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PATENTED APR. 30, 1907.

E. E. GOLD.

STEAM HEATING SYSTEM FOR RAILWAY CARS.

APPLICATION FILED NOV. 30, 1904.

2 SHEETS—SHEET 1.

FIG. 1.

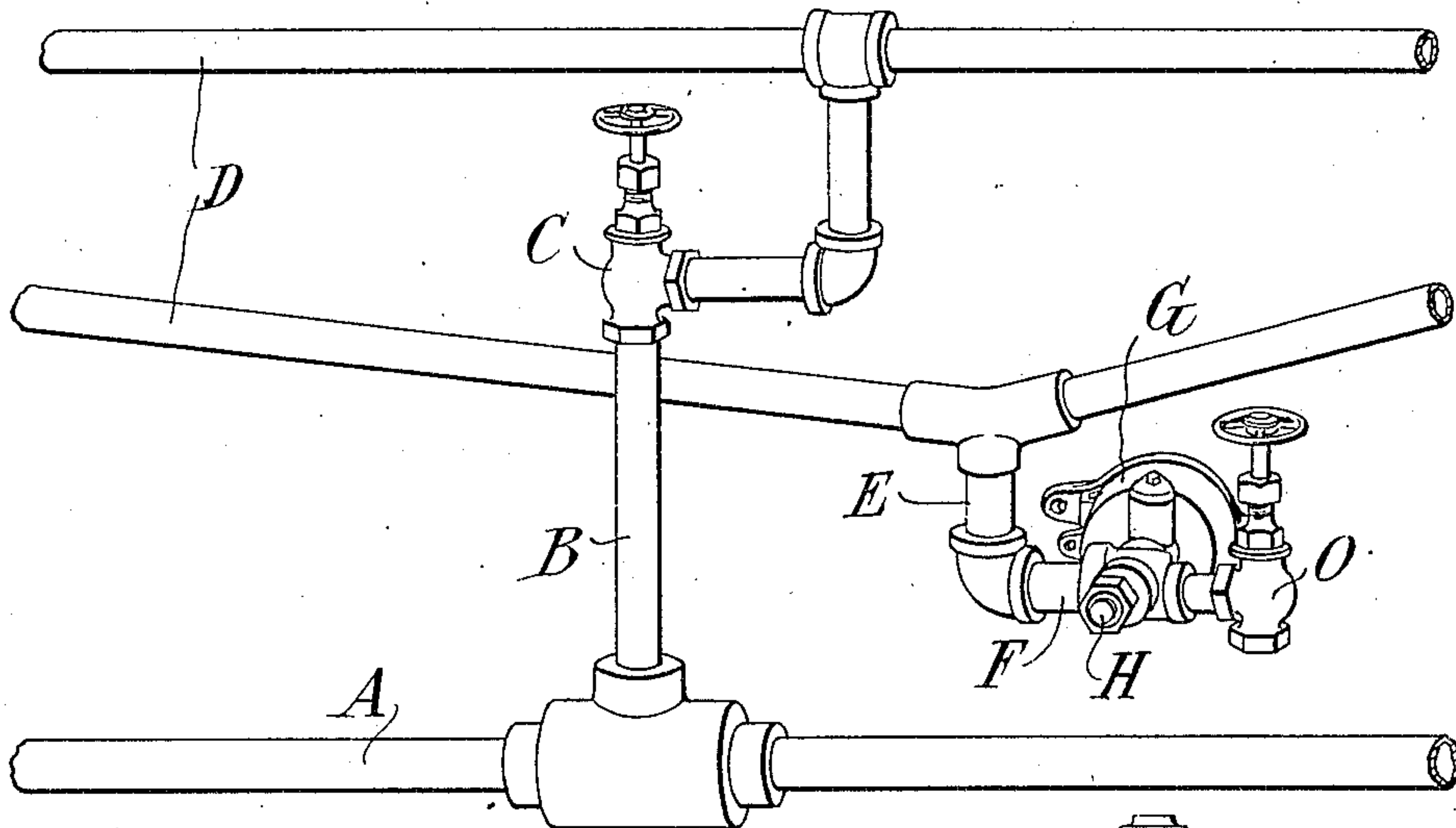


FIG. 2.

