

No. 878,479.

PATENTED FEB. 4, 1908.

E. E. GOLD.

CAR HEATING SYSTEM.

APPLICATION FILED AUG. 10, 1905

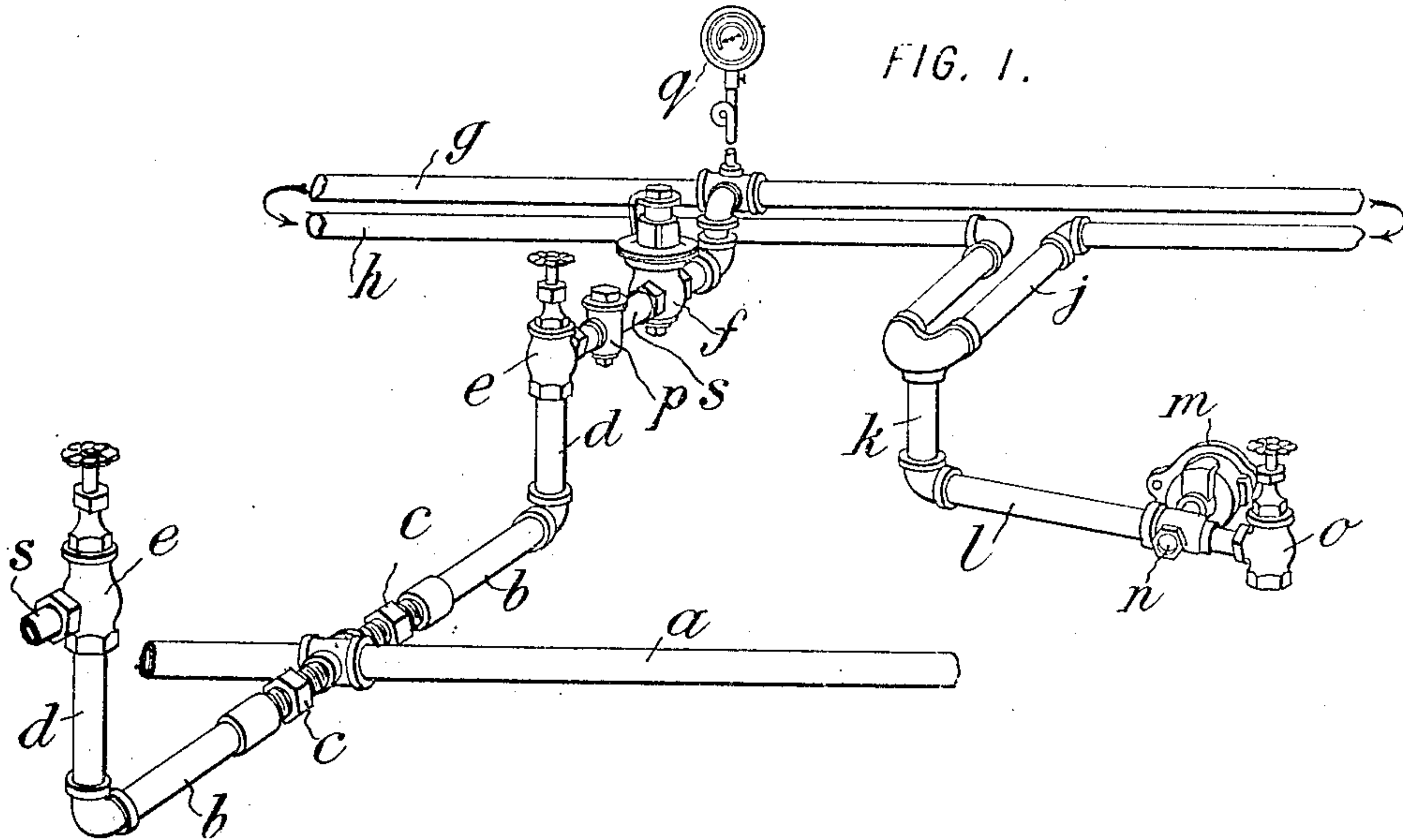


FIG. 1.

FIG. 4.

