A. E. CLAUDON.

CIRCUIT MAKE AND BREAK DEVICE.

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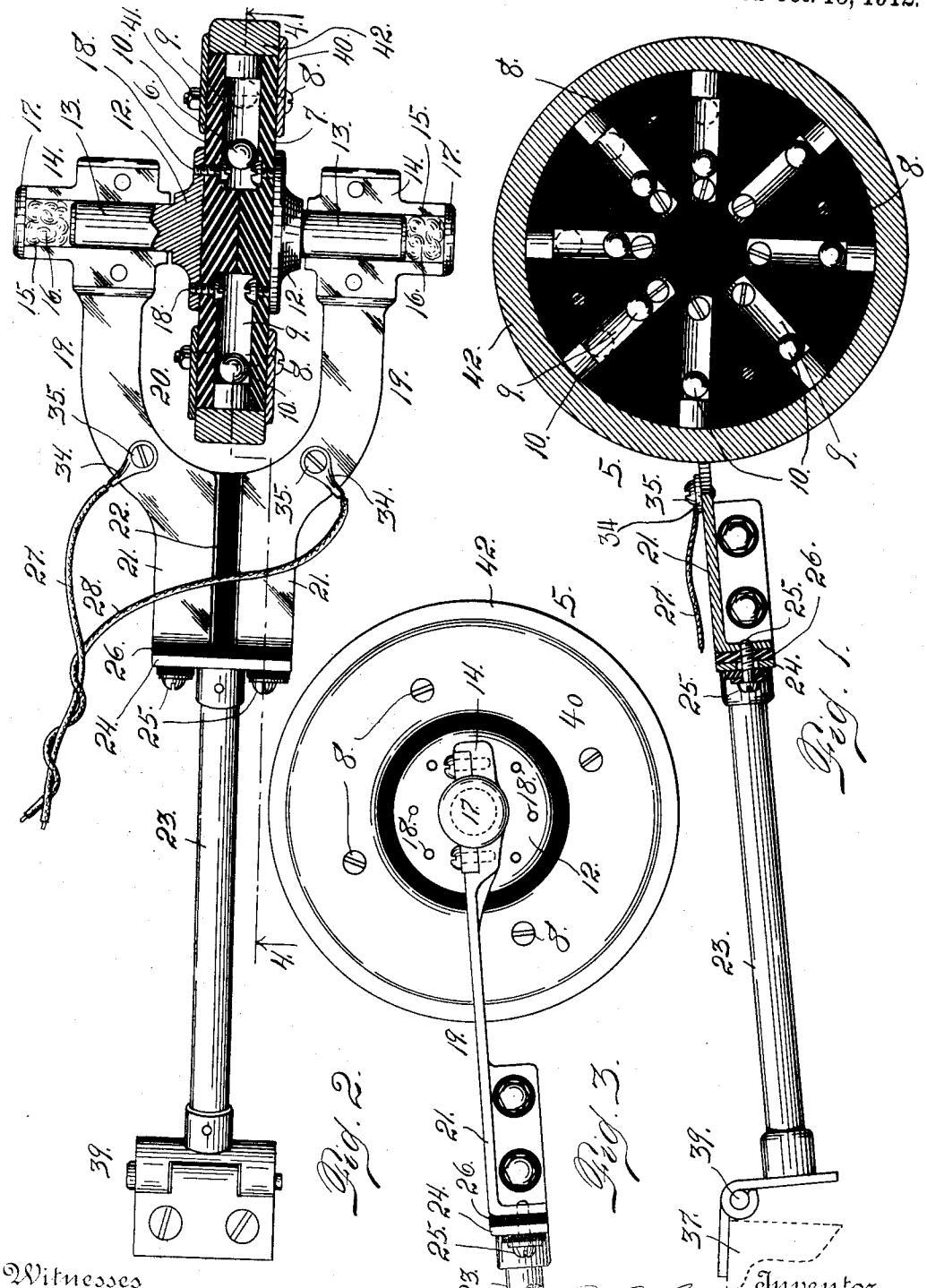

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CIRCUIT-MAKE-AND-BREAK DEVICE.

1,041,594. Specification of Letters Patent. Patented Oct. 15, 1912.

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To all whom it may concern:

Be it known that I, AUGUST E. CLAUDON, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Circuit-Make-and-Break Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates generally speaking to improvements in a circuit make-and-break device. However, in this specification the device will be illustrated and described with special reference to its use on electric cars for breaking the circuit, in which lamps are suitably located for illuminating the steps where passengers get on and off the car. By virtue of my improvement the circuit is broken as soon as the car starts and again closed as soon as it stops.

It is evident that the object of the device is to save electricity, since it is not necessary that the step-illuminating lamps should burn while the car is in motion, as passengers do not get on and off the car at such time.

