No. 803,354. PATENTED OCT. 31, 1905.

J. E. MILLER.

MEANS FOR RELIEVING COOLING JACKETS OF STEAM AND INDICATING THE CIRCULATION OF WATER THERETHROUGH.

APPLICATION FILED OCT. 6, 1902.

Fig. 1.

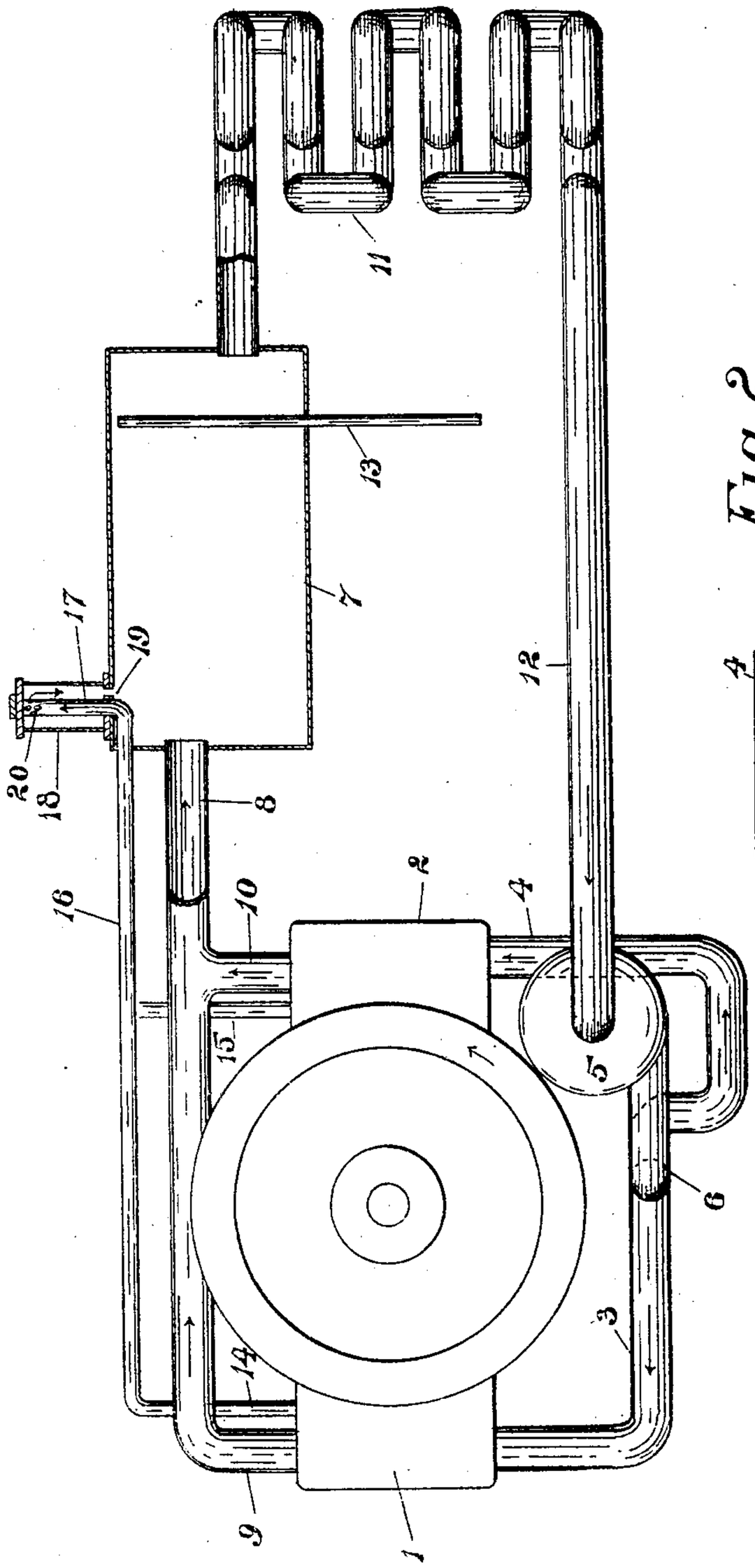
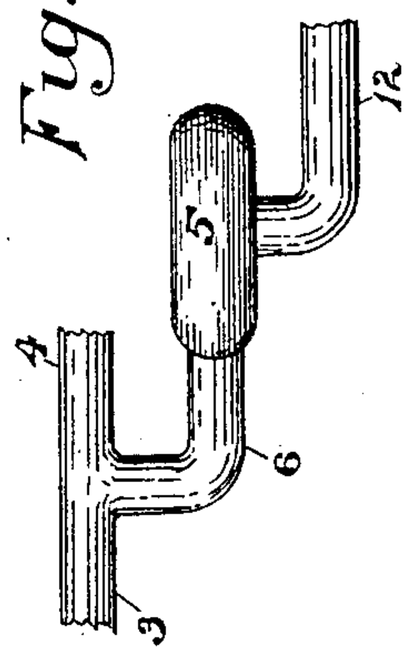


Fig. 2.



