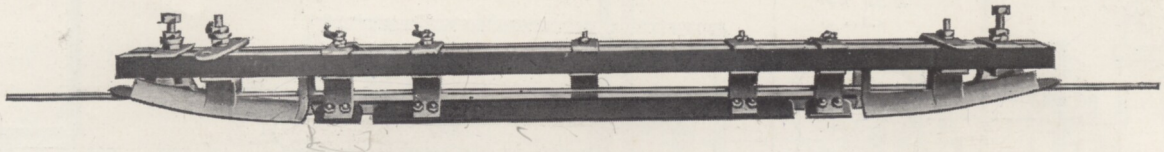
"Collins" Patent Automatic Point Turner.

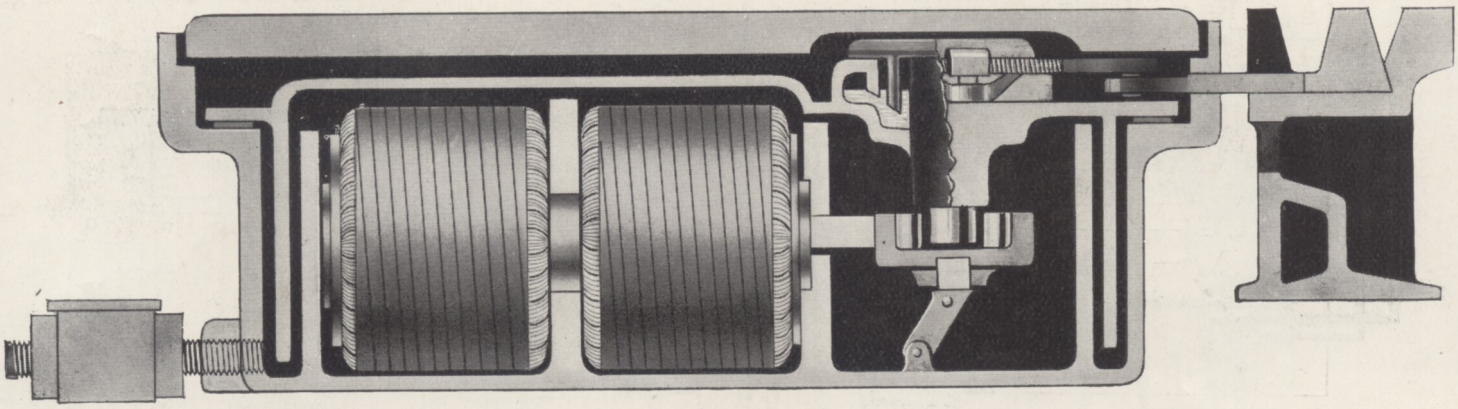


Line Contactor. Side View.

We beg to advise that we are now manufacturing an improved Point Controller to meet the more stringent conditions of the present time.

All the advantages of the earlier apparatus have been retained, including the watertight street box, but improvements have been made in the street box, relay box and line contactor.

The complete apparatus consists of one street box, one relay box and one line contactor, connected as shown in the wiring diagram on pages 2 and 3.



Watertight Street Box, Type "Q."

Patent No. 381077.

The new box, illustrated above, has the best features of the old box, and many improvements The old box had one serious disadvantage as it was necessary to keep the inner lid comparatively level when lifting, otherwise the mercury would be spilled out of the mercury stuffing box, and should the lost mercury not be replaced water would enter the street box and the coils would be damaged.

It is now impossible for the mercury to spill out of the mercury stuffing box even if the inner lid should be turned completely upside down. An examination of the mercury stuffing box in the illustration will shew a cavity completely encircling the upper part of the stuffing box. If the lid is tilted or turned upside down the mercury pours into the cavity, but returns to its normal position as the inner lid resumes its level position. The mercury cannot be removed from the stuffing box except through holes provided for the purpose and sealed with plug caps.

