To all whom it may concern:

Be it known that I, WILLIAM W. WAGNER, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented new and useful Improvements in Railway Signal-Circuits, of which the following is a specification.

This invention relates to improvements in railway signal circuits and has particular application to a track circuit.

In carrying out the present invention, it is my purpose to provide a track circuit which will include a battery having the terminals connected with the lines of rails respectively, and trembler coils connected in series with the battery to alternately open and close the track circuit to cut down the current consumption.

In actual tests, I have found that without employing the trembler or vibrator in the track circuit, the current consumed is between 800 and 900 mil. amp., depending upon weather conditions, while with the vibrator or trembler connected in series the current consumed is cut down to a point between 100 and 150 mil. amp., thus saving the current and prolonging the life of the battery.

My invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claim.

In the accompanying drawing:

The figure is a diagrammatic plan view of a railway signal track circuit equipped with a trembler and trembler coils in accordance with the present invention.

In the drawing, 1 designates the lines of rails of the track, while 2 indicates a track relay having the terminals thereof connected with the lines of rails respectively and disposed at one end of the block. Arranged at the other end of the block is a track battery 3 having the terminals thereof connected with the respective lines of rails of the track. The track relay 2 is normally energized by the battery 3 to hold the controlled signal at clear and when a train enters the block the relay is short-circuited to release the signal and permit the latter to go to danger, as is well understood by those skilled in the art.

In accordance with my present invention, I connect in series with the battery trembler coils 4 a trembler under the control of the coils 4 and comprising a lever 5 equipped with an armature 6 disposed within the influence of the poles of the relay coils 4. One end of member 5 is pivoted as at 6' and the opposite end is equipped with a contact 7 normally engaging an adjustable contact screw 8 carried by one end of a resilient finger 9, the remaining end of the finger being fixed to a suitable support. The finger, 65 the contacts, the trembler lever and the coils are connected in series with each other and with the battery 3 as clearly illustrated in the drawing.

The track relay 2 has a resistance of several ohms, say, for instance, five, while the trembler coils 4 are wound to a fractional part of an ohm.

As long as the block including the track circuit composed of the elements previously described is unoccupied, the track circuit is closed and current flows from one side of the battery 3 through one line of rails of the block, the relay 2, back to the other line of rails of the block through the trembler coils 4, the trembler lever 5, the contacts 7 and 8, the finger 9 and then back to the other side of the battery. Owing to the track relay 2 being wound to several ohms resistance and the trembler coils 4 to a fractional part of an ohm, the track relay 2 will be maintained energized when the block is unoccupied, while the trembler coils will remain inactive and the trembler lever 5 in lowered position. When, however, a train enters the block the lines of rails are bridged by the wheels and axles of the cars, thereby short-circuiting the track relay and when the track relay is short-circuited the current flows through the trembler coils 4 energizes such coils so that the lever 5 is drawn upwardly under the action of the armature 6 and in the upward movement of the lever the contacts 7 and 8 separate, thereby breaking the circuit through the trembler coils 4 and permitting the lever 5 to fall back to circuit closing position, this alternate opening and closing of the circuit continuing as long as the block is occupied, thereby reducing the volume of current consumed.

I claim:

The combination of a plurality of rails comprising a single block of a railway, a branch circuit connected directly with the respective rails at one end of the block, a battery, a magnet, and an interrupter con-
trolled by the magnet in series in said circuit, a second branch circuit connected with the respective rails of the same block at a distance from the point of connection of the first named circuit, and a relay in the second branch circuit energized from the battery in the first circuit, said rails and branch circuits providing a continuous path for the current when the block is clear, the relay being short circuited when the block is occupied, said interrupter being operative by the battery current when the relay is short circuited and being inoperative by the current when the relay is energized.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. WAGNER.

Witnesses:

CHAS. B. BRUNNER,

HELEN M. ACKERMAN.