

April 15, 1924.

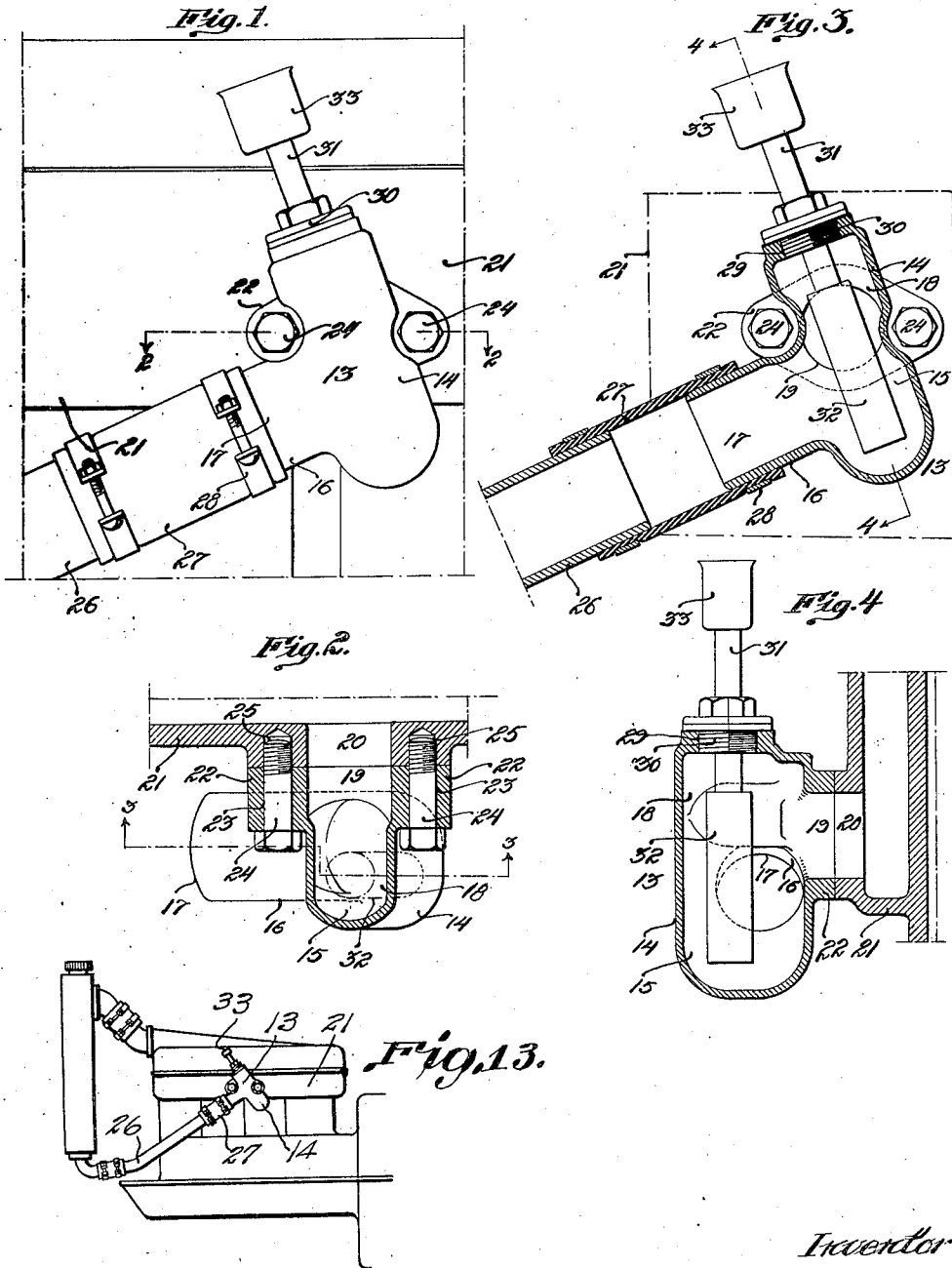
1,490,318

M. C. FURSTENAU

AUTOMOBILE POWER PLANT PROTECTING DEVICE

Filed June 23, 1921

3 Sheets-Sheet 1



Witnesses
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3 Sheets-Sheet 2

Fig. 6.