The new box has the following advantages over the old box :—

It is very much stronger, and the area of the seating for the outer lid is twice as great.

The outer cast steel lid is stronger, and will withstand the heaviest road traffic.

The coils are stronger, the toggle spring is more powerful, and the vertical shaft is shorter and stronger. The magnetic circuit has been improved and the controller will turn the heaviest double points with ease.

The dimensions of the boxes are as follows :

	Length	Breadth	Depth
New box type "Q"	32 in.	19¼ in.	11 in.
Old box	32 in.	19¼ in.	13 in.

It will be noticed that the new box is 2 in. less in depth than the old box. The coils and plungers of the old and new boxes are interchangeable.

The new box will operate with the same relay boxes and line contactors as used for the old box.

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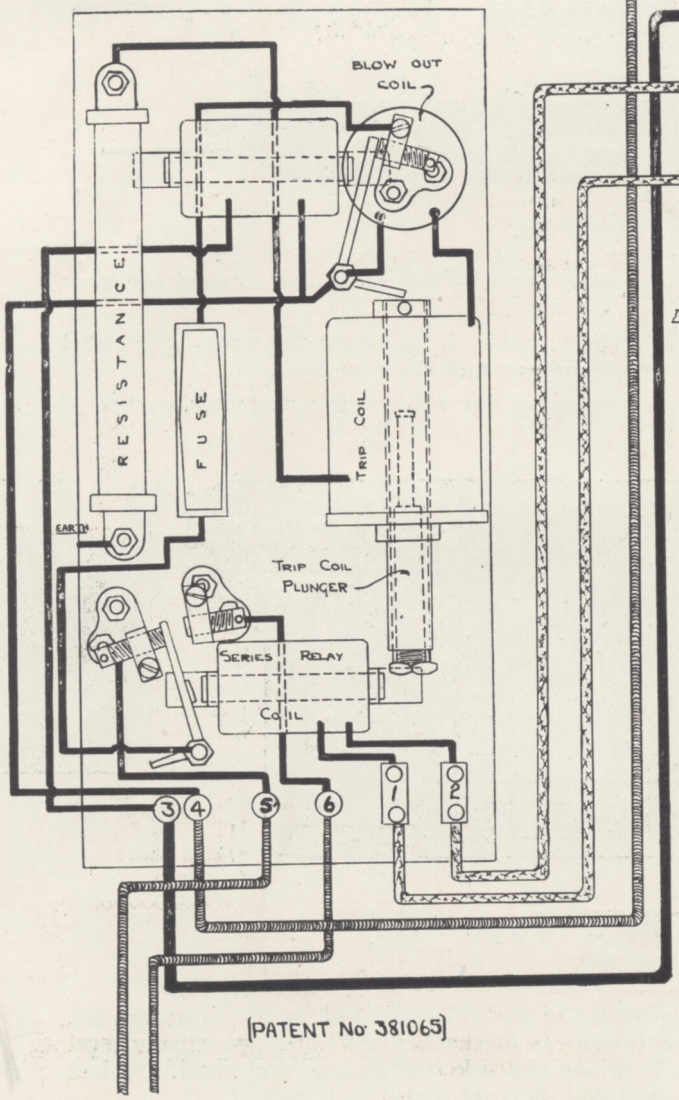
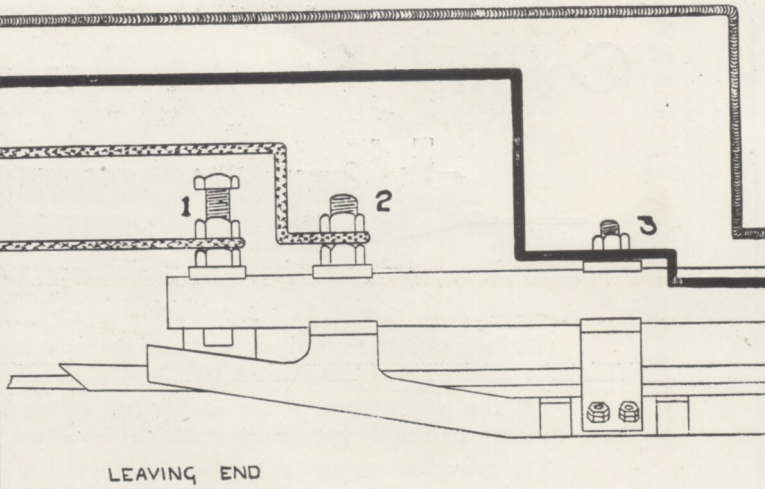
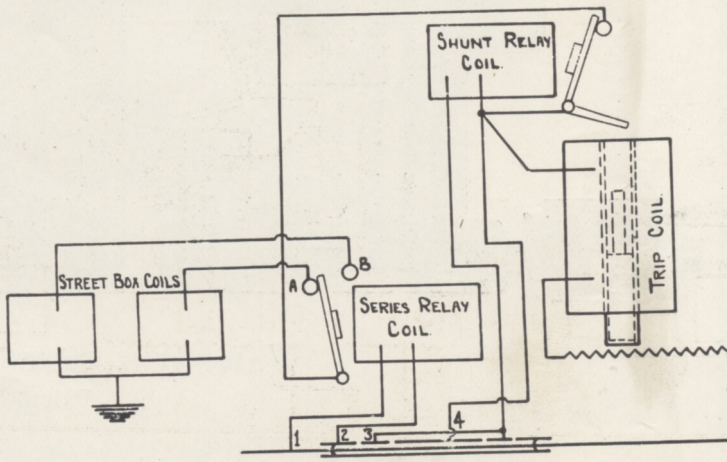


