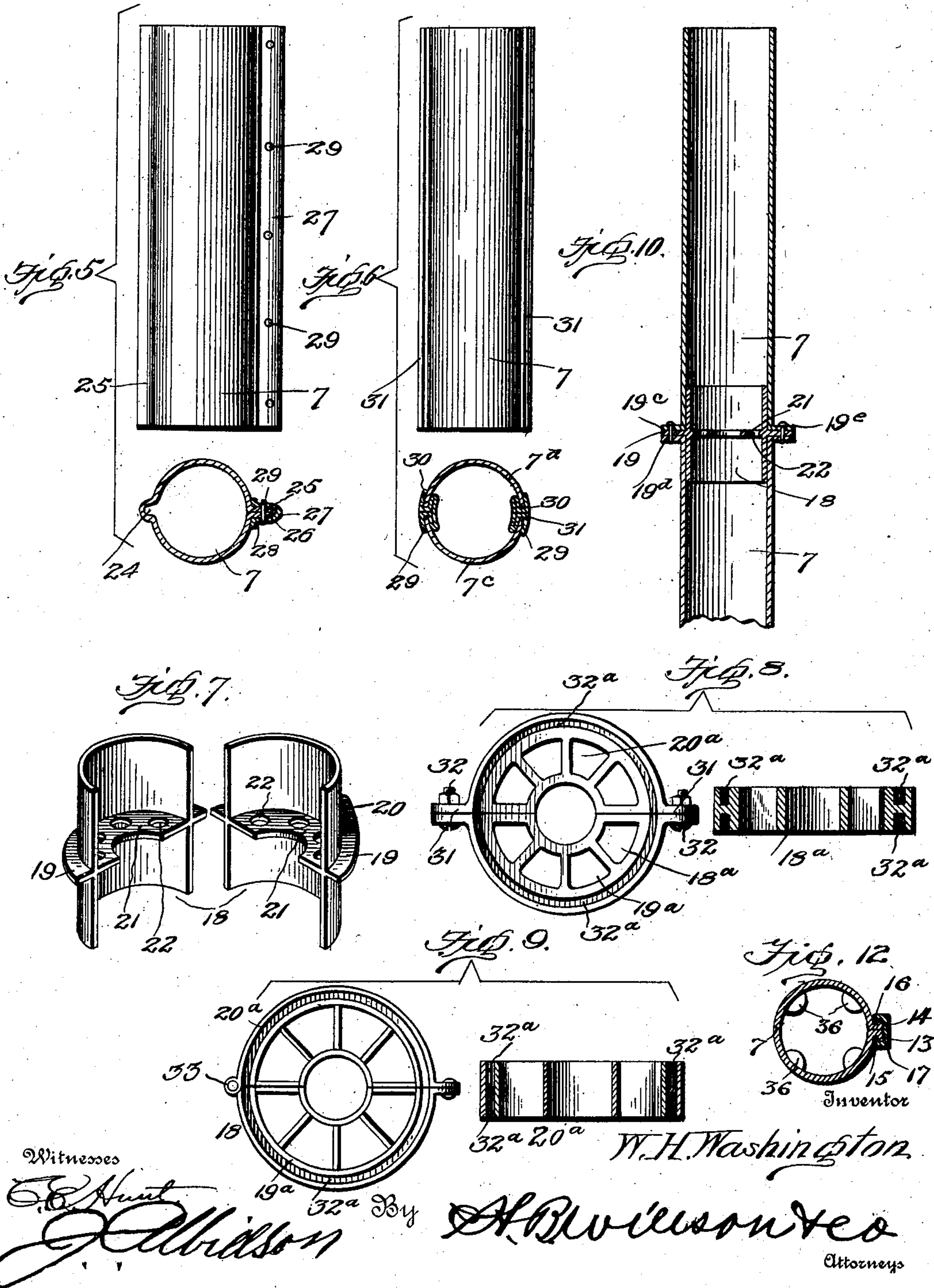
PATENTED JAN. 19, 1904.

W. H. WASHINGTON.
PROTECTIVE COVERING FOR PIPES, &c.

APPLICATION FILED DEC. 16, 1901.

NO MODEL.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

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PROTECTIVE COVERING FOR PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 749,955, dated January 19, 1904.

Application filed December 16, 1901. Serial No. 86,122. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WASHINGTON, a citizen of the United States, residing at Coatesville, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Protective Coverings for Pipes, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a protective covering for pipes, fire-plugs, hydrants, and other water or fluid containers and conductors to prevent freezing of the contents thereof and the bursting of such containers and conductors in cold weather; and it has for its object to provide improved protecting means which shall be simple of construction, effective in operation, and in connection with which any of a number of varieties of heating devices may be employed.