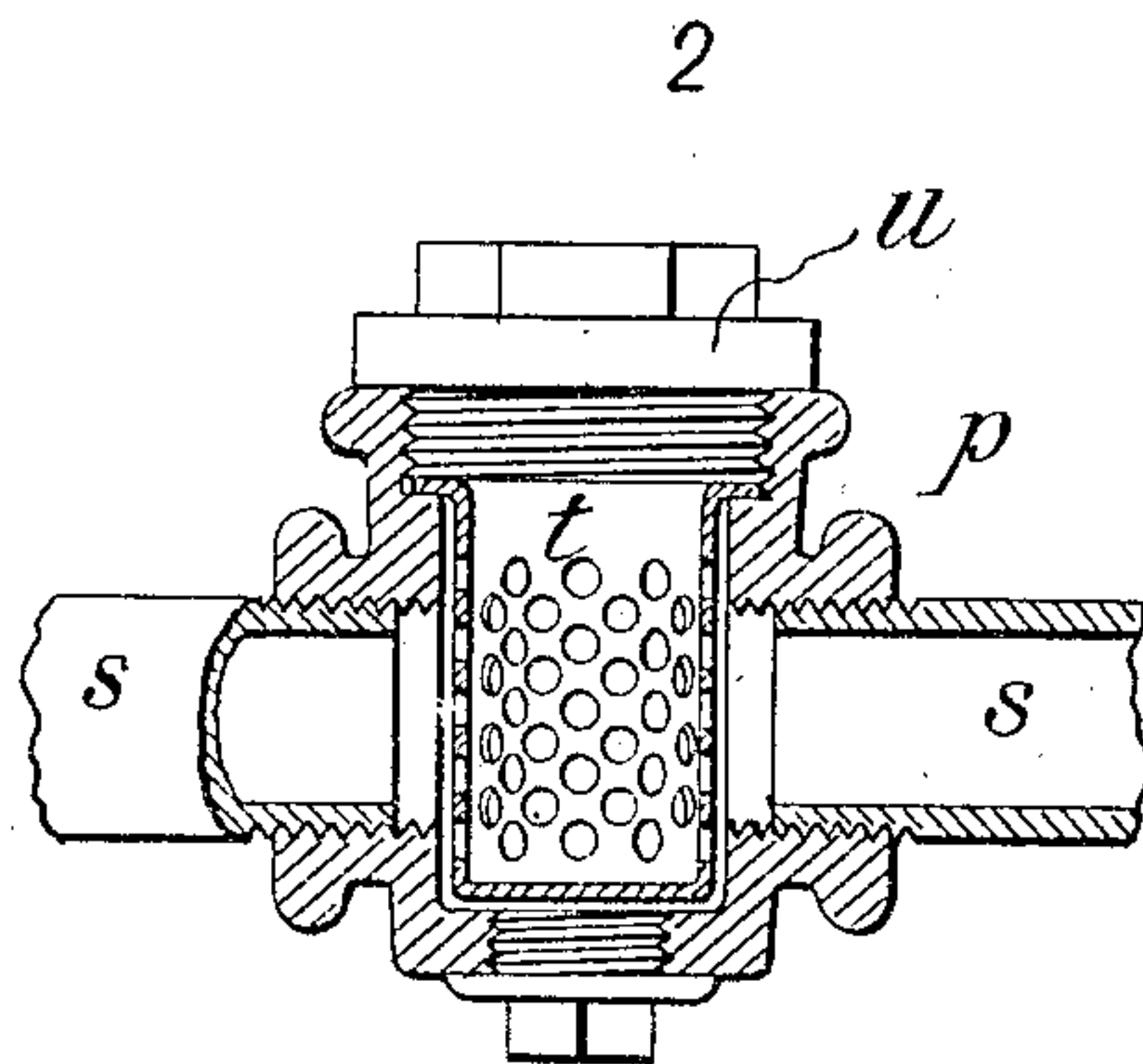
