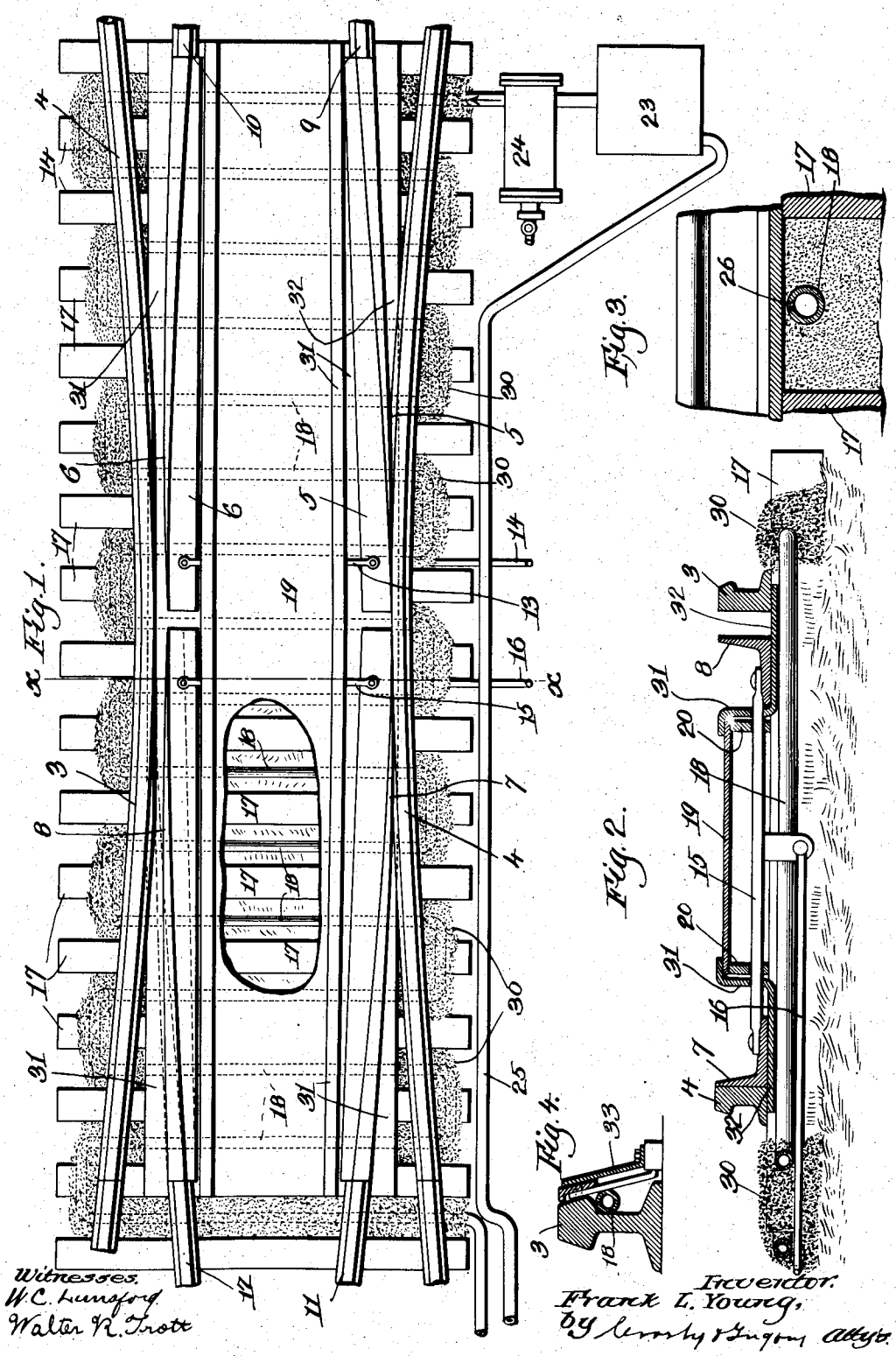
No. 834,439. PATENTED OCT. 30, 1906.

