

R. M. DIXON.
SCREEN.

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948,313.

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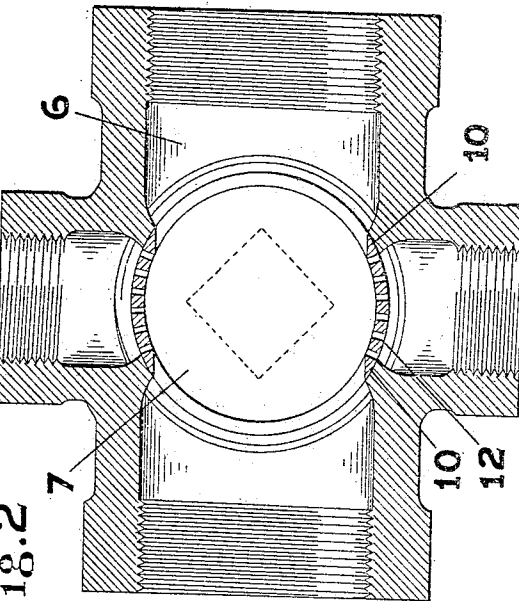
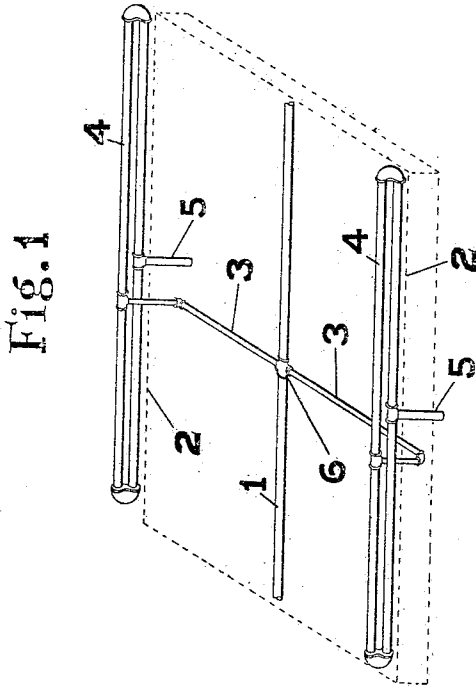


Fig. 5

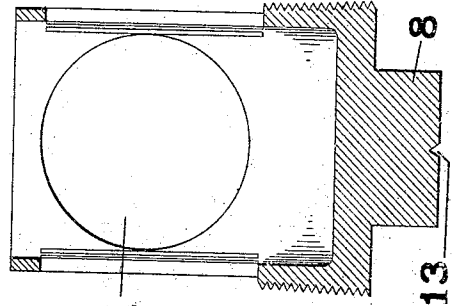


Fig. 4

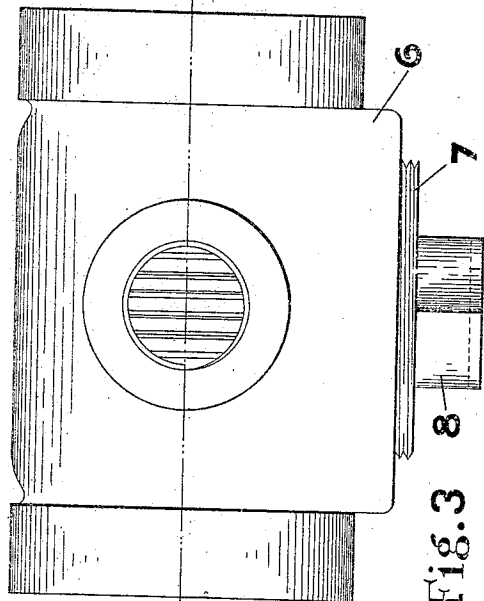
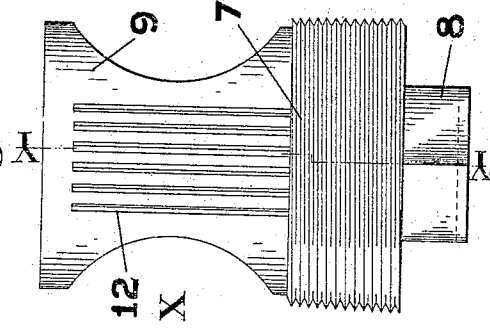


Fig. 3

WITNESSES:

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SCREEN.

948,313.

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To all whom it may concern:

Be it known that I, ROBERT M. DIXON, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Screens, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to screens or strainers and, more specifically, to the use of screens in steam piping.

One of the objects thereof is to provide a simple and efficient screen adapted for use in steam piping and similar relations.

15 Another object is to provide a device of the above type, of inexpensive and durable construction, which shall be readily removable, as for purposes of cleansing or renewal.

20 Another object is to provide a device of the type first mentioned the openings through which are of a shape and disposition resulting in a maximum efficiency in action.

25 Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the embodiment thereof hereinafter described and the scope of the application of which will be indicated in the following claims.

