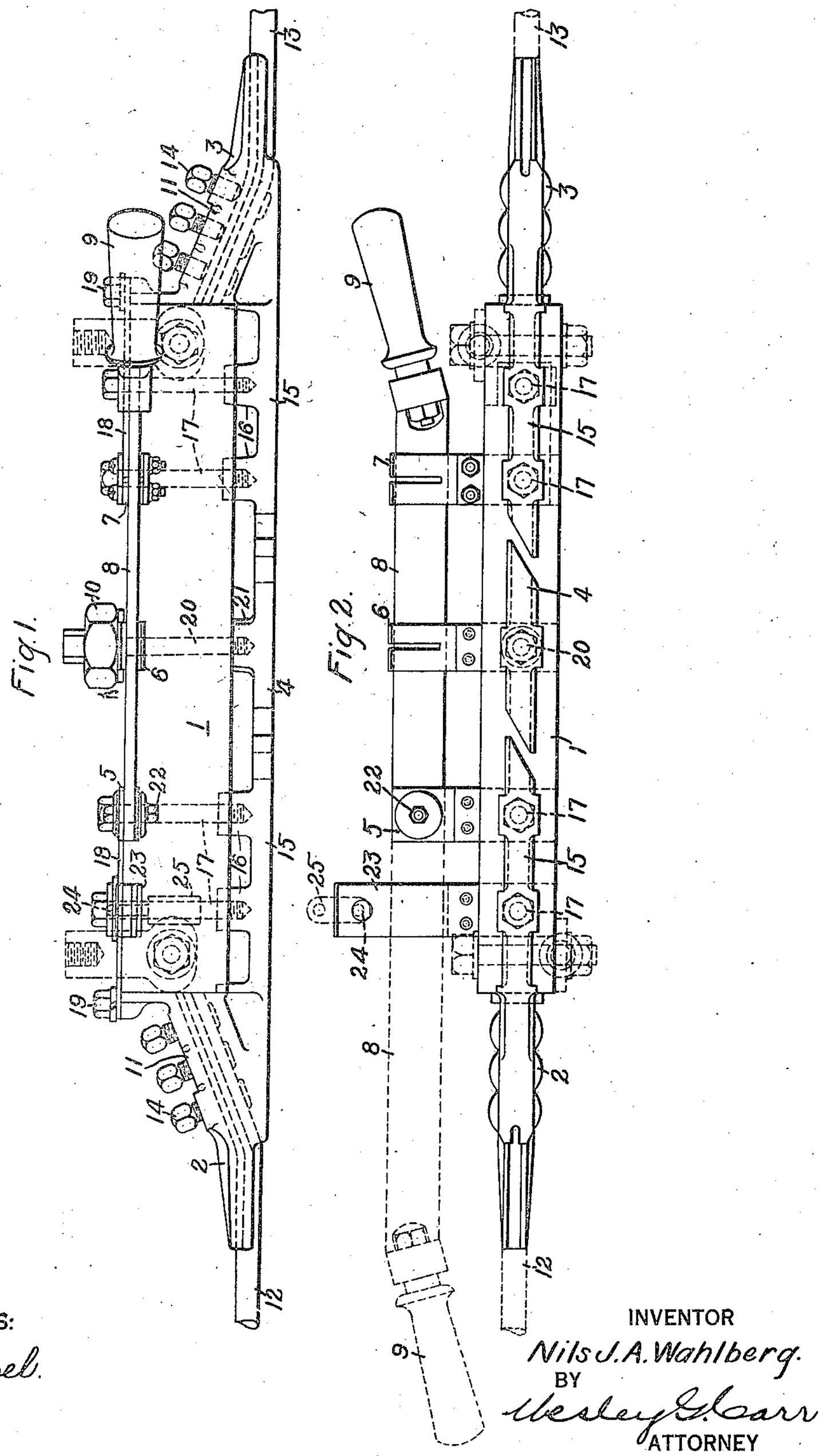
Jan. 2, 1923. 1,440,511.

N. J. A. WAHLBERG.

SECTION BREAK DEVICE.

FILED NOV. 11, 1919.



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UNITED STATES PATENT OFFICE.

