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F. L. YOUNG.

DEVICE FOR PREVENTING RAILWAY SIGNAL AND SWITCH APPLIANCES FROM FREEZING OR CLOGGING.

APPLICATION FILED MAR. 8, 1905.

Fig. 1.

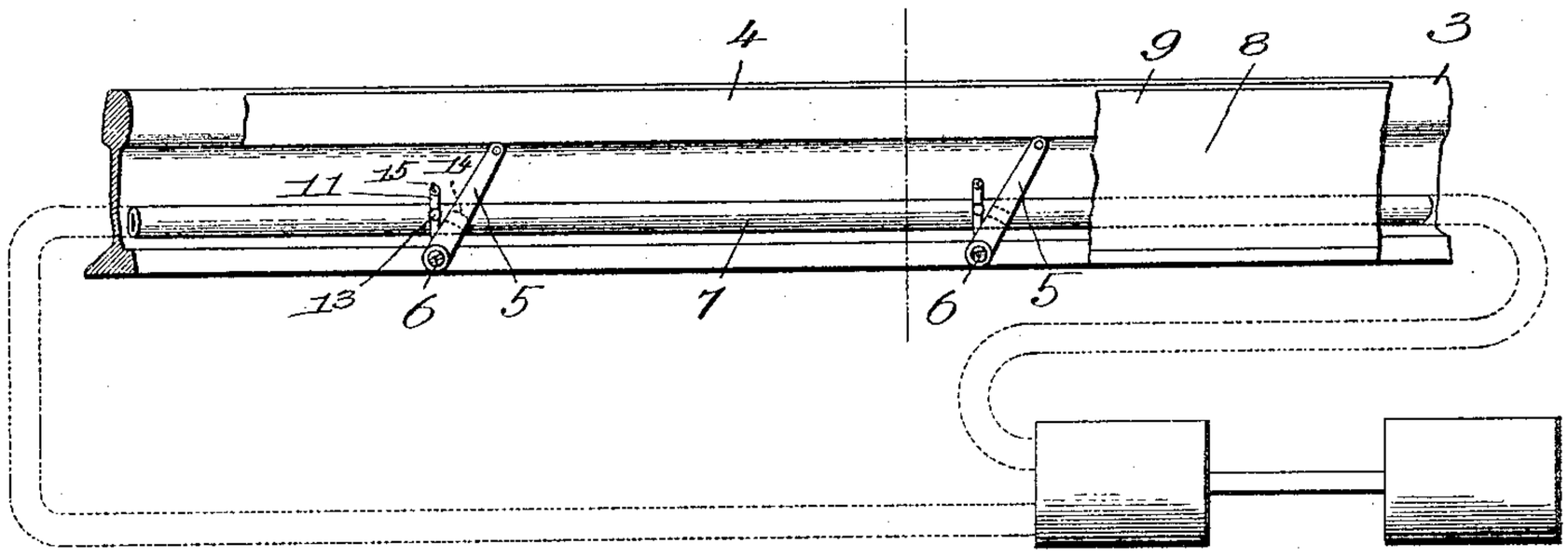


Fig. 2.

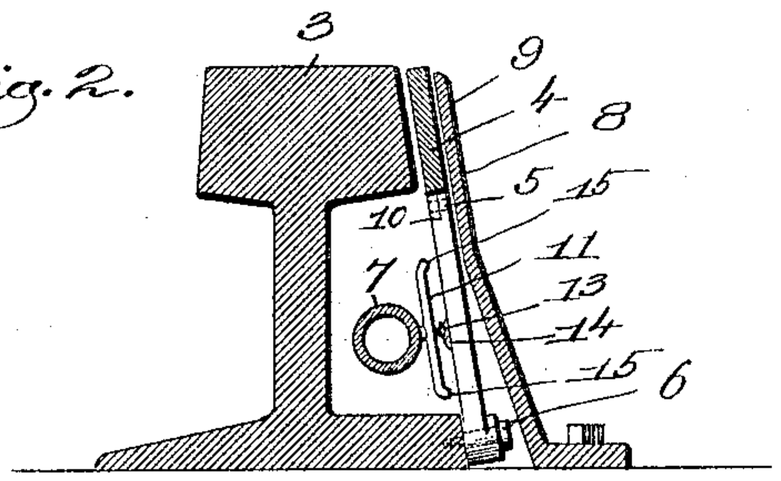
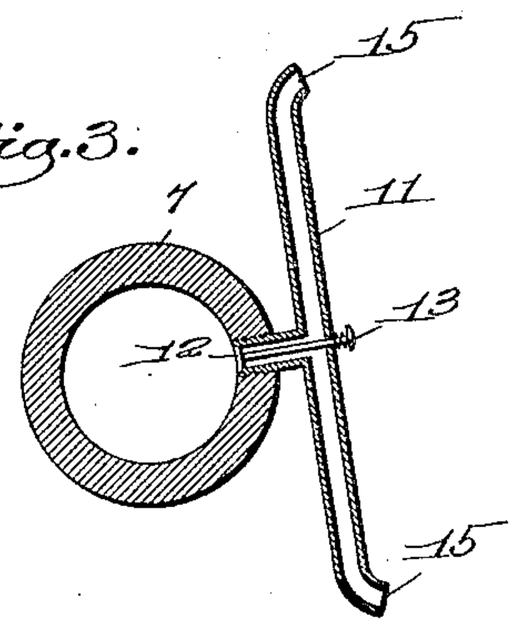


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR PREVENTING RAILWAY SIGNAL AND SWITCH APPLIANCES FROM FREEZING OR CLOGGING.

No. 804,787. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed March 8, 1905. Serial No. 249,038.