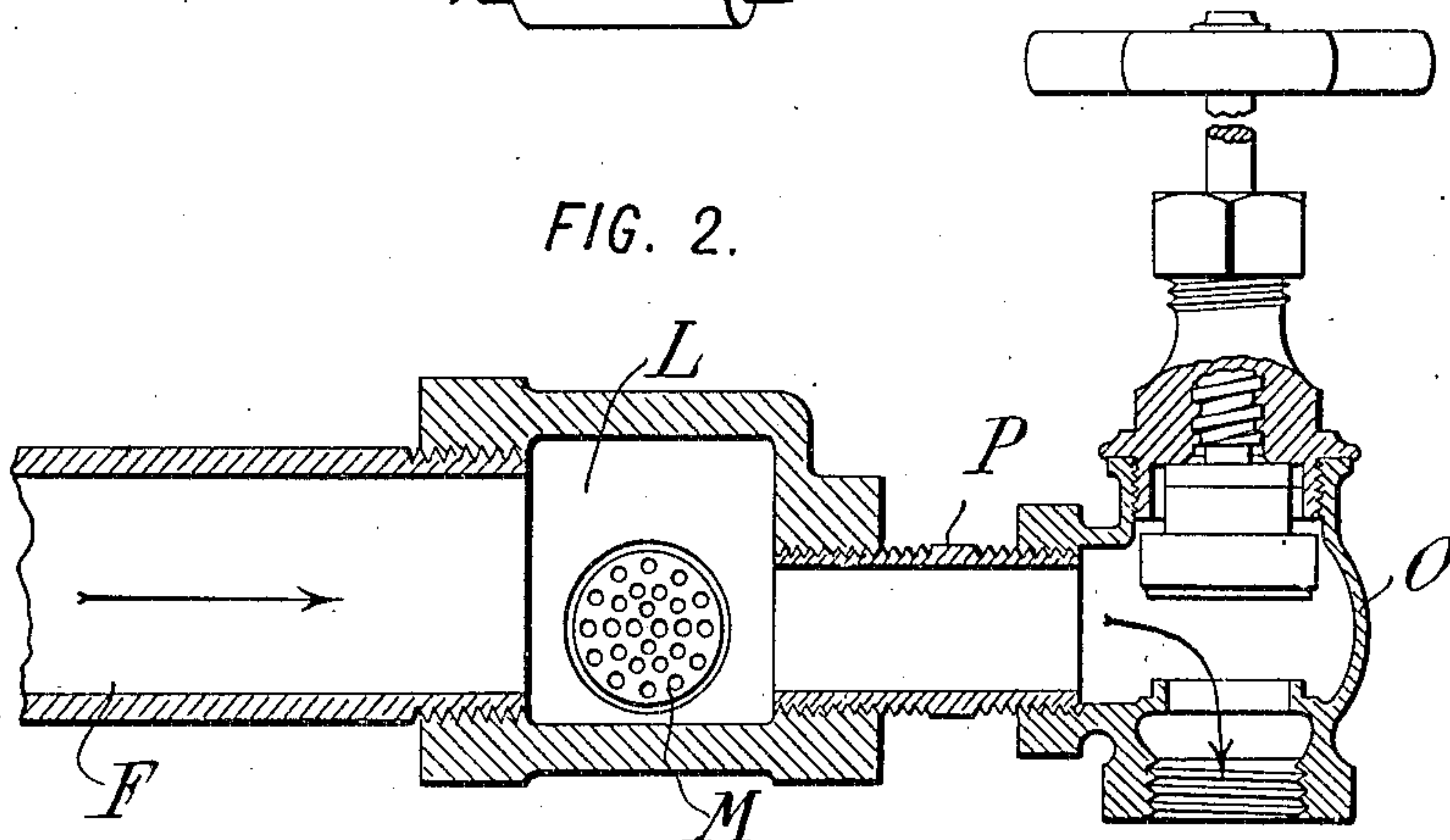