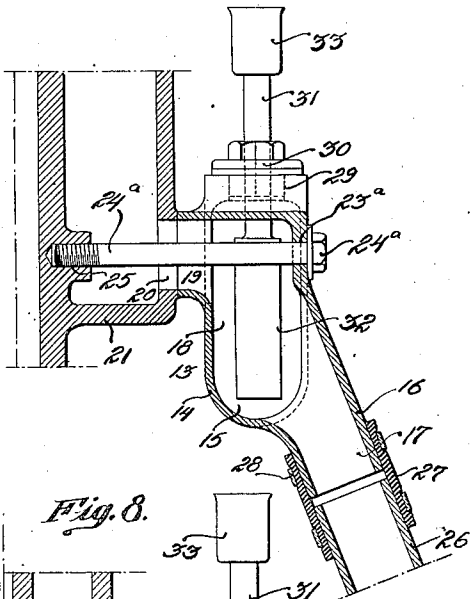


Fig. 8.

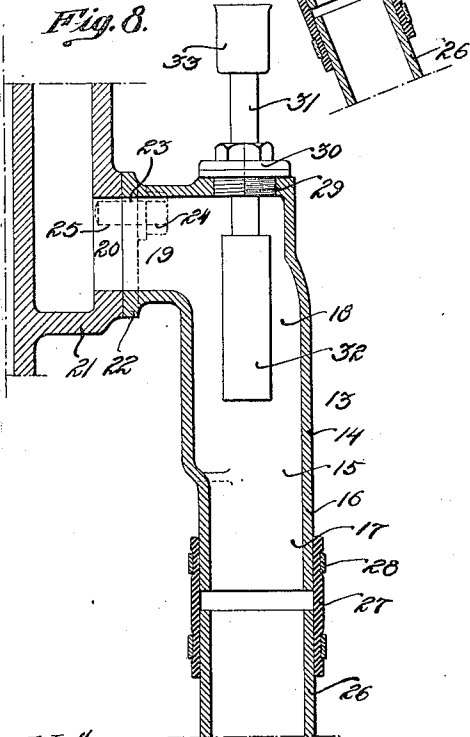


Fig. 5.

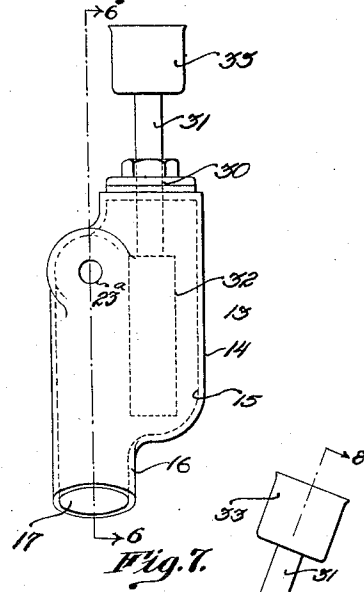
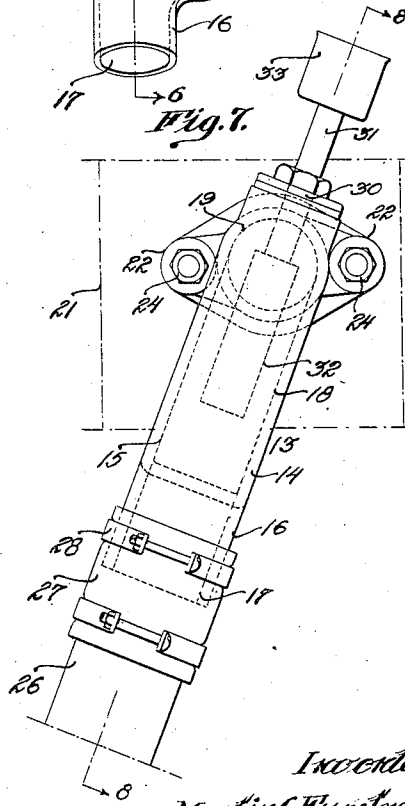


Fig. 7.