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MEANS FOR RELIEVING COOLING-JACKETS OF STEAM AND INDICATING THE CIRCULATION OF WATER THERETHROUGH.

No. 803,354. Specification of Letters Patent. Patented Oct. 31, 1905.

Application filed October 6, 1902. Serial No. 126,120.

To all whom it may concern:

Be it known that I, JOHN E. MILLER, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Means for Relieving Cooling-Jackets of Steam and Indicating the Circulation of Water Therethrough, of which the following is a full, clear, and exact specification.

My invention relates to means for preventing the accumulation of steam in the cooling-jackets of gasolene-engines and other internal-combustion engines, and, in fact, in cooling-jackets generally where the cooling-water or other medium is kept in circulation through the jackets; and it has for its primary object to prevent the back pressure or downward pressure of the steam accumulating in the upper side of the jacket from depressing the cooling-water, and thus preventing free circulation.

Another object of my invention is to provide means for at all times indicating the circulation of the cooling-water or other medium through the circulating-passage, whereby the operator may be enabled to determine whether the pump or other circulating means is operating properly.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts, by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a diagrammatic view of my improved apparatus, showing a portion thereof in vertical section; and Fig. 2 is a detail plan view of the pump and connections.

1 2 are the cylinders of an ordinary explosion-engine having suitable water-jackets, as usual, to the under side of which are connected inlet-pipes 3 4, respectively, which are in communication with a pump or other circulating device 5 through the intermediary of a neck 6, and 7 is a storage-tank for the water or liquid which is connected, as usual, by pipe 8 and branches 9 10 with the upper sides of the jackets of cylinders 1 and 2, while 11 is a radiating or cooling coil customarily used in instances where the water has to be used over and over again and which coil is connected by pipe 12 to the pump 5.

13 is an overflow-pipe extending upwardly into the tank 7 to a point near the top thereof to relieve the tank of air-pressure, steam, gases, &c., that might accumulate therein.

In applying my invention to a construction of this character, which is a typical illustration of the automobile motor-cooling system, the water-jackets of the cylinders 1 and 2 are provided with vent-pipes or steam-reliefs 14 15, which, if desired, may be conjoined in a single pipe 16, having an outlet above the common level of the circulating-passage, of which the tank 7 constitutes a part. As a convenient means of accomplishing this the end of the pipe 16 is turned upwardly, as shown at 17, the pipe being preferably carried first into the tank 7 and then upwardly through the top thereof, and this upturned end is inclosed by a shell 18, which is preferably composed of glass or other transparent material, so that the circulation may be observed, the bottom of the shell 18 being connected by aperture 19 with the tank 7. The upper end of the pipe 17 is shown with a plurality of small holes 20 as a means of venting the same.

When the pump 5 is properly performing its function, a portion of the water discharging from the upper sides of the water-jackets will rise through the vent-pipes 14 15 and discharge into the transparent shell or glass 18 through the holes 20 and thence into the tank 7 via aperture 19; but should the pump fail to operate steam will accumulate in the upper sides of the water-jackets and will consequently be visible in the glass 18, thus indicating to the operator that either the pump is out of action or the circulating-passage needs replenishing with water or other medium used for the cooling; but as long as the operator observes the downward flow of water in the glass 18 he may know that the water-jackets are entirely filled with water and the circulating means is in perfect operation. It is understood, of course, that as the steam forms it rises through the vent-passage 14 15 and, if not condensed in the storing-tank 7, eventually escapes through the overflow 13.

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

1. In an apparatus for the purpose described, the combination of a water-cooling jacket, a water-circulating means comprising a passage, a steam-relief leading from said jacket to a point above the general level of said passage, and a transparent connection between the upper end of said relief and said passage whereby the circulation of the fluid through said relief may be observed, substantially as set forth.

2. In an apparatus for the purpose described, the combination of a water-cooling jacket, a water-circulating means comprising a passage, an overflow leading from said passage, and a steam-relief leading from said jacket to a point above said overflow and thence back to said passage, substantially as set forth.

3. In an apparatus for the purpose described, the combination of the water-cooling jacket, a reservoir for a supply of water, a circulating system for taking the water from the reservoir to the jacket and returning it to the reservoir, a passage constructed of transparent material extending upwardly from and communicating with the reservoir above the level thereof and above the level of all parts of said circulating system, and a branch pipe or connection extending from the top of the jacket upwardly to the top of and discharging into said transparent passages.

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