30 In the accompanying drawing, wherein is shown one of various possible embodiments of my invention, Figure 1 is a diagrammatic view showing the relation of the same to parts associated therewith. Fig. 2 is a sectional plan taken on the line $x-x$ of Fig. 3. Fig. 3 is a side elevation. Fig. 4 is a similar view showing the screen and associated parts detached. Fig. 5 is a sectional elevation taken on the line $y-y$ of Fig. 4.

35 Similar reference characters refer to similar parts throughout the several views of the drawing.

In order to afford a ready grasp upon the details of this invention, it may here be noted that, with regard to certain specific

features thereof, it deals with the problem 50 of preventing the accumulation of dirt, rust or other foreign matter in certain more or less inaccessible portions of a steam piping system. It has been found that, in heating systems of trains in which there is in com- 55 mon use a main conduit or train-pipe extending throughout the car, with branch conduits leading therefrom to the heating apparatus, there is a tendency for rust or other foreign matter, accumulating in these 60 branches and the apparatus connected therewith, to deposit in the main steam pipe and obstruct the passage therethrough to a greater or less degree. If it be attempted to remedy this action by means of inaccessible 65 screens, there is a tendency of the latter parts to clog up or rust out, and, moreover, in screens of the ordinary form, if they act properly in preventing the passage of foreign particles, there is more or less wire 70 drawing and wasteful condensation of the steam. The above and other defects are remedied in constructions of the nature of that hereinafter described.

Referring now to the accompanying draw- 75 ings, there is shown in Fig. 1 a main train-pipe 1 adapted, in this illustrative embodiment, to supply steam for the train-heating system of the car, the sides of which are diagrammatically represented at 2. Lead- 80 ing from train-pipe 1 are one or more branches 3, these conduits being in this case two in number and springing from the main conduit at a common point. Branches 3 lead to any desired form of heating apparatus, 85 which is herein shown as comprising the radiating coils 4, the lower portions of which are connected with traps 5 of any desired form. Conduits 3 are connected with the train-pipe 1 by means of a cross 6, the inner 90 structure of which is best set forth in Fig. 2 of the drawings. Tapped within the lower wall of this cross is a plug 7, the term "plug" being used throughout this description and the following claims in its broadest 95 sense to denote any part detachably secured within the walls of a conduit. Plug 7 is provided upon its lower surface with a head

8 and upon the upper portion thereof is an extension 9 of a general cylindrical form adapted to fit within a seat comprising the concave surfaces 10 formed upon the cross 6. The portion 9 of the plug is provided with a pair of openings 11 adapted normally to register with the passage through the main conduit or train pipe 1 and thus to provide an unobstructed way through which the steam may pass. The lateral walls of the plug which rest against the seats 10 have formed therein a number of openings 12 which, in the preferred embodiment of my invention, take the form of longitudinal slits. These portions of the plug thus form screens which register respectively with the lateral passages leading to the branch conduits 3. The nut 8 is preferably grooved, as shown at 13, in order to provide indicating means whereby a precise adjustment of the screens may be brought about after the plug has been turned into position.

It may here be noted that the term "slit" is used throughout this description and the following claims in a broad sense as denoting an opening of an elongated character irrespective of its precise shape.

The operation of the above-described embodiment of my invention, which should be to a certain extent obvious from the detailed description given, is as follows: Assuming the steam to be led to the train-pipe 1 from any desired source of supply, it passes out through the slits 12 and the branches 3 to the heating apparatus and from this point is discharged in the form of drip water through the traps 5. If the screens become clogged, or, for other reason, it is desired to withdraw the same, this is readily accomplished by means of the head 8, and not only the screen but the surrounding parts may be thoroughly cleansed. The screen may then be readily replaced and adjusted to exactly the desired position, or, if desired, a new screen may be substituted at a trifling cost.

By reason of the form of openings through the screen, namely, the slits shown, there is, with protection against the passage of particles of a given size, a far greater volume of steam discharged for the area of the surface through which it passes than would obtain with perforations or openings of other shape; that is, the cross section of the jet of steam passing through each opening is markedly greater with relation to the periphery of the opening than would be the case if, for example, round perforations were provided of a diameter equal to the width of the individual slits. In this manner wire drawing and wasteful condensation of steam are reduced to a minimum. With openings of this general form, moreover, the chances of clogging are reduced to a minimum.

It will thus be seen that I have provided

a device which is well adapted to accomplish the several objects of my invention, and that the structure thereof is not only of the simplest and most inexpensive type but is of the most compact and durable form and efficient action.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In apparatus of the class described, in combination, a main pipe, a fitting into which portions of said main pipe are tapped, a branch leading from said fitting, and a plug tapped into said fitting between the portions of said main pipe and bearing a screen adapted to be placed in a position to cover said branch and maintain said main pipe substantially unobstructed.

2. In apparatus of the class described, in combination, a main pipe, a fitting into which portions of said main pipe are tapped, a branch leading from said fitting, a plug tapped into said fitting between the portions of said main pipe and bearing a screen adapted to be turned into a position to cover said branch and maintain said main pipe substantially unobstructed, and means adapted to indicate the position of said screen with respect to said branch.

