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WATER SUPPLY CONTROL MEANS FOR DETECTOR CARS

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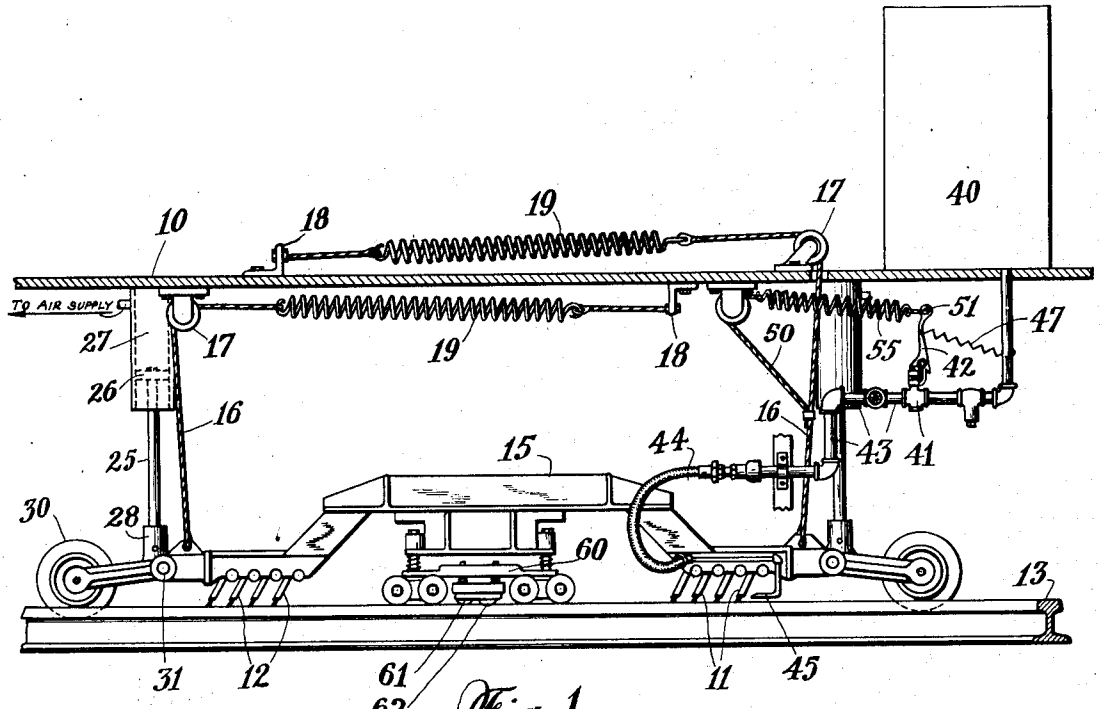


Fig. 1.

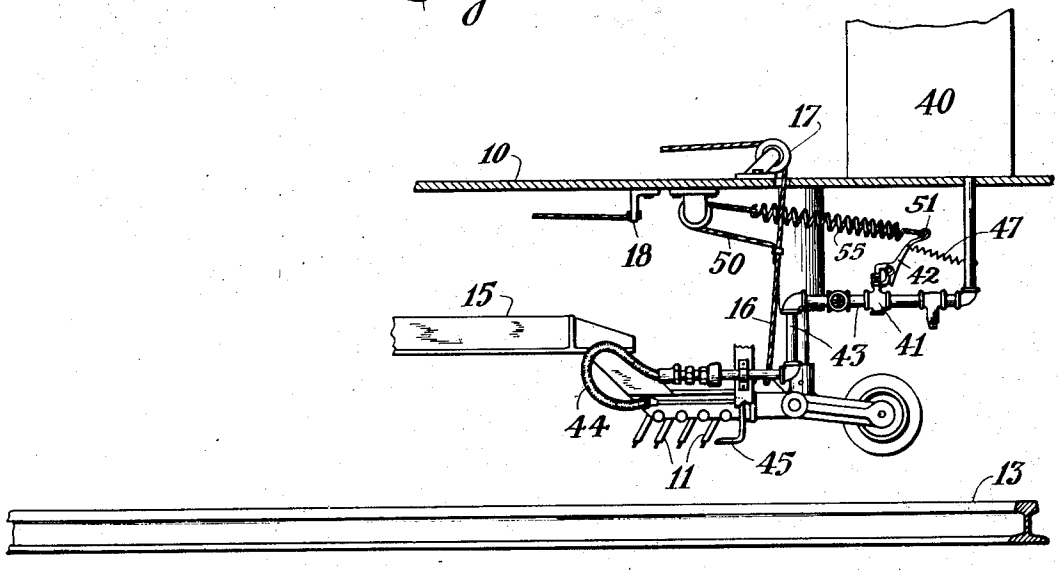


Fig. 2.

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WATER SUPPLY CONTROL MEANS FOR DETECTOR CARS

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4 Claims. (Cl. 175—183)

This invention relates to flaw detecting apparatus for detecting flaws in electric conductors. More particularly, this invention is adapted for application on the Sperry rail flaw detector, in which a car operates over rails and has means for sending current through the rails to establish an electro-magnetic field around the same so that flaws within the rail will vary the electro-magnetic flux, which can then be detected by induction coils.