(PATENT No 381065)

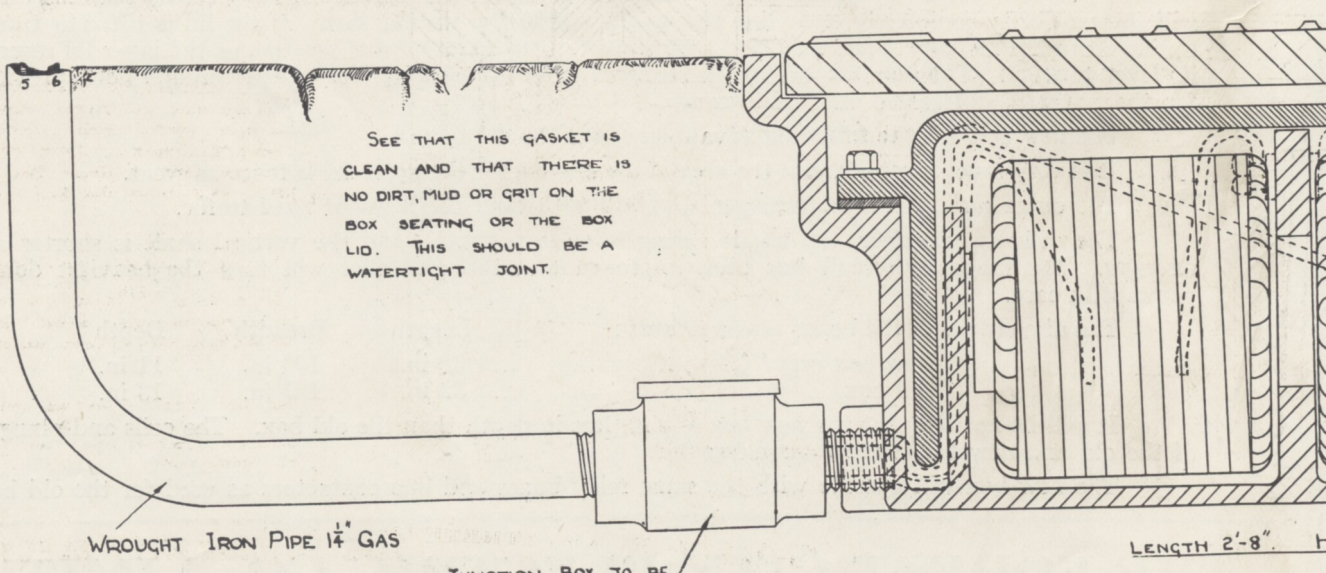


LEAVING END



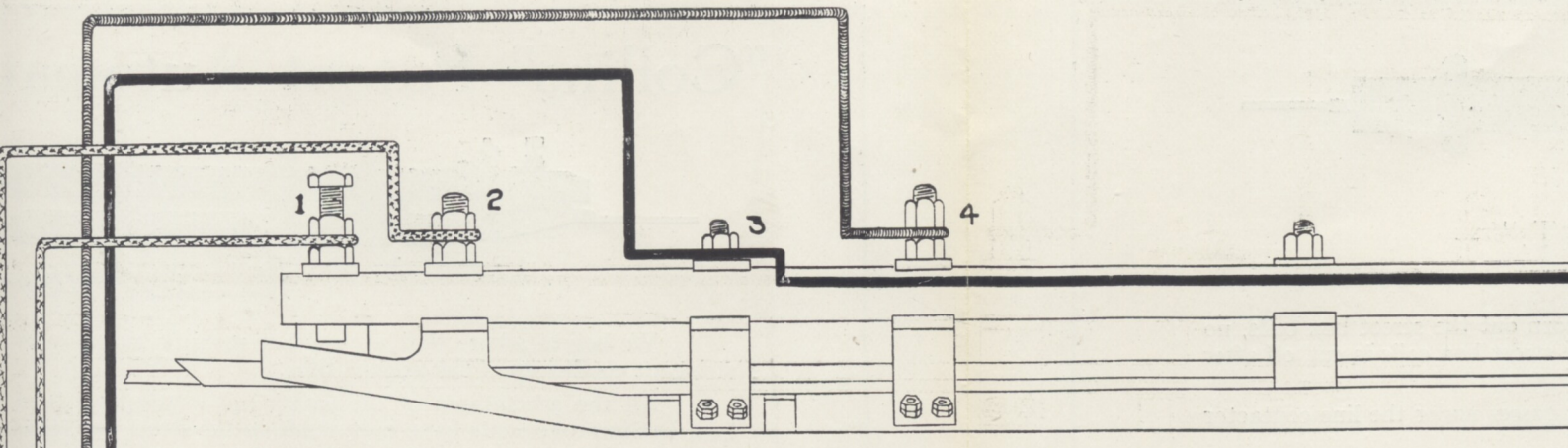