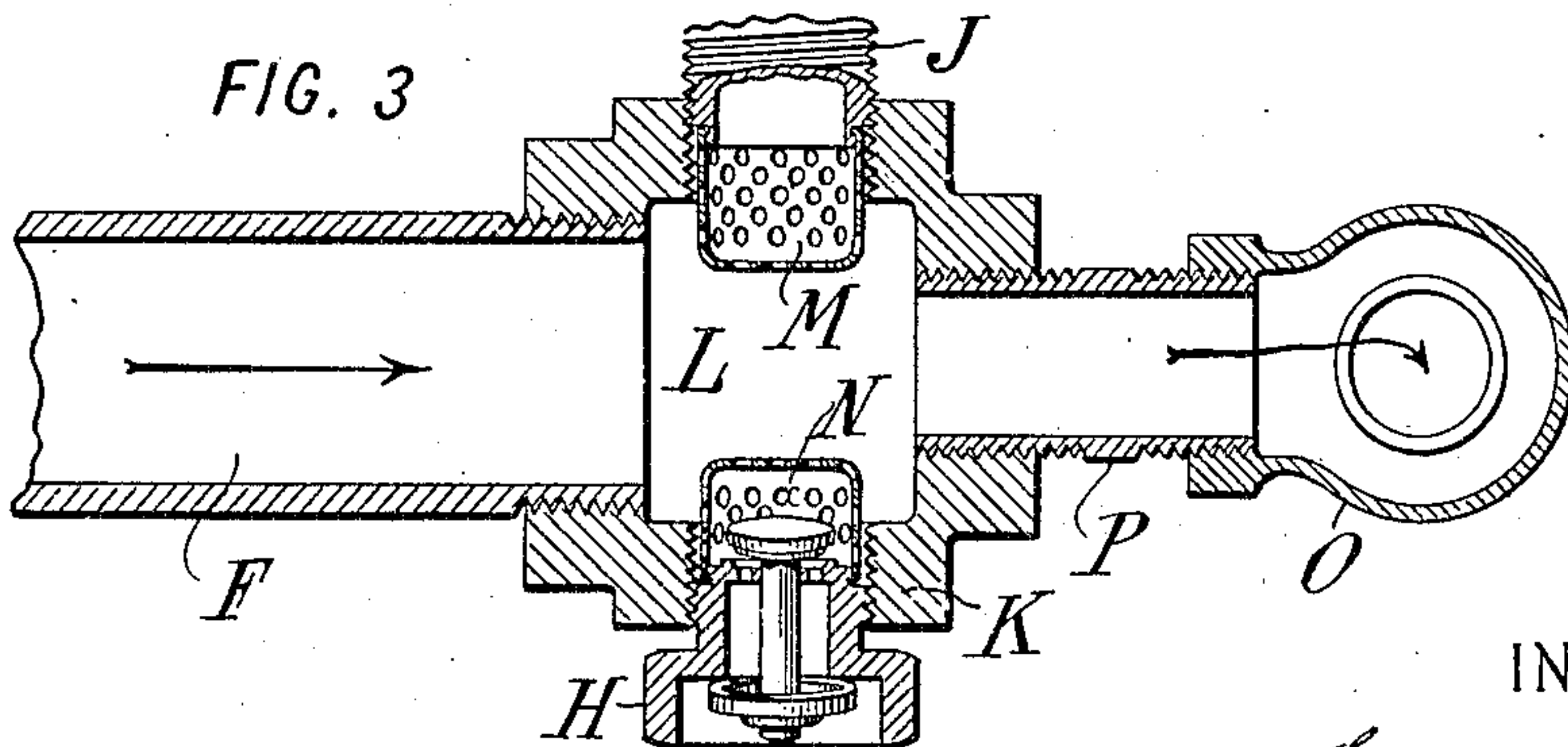