F. L. YOUNG.

RAILWAY SWITCH MECHANISM.

APPLICATION FILED NOV. 8, 1905.



UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH MECHANISM.

No. 834,439. Specification of Letters Patent. Patented Oct. 30, 1906.

Application filed November 8, 1905. Serial No. 286,338.

To all whom it may concern:

Be it known that I, FRANK L. YOUNG, a citizen of the United States, and a resident of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Railway-Switch Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

This invention has for its object to provide a novel means for keeping the moving parts of a switch and signal mechanism sufficiently warm so that there will be no liability of its becoming clogged by snow or ice during storms.

In accordance with my invention I place adjacent the moving parts, which it is desired to keep clear from snow, and ice coils of pipe through which some heating medium may be circulated or into which a heating medium may be forced, and in the preferred embodiment of my invention I arrange these pipes transversely of the track and between the ties, and also preferably provide means which, with the ties, form a chamber or chambers within which the pipes are located.

The pipes may be heated either by circulating a suitable heating medium therethrough or by forcing some heating medium into them and providing said pipes with apertures through which the heating medium may be discharged directly into the chambers or against the parts which it is desired to keep warm.

In the drawings, Figure 1 is a plan view of a switch embodying my invention. Fig. 2 is a section on the line $x\,x$, Fig. 1. Fig. 3 is a detail showing a modification, and Fig. 4 is a detail hereinafter referred to.

The switch herein shown is a double switch, such as is frequently used at a place where one track crosses another.

3 and 4 designate two unbroken fixed rails, each slightly curved, and 5, 6, 7, and 8 designate two pairs of pivoted switch-rails which form extensions of fixed rails 9, 10, 11, and 12, respectively. The two pivoted rails 5 and 6 are connected together by a suitable member 13, so that they move in unison and are operated by means of a switch-rod 14, connected to any suitable switch mechanism. (Not shown.) The pivoted rails 7 and 8 are also connected by suitable connection 15 and are operated by a switch-rod 16, also connected to a suitable switch-operating mechanism.

17 designates the ties, on which the switch structure is supported.

The parts as thus far described may be of any suitable or usual construction and form no part of my present invention.

In this embodiment of my invention I place between the ties 17 coils 18, of pipe, into or through which a heating medium may be forced. The various coils 18 are preferably connected together in series, so that the heating medium from a common source may be forced into or through all the coils.

In order to prevent waste of heat by radiation and to direct the heat radiated from the heating-coils to the place where it is most needed, I propose to cover over the portion of the coils between the rails so as to form a chamber in which the coils are placed, said chamber preferably extending underneath or adjacent the moving parts of the switch and signal apparatus which it is desired to keep warm. In the embodiment of the invention herein illustrated this chamber is formed by means of a shield or cover 19, which is arranged between each pair of pivoted rails and which preferably is supported above and spaced from the ties by means of spacing-blocks 20, which in turn rest directly on the ties. The spacing-blocks 20 are placed a sufficient distance from the moving rails so as to permit the latter to have their necessary movement, and preferably the plate or cover 19 is sufficiently above the ties so that the connecting-bars 13 and 15 pass through the chamber. By means of this construction a chamber is formed which extends the full length of the moving switch-rails, and in this chamber the heating-coils 18 are located.

In order to prevent the escape through the space between the ties and beneath the rails 3 and 4 of the heat within the chamber which is radiated from the pipes 18, I propose to close said space between the ties and beneath the rails 3 and 4 by any suitable means, such as cement or cinders, as shown at 30.

In order to facilitate the conduction of the

heat radiated from the heating-coils 18 to the moving switch-rails, I may, if desired, employ heat-conducting members 31, which are shown as located just outside of the spacing-blocks 20 and which have the horizontal flange portion 32 extending underneath the moving rail and in substantial contact therewith, said flange portion preferably, also, extending to and underneath the fixed rails 3 and 4. There will be one of these heat-conducting members adjacent each pivoted switch-rail, and as these members form, in effect, the side of the chamber containing the heating-coils they become heated, and because they are made of a material which is a good conductor of heat they will convey this heat directly to the moving switch-rails, and thus keep the latter warm.