3. In apparatus of the class described, in combination, a main conduit, a branch conduit leading thereinto, and a plug having a threaded portion adapted to coact with one of said conduits and hold itself in position, said plug being provided with an extension having a screen adapted to register with said branch conduit and having portions cut away adapted to provide a free passage through said main conduit when said screen is in position.

4. In apparatus of the class described, in combination, a main conduit, a pair of branch conduits leading thereinto, and a plug having a threaded portion adapted to coact with one of said conduits and hold itself in position and provided with a substantially tubular extension having a pair of screens adapted simultaneously to register with said branch conduits, and having a pair of openings adapted simultaneously to

register with the portions of said main conduit whereby a free passage is provided through said main conduit and the same screened from said branch conduits.

5 5. In apparatus of the class described, in combination, a main conduit, a branch conduit leading thereinto, and a plug bearing a screen threaded into said main conduit and adapted to position said screen between said
10 branch conduit and said main conduit adjacent their point of intersection and to maintain the passage through said main conduit substantially unobstructed.

15 6. In apparatus of the class described, in combination, a main conduit, a pair of branch conduits leading thereinto, and a plug bearing a pair of screens threaded into said main conduit and adapted to position said screens respectively between said branch
20 conduits and said main conduit adjacent their points of intersection therewith and to maintain the passage through said main conduit substantially unobstructed.

25 7. In apparatus of the class described, in combination, a main conduit, a pair of branch conduits leading thereinto, a plug bearing a pair of screens threaded into said main conduit and adapted to position said screens respectively between said branch
30 conduits and said main conduit adjacent their points of intersection therewith and to maintain the passage through said main conduit substantially unobstructed, and means upon said plug adapted to indicate the position of
35 said screens with respect to said branch conduits.

8. In apparatus of the class described, in combination, a main conduit, a pair of branch conduits leading thereinto, and a
40 plug bearing a pair of screens threaded into said main conduit and adapted to position said screens respectively between said branch conduits and said main conduit adjacent their points of intersection therewith and to
45 maintain the passage through said main conduit substantially unobstructed, said screens being provided with a plurality of slits through which the steam passes.

9. In apparatus of the class described, in
50 combination, a main pipe, a cross positioned therein, a pair of conduits leading from said cross, a plug threaded within said cross and provided with a cylindrical extension, a
55 plurality of sets of slits within said extension, said sets being adapted to register with passages leading to said branch conduits, said extension being also provided with openings adapted to register with said main
60 pipe and providing a substantially unobstructed passage therethrough, and means upon the external surface of said block adapted to indicate the angular position of said cylindrical extension with respect to said cross.

65 10. In apparatus of the class described, in

combination, a normally unobstructed main conduit having an opening in its wall, a branch conduit leading into said main conduit adjacent said opening, and a screen positioned between said conduits adjacent
70 their points of intersection and provided with integral supporting means removably secured within said opening.

11. In apparatus of the class described, in
75 combination, a main conduit, a branch conduit communicating therewith, and a plug provided with means adapted to co-act with one of said conduits whereby it is held in position, said plug being provided with an extension having perforations formed therein
80 adapted to register with said branch conduit and having a pair of openings adapted to register with said main conduit whereby a free passage is provided through said main conduit.

85 12. In apparatus of the class described, in combination, a main pipe, a fitting into which portions of said main pipe are tapped, a branch pipe leading from said fitting, said fitting having an opening formed in its wall, and a member removably secured within
90 said opening and provided with an extension positioned within said fitting said extension having perforations formed therein adapted to register with said branch pipe
95 and having a pair of openings formed therein and adapted to register with said main pipe whereby an unobstructed passage is provided therethrough.

13. In apparatus of the class described, in
100 combination, a main pipe, a fitting into which portions of said main pipe are tapped, branch pipes leading from said fitting, said fitting having an opening formed in its wall, and a member removably secured within
105 said opening and provided with an extension positioned within said fitting, said extension having a plurality of sets of perforations formed therein, one of said sets being adapted to register with one of said
110 branch pipes and another of said sets being adapted to register with another of said branch pipes, said extension being further provided with a pair of openings adapted to register with said main pipe whereby an unobstructed passage is provided therethrough.

14. A pipe fitting provided with a fluid
115 passage extending therethrough, a second passage leading from the first named passage, and a strainer interposed at the junction of the two passages, said fitting having an opening for the insertion and removal of the strainer, and means for closing said opening.

15. A pipe-fitting provided with a fluid
125 passage extending through the fitting and with a feed passage opening therefrom, and a strainer interposed across said feed passage, said fitting being provided with an additional opening extending at an angle to
130

both of said feed passages for the insertion of said strainer, and with a closure for said opening.

16. A train pipe-fitting provided with an
5 unobstructed main fluid passage, a lateral
passage opening therefrom, a strainer inter-
posed transversely of said lateral passage
and at the side of the main fluid passage,
and means for inserting and removing said

strainer without disturbing the normal fluid 10
connections of said fitting.

In testimony whereof I affix my signature,
in the presence of two witnesses.

ROBERT M. DIXON.

Witnesses:

A. C. MOORE,
R. S. BLAIR.