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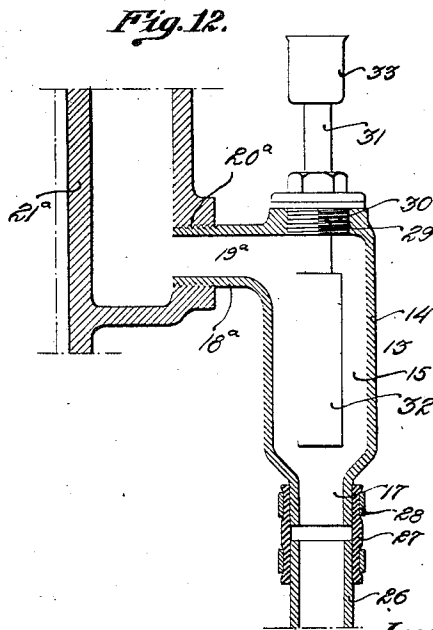
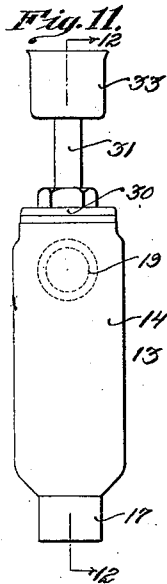
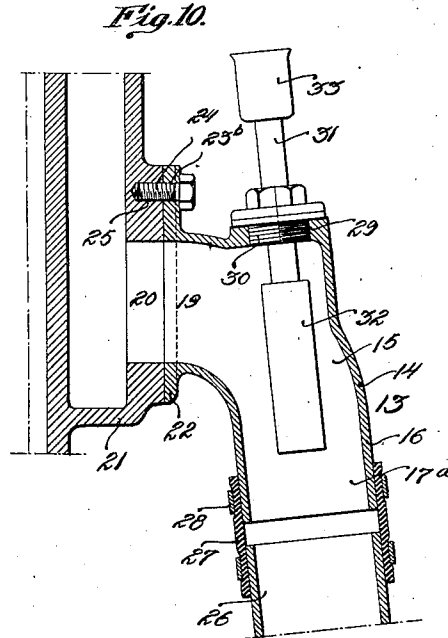
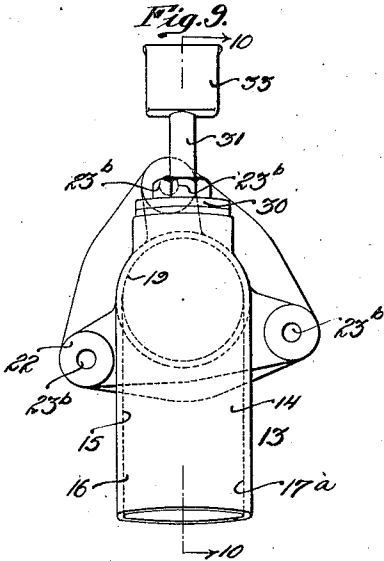
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3 Sheets-Sheet 3



Witnesses
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UNITED STATES PATENT OFFICE.

MARTIN C. FURSTENAU, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMOBILE POWER-PLANT PROTECTING DEVICE.

Application filed June 23, 1921. Serial No. 479,882.

To all whom it may concern:

Be it known that I, MARTIN C. FURSTENAU, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Automobile Power-Plant Protecting Devices, of which the following is a specification.

Numerous devices have been made, prior to my present invention, for the purpose of keeping the engine-cooling liquid from freezing or becoming too cold for proper operating conditions of the engine during cold weather and when the engine is not running. These prior art devices have been of various characters adapted for use by application within the length of the usual liquid circulating pipe and also adjacent the radiator.

One object of my present invention is to provide means which includes an improved elbow fitting which is so constructed that it provides portions for direct connection respectively with the water jacket of the engine and with the adjacent end of the liquid-circulating pipe; said elbow fitting including a heating agent and being so constructed that it can be quickly and easily substituted for the usual elbow fitting which connects the water jacket with the adjacent end of the circulating water pipe. Thus to use the device of my invention it is merely necessary to remove the usual elbow fitting and replace it with my improved device and this can be done without cutting or changing the pipe structure or changing the parts or in any way altering the construction of the water jacket.