To all whom it may concern:

Be it known that I, FRANK L. YOUNG, a citizen of the United States, residing at Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Devices for Preventing Railway Signal and Switch Appliances from Freezing or Clogging, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

Most railroads in temperate climates are more are less bothered during the winter by the switches and signal appliances becoming clogged with snow and frozen up, so as to prevent them from operating. When this difficulty occurs in the terminal yard of a railroad, it not infrequently practically ties up the whole system.

The present invention has for its object to provide a means for remedying this difficulty, and the embodiment herein shown has been especially designed to keep the detector-bars of the signal apparatus in working order regardless of weather conditions.

In accordance with my invention I place alongside of the detector-bar a conduit through which a heating fluid may be pumped and place adjacent the detector-bar and over the conduit a shield, which prevents the dissipation by convection of the heat radiated from the conduit. The shield is so placed so as to allow the free up-and-down swinging movement of the detector-bar, and the heat radiated from the conduit is sufficient to keep the detector-bar free from snow and ice, and thus prevent its becoming frozen up. The heating fluid which I prefer to pump through the conduit is oil, and in the preferred embodiment of my invention suitable means are provided whereby the movement of the detector-bar operates a valve which controls an oil-outlet port, whereby every time the detector-bar is moved a small quantity of oil is forced from the conduit onto said bar, thus making the device a self-oiling one.

Figure 1 is a side view showing part of the shield broken out and a method of keeping a heating medium circulating through the conduit. Fig. 2 is a cross-section through a rail and detector-bar, showing how my improvements may be applied; and Fig. 3 is a detail of the oiling mechanism.

In the drawings, 3 designates the rail of a railroad-track, and 4 the usual detector-bar, which is used in connection with signal apparatus, said detector-bar being mounted on links 5, which are pivoted to the base of the rail or to any other suitable fixed support, as at 6.

7 designates a conduit which extends along by the side of the rail adjacent the detector-bar, preferably on top of the base of the rail and between the detector-bar and rail, as shown in Fig. 1. This conduit may be any suitable size or shape. An ordinary pipe will answer the purpose very well.

On the outside of the detector-bar is a shield 8, which may be secured to the ties or any other suitable fixed support and which lies just outside the detector-bar and in close proximity thereto, said shield extending up nearly to the top of the rail, and the upper edge 9 thereof being spaced from the rail sufficiently to permit the free swinging movement of the detector-bar.

The conduit 7 forms part of any suitable circuit through which a heating medium may be forced. Any suitable fluid which can be heated and pumped through the conduit may be used; but preferably I will use some non-freezing liquid, such as an oil, which will not congeal even in very cold weather.

The shield 8, forms with the rail 3, a chamber within which the conduit 7 and the detector-bar mechanism is placed, and as hot oil or some other suitable hot fluid may be pumped through this conduit sufficient heat will be radiated from the conduit to keep the detector-bar and other moving parts free from snow and ice, thus preventing them from becoming frozen or clogged with snow or ice.

In order to economize space, I prefer to make the detector-bar with the lips 10, to which the links 5 are pivoted, thereby bringing the links and detector-bar in the same plane and permitting me to set the shield 8 close to the detector-bar.

Another feature of my invention relates to a novel means of keeping the moving parts of the detector-bar oiled. As herein shown, the conduit 5 is provided with one or more pipes 11, each having therein a valve 12, which is normally closed. The stem 13 of the valve stands in the path of a cam 14 on the detector-bar, so that during the swinging movement of the detector-bar said cam depresses the stem and opens the valve. When the valve is open, a jet of oil is forced out through the jet-nozzle 15 and onto the mov-

ing parts of the device, thereby keeping them oiled. It will thus be seen that with my improved construction the detector-bar is kept free from snow and ice and is also oiled automatically. It will be impossible, therefore, for the detector-bar to become frozen or clogged.

To accomplish the purpose of my invention, it will be necessary to cause hot oil or other fluid to circulate through the conduit only when it is storming or when there is danger of the signal or switch apparatus becoming clogged with snow or ice or frozen up. During pleasant weather when there is no storm it will not be necessary to keep the detector-bar warm, and therefore it will not be necessary at such times to heat the oil and keep it circulating. By using "non-freezing" oil the automatic lubrication of the moving parts is carried out when the oil is not circulating even though the temperature is very low.

While I have illustrated my invention as applied in keeping a detector-bar in operative condition, it will be understood that the invention is not limited to use in this particular place, for with appropriate modifications it might be employed in other locations for keeping other moving parts of the switch or signal apparatus free from ice or snow.

It is not essential to the invention that the conduit 7 be placed between the detector-bar and the rail; but if there is room between these parts for it I prefer to so locate it. Neither is it essential that the conduit or chamber 7 be made in the form of a pipe, as my invention contemplates the use of any suitable chamber located alongside of the detector-bar or other parts to be kept free of ice.

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

1. A pivotally-mounted detector-bar constituting part of a signal apparatus, and a chamber or conduit extending along the side of the detector-bar substantially parallel thereto and adapted to contain a heating medium.

2. The combination with a rail and a detector-bar, of a shield forming with the rail a chamber to receive the detector-bar, and heating means within said chamber.

3. The combination with a rail and a detector-bar, of a shield forming with the rail a detector-bar-receiving chamber, and a conduit within said chamber through which a fluid heating medium may be forced.

4. In an apparatus of the class described, a detector-bar, an oil-conduit located alongside of said detector-bar, and automatic means to oil said detector-bar, said means being operated by the movement thereof.

5. The combination with a rail and a detector-bar, of a shield forming with the rail a chamber to receive the detector-bar, and an oil-conduit located within said chamber, said conduit having an outlet controlled by a valve, means for operating said valve by the movement of the detector-bar.

6. In a switch and signal apparatus, a self-oiling detector-bar.

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

FRANK L. YOUNG.

Witnesses:
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