FIG. 3



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2 SHEETS—SHEET 2.

FIG. 4.

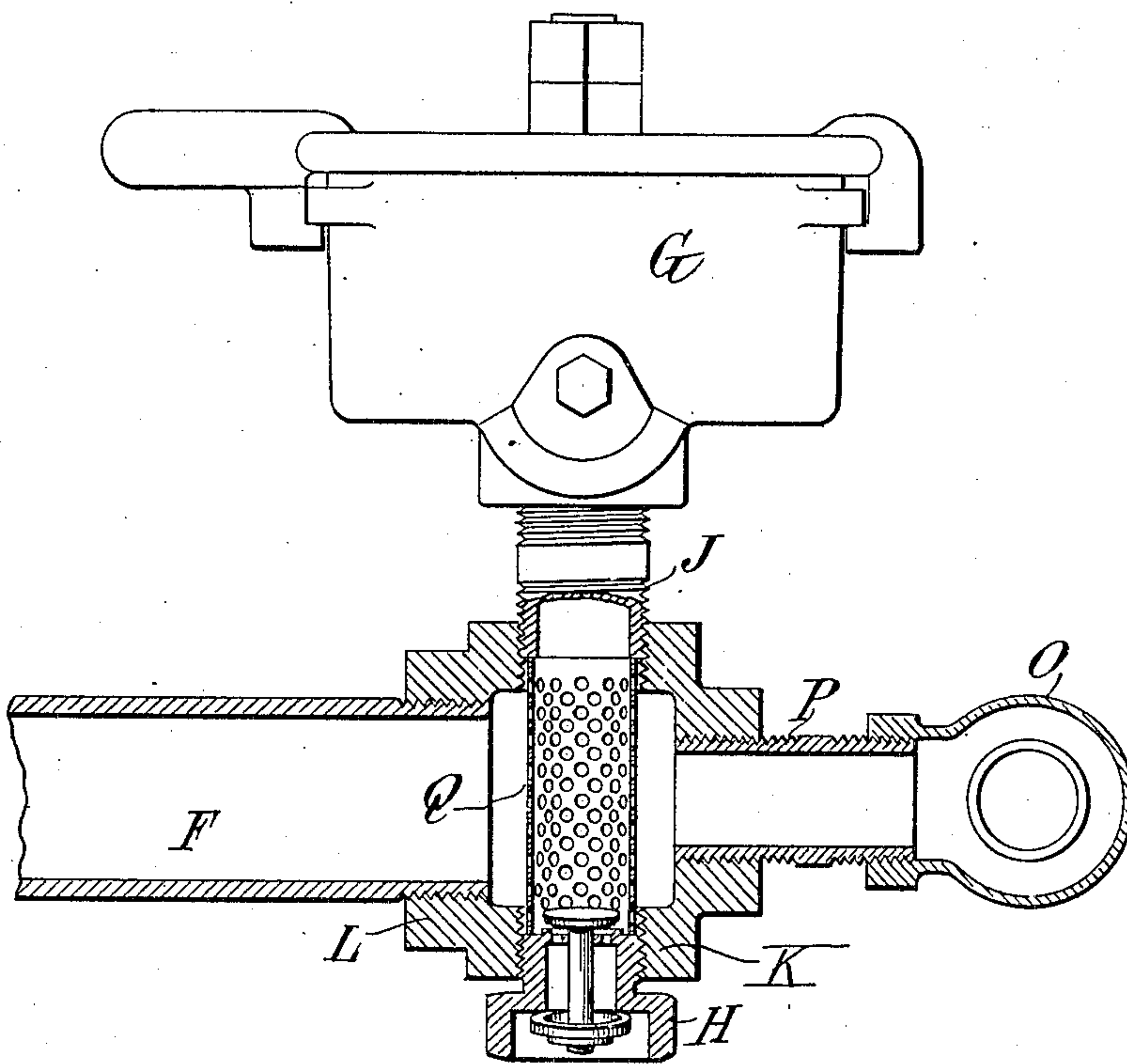
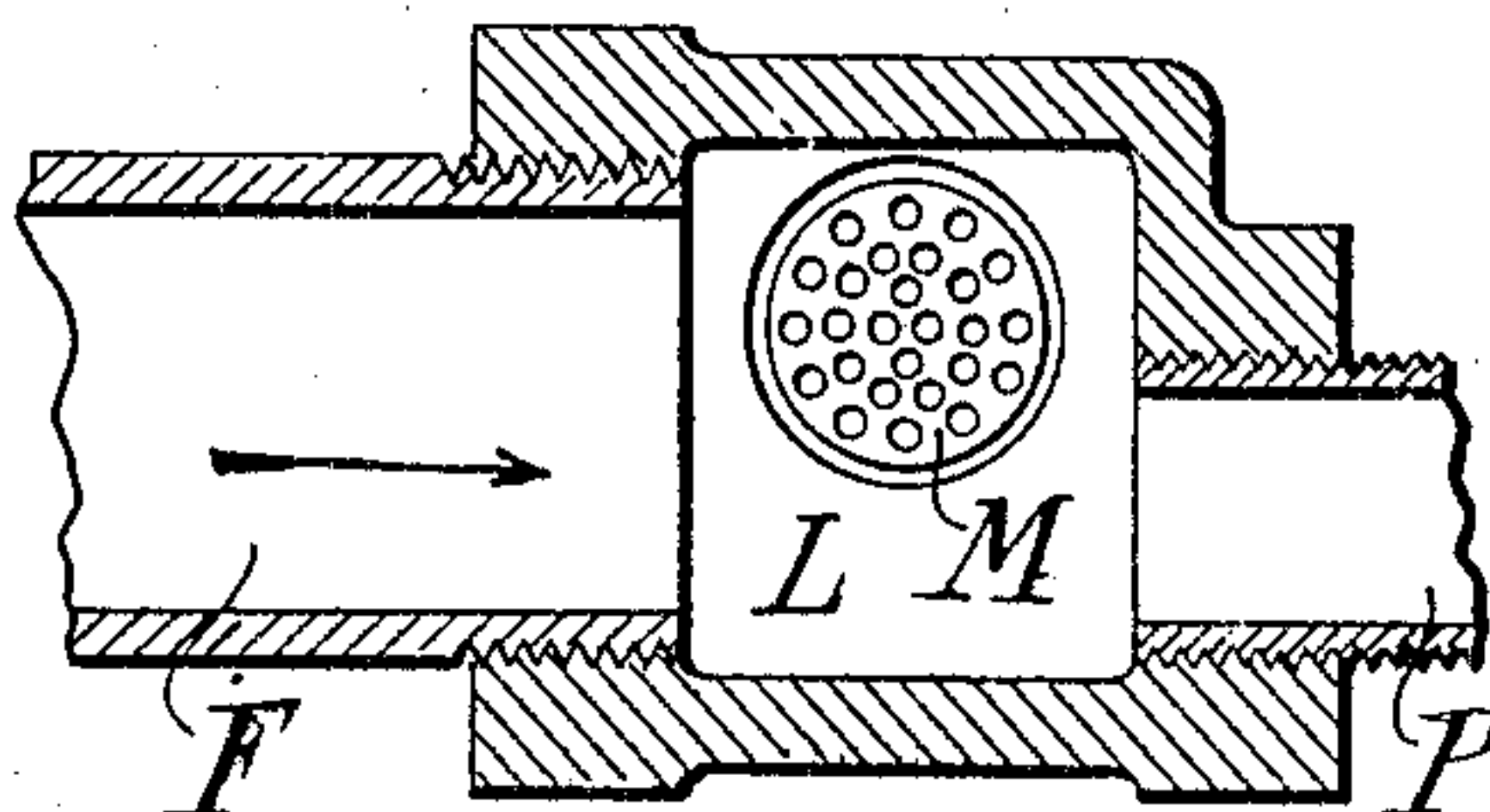