NILS J. A. WAHLBERG, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

SECTION-BREAK DEVICE.

Application filed November 11, 1919. Serial No. 337,317.

To all whom it may concern:

Be it known that I, NILS J. A. WAHLBERG, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Section-Break Devices, of which the following is a specification.

My invention relates to section-break devices for electric trolley systems and particularly to section switches for use in connection with mine trolley lines.

One object of my invention is to provide a device of the above indicated character that shall be simple and durable in construction, economical to manufacture and effective in operation.

Another object of my invention is to provide a section-break device that shall present a substantially continuous contact-bearing surface by reason of having relatively short air-gaps which, together, constitute a total air-gap space of sufficient length to prevent the carrying of current by arcs from a live to a dead section of the trolley line.

Another object of my invention is to provide a section-break device that shall have means for preventing the accidental and inadvertent connection of a line to a dead section of trolley line.

Heretofore, it has been usual, in certain section-break devices, to provide knife-blade or other switches for electrically connecting two sections of a trolley line and in others to provide relatively short air-gaps over which a trolley device may pass without disengagement from metal contact members.

In the first of the above mentioned types, the switch may be inadvertently or accidentally closed to energize the section of trolley line which is intended should be dead, thereby, possibly, causing injury and loss of life.

In the other of the above mentioned types of section breaks, damage or loss of life may occur on a supposedly dead section of trolley line by the passage of a mine locomotive from a live to a dead section, the trolley of the locomotive striking an arc that may be sustained across the air-gap.

In practicing my invention, I provide a section-break device having air-gaps that are relatively short in order to present as little interruption in the contact-bearing surfaces as possible and of which a plurality are provided to increase the total air-gap resistance. The arrangement provides at least one intermediate contact member that is not positively connected to either trolley-conductor section and which may be completely electrically isolated when the switch is open. I further provide an auxiliary switch-jaw member for co-operation with the switch-blade member, and means co-operating with the auxiliary jaw member for locking the blade member, in its open position.

Figure 1 of the accompanying drawings is a side elevational view of a section-break device embodying my invention, and Fig. 2 is a bottom plan view thereof.

In general, the device comprises an elongated, rectangular, insulating body member 1, of wood or other suitable material, terminal members 2 and 3, an intermediate conducting member 4, switch members 5, 6 and 7 connected, respectively, to the members 2, 4 and 3, a switch-blade member 8, a handle member 9 for the member 8, and a swivel connecting device 10 for co-operation with a stud or other member (not shown) by which the device may be attached to the roof of a mine.

Each of the members 2 and 3 comprises an inclined channel portion 11 for the reception, respectively, of ends 12 and 13 of sections of trolley conductors that it may be desired to separate. The portions 11 are adapted for the reception of screws 14 that engage the conductors 12 and 13 to securely grip the latter in place. The members 2 and 3 are, further, each provided with runner portions 15 extending along the lower edge of the body member 1 which are provided with bosses 16 for the reception of screws or bolts 17 extending through the member 1.

Strap members 18, preferably of copper, extend along the top of the body member 1 and serve as means for conducting current from the terminal members 2 and 3 to the switch members 5 and 7, the strap members 18 being held in position by the screws 17 and screws 19 in the members 2 and 3.

The intermediate conducting member 4, constituting a runner similar to the portions 15 of the members 2 and 3, is sup-

ported on the body member 1 by a screw or bolt 20 that extends from a boss 21 on the member 4, through the body member 1 to the swivel device 10.

The adjacent ends of the portions 15 and the member 4 are spaced a relatively short distance apart and have diagonal surfaces which permit the ends to overlap, thereby providing suitable air-gap distance and presenting a substantially continuous contact surface to a trolley device.

The switch members 5, 6 and 7 are positioned in countersunk portions or grooves in the upper edge of the member 1 from which they extend laterally and are held in position by the screws 17 and 20. The blade member 8 is pivoted to the member 5 by a pin 22.