Another object is to construct and arrange the parts in such manner that the heating of the water or other liquid will occur directly adjacent the bottom or base of the water jacket where every heating unit furnished is immediately transmitted to the lower portion of the water in the engine water jacket; said arrangement resulting in always keeping the engine at a temperature capable of being immediately started, even in the coldest weather, and also keeping the remainder of the circulating liquid, such for example as that within the circulating pipe and radiator, at a temperature above freezing.

A further object of my present invention

is to so construct the same that the heating agent can be easily, conveniently and quickly placed in or removed from operative position.

These objects, and other advantageous ends which will be described hereinafter, I attain, in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of my improved elbow fitting in operative position as above set forth applied to the engine water jacket and adjacent end of the water-circulating pipe of an automobile such for example as an automobile of the well known "Ford" type, and taking the place of the elbow fitting usually employed,

Figure 2 is a section taken on the line 2—2 of Figure 1 with said pipe removed,

Figure 3 is a section taken on the line 3—3 of Figure 2,

Figure 4 is a section taken on the line 4—4 of Figure 3,

Figure 5 is a front elevation showing my improved elbow fitting of a different design from that illustrated in Figures 1 to 4 inclusive and adapted for example for attachment to the water jacket and adjacent end of the water-circulating pipe of an automobile of the well known "Dodge" type.

Figure 6 is a sectional elevation taken on the line 6—6 of Figure 5 illustrating the elbow fitting attached to said water jacket and adjacent end of the water-circulating pipe.

Figure 7 is an elevation showing my improved elbow fitting made in another form and adapted for use in connection with a water jacket and adjacent end of the water-circulating pipe on an automobile such for example as an automobile of the well known "Overland" type.

Figure 8 is a section taken on the line 8—8 of Figure 7.

Figure 9 is an elevation of my improved elbow fitting and of a design adapted for use in connection with the engine water jacket and the adjacent end of a water-circulating pipe of an automobile of the well known "Essex" type.

Figure 10 is a section taken on the line 10—10 of Figure 9, showing the fitting attached to said water jacket and pipe.

Figure 11 is an elevation showing my improved elbow fitting of a design adapted for

use in connection with the engine water jacket and adjacent end of the water-circulating pipe of an automobile of the well known "Cadillac" type.

5 Figure 12 is a section taken on the line 12—12 of Figure 11 illustrating said elbow fitting attached to said water jacket and circulating pipe.

10 Figure 13 is a side elevation of an engine jacket, radiator and water-circulating pipe showing my invention applied thereto.

Referring to the drawings and particularly to Figures 1 to 4 inclusive, my improved elbow fitting 13 includes an elongated hollow body portion 14 which in turn provides an elongated chamber or passage 15 as clearly shown in Figures 3 and 4. The body portion 14 has a hollow extending portion 16 providing a branch chamber or passage 17 which communicates with and forms a part of the chamber 15. This body portion 14 has a laterally extending hollow portion 18 which provides a branch chamber or passage 19 adapted for registry with the intake water opening 20 of the engine water jacket 21. The portion 18 has a projecting flange 22 providing holes 23 through which tap bolts 24 can be inserted for engagement with the tapped holes 25 in the water jacket 21; said holes 25 usually being employed to secure the usual water intake fitting to the water jacket. The extension 16 is preferably arranged at a slant in alignment with the water-circulating pipe 26 so that when attaching the fitting 13 it is not necessary to change the slant or angle of the pipe 26 in any manner. This pipe 26 includes a flexible sleeve or nipple 27 which in the usual "Ford" construction serves as a means of connection between the metallic portion of the water-circulating pipe and the usual elbow fitting above mentioned and in the present instance this nipple 27 is connected directly to the hollow extending portion 16 and is secured by the clamping band 28. The hollow body portion 14 at its top has an internally screw threaded opening 29 in which is screwed a collar 30; said collar being secured to a heating agent 31 which may be made of the usual "hot-point" construction; the same including an elongated heating stem 32 which extends lengthwise within the space provided by the chamber 15 so as to be interposed between the branch chambers 17 and 19. The top of the heating agent 31 has an electric conduit-connecting socket 33 which may be of the usual construction and serving to permit an electric conduit to be detachably connected thereto.

