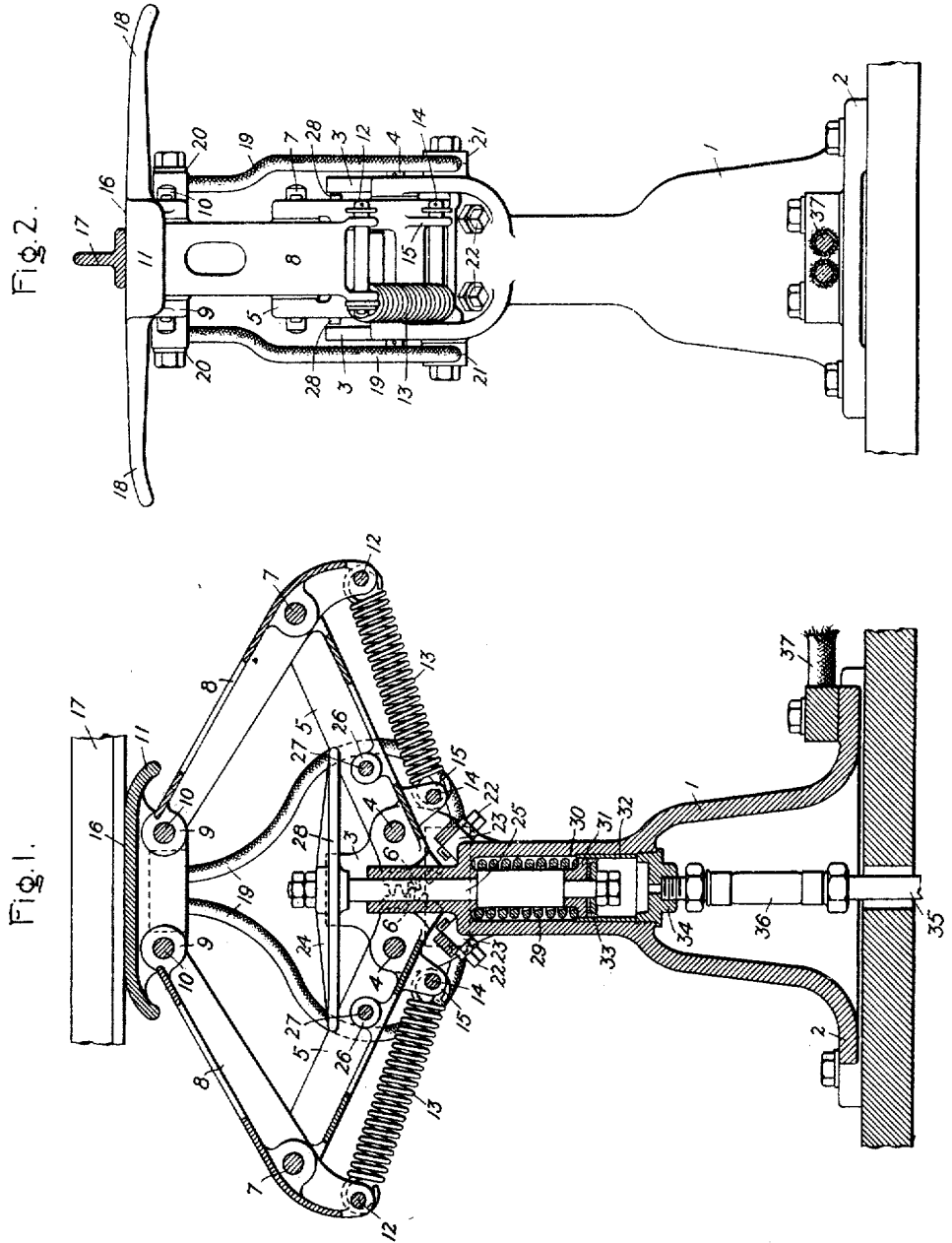


S. B. STEWART, JR.
 UNDERRUNNING CURRENT COLLECTOR.
 APPLICATION FILED NOV. 23, 1904.

941,390.

Patented Nov. 30, 1909.

Repper 547,283 Trolleys.



Witnesses.
Harry A. Tilden.
Allen W. Ford

Inventor.
 Samuel B. Stewart, Jr.
 by *Albert H. Davis*
 Att'y.

UNITED STATES PATENT OFFICE.

SAMUEL B. STEWART, JR., OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

UNDERRUNNING CURRENT-COLLECTOR.

941,390.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed November 23, 1904. Serial No. 233,956.

To all whom it may concern:

Be it known that I, SAMUEL B. STEWART, Jr., a citizen of the United States, and residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Underrunning Current-Collectors, of which the following is a specification.

The present invention relates to electric railways, and more particularly to the means carried by a car or locomotive for collecting the current from a stationary conductor supported along the roadway, and the object of the invention is to provide a current collector adapted to be secured to the roof of a car or locomotive which will permit the latter to run in both directions without reversal of the former and having provision whereby it may be lowered into inoperative position with facility.

In carrying out my invention I provide a suitable stand adapted to be bolted to the roof of a car or locomotive and carrying at its upper end a set of pantographic levers connected and arranged to support in substantially horizontal planes a contact shoe for making sliding engagement with the stationary conductor and normally impelled upward by suitably arranged springs to maintain the shoe pressed into engagement with the conductor, and in order that the levers and contact shoe may be depressed with facility into inoperative position, I provide a retractor acted upon by a spring of sufficient strength to overcome the tension of the springs tending to elevate the shoe and provide a pneumatic motor for raising and supporting the retractor against the force of its spring.