CIRCUIT WHEN CAR PASSES UNDER LINE CONTACTOR NOT DRAWING CURREN

PLACE RELAY BOX 10 FEET ABOVE GROUND



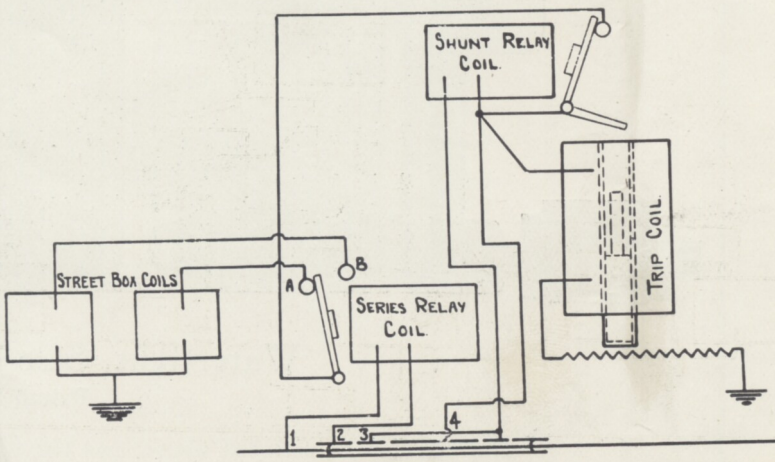
LENGTH 2'-8".

