(No Model.)

2 Sheets—Sheet 1.

A. BOLZANO.

CAR BRAKE.

No. 294,570. Patented Mar. 4, 1884.

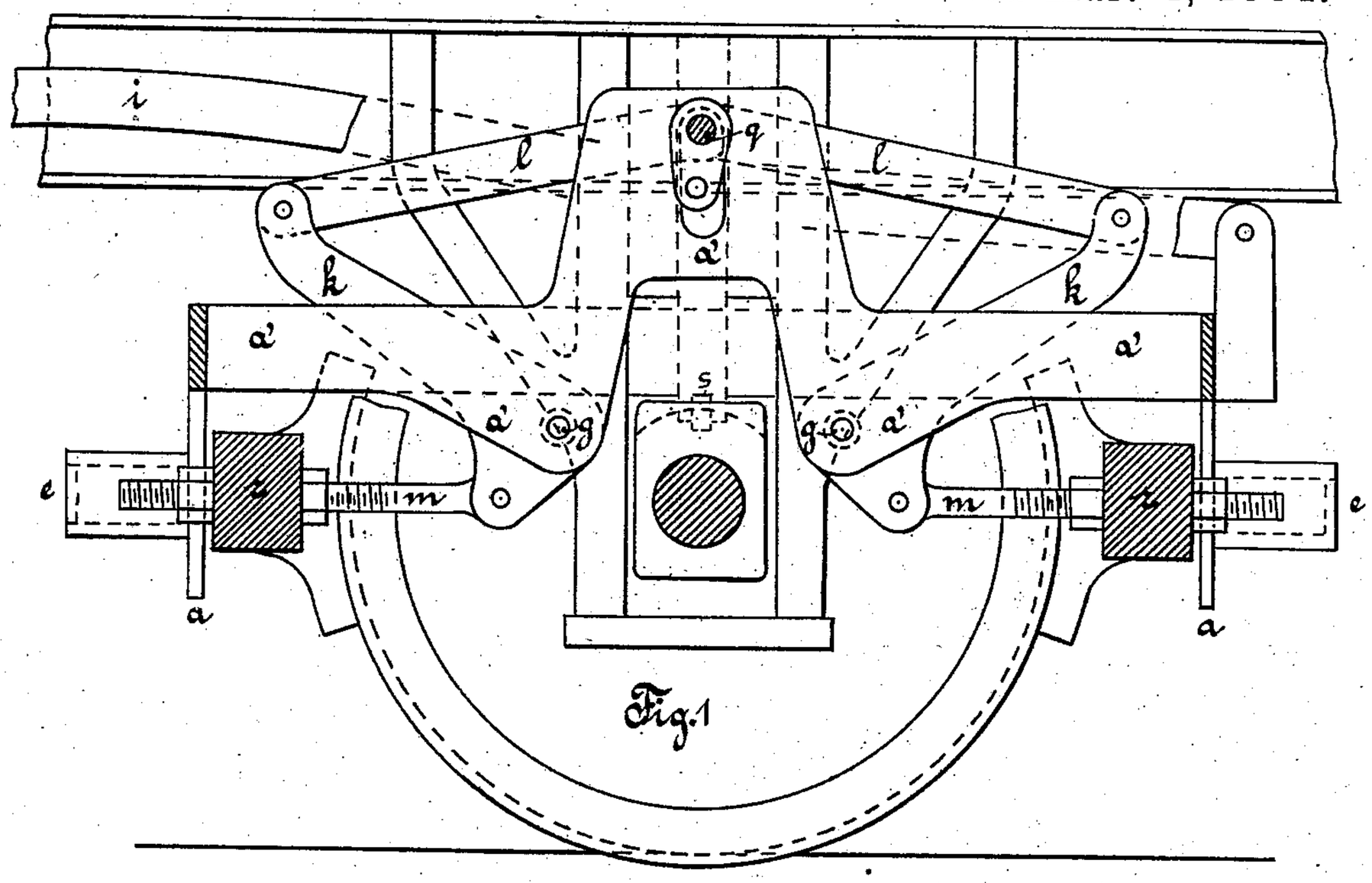

Fig. 1

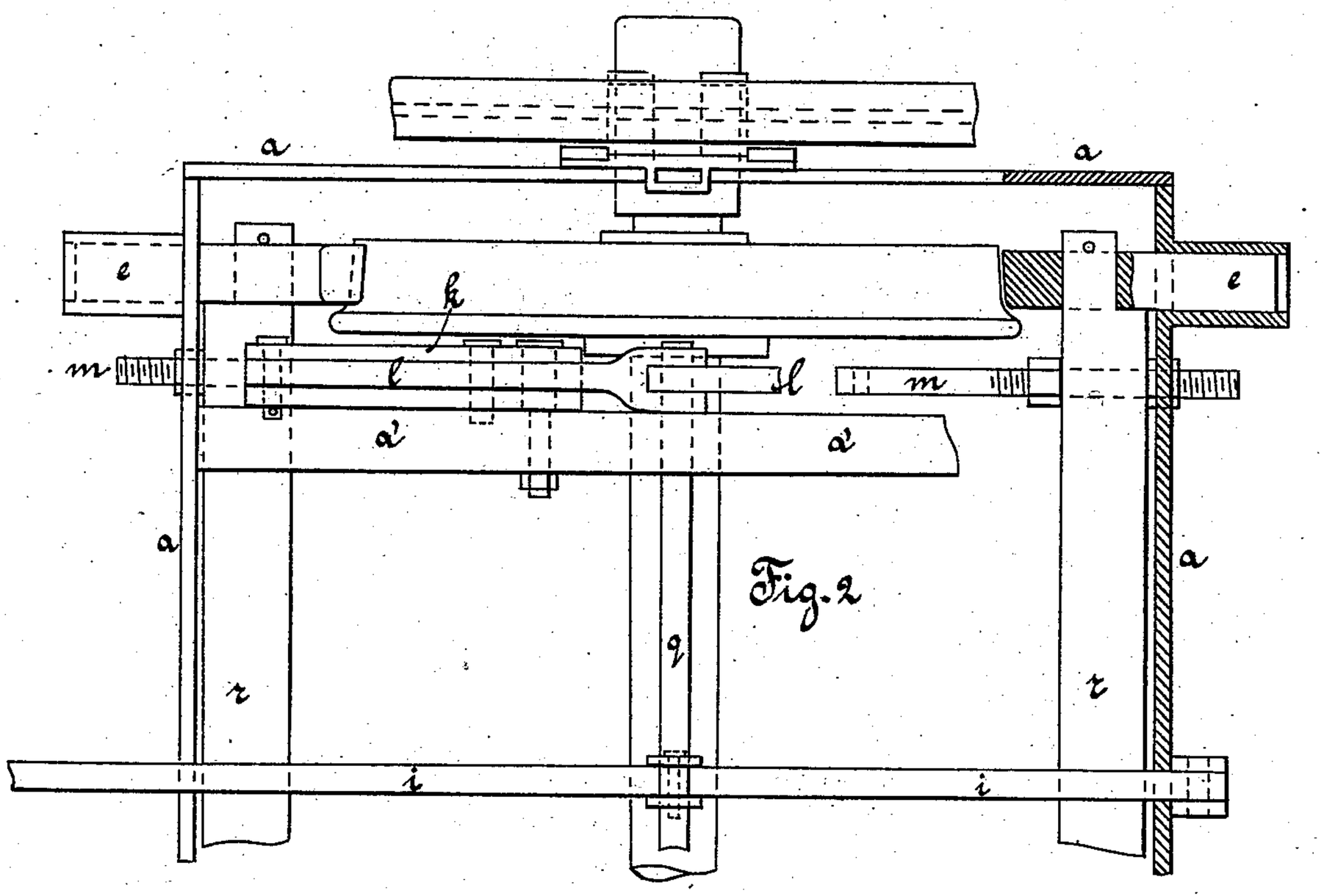

Fig. 2

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