With this and other objects in view the invention consists in certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a view showing partly in elevation and partly in section sufficient of the heating and protecting system to adequately illustrate the invention. Fig. 2 is a side elevation of two connecting-jackets of the system and the coupling uniting the same and shows also a cross-section through the jacket. Fig. 3 is a vertical longitudinal section thereof. Fig. 4 shows a side elevation and a cross-section of a modified form of jacket. Figs. 5 and 6 show similar views of other modified forms of jacket. Fig. 7 is a perspective view of the coupling device. Figs. 8 and 9 show modified constructions of the coupling device. Fig. 10 is a perspective view showing a construction wherein the coupling is formed in part integrally with the jacket. Fig. 11 is an elevation showing the construction of an elbow-jacket, and Fig. 12 is a cross-section disclosing a modification in the means for centering the pipe.

Referring now more particularly to the

drawings, the numeral 1 represents a furnace or heater of an approved type, that shown in the present instance being of the hot-air type. This furnace is provided with a smoke-stack 2, having a controlling-damper 3 and a cord 4 or other suitable device for operating it. From one side of the furnace extends a lateral outlet 5, having a controlling-damper 6 for regulating the discharge of the heated air. The air passing from the furnace through the outlet 5 is supplied to the pipe-protecting casings or jackets 7, each of which is constructed in sections to permit of its ready application to and removal from engagement with connecting-jackets, which, in conjunction, form a conduit surrounding the hydraulic pipe or container 8 for bringing the heating medium into contact therewith, so as to prevent freezing of the contents of said pipe. At some suitable point or points remote from the heater 1 a discharge 9 is provided for the heated air, and this discharge is controlled by a damper 10, having attached thereto an operating cord, rod, chain, or wire 11, by means of which the valve may be opened or closed to regulate the discharge of the air and the temperature within the system, as desired. Any known type of heater may, however, be employed in place of the hot-air heater, and when steam or an electric heater or gas or oil heaters are employed it is found preferable to provide the jacket at determined intervals throughout the system with doors 12, whereby access to the burners or heating-pipes may be obtained.

In the embodiment of the invention shown in Figs. 1, 2, and 3 the protecting-jacket 7 consists of a tube of sheet metal whose edges 13 and 14 are bent at right angles to form grooves or guideways to receive corresponding tongues 15 and 16 on a coupling or retaining strip 17, arranged parallel with the seam of the jacket and serving to hold said seam closed to maintain the jacket in tubular or cylindrical form. The retaining or coupling strip as thus constructed is adapted to be applied to and released from the jacket by an endwise or longitudinal sliding movement, leaving the seam of the jacket free to open and the jacket to be removed from about the

pipe 8. The jackets are removably connected with each other by coupling devices 18, each of which consists of two semicylindrical sections having offstanding beads or rims 19, against which the ends of the pipes coupled thereby abut, the rim portion upon one of the coupling-sections being preferably formed with an aperture 20, whereby the coupling when not in use may be hung up or suspended until needed. The coupling-sections are also formed upon their inner sides with segmental flanges 21, which form in conjunction with each other a junction-plate having an opening to fit about the pipe 8, the flanges being suitably perforated, as shown at 22, to allow the hot air or other heating fluid to pass through from one jacket to another throughout the entire length of the system. When the parts are coupled up in the manner shown in Figs. 2 and 3, the ends of the jackets are held in connection with the coupling by frictional engagement and the parts of the coupling are maintained in proper relation and caused to bear securely on the pipe 8, whereby the jackets are retained in a "centered" position. Whenever it is desired to detach one of the jackets, the strip 17 is detached and one of the junction-couplings moved down or up, as the case may be, on the pipe 8, whereupon the jacket will be left free to expand and may then be readily released from engagement with the pipe.

In the construction shown in Fig. 4 a modified form of jacket is employed, the same consisting of two semicylindrical sections 7^a and 7^b, whose edges are flanged, as indicated at 13^a 14^a, for engagement with the tongues of two coupling strips or members 17, which are located on opposite sides thereof, the construction being such that upon sliding the strips longitudinally out of engagement with the flanges the two sections or parts of the jacket are released and may be conveniently detached from the pipe. The mode of applying this form of the invention to the pipe will be readily understood.

In Fig. 5 of the drawings another modified form of the invention is disclosed, the jacket in this case being formed of sheet metal and having at one side a nearly-circular extension 24, forming a receptacle for a heating-pipe. The opposite side of the pipe is open similar to the construction shown in Figs. 1, 2, and 3, but the edges 25 and 26 extend straight outward and are engaged by a removable retaining-strip 27, consisting of a folded or channeled piece of metal of V form adapted to bear against the outer surface of the jacket and to receive said edges. The edges of the jacket, as well as the sides of the strip, are formed with aligned perforations 28, adapted to receive keys 29 to hold the parts connected. Upon releasing the keys the retaining-strip may be drawn out of engagement with the right-angularly-bent edges of the jacket, leav-

ing the jacket open for application to or removal from the pipe.