FIG. 5.



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STEAM-HEATING SYSTEM FOR RAILWAY-CARS.

No. 852,019.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed November 30, 1904. Serial No. 234,864.

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 Steam-Heating Systems for Railway-Cars, of which the following is a specification.

It is customary to heat railway cars from a train pipe extending the full length of the train. A branch is provided for each car which conducts the steam through a system of radiating pipes. After the steam has circulated through the radiating system of the car the water is drained off by means of a trap or traps beneath the car. The steam is apt to carry particles of rubber, scale, mud or other dirt, and traps or similar devices for discharging water of condensation are usually protected against the entry of such dirt by screens. The dirt naturally accumulates in greatest quantity at the end of the system of piping. According to the present invention means are provided for thoroughly and completely purging the system of such dirt without permitting it to clog the traps or screens. To this effect the traps or the like are arranged at the side of the main steam pipe, a screen being preferably arranged in the mouth of each such trap, the main pipe is extended beyond such screens and provided with a valve at its end or at some point beyond such screens and a free or unobstructed passage around the sides or ends and underneath said screens for the passage of dirt, whereby the dirt is carried freely past the branches and screens. The end of the pipe leading to the blow-off valve forms a mud well in which practically all the dirt accumulates and from which it is expelled by the steam on opening the valve.

The accompanying drawings illustrate an embodiment of the invention:

Figure 1 shows in perspective a diagram of the general arrangement. Fig. 2 is a vertical section, and Fig. 3 is a horizontal section, through the outlet end of the system. Fig. 4 is a horizontal section of another arrangement. Fig. 5 is a vertical section of another arrangement.

Referring to the drawings, A is the usual or any suitable train pipe, from the center of which a branch B runs to an admission valve C, the steam passing thence to the radiating pipes typified by the pipe D. The steam in the pipe D condenses and runs off through the

branch E and the discharge pipe F. At the end of the discharge pipe it is usual to provide a thermostatic trap G and a gravity trap H, which operate in a well known manner to purge the system at intervals. These parts are all found in systems at present in use, but it is their special arrangement as hereinafter defined which constitutes the novel feature of the invention.

Each of the traps is preferably arranged in a branch of greater or less length at the side of the discharge pipe F. For example, the thermostatic trap may be located in a branch J of a few inches length, and the gravity trap in a branch K which is practically of no length, being merely the wall of the fitting L at the sides of which the two traps connect with the discharge pipe. The entrance to each trap is protected from dirt by means of a screen M or N of perforated sheet-metal and of thimble shape. The edges of the screens are held in place by being bent into suitable grooves in the end of the branch J or in the end of the casing of the trap H respectively.

At the fourth side of the fitting L there is attached a discharge or blow-off valve O which is used in order to allow an unobstructed flow of the steam in initially heating a car and for other purposes. Ordinarily such a valve is placed at some point in the system in advance of the trap or traps. With such an arrangement it has been found that each trap constituted practically a dead end of the pipe and that particles of dirt continually accumulated on the screen until they sometimes became so great as to seriously clog the screen. With the present arrangement each time that the valve O is opened a swift current of steam flows across and to some extent through the screens M and N and thoroughly cleans them, the dirt being carried clear out of the pipe and system by way of the blow-off valve. The valve O may be of any suitable construction, being illustrated as an ordinary angle valve.

The shape of the screens is not material though it is preferable that they project into the main pipe in the manner indicated. The arrangement for utilizing the heat of the radiating pipes may be any suitable arrangement, or which several are now used. For example, either the direct radiating system or the indirect radiating system or any modification of these may be used.

The section P of piping leading to the valve

is at the lower portion of the fitting L so that substantially all mud will run into the dead end formed by the section P and accumulate there in the same manner as in an ordinary mud well. The section P in fact constitutes such a mud well, and may be replaced by various other styles of mud well.

The screens M and N or either of them may be projected further into the passage, and in fact they may extend entirely across so as to form a single cylindrical screen Q (Fig. 4) which can be easily held in place by its ends abutting against the branch J and the casing H respectively. This screen Q is specially adapted for use in this location, where there is no objection to the obstruction which such a screen might cause to the flow of steam. The screens M and N or the screen Q may be located in the upper part of the fitting L, as shown in Fig. 5, in order to be as far as possible clear of the mud which is carried along on the bottom of the pipes and fitting. Any arrangement of the screens however which forms a clear or unobstructed passage for the dirt around the outside of and underneath the screens may be used with good effect, as in either Fig. 2 or Fig. 5.

Though I have described with great particularity of detail a certain embodiment of the invention, yet it is not to be understood therefrom that the invention is limited to the specific embodiment disclosed.

Various modifications thereof in detail and in the arrangement and combination of the parts may be made by those skilled in the art without departure from the invention.