Fig. 3

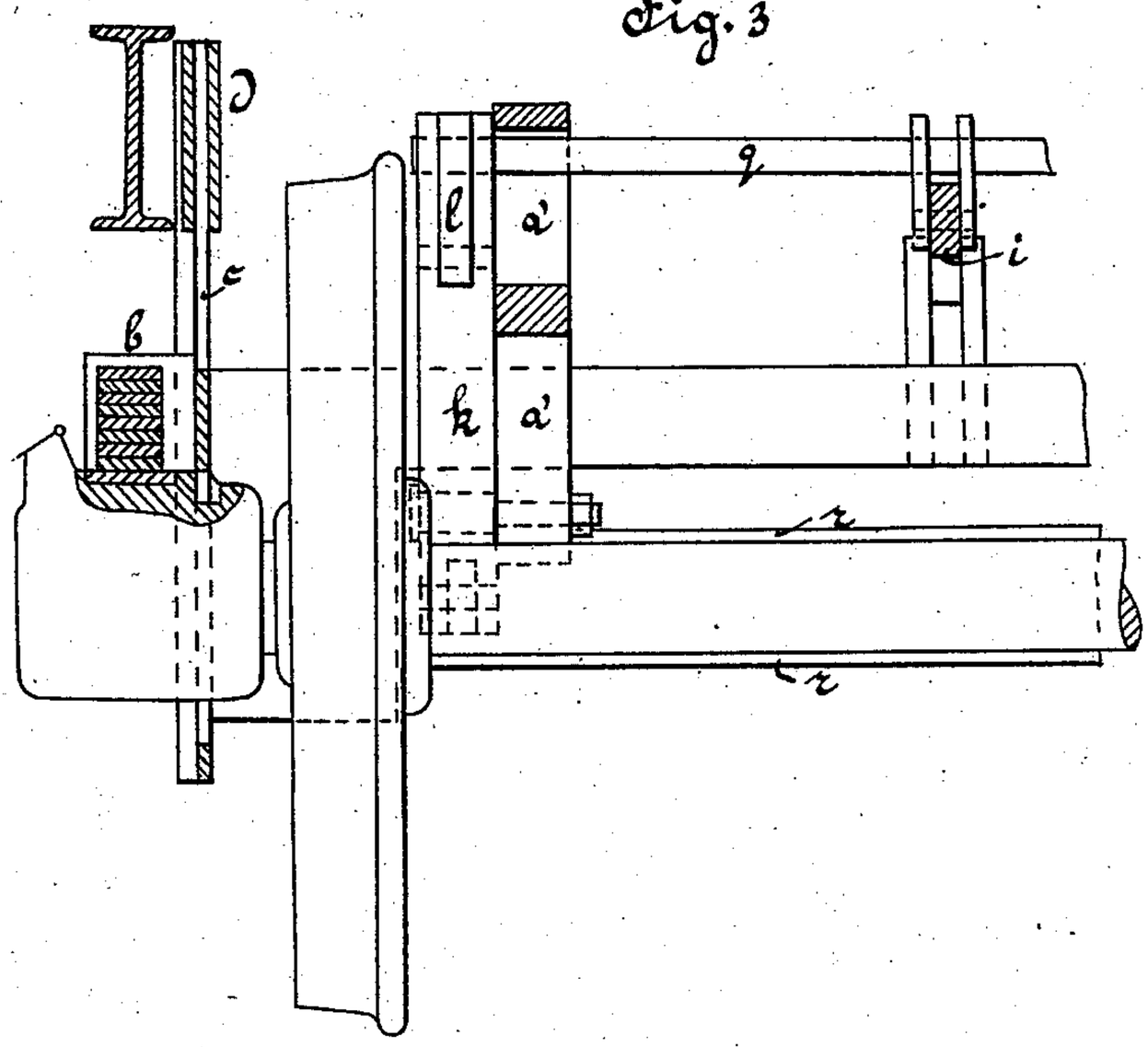
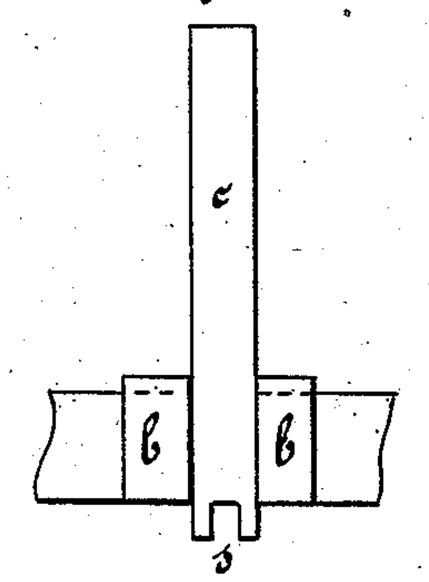