60 I preferably attach the collar 30 by first making the same in sections as illustrated, so as to be placed around the stem of the heating agent, and then solder the parts together and to said stem; said collar serving both to close the opening 29 and to support the heat-

ing agent with the heating portion 32 in the position as above described.

I preferably make the chamber 15 of such cross sectional area that even though the stem 32 of the heating agent is in position that the space surrounding said portion 32 of the heating agent will be sufficient to form a water conduit of a cross sectional area at least as great as the cross sectional area of the pipe 26 so that while there is a heating agent interposed in the chamber between the pipe 26 and the opening 20 of the water jacket the same will not prevent proper and sufficient supply of water to the water jacket. It will thus be noted that the elbow fitting 13 can be attached to the water jacket 21 and to the adjacent end of the pipe 26 without in any way altering or changing the positions of the standard parts.

In the form shown in Figures 7 and 8, the principles of construction are substantially the same as that above described with the exception that the connecting extension for the adjacent end of the water-circulating pipe is at a different slant, and I have therefore given corresponding parts similar reference characters.

The form shown in Figures 5 and 6 permits the attachment of the fitting by the application of a single bolt 24^a which extends through the water inlet opening in the water jacket and in this construction instead of providing the flanges 22, a hole 23^a is formed through the body portion to allow the insertion of the bolt 24^a. In all other respects the parts are substantially similar to that described in connection with Figures 1 to 4 inclusive and I have therefore given corresponding parts similar reference characters.

The form shown in Figures 9 and 10 is substantially similar to that described in connection with Figures 1 to 4 with the exception that the securing portion has three bolt holes 23^b and the extending portion 17^a is in alignment with the body portion and with the exception of the parts noted, I have given corresponding parts in Figures 9 and 10 the same reference characters as applied in Figures 1 to 4 inclusive.

In Figures 11 and 12, I have shown a construction where the elbow fitting has a screw threaded hollow extending portion 18^a for engagement with a screw threaded water inlet opening 20^a in the water jacket 21^a and the same requires no bolts to secure it in position. Otherwise the construction shown in Figures 11 and 12 is substantially similar to that described in connection with Figures 1, 2, 3 and 4 and I have therefore given corresponding parts similar reference characters.

The body portion and hollow extensions of each of the elbow fittings above described can be made in the form of a single casting and as obvious from the constructions shown

it is an easy matter to connect the same. Furthermore the heating agent is in a position permitting ready access thereto.

In actual use and demonstration in addition to the advantages of connection without change of construction or the cutting away of any parts, I have found that under the most severe tests that by the use of said construction the engine can be kept at the most desirable operating temperature and that the remainder of the water in the circulating system will be kept sufficiently warm to prevent freezing.

I have also found that by the arrangement above set forth whereby the heat is transmitted directly adjacent the bottom of the base of the water jacket that the greatest efficiency is derived from the heating agent; said heat being of far greater advantage than when applied within the length of the water-circulating pipe or at positions adjacent the radiator.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. An elbow fitting, adapted to be connected with the water jacket of a water cooled engine and with a water circulating pipe, and having, at its end adjacent the

water jacket, an enlarged part, and a heater disposed centrally and lengthwise of the enlargement. 40

2. An elbow fitting, adapted to be connected with the water jacket of a water cooled engine and with a water circulating pipe, and having, at its end adjacent the water jacket, an enlarged part, and a heater detachably secured in the elbow and disposed centrally and lengthwise of the enlargement. 45

3. An elbow fitting, adapted to be connected with the water jacket of a water cooled engine and with a water circulating pipe, and having, at its end adjacent the water jacket, an enlarged part, and a heater detachably secured in the upper wall of the elbow and disposed centrally and lengthwise of the enlargement. 50 55

4. An elbow fitting, adapted to be connected with the water jacket of a water cooled engine and with a water circulating pipe, and having, at its end adjacent the water jacket, an enlarged part, and a heater disposed centrally and lengthwise of the enlargement, the cross sectional area of the enlargement being not less than the cross sectional area of the circulating pipe plus the cross sectional area of the heater. 60 65

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 70

MARTIN C. FURSTENAU.

Witnesses:

ELIZABETH GARBE,
CHAS. E. POTTS.