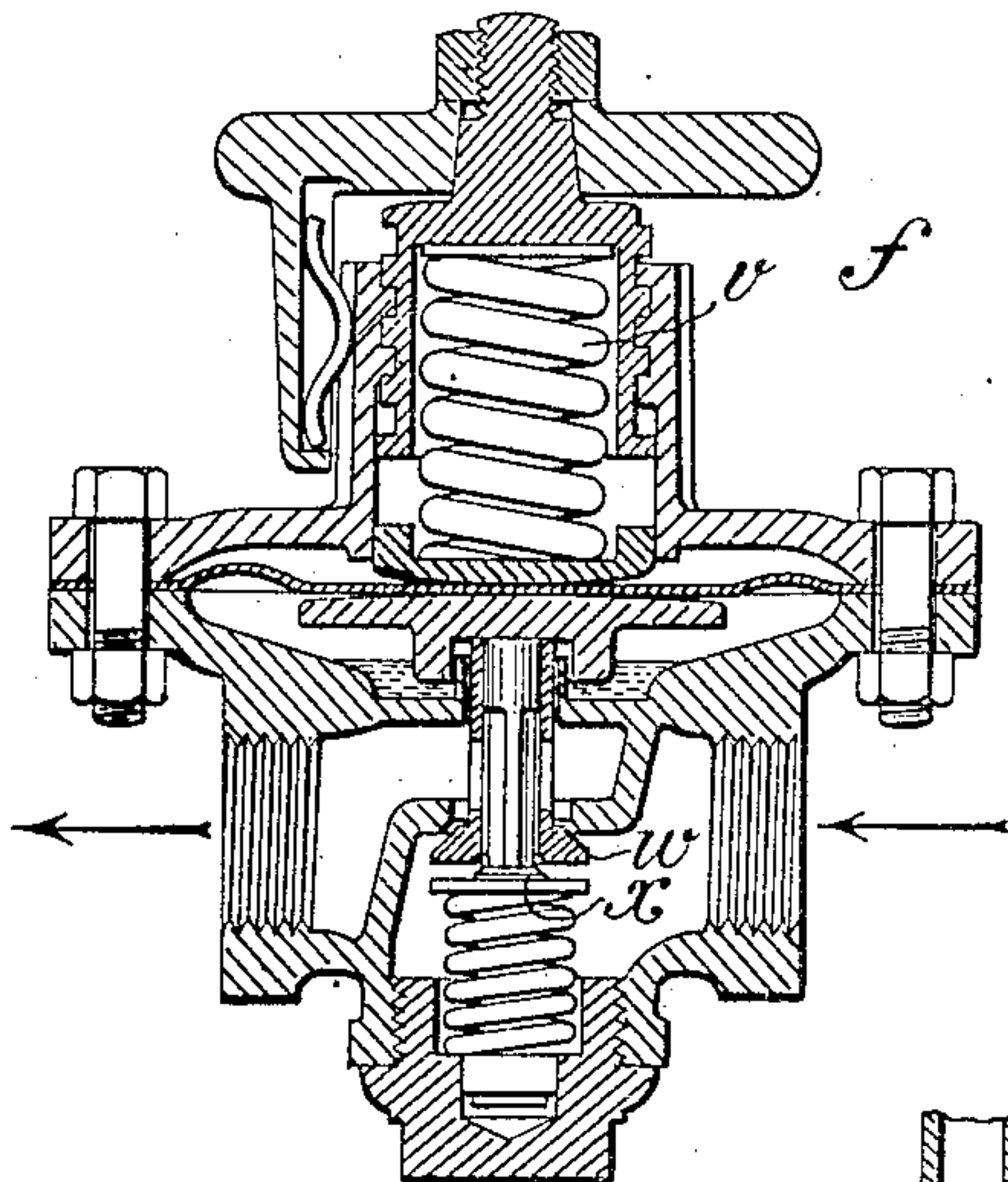