Fig. 5



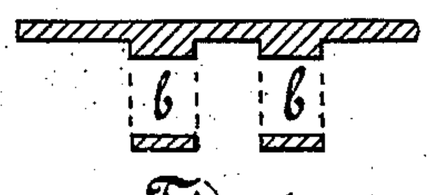
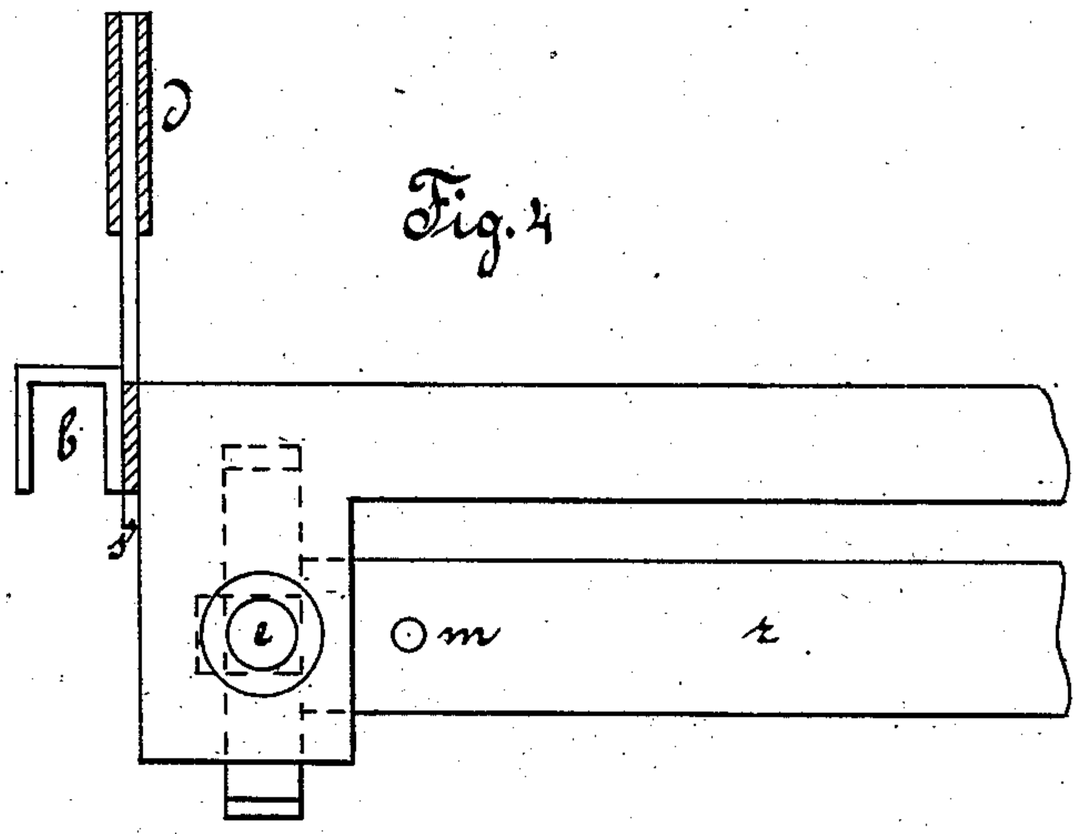


Fig. 6

Fig. 4



Witnesses:
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Inventors:
André Bolzano
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UNITED STATES PATENT OFFICE.