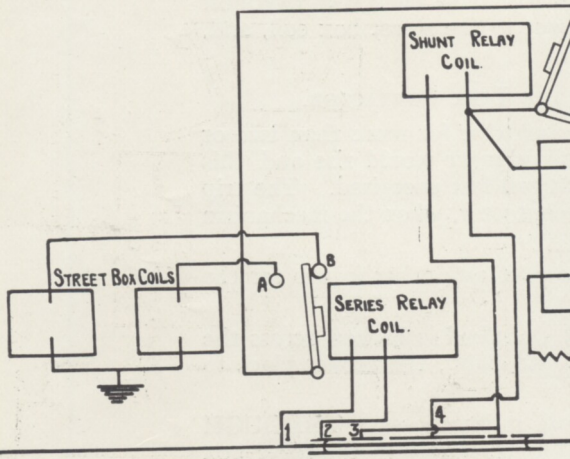
STRE



LEAVING END

LINE CONTACTOR

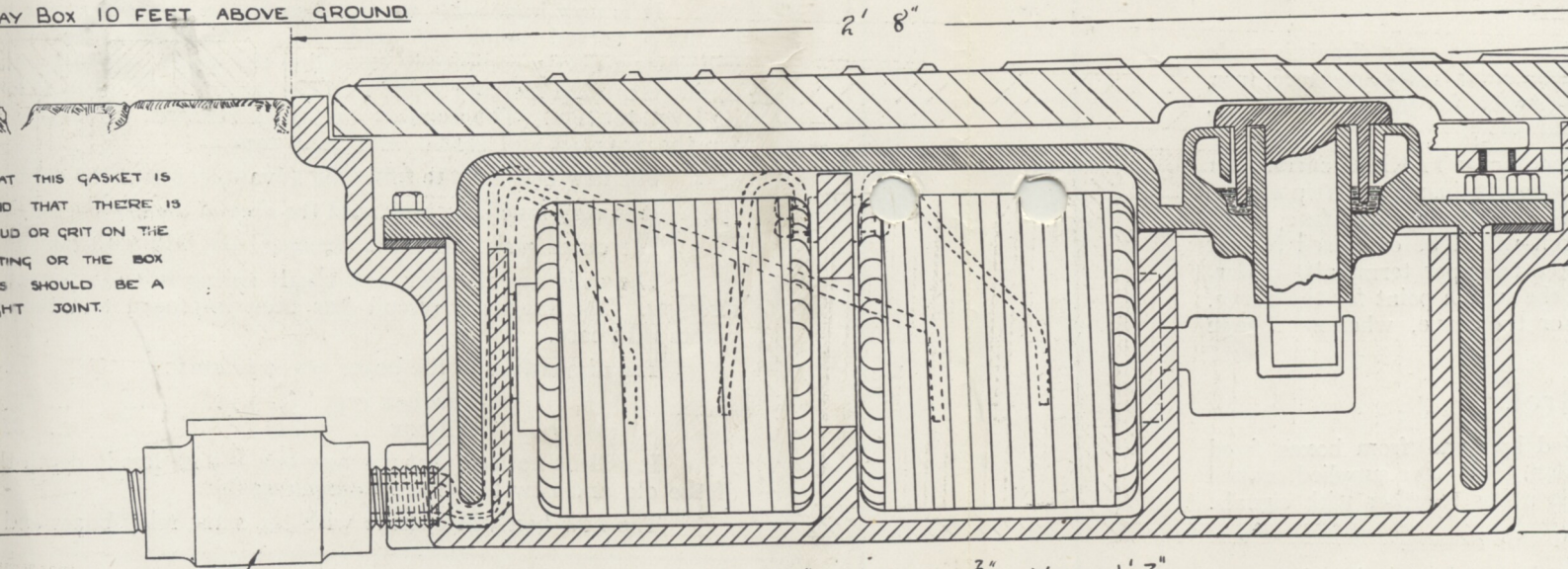




CIRCUIT WHEN CAR PASSES UNDER LINE CONTACTOR NOT DRAWING CURRENT

CIRCUIT WHEN CAR PASSES UNDER LINE CONTACTOR DR

AY BOX 10 FEET ABOVE GROUND