FIG. 3.

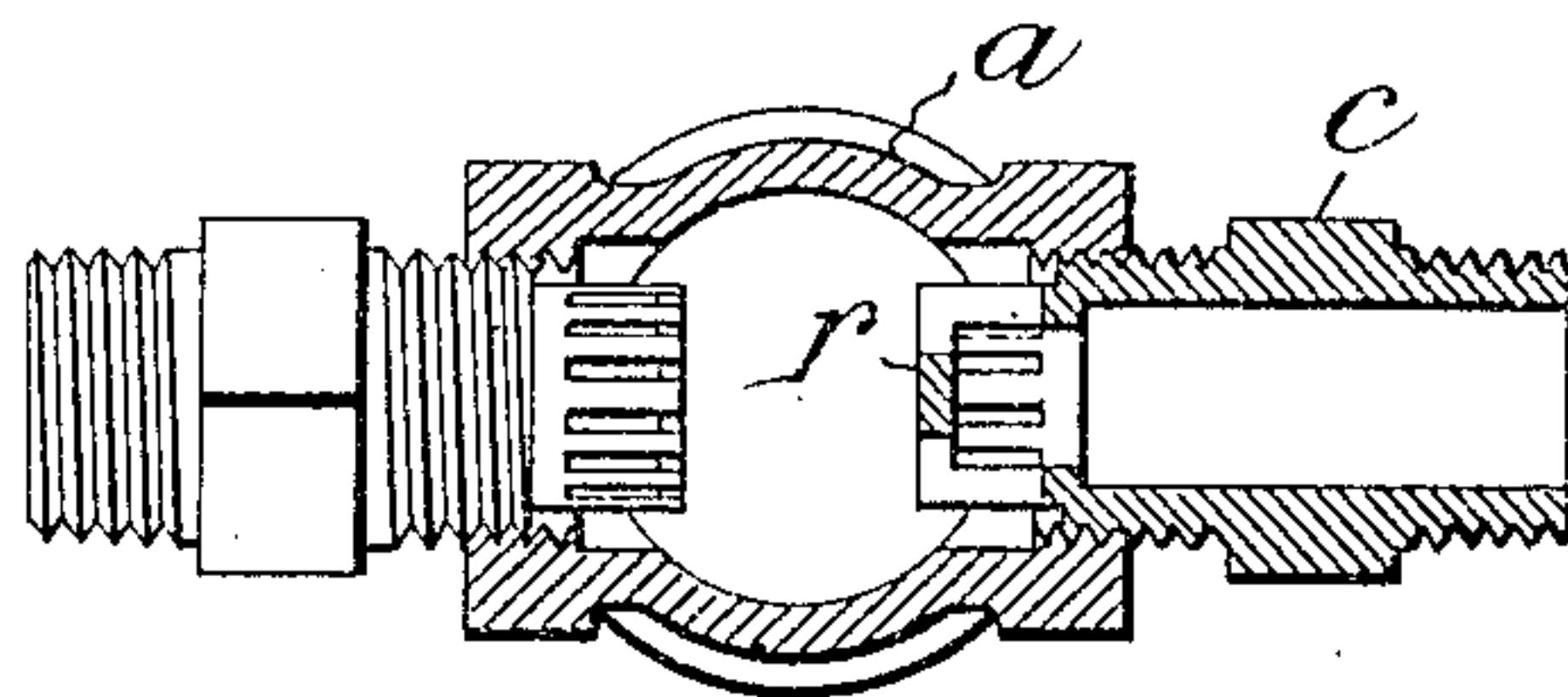


FIG. 5.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## CAR-HEATING SYSTEM.

No. 878,479.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed August 10, 1905. Serial No. 273,542.

*To all whom it may concern:*

Be it known that I, EDWARD E. GOLD, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Car-Heating Systems, of which the following is a specification.

This application is in part a continuation of my application No. 255,778, filed April 15, 1905, (Patent No. 814,285) and relates to a system or arrangement of the piping and other parts of a car heating system, being especially important in connection with the pressure regulator described in the aforesaid application, without however being limited solely for use in connection with such regulator.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a perspective view of the principal parts of the system; Figs. 2 and 3 are sectional views of strainers used at different points of the system; Fig. 4 is a sectional view of the pressure regulator. Fig. 5 is a sectional view of a modified detail.

Referring now to the embodiment of the invention illustrated, the main train-pipe *a* runs the entire length of the train and is supplied with steam from the locomotive at high pressure. Horizontal branches *b* conduct the steam from the train-pipe to piping on opposite sides of the car constituting the heater. The entrance to the branch pipe *b* is above the bottom of the train-pipe, and an unobstructed passage is left for dirt along the bottom of the train-pipe, and for steam around the outside of the strainer *c*, introduced at the entrance of each of the branches *b*, and forming in fact parts of said branches; so that the steam flows around the outside of the strainers to clean them, and carries the dirt along the bottom of the train-pipe beyond them. It will be understood that the steam carries along through the train-pipe a quantity of scale, small pieces of rubber, and other dirt, and it is essential to the proper working of the valves that this dirt be kept out.

The pipes *a* and *b* are below the floor of the car. From the end of the pipe *b* on each side there is a vertical pipe *d* at the upper end of which is an angle valve *e* of the usual or any suitable type the spindle of which projects upwardly to a point accessible from within the car. The steam passes from the valve

*e* through the regulator, which I designate as a whole by the letter *f*, to the heater or system of radiating pipes arranged in any suitable manner in the car, and typified in the present case by a pair of longitudinal radiating pipes *g h*, from the latter of which the steam and water of condensation run through downwardly inclined horizontal branches *j* and a vertical branch *k* to a downwardly inclined discharge pipe *l* carrying near its end a thermostatic trap *m* at one side and a gravity trap *n* at the opposite side, and at its end beyond these traps a blow-out valve *o* the stem of which projects upward to a point accessible from within the car. The pipes *g* and *h* may also be suitably inclined to insure the running off of the water of condensation. By these means the heater is normally closed at its discharge end. The water of condensation is purged at intervals while the pressure is on through the thermostatic trap, and, when the pressure is cut off, through the gravity trap. When the steam is first turned on the blow-out valve *o* may be opened to permit the rapid escape of air in the pipes. The arrangement of the parts in connection with the discharge pipe *l* is described more fully and claimed in my application for Patent No. 234,864, filed November 30, 1904. The vertical pipe *d* with the valve *e* at its upper end retards the passage into the regulator of any dirt which escapes through the strainers *c*, the natural tendency being to drop to the bottom of the vertical pipe *d*. In addition a strainer *p* is introduced between the hand valve *e* and the automatic regulator *f*. A steam pressure gage *q* is usually applied at the admission point of the radiating system.