For a more complete understanding of the invention reference may be had to the following detailed description and the accompanying drawing forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section of a current collector embodying one form of my invention; and Fig. 2 is an end elevation thereof with parts removed to more clearly illustrate the device.

The stand consists of a cast-metal shell 1 having a bottom flange 2 adapted to be secured by bolts to the roof of a car or locomotive, and on opposite sides of the upper end are integral bearing plates 3 carrying two shafts 4. On each of the shafts 4 is

fulcrumed a lever 5 having gear teeth 6 at its inner end adapted to engage corresponding teeth on the other lever whereby they are caused to move up and down in unison. At the outer ends of levers 5 are transverse pins 7 on which are fulcrumed curved levers 8 provided with bearings 9 at their upper ends for the reception of shafts 10 extending through the lower portion of a contact shoe 11. The lower ends of levers 8 carry pins 12 which project beyond opposite sides thereof and are connected by pairs of helical tension springs 13 with similar pins 14 carried by lugs 15 depending from the lower sides of levers 5 near their fulcrums; the action of the springs 13 being to rock the levers and elevate the shoe 11.

The shoe consists of a metallic plate with a long chafing surface 16 to engage the under surface of a suspended conductor bar 17 and is provided with long side arms 18 which serve to prevent the contact shoe from rising above the conductor bar in case of side movement of the collector or disalignment of the conductor. The shoe 11 is positively connected electrically with the stand by flexible cables 19 bolted to the opposite sides thereof at 20 and to the sides of the bearing plates 3 at 21. In order to prevent the shoe 11 being elevated beyond a certain distance in case it should pass off the end of the conductor bar before being retracted adjustable stop bolts 22 are provided which are carried by lugs 23 at the upper end of the stand between the bearing plates 3 and adapted to engage the inner ends of levers 5.

The retractor for depressing the shoe 11 out of engagement with the conductor bar consists of a T-head 24 carried at the upper end of a rod 25 movable vertically in the stand and adapted when moved downward to engage near the ends of its arms with rollers 26 carried by cross-bars 27 on the levers 5. The T-head is guided and prevented from turning on its axis by parallel side extensions 28 which move freely in contact with the inner surfaces of the bearing plates 3. The rod 25 is normally forced downward by a heavy compression spring 29 arranged in a concentric chamber 30 in the stand and thrusting at its upper end against the end of said chamber and at its lower end against a collar 31 carried at the lower end of the rod 25. The lower portion of the chamber 30 is provided with a non-corrosive cylindrical

bushing 32 and the rod 25 has an air-tight piston box 33 secured thereto beneath the collar 31. The end of the chamber 30 is closed by a cylinder head 34 centrally perforated and connected therewith is a pipe 35 which leads to a suitably arranged fluid pressure tank, not shown. A section 36 of the pipe is made of rubber or other non-conducting material to insulate it from the current passing through the stand to the leads 37.

When the pressure fluid is turned on the retractor will be raised against the compression of its spring 29 into the position shown in Fig. 2, and held there so long as the pressure fluid remains on, but the instant the pressure fluid is allowed to escape the retractor operates under the recoil of its spring to depress the contact shoe from the conductor bar.

I do not desire to restrict myself to the particular form or arrangement of parts herein described and shown, for it is apparent that they may be changed and modified without departing from my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,

1. In a current collector for electric railways, the combination of a contact shoe of a length to make extended contact and having oppositely projecting side arms, and means to yieldingly support said shoe in parallel planes.

2. In a current collector for electric railways, the combination of a contact member, pantographic levers supporting said contact member, and a retractor arranged to engage the lowermost levers and move said contact out of operative position.

3. In a current collector for electric railways, the combination of a base, an under-running contact supported on said base, springs for holding said contact in elevated position, a retractor mounted on said base

for drawing said contact out of operative position, and means actuated by fluid pressure for restoring said retractor to inoperative position.

4. In a current collector for electric railways, the combination of a contact member, spring-pressed levers for holding said member in elevated position, a retractor normally biased to move said contact into inoperative position, and fluid-pressure means for opposing the biasing force of said retractor.

5. In a current collector for electric railways, the combination of a contact member, spring-pressed means for supporting said member in elevated position, a retractor provided with a spring to depress said contact member, and a fluid motor for controlling said retractor.

6. In a current collector for electric railways, the combination of a contact member, spring actuated means for supporting said member in elevated position, a retractor provided with a longitudinally spring-pressed rod, a piston carried by said rod, and means for applying fluid pressure to said piston.

7. In a current collector for electric railways, the combination of a stand provided with a vertical pressure cylinder, a contact shoe supported in elevated position by spring-actuated levers carried by said stand, a retractor adapted to engage said levers and provided with a piston rod, a spring surrounding said piston rod and normally acting to depress said retractor, and means to conduct fluid pressure to said cylinder.

In witness whereof, I have hereunto set my hand this eighteenth day of November, 1904.

SAMUEL B. STEWART, Jr.

Witnesses:

EDWARD WILLIAMS, Jr.,
BENJAMIN B. HULL.