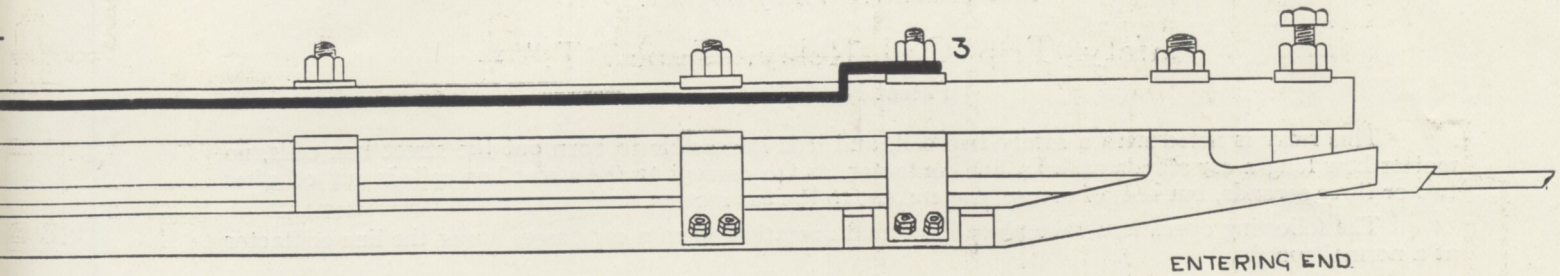


AT THIS GASKET IS
ID THAT THERE IS
UD OR GRIT ON THE
TING OR THE BOX
S SHOULD BE A
HT JOINT.

JUNCTION BOX TO BE FILLED WITH COMPOUND

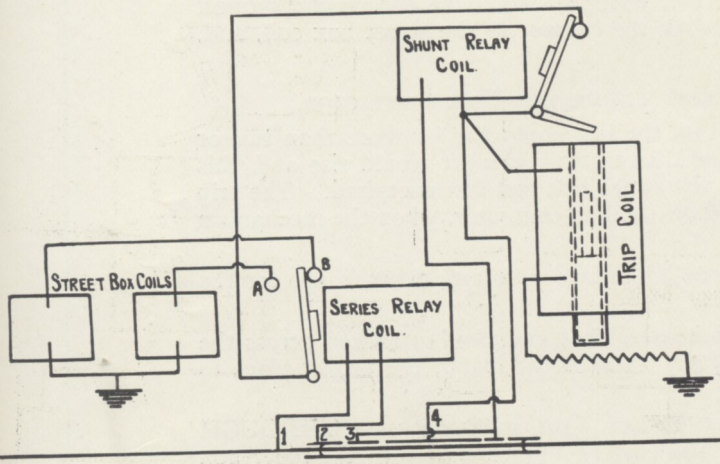
LENGTH 2'-8". HEIGHT $11\frac{7}{8}$" WIDTH 1'-7"

STREET BOX (PATENT No: 381077)

