

No. 676,207.

Patented June 11, 1901.

S. STEINER & C. BOLTSHAUSER-SCHMID.  
APPLIANCE FOR STOPPING RAILWAY TRAINS.

(Application filed Jan. 23, 1901.)

(No Model.)

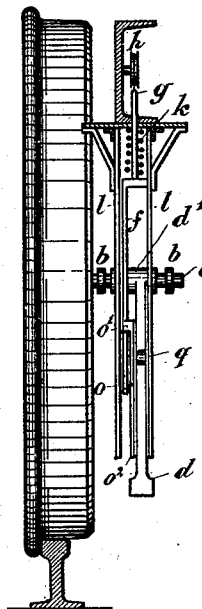
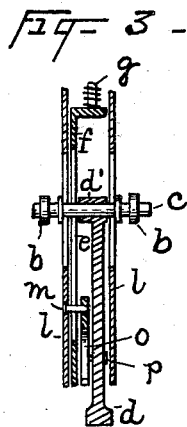
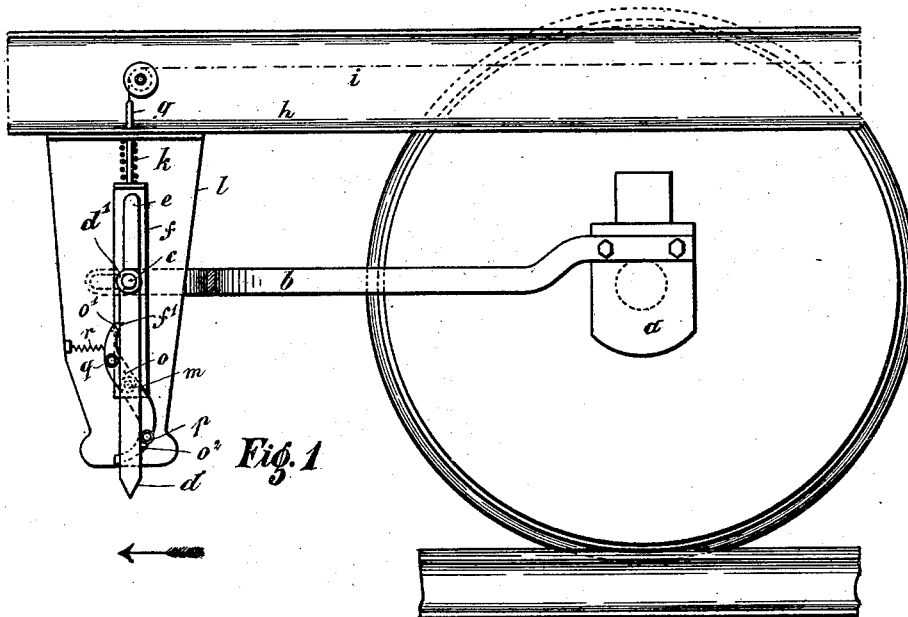


Fig. 2

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# UNITED STATES PATENT OFFICE.

SAMUEL STEINER AND CONRAD BOLTSHAUSER-SCHMID, OF ZURICH, SWITZERLAND, ASSIGNORS TO GESELLSCHAFT FÜR PATENTVERWERTUNG DER DISTANZBREMSE FÜR EISENBAHNEN, OF BASLE, SWITZERLAND.

## APPLIANCE FOR STOPPING RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 676,207, dated June 11, 1901.

Application filed January 23, 1901. Serial No. 44,462. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL STEINER, a citizen of Hungary, (whose post-office address is Gartenstrasse 23,) and CONRAD BOLTSHAUSER-SCHMID, a citizen of Switzerland, (whose post-office address is Limatstrasse 125,) both residing at Zurich, in the canton of Zurich, Republic of Switzerland, have invented certain new and useful Improvements in Appliances for Stopping Railway-Trains; and we do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

We have applied for patents in the following countries: Switzerland on August 16, 1900; Germany on October 30, 1900; Austria on December 19, 1900; Hungary on December 21, 1900; France on December 28, 1900; Belgium on December 29, 1900; Italy on December 29, 1900; Spain on December 29, 1900; Portugal on December 29, 1900; Denmark on December 29, 1900; Sweden on December 29, 1900; Norway on December 29, 1900, and Russia on December 15/28, 1900.