An auxiliary jaw member 23 is seated in a groove at the top of the member 1 adjacent to the terminal 2 and is adapted to receive the blade member 8 in the full open position of the latter. A padlock 25, shown in broken lines, may be placed through an opening 24 in the auxiliary jaw member 23, or other means may be employed to prevent the removal of the blade member 8 from the auxiliary jaw member 23, and, thus, prevent the inadvertent closing of the switch.

A section-break device, of the above described construction, permits workmen to work in safety on a dead section without danger of injury through inadvertent or accidental closing of the switch or by the passing of a locomotive from a live to a dead section.

While I have shown and described a particular form of my invention, changes may be effected therein without departing from the spirit and scope thereof, as set forth in the accompanying claims.

I claim as my invention:

1. A section-break device comprising a single elongated insulating member, end members having means for attachment to adjacent trolley-conductor sections and trolley-runner portions extending inwardly along and under the insulating member, an intermediate trolley-runner member mounted under the insulating member, said trolley-runner member and portions having spaced overlapping ends to provide a continuous under-running trolley-contactor surface, a stationary switch member connected to said trolley-runner member, similar stationary switch members connected to each of said trolley-runner portions and a switch arm for connecting all of said stationary switch members.

2. A section-break device comprising a single elongated insulating member, end members having means for attachment to adjacent trolley-conductor sections and trolley-runner portions extending inwardly along and under the insulating member, an intermediate trolley-runner member mounted under the insulating member, said trolley-runner member and portions having spaced overlapping ends to provide a continuous under-running trolley-contactor surface, a switch member connected to said trolley-runner member, switch members connected to said trolley runner portions, a switch arm pivoted at one end to one of the end switch members for connecting all of the switch members and means for locking said switch arm in position.

3. A section-break device comprising an elongated insulating support having transverse grooves in its top surface and vertical openings extending through the support and entering the grooves, end members having means for attachment to adjacent trolley-conductor sections and trolley-runner portions extending inwardly under the support, a trolley-runner member disposed between said portions and having ends disposed in spaced overlapping relation to said portions, transversely extending stationary switch members one of which is fitted in each of said grooves; members serving as conductors and mechanical supporting means disposed in said vertical openings and joining said trolley-runner member and portions to said switch members and a switch arm for connecting all of said stationary switch members.

4. A section-break device comprising a plurality of stationary conducting members spaced apart to provide a plurality of air-gaps therebetween, a plurality of laterally projecting stationary switch members connected to certain of said stationary conducting members, and a switch arm pivoted at one end and connected to one of the end stationary conducting members for electrically connecting and disconnecting all of said conducting members.

5. A section-break device comprising a plurality of stationary trolley-conducting members spaced apart to provide a plurality of air-gaps therebetween, the end conducting members being connected to a trolley line at all times, and a switch arm for connecting all of said conducting members and permitting an intermediate one of said conducting members to be entirely disconnected from the switch arm when the switch is open.

6. A section-break device comprising a plurality of stationary trolley-runner members spaced apart to provide a plurality of air-gaps therebetween, a stationary switch member connected to each of said trolley-runner members and a single switch arm pivoted at one end to one of the end stationary switch members for electrically connecting all of said stationary switch members.

7. A section-break device comprising a plurality of stationary conducting members spaced apart to provide a plurality of air-

gaps therebetween, a switch member connected to each of said conducting members and a single switch arm pivoted to one of the end conducting members for electrically connecting all of the conducting members.

8. In a section-break device, the combination with an insulating supporting structure and spaced trolley-conducting members supported thereon, of means for electrically connecting said conducting members comprising switch members connected to said conducting members, a dead switch member supported on the supporting structure outside the switch, a switch arm pivoted on one of said first switch members for joining said trolley-conducting members and means on said dead switch member for locking the switch arm in its open position.

9. A section-break device comprising a single elongated insulating support, a plurality of stationary trolley-runner members disposed under the support and spaced apart to provide a plurality of air gaps therebetween, a plurality of stationary switch members projecting laterally from the upper side of the support and connected to certain of said trolley-runner members, and a switch arm pivoted at one end and connected to one of the end trolley-runner members for electrically connecting and disconnecting all of said trolley-runner members.

In testimony whereof, I have hereunto subscribed my name this 30th day of Oct. 1919.

NILS J. A. WAHLBERG.