Generally speaking the invention consists of mounting a disk upon the car in such a manner that its periphery engages the tread of one of the car wheels, the disk having movable devices concealed therein which normally, or when the wheel is not in motion, serve to close the circuit or maintain it intact, while when the wheel is in motion these devices are thrown outwardly by centrifugal force, moving them away from the contacts which they normally engage, and thereby breaking the circuit.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a section taken on the line 4—4 of Fig. 2, cutting the make and break disk diametrically. Fig. 2 is a top plan view of my improved device with a portion of the disk holder removed, the disk being shown in section, the parts being shown on a larger scale. Fig. 3 is a side elevation of the same partly broken away.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a disk which as illustrated in the drawing includes two insulating members 6 and 7 connected by bolts 8 and provided with a series of radially disposed cavities 9 in which metal balls 10 are adapted to move. To these insulating members on opposite sides are applied metal plates 12 terminating at their outer ends in journals 13 engaging metal bearings 14 in whose outer extremities beyond the journals are left openings 15 in which waste 16 is located, the said waste being adapted to be saturated with oil for purposes of lubrication. It is preferred that the lower half of the bearings shall have closures 17 for the extremities of the journal openings, whereby the waste is retained in place. The metal plates 12 are connected with the insulating member 6 by a series of pairs of contact screws 18, each pair of screws being adapted to be engaged by a metal ball 10 for the purpose of closing the electrical circuit when the ball is at its inward limit of movement. The journal bearings 14 are mounted on metal arms 19 which are separated as shown at 20 to receive the disk. These arms 19 approach each other beyond the disk as shown at 21 where they are separated by an insulating member 22. The arms 19 are rigidly connected with a rod 23 carrying a T-head 24, which is secured to the parts 21 by screws 25. The rod 23, however, is insulated from the parts 21 by an insulating member 26 interposed between the parts 21 and the T-head 24. Furthermore the screws 25 which are threaded into the members 21, are insulated from the T-head 24 and consequently from the rod 23. This construction and arrangement prevents the electricity from passing through the disk holder beyond the members 19 carrying the bearings for the disk.

Let the numerals 27 and 28 designate the two electrical conductors, both of which are connected with a socket located in the lighting circuit of a car.

By reference to Fig. 1 of the drawing it will be understood that there are eight radially disposed cavities formed in the insulating disk, each one of these cavities being occupied by a metal ball 10 which when at its inward limit of movement closes the electrical circuit by virtue of the construction

heretofore described. It will also be understood from an inspection of the drawing, that when the disk 5 is at rest or not rotating, at least three of the metal balls 10 will be at their inward limit of movement, whereby the said circuit is simultaneously closed at, at least three points, since the individual screws of each pair 18 are respectively connected with the two branches of the circuit and both these screws are always engaged by a ball 10 when the latter is at its inward limit of movement.

The two circuit wires 27 and 28 lead to terminals 34 respectively mounted on the two members 19 of the disk holder, the said terminals being connected with the said members by screws 35.

When my improved device is connected with a car, the disk 5 is so mounted that its periphery shall engage the tread of one of the car wheels. As shown in the drawing the rod 23 is connected with a part 37 of the truck by means of a hinge 39; thus allowing the disk a certain degree of movement to compensate for any unevenness in the tread of the wheel and compelling the disk to remain in contact with the wheel at all times. From this it will be understood that when the car is in motion the disk 5 will be rotated with considerable velocity, whereby the necessary centrifugal force will be developed to cause all of the balls 10 to leave the contact screws 18 and move outwardly in their respective radial cavities 19, and these balls will remain in that position as long as the car is in motion. However, as soon as the car stops, the disk will cease to rotate and all of the balls occupying cavities 19 in the upper part of the disk will roll inwardly and in the form of construction shown in Fig. 1 of the drawing, the circuit through the conductors 27 and 28 will then be closed at, at least three of the points, since at least three balls 10 will roll by gravity to their inward limit of movement, whereby each is brought into contact with a pair of screws 18, the individuals of which are located in the respective branches of the circuit as heretofore explained.

The insulating members 6 and 7 are preferably composed of wood, and in order to give them the necessary strength and make the device exceedingly durable, I apply circular metal plates 40 to the opposite sides of the members 6 and 7, the bolts 8 securing these circular plates to the insulating wood members, nuts 41 being applied to the threaded extremities of the said bolts, the bolts being interposed between the radial cavities 9 as indicated in Fig. 1. These circular plates 40 project beyond the peripheries of the insulating wood members 6 and 7 of the wheel and serve to retain the tire 42 in place. This tire may be composed of leather, rubber or other suitable material. Some soft material is preferable in order to make the device practically noiseless.

Having thus described my invention, what I claim is:

A device of the class described, comprising a holder composed of two metal members, forming a fork and insulated from each other, an insulating disk composed of two members, means for connecting the said members with each other, the said disk having radially arranged cavities suitably spaced, and whose inner extremities are separated from each other by a solid part of the disk, centrally located metal hub members applied to the disk members on opposite sides of the latter, metal screws connecting the said hub members with their respective disk members, the heads of the screws projecting into the inner extremities of the cavities, there being two separated screw heads in each cavity, the said hub members having metal journals which respectively engage the two members of the fork, an electric circuit whose branches are respectively connected with the said fork members, and metal balls freely movable in the respective cavities and adapted to engage the two screws of each cavity when the balls are at their inner limit of movement to close the circuit, substantially as described.

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

AUGUST E. CLAUDON.

Witnesses:
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