In the construction shown in Fig. 6 the jacket is composed of two parts 7^c and 7^d, similar to that shown in Fig. 4; but the edges of the section are not bent, but are left straight to engage grooves 29 and 30 in the doubled grooved coupling or retaining strips 31, the construction being such that the coupling-strips or either of the sections may be released independently from engagement by the longitudinal sliding of one upon the other in an obvious manner.

In Figs. 8 and 9 I have shown two different modified forms of the junction or coupling devices which may in some cases be employed in preference to the construction shown in Figs. 1, 2, 3, and 7. In Fig. 8 the coupling device 18^a is composed of two similar perforated plates or sections 19^a and 20^a, provided at their meeting edges with lugs 31, perforated and threaded for the reception of coupling screws or bolts 32, which hold the two sections connected and in engagement with the jackets. The two sections of the coupler instead of bearing against the inner walls of the jackets are provided with grooves 32^a to receive the edges of the jackets. The construction in Fig. 9 is substantially the same as that shown in Fig. 8, with the exception that one of the securing screws or bolts is dispensed with. The form of coupling shown in Fig. 8 adapts the coupling to be readily cast, while that shown in Fig. 9 requires the use of a hinge-joint 33 in order to adapt the coupling to be used in the nature of a jacket or band, which is adapted to be tightened up at one point to hold it in engagement with the jackets.

In Fig. 10 of the drawings the coupling is shown as having its rim-flange 19 fitting between flanges 19^c 19^d on the jackets 7 and clamped thereto by bolts or rivets 19^e.

Fig. 11 of the drawings shows an approved form of elbow-jacket which is preferably employed at the angles in the system for connecting two straight lines of jackets extending at right angles to each other. This jacket has a bolting-flange 34 and an apertured pipe-centering flange 35, whose functions will be readily understood from the foregoing description.

In Fig. 12 lugs 36 are formed upon the jacket in lieu of the flange 21 or 35 to hold the pipe 8 centered.

In the operation of the apparatus it will be readily understood that the heated air from the furnace flows through the jackets and maintains the pipe 8 at a temperature above the freezing-point, and thereby prevents freezing of the contents of said pipe. Where steam or an electric heater or gas or oil are employed, this result is attained by radiation or direct heat, as the case may be, as well as by the heating of the air within the jackets, so as to

form a current of heating fluid which circulates throughout the system.

In all forms of the invention the ends of the jackets are open, and thereby form inlet and discharge ports for the heating medium.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described my invention, what I desire and claim by Letters Patent is—

1. The combination with a fluid container or conductor, of a protector therefor comprising a pair of jackets adapted to be opened and closed about the same, retaining-strips for holding said jackets closed, said strips being normally exposed upon the exterior of the jackets, and a sectional junction piece or coupling for connecting the jackets together, said coupling having means for engaging the ends of the pipes and inwardly-projecting segmental perforated flanges forming portions to bear against the pipes and to hold the jackets centered thereon, substantially as described.

2. In a heating system for pipes, &c., the combination of jackets composed of tubes or cylinders, each being adapted to be independently opened and closed to fit about a pipe, retaining-strips for holding the jackets closed, a coupling device for connecting two adjoining jackets, the same having perforated plates or flanges to abut against the pipe, and means for connecting said coupling device to the jackets, substantially as described.

3. The combination with a conductor, of a protector comprising jackets arranged end to end and forming a conduit for circulation of a heating medium, and couplings connecting the ends of the jackets and supporting the jackets against endwise movement, closing the joints between the sections and having abutting members engaging the conductor to center the jack-

ets thereon, said abutting members having ports establishing communication between the sections, substantially as described.

4. The combination with a conductor, of a heat-circulating conduit enveloping the same and comprising a plurality of jackets, and couplings uniting the jackets, each coupling having an oppositely-projecting portion to receive the contiguous ends of adjacent jackets and an outwardly-extending flange fitting between the ends of the jackets and forming a fluid-tight connection.

5. The combination with a conductor, of a heat-circulating conduit comprising a plurality of jackets enveloping the same and couplings connecting the jackets, each of said couplings consisting of a tube corresponding in cross-section to the jackets, said tube having an inner perforated flange fitting against the conductor, the outer flange fitting between the contiguous ends of the adjacent jackets, and end portions respectively fitting within the said ends of the jackets, substantially as described.

6. In a device for protecting liquid conductors and containers to prevent freezing of their contents, the combination of jackets composed of tubes or cylinders, each being adapted to be independently opened and closed to fit about the pipe, means for holding the jackets closed, a coupling device for connecting two adjoining jackets, the same having perforated plates or flanges to abut against the pipe, and means for connecting said coupling device to the jackets, substantially as described.

7. In a device for protecting liquid-containers to prevent freezing of the liquid in cold weather, a heated fluid-conducting jacket adapted to surround the container and form a fluid-passage having a fluid-inlet and a fluid-discharge, and provided with a door, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM H. WASHINGTON.

Witnesses:

WILLIAM B. CONSTANTINE,
GEORGE J. HARRIS.