What I claim is:—

1. In a steam heating system for railway cars, a substantially horizontal steam pipe, means at one side thereof for discharging condensation-water and having its entrance above the bottom of the pipe, and a valve beyond the entrance to said means, an unobstructed passage for dirt being left through said pipe, whereby the opening of the valve causes the steam to blow across such entrance and to carry dirt past and beyond without entering the same.

2. In a steam heating system for railway cars, a substantially horizontal steam pipe, means at one side thereof for discharging condensation-water and having its entrance above the bottom of the pipe, and a mud well beyond the entrance to said means, an unobstructed passage for dirt being left through said pipe, whereby dirt passes beyond without entering such entrance and into said mud well.

3. In a steam heating system for railway cars, a substantially horizontal steam pipe, a branch therefrom having its entrance above the bottom of said pipe, a screen at the entrance to said branch, and a valve in the pipe beyond said screen, an unobstructed passage for dirt being left through said pipe,

whereby the opening of the valve causes the steam to pass over and beyond said screen to clean it and to carry the dirt from it and out of the valve.

4. In a steam heating system for railway cars, a substantially horizontal discharge pipe, a branch therefrom having its entrance above the bottom of said pipe, a screen at the entrance to said branch, and a blow-off valve in the discharge pipe beyond said screen, an unobstructed passage for dirt being left through said pipe, whereby the opening of the blow-off valve causes the steam to pass over and beyond said screen to clean it and to carry the dirt from it and out of the valve.

5. In a steam heating system for railway cars, a substantially horizontal discharge pipe, a branch therefrom having its entrance above the bottom of said pipe, a screen at the entrance to said branch and projecting into said discharge pipe, and a blow-off valve in the discharge pipe beyond said screen, an unobstructed passage for dirt being left through said pipe, whereby the opening of the blow-off valve causes the steam to pass over and beyond said screen to clean it and to carry the dirt from it and out of the valve.

6. In a steam heating system for railway cars, a substantially horizontal main discharge pipe, a pair of branches therefrom each having its entrance above the bottom of said pipe, a trap on each of said branches, a screen at the entrance to each of said branches and projecting into the main pipe, and a blow-off valve in said main pipe beyond said branches, an unobstructed passage for dirt being left through said pipe, whereby the opening of the blow-off valve causes the steam to pass over and beyond the entrances of said branches and to carry the dirt from them and out of the valve.

7. In a steam heating system for railway cars, a main discharge pipe, a pair of branches therefrom, a trap on each of said branches, a screen Q extending entirely across the pipe between the entrances to said branches and constituting a screen for each of said branches, and a blow-off valve in said main pipe beyond said branches, an unobstructed passage for dirt being left through said pipe, whereby the opening of the blow-off valve causes the steam to pass over and beyond said screen and to carry the dirt therefrom and out of the valve.

8. In a steam heating system for railway cars, a substantially horizontal steam pipe, means at one side thereof for discharging condensation-water and having its entrance above the bottom of the pipe, and a valve beyond the entrance to said means, an unobstructed passage for dirt being left along the bottom of the pipe, whereby the opening of the valve causes the steam to blow across such entrance and to carry dirt along on the

bottom of the pipe past and beyond without entering such entrance.

9. In a steam heating system for railway cars, a substantially horizontal steam pipe, means at one side thereof for discharging condensation-water and having its entrance above the bottom of the pipe, and a mud well beyond the entrance to said means, an unobstructed passage for dirt being left along the bottom of the pipe, whereby the opening of the valve causes the steam to blow across such entrance and to carry dirt along on the bottom of the pipe past and beyond without entering such entrance.

10. In a steam heating system for railway cars, a fitting L at one end of which the steam enters and through which the steam passes in a substantially horizontal direction, a substantially horizontal pipe P connected

to the opposite end of said fitting, a valve 20 connected to said pipe P beyond said fitting, and means for discharging condensation-water connected to the side of said fitting and having its entrance above the bottom thereof so as to leave an unobstructed 25 passage for dirt along the bottom of said fitting to said pipe and valve, whereby the opening of the valve causes the steam to blow across the entrance to said means and to carry dirt past and beyond without enter- 30 ing the same.

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.