Any appliance for stopping railway-trains on the track must, in order to comply with the State regulations and to insure perfect safety in working, first, leave the permanent way entirely unobstructed, and, second, preserve an unvarying vertical distance between an "impulse-transmitter" adjusted upon the track and an "impulse-receiver" attached to the train. Most arrangements hitherto devised for this purpose are defective in one or other of these respects, thus hindering their practical adoption. The present arrangement is not only adapted to fulfil all the requirements of the State Department and the conditions essential for safe working, but also enables a train to be stopped even after part of it has passed over the impulse-transmitter. Consequently by means of this arrangement a train can be brought to a standstill by the brake in the last carriage provided the latter is fitted with the invention and has not passed the impulse-transmitter. Further, in going backward a train can be stopped at any particular spot by the application of the brake, which would in this case be in the foremost carriage.

The distinctive feature of the present invention consists in the adjustment of a lever which works in either direction to the side of the axle-box of the carriage. In whichever direction the train is traveling the motion of this lever brings into play a two-armed lever for bringing the train to a standstill.

In the accompanying drawings, Figure 1 is a side elevation with one of the brackets removed and one arm of the forked lever broken away to disclose the mechanism. Fig. 2 is a front elevation showing the carriage-frame in section. Fig. 3 is a vertical section of the working parts on an enlarged scale.

A lever *b*, forked at its front end, is attached to the axle-box *a* and carries a pin *c*, from which hangs a second lever *d*, the lower end of which is widened out. The boss *d'* of this lever lies against the slide-rail *f*, which is fitted with a slot *e* for the pins *c* and *m*. To the slide-rail *f* is attached a rod *g*, which passes through the flange of the buffer-bar or carriage-frame *h* and is connected with a cord, chain, or band *i*, which passes to the brake-valve of the vehicle or, in the case of passenger-carriages, to the communication-cord. The sliding bar *f* is constantly pressed down by the spring *k*. A two-armed lever *o* is pivoted, by means of the pin *m*, to the bracket *l*, borne by the buffer-bar *h*. The brackets are vertically slotted where the pin *c* passes through them to permit them to move up and down without affecting the pin. The upper end *o'* of the lever *o* engages in a notch *f'*, made in the side of the slide-rail *f*, for which it serves as a stop. The arm *o<sup>2</sup>* of the lever *o* carries a pulley *p*, which comes against the lever *d*, and the arm *o'* carries a similar pulley *q*. These are kept in position and the arm *o'* pressed against the slide *f* by means of a spring *y*. By this arrangement, notwithstanding the swaying and jolting of the carriage, the distance between the upper edge of the rail and the lower edge of the lever *d* remains unchanged, as the slide-bar *f* and the lever *o* can move along the lever *d*, while the pin *c*, being attached to the axle-bearing, always remains at the same height.

When the carriage is traveling in the direction of the arrow, Fig. 1, and the lever *d* knocks against an obstruction on the line, the lever

$d$  is deflected to the right and turns the arm  $o^2$  of the lever  $p$  to the right, so that the arm  $o'$  comes out of the notch  $f'$  and releases the slide-rail  $f$ , when the arrangements for stopping the train come into play. If the train, however, is traveling in the opposite direction, the lever  $d$  is turned to the left and the latter is pressed against the pulley  $q$  of the arm  $o'$ , when the bar  $f$  is again similarly released.

In order to reset the appliance, the slide-bar  $f$  must be raised sufficiently to allow of the arm  $o'$  of the lever  $o$  again engaging with the slot  $f'$ .

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. The combination with a railway-car, of a lever supported from the axle-box, a slide connected with the brake mechanism, a detent for said slide engaged by said lever, and means for actuating the slide when the lever trips the detent.

2. The combination with a railway-car, of a lever supported from the axle-box, a spring-

actuated slide connected with the brake mechanism, and a detent for said slide engaged by said lever and arranged to be tripped by a movement of the lever in either direction.

3. The combination with a railway-car, of an upright lever supported from the axle-box, a spring-actuated slide connected with the brake mechanism, and a pivoted detent for said slide engaging an edge of said lever, whereby the slide and detent can shift up and down along the lever.

4. The combination with a railway-car, of an upright lever supported from the axle-box, a spring-actuated slide connected with the brake mechanism, and a detent-lever engaging with said slide and having two arms engaging opposite sides of said lever.

In testimony that we claim the foregoing as our joint invention we have signed our names in presence of two subscribing witnesses.

SAMUEL STEINER.  
CONRAD BOLTSHAUSER-SCHMID.

Witnesses:

A. LIEBERKNECHT,  
HERMANN HUBER.