The above construction provides means for maintaining adjacent to the moving parts of the switch sufficient heat to keep them clear from snow and ice.

The cover or shield 19 is preferably made of some non-heat-conducting material—such, for instance, as wood—and by employing the heat-conducting members 31 the heat which is radiated from the heating-coils 20 is conducted directly to those parts of the switch which it is desirable to keep free from snow and ice.

For keeping the detector-bar free from snow and ice, in case one is used, I propose to run a portion of the pipe 18 alongside of the rail adjacent the detector-bar, as shown in Fig. 4, and to protect said pipe by means of a suitable shield 33.

The pipes 18 may form part of either a closed circulating system or an open system. If said pipes form part of a closed circulating system, the heating medium of whatever nature will be heated in a furnace or heater 23 and then forced by a pump 24 or other equivalent means through the closed circulating system, the heating medium being returned to the heater to be reheated by means of a return-pipe 25.

If the open system is used, the various pipes 18 will be provided with apertures 26, as seen in Fig. 3, and the heating medium, of whatever nature, will be forced into the pipes 18 and then discharged into the chambers beneath the shield 19 through the apertures 26.

When the open system is employed, I prefer to use air as the heating medium, and in place of the pump would use a fan or equivalent forcing mechanism. Where air is used for the heating medium, the jets of air may be forced directly against the moving parts of the switch or into said chambers, as desired.

One of the essential features of the present invention is arranging a heating means or heat-distributing means between the ties on which the rails of the switch rest and then providing a suitable heating-chamber within which the heating means or heat-distributing means is received, all as set forth in the claims.

It is not essential to the invention that any particular character of heating medium be employed or that any particular form of heating means be employed, nor is it essential to the invention that the heat-conducting members 31 be employed.

The drawings do not illustrate all forms in which the invention may be embodied, and it will be obvious that the constructional details may be varied without departing from the invention.

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

1. In a switch apparatus, movable rails, ties on which said rails rest, means forming a heating-chamber beneath said rails, and heating means between adjacent ties within said chamber.

2. In a switch, movable rails, ties for supporting the rails, heating-pipes disposed between the ties, and means forming a chamber to inclose said pipes.

3. In a switch, movable rails, ties for supporting the rails, heating means between the ties and extending across the track, and means forming a chamber to receive said heating means.

4. In a switch, movable rails, ties for supporting said rails, heating-pipes arranged between adjacent ties and extending transversely of the rails, and means forming a chamber to receive and cover said pipes.

5. In a switch apparatus, movable rails, means forming a chamber beneath said rails which extends from one side of the track to the other, and heating means within said chamber arranged between the ties.

6. In a switch, fixed and movable rails, ties on which said rails rest, heating-pipes disposed between the ties, and means forming with the ties a chamber to receive said pipes.

7. In a switch and signal apparatus, movable parts, heating-pipes adjacent said movable parts, a shield to partially inclose and cover the pipes, and conducting members to convey heat radiating from the pipes to the parts desired to be heated.

8. In a switch and signal apparatus, movable parts, heating-pipes adjacent said movable parts, a shield to partially inclose and cover the pipes, and heat-conducting members having a portion extending under the moving parts to conduct heat thereto.

9. In a switch and signal apparatus, heating-pipes adjacent the parts desired to be heated, means to heat a heating medium, means to cause said heating medium to circulate through the pipes, and means affording an inclosing space adjacent the moving parts of the apparatus to receive said pipes.

10. In a switch and signal apparatus, heating-pipes adjacent the parts desired to be heated, means to heat a heating medium, means to cause said heating medium to circulate through the pipes, means affording an inclosing space adjacent the moving parts of the apparatus to receive said pipes, and a heat-conducting member associated with the inclosing space and arranged to convey the heat radiated from the pipes to the part or parts to be heated.

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

FRANK L. YOUNG.

Witnesses:
LOUIS C. SMITH,
BERTHA F. HEUSER.