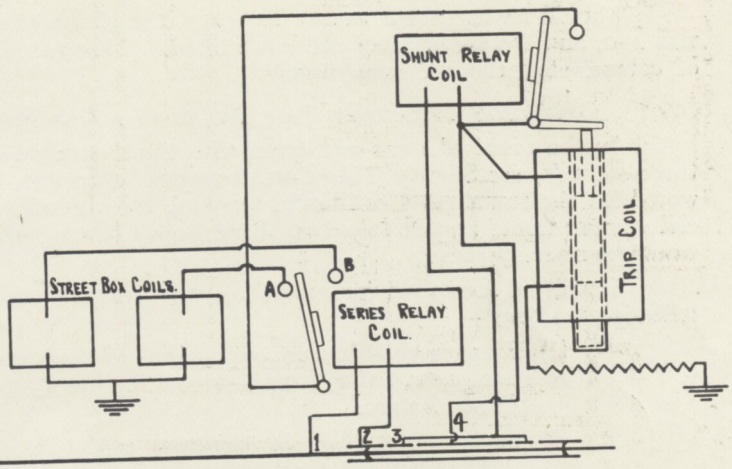


ENTERING END.

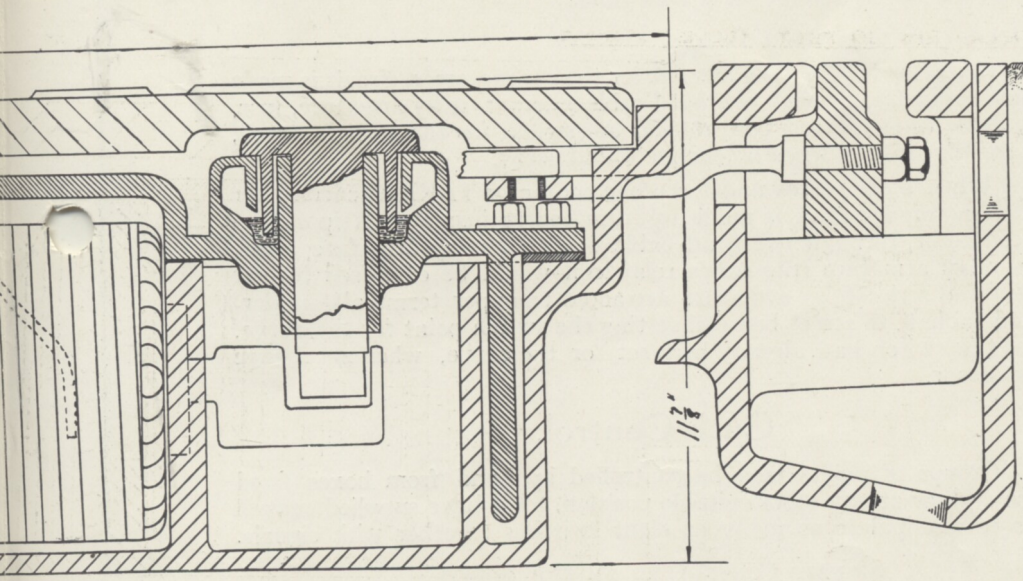
LINE CONTACTOR



CIRCUIT WHEN CAR PASSES UNDER LINE CONTACTOR DRAWING CURRENT.



CIRCUIT BROKEN BY SHUNT RELAY LATCH WHEN TRIP COIL HAS OPERATED.



2" / 18 WIDTH 1'-7"

BOX (PATENT No: 381077)

FIXING STREET BOX.

PLACE BOX IN STREET CLOSE UP AGAINST POINT. BED ON CONCRETE BOND BOX TO RAIL. MAKE PIPE LINE FROM STREET BOX TO RELAY BOX. MAKE THIS PIPE WATERTIGHT. USE RED LEAD AT JOINTS.

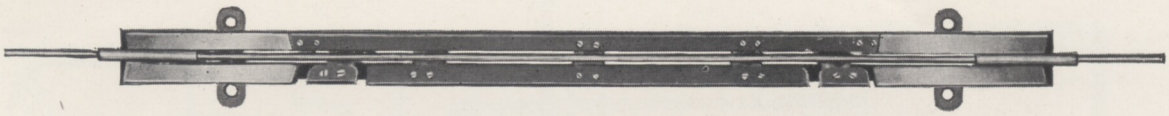
MAINTENANCE OF STREET BOX.