The strainers *c* are preferably of the type illustrated in Fig. 3, each consisting of a short length of pipe screw-threaded on the ends for connection to the main and branch respectively, and having a slitted or otherwise apertured head *r* projecting into the pipe *a* a short distance so as to be kept clean by the current of passing steam, and also leaving free the bottom of the train-pipe along which dirt is usually carried, and being above such bottom so that the dirt will not ordinarily tend to run into the branch pipe.

Any dirt which is light enough to be carried through the screens *c* and up the vertical pipe *d* (the latter forming a sort of dirt trap) will be stopped by the screen *p* which is interposed in the upper horizontal length of pipe



8. The preferred construction of the screen *p* is shown in Fig. 2. A cylinder *t* is extended squarely across the pipe *s* with its lower end a little below the level of the pipe, the fitting and cylinder forming a dirt trap which can be opened and cleaned by unscrewing the cap *u*.

The pressure regulator *f* is preferably of the type indicated in Fig. 4, and described in detail in my Patent No. 814,285 above referred to. The steam passes in the direction of the arrows. The pressure of spring *v* is adjusted in accordance with the steam pressure desired. The pressure of the steam on the outlet side of the valve passes between the valve stem and the surrounding portion of the casing into the space beneath the flexible diaphragm, tending to lift it against the pressure of the spring *v*, so that when the pressure in the system increases beyond that desired, the valve closes partially or entirely, or until the pressure again falls to the desired point; the double valve *w x* serving to regulate the pressure quickly and accurately.

The pipes *b* and *d* may be connected by a tee *y* as in Fig. 5, the lower end of which is closed by a plug *z* which may be removed to clean out the accumulated sediment.

30 What I claim is:—

1. In a car heating system, in combination, a train pipe *a*, a horizontal branch *b* therefrom having a strainer *c* at the entrance to said branch and projecting into the train pipe, a vertical pipe projecting upward from said horizontal branch, an admission valve *e* at the upper end of said pipe *d* and accessible from within the car, a heater within the car, an automatic pressure regulator *f* between the admission valve and the heater, and a strainer *p* between the admission valve and the regulator, the entrance to said branch *b* being above the bottom of the train pipe, and an unobstructed passage for dirt being left along the bottom of said train pipe and for steam around the outside of said strainer, whereby the steam flows around the outside of said strainer to clean it and carry the dirt beyond it.

2. In a car heating system, in combination, a train pipe *a*, a horizontal branch *b* therefrom having a strainer *c* at the entrance to said branch and projecting into the train pipe, a vertical branch *d* projecting upward from said horizontal branch, an admission valve *e* at the upper end of said pipe *d* and accessible from within the car, a heater within the car, an automatic pressure regulator *f* between the admission valve and the heater, and a strainer *p* between the admission valve and the regulator, the entrance to said branch *p* being above the bottom of the train pipe, and an unobstructed passage for dirt being left along the bottom of said train pipe and for steam around the outside of said strainer, whereby the steam flows around the outside of said strainer to clean it and carry the dirt beyond it, said strainer *c* comprising a short length of pipe connected at one end to the main and forming a part of the branch and having a slitted head *r* constituting the portion which projects into the main pipe, and said strainer *p* comprising a fitting extending squarely across the pipe and having a removable cap *u* and an inclosed removable perforated cylinder *t*, the lower end of the fitting and cylinder thus forming a dirt trap which may be opened and cleaned.

3. In a car heating system, in combination, a train pipe *a*, a horizontal branch *b* therefrom having a strainer *c* at the entrance to said branch, a vertical pipe *d* projecting upward from said horizontal branch, an admission valve *e* at the upper end of said pipe *d* and accessible from within the car, a heater within the car, an automatic pressure regulator *f* between the admission valve and the heater, and a strainer *p* between the admission valve and the regulator.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD E. GOLD.

Witnesses:

DOMINGO A. USINA,  
FRED WHITE.