It has been found that by spraying a fluid, such as water, upon the conductor in advance of the contacts for leading current into the rail, better contact was obtained and a consequently greater flux density. When the car came to a stop, however, the fluid continued to run unless the operator reminded himself to shut it off. This invention, therefore, has for its principal object the provision of means whereby the flow of fluid to the conductor surface will be automatically shut off when the contacts are raised out of engagement with the rail. This is equivalent to saying that the supply of fluid will be shut off whenever the car comes to a stop, because the brushes are not permitted to remain in contact with the rail when the car is not operating. Also, it is equivalent to saying that the flow of fluid is shut off when the circuit is broken, since raising the contacts breaks the circuit through the conductor.

Further objects of my invention will become apparent from the following detailed description thereof.

In the accompanying drawing,

Fig. 1 is a front elevation, partly sectioned vertically, of a portion of the Sperry rail flaw detector car and the mechanism supported therefrom.

Fig. 2 is a view similar to Fig. 1, but showing only a portion thereof and disclosing the contacts in raised position.

Referring to the drawing, I have shown only the floor 10 of the car, below which is suspended the contact and detector coil mechanism. Said mechanism comprises sets of contacts 11, 12, for leading current into and out of the conductor, which in this case is a rail 13. The said contacts are carried by a support 15, which is normally held in elevated position by means of a spring and cable system which comprises a cable 16 at each side passing over respective rollers 17 and connected to the floor of the car at 18 through respective springs 19. The support is guided in its upward movement by means of piston rods 25 connected to pistons 26 operating in cylinders 27, fixed to the car. The piston rods 25 are pivoted to the support 15 at 28 and said support is guided along the rails by flanged wheels 30 pivoted to the support at 31.

The support 15 being normally held in elevated position, a source of power must be applied to lower the same against the action of restoring springs 19 when testing is desired. This power may take the form of a source of compressed fluid, such as compressed air, entering the cylinders 27 as indicated.

In order to effect better contact between the contacts 11, 12 and the rail surface 13, there is provided a source of fluid, which may be water, supplied from a tank 40, said supply being controlled by a valve 41 and valve lever 42 through a pipe comprising fixed portion 43 and flexible portion 44 to a nozzle 45. The valve lever 42 is normally biased to close the flow of fluid through pipe 43, 44 by means of a spring 47. The valve is designed to be opened, however, automatically when the contacts 11, 12 are lowered into engagement with the rail surface. For this purpose there may be connected to one of the cables 16 a cable 50 whose other end is attached to the valve lever 42 at 51, so that as the support is lowered, cable 16 will pull upon cable 50 to move the valve lever to open position to permit the flow of fluid through pipe 43, 44. When the support 15 and the contacts are rased, spring 47 will move the valve lever to closed position. Preferably a resilient member, such as a coil spring 55, is interposed in the cable connection 50 to take care of irregularities in the position of support 15 due to the varying distances of said support from the floor of the car, which may be encountered during operation because of the variations in position of the rail.

The support 15 also supports by a universal mounting the detector carriage 60, in which are mounted the detector coils 61, 62, which cut the lines of force surrounding the rail 13 to induce differential E. M. F.'s when a flaw is encountered.

In accordance with the provisions of the patent statutes, I have herein described the principle and operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means. Also, while it is designed to use the various features and elements in the combination and relations described, some of these may be altered and others omitted without inter-

fering with the more general results outlined, and the invention extends to such use.

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

1. In a flaw detector for electric conductors, a plurality of current conducting contacts, means including a cable for moving said contacts to effective and ineffective positions into and out of engagement with said conductor, means for supplying fluid to said conductor surface, and means connected to said cable whereby said fluid means is rendered effective and ineffective when said contacts are moved to effective and ineffective positions, respectively.

2. In a flaw detector for electric conductors, a plurality of current conducting contacts, means including a cable for moving said contacts to effective and ineffective positions into and out of engagement with said conductor, means for supplying fluid to said conductor surface including a source of fluid and a controlling valve, and means connecting said valve and said cable whereby said valve is operated to open and closed positions when said contacts are moved to effective and ineffective positions, respectively.

3. In a flaw detector for electric conductors, a plurality of current conducting contacts, means including a cable for moving said contacts to effective and ineffective positions into and out of engagement with said conductor, means for supplying fluid to said conductor surface including a source of fluid and a controlling valve, and resilient means connecting said valve and said cable whereby said valve is operated to open and closed positions when said contacts are moved to effective and ineffective positions, respectively.

4. In a flaw detector for electric conductors, a plurality of current conducting contacts, means including a cable for moving said contacts to effective and ineffective positions into and out of engagement with said conductor, means for supplying fluid to said conducting surface including a source of fluid and a controlling valve, and a resilient cable connection between said first cable and said valve whereby said valve is operated to open and closed positions when said contacts are moved to effective and ineffective positions, respectively.

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