IT IS ONLY NECESSARY TO OPEN UP BOX ONCE IN 12 MONTHS FOR OILING. THOROUGHLY CLEAN ALL BEARINGS, THEN GREASE ALL BEARINGS LIBERALLY.

SEE THAT THERE IS NO DIRT, GRIT OR GRAVEL ON EDGE OF INNER LID, GASKET OR BOX SEATING BEFORE REPLACING INNER LID. THIS JOINT MUST BE WATERTIGHT.

THE FOREST CITY ELECTRIC Co LTD
MANCHESTER

DRG. No 51815.



Line Contactor. View from below.

Safety Trip Coil Relay, Type "T."

Patent No. 381065.

This relay is fitted with a safety trip coil, and it is impossible to burn out the street box coils, no matter how long a car stands under a line contactor, as the current to the street box coils is cut off after two or three seconds, but not, of course, the current to the car motors.

The following operations take place in normal operation when a car passes under the line contactor at a normal speed.

Normal Operation.

As the trolley wheel passes off the end of the line contactor the current to the street box coil last energised is broken by the arc gaps at the leaving end of the contactor.

Operation of Shunt Relay in the Event of an Arc.

Should an arc occur at the arc gaps, the shunt relay coil windings would be energised THROUGH THE ARC, and the shunt relay coil latch lifted. This would break the current to the street box coil, and, of course, stop the arc immediately.

Operation of Safety Trip Relay if a Car Remains under the Line Contactor.

In the event of a car remaining with the trolley wheel on the line contactor for more than two or three seconds, the Safety Trip Coil would be energised, and the tripcoil plunger would rise and this would lift the shunt relay coil latch, breaking the current to the street box coil last energised. The trip coil plunger would remain raised until the trolley wheel passed off the line contactor, when the mechanism would be reset by gravity.

It will be seen that our new relay box has an enormous advantage over any other in use for the following reasons :—

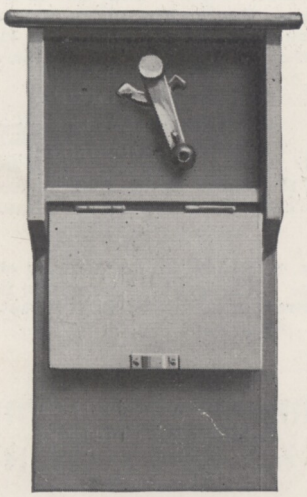
(1) In normal operation the current to the street box coil last energised is broken across the arc gaps at the leaving end of the line contactor. This is, we claim, the proper place to break the arc.

(2) In the event of an arc being set up the Shunt Relay Coil is Energised THROUGH THE ARC, the shunt relay latch lifted, and the current broken partly in the relay box and partly across the arc gaps on the line contactor.

(3) The trip coil is a safety device to save the coils from being burned out if a car remains with the trolley wheel on the line contactor for a long time.

Operation of Switch Points.

When a car passes under the line contactor NOT taking current for the car motors, a circuit is made up from centre insulated strip on the line contactor, through overhead cable 4, shunt relay armature, fuse, series relay armature, underground cable 5, to street box coil, setting the switch for the straight track, unless the switch had already been set for the straight when no change would occur.



When a car passes under the line contactor TAKING current for the car motors a circuit is made up from centre insulated strip on the line contactor, through overhead cable 4, shunt relay armature, fuse, series relay armature (the series relay coil would be energised by car current and series relay armature attracted to upper terminal), underground cable 6, to street box coil setting the switch point for the curve, unless the switch had already been set for the curve, when no change would occur.

Curb Control.

Groups of points may be controlled by hand from boxes fixed on the curb or at any other suitable position. We have supplied control boxes to manipulate as many as eight switches together with signals.

Signals Controlled by the Points.

Indicator contacts can be fitted to the plungers inside the street box, and by connecting signal lights to the indicator contacts the position of the points is shown by the signals.

These indicator contacts can also be used for operating traffic control lights.