ANDRÉ BOLZANO, OF MARKT REDWITZ, BAVARIA, GERMANY.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 294,570, dated March 4, 1884.

Application filed November 5, 1883. (No model.) Patented in Italy December 31, 1883, XVII, 15,993, and XXXII, 109.

To all whom it may concern:

Be it known that I, ANDRÉ BOLZANO, a citizen of the city of Markt Redwitz, near Wunsiedel, in the Kingdom of Bavaria, German Empire, have invented a new and useful Improvement in Automatic Lever-Brakes for Railway-Carriages, of which the following is a specification.

This invention has for its object an improved construction of automatic lever-brakes for railway-carriages, whereby the ordinary brake levers and rods are dispensed with, and the brake apparatus is rendered independent of the oscillating framing of the carriage, the ordinary brake shafts and levers being replaced by an arrangement of toggle-links and elbow-levers, enabling the brakes to be worked by hand from any desired part of the train by means of a cord or rope.

The construction of the said brake apparatus is shown on the accompanying drawings, in which Figure 1 shows an inside view of the apparatus as applied to one of the carriage-wheels, the brake-lever *i* being partly broken away and indicated in dotted lines, for the sake of clearness. Fig. 2 shows on the left-hand side a plan of Fig. 1 and on the right-hand side a horizontal section. Fig. 3 shows a vertical section of Fig. 1. Fig. 4 is a part elevation of the part of the brake-frame running parallel with the axle, and of the coupling-bar *r*, connecting the brake-blocks on either side of the carriage. Fig. 5 shows a front view of the strap *b* and tongue *c* shown in Fig. 4, and Fig. 6 shows a horizontal section of Fig. 5.

As shown in the drawings, a suitably-shaped frame, *a*, is suspended from the carriage-springs by straps *b*, and is also supported by pins *s* upon the axle-boxes. This frame is either guided directly in the horn-plates, or it has tongue-pieces *c*, which are guided in sockets *d*, fixed to the carriage-framing, and which serve to hold the frame steady against the tendency of the brake-blocks to turn round with the wheels, the brake-blocks being supported in guides *e* on the frame. The part *a'* of the frame-carries the pivots *g* of the elbow-levers *k* and the pivot *h* of the brake-lever *i*, which is leaded at its outer end, (not shown,) so as to tend to keep the brakes always applied.

The mechanism for applying the brakes consists of the two elbow-levers *k*, connected at one end to the brake-blocks, either directly or by means of adjustable screw-rods *m*, either in tension or thrust, for the adjustment of the blocks as they wear, the blocks of the opposite wheels being connected by the coupling-bar *r*. The other ends of the levers *k* are connected to the toggle-links *l l*, pivoted on the transverse rod *q*, to the middle of which the brake-lever *i* is connected, so that by the downward motion of the latter the brake-blocks are applied, while by the upward motion thereof they are taken off. The lever *i* can be actuated by hand by means of a cord, either at the middle or at the side of the carriage, the supports of the cord being, if necessary, arranged independent of the oscillating carriage-frame.

As the tendency of the weighted lever *i* is always to apply the brakes, the brake-cord has to be kept strained, so as to hold the lever in a raised position for keeping the brakes off, and is slackened when they are to be applied so, as to allow the lever to fall. Thus, on the brake-cords becoming broken, the brakes will be automatically applied.

I claim—

1. The combination, in railway-brakes, of the toggle-links *l*, actuating the brake-blocks through elbow-levers K, with a loaded lever, *i*, and bar *q*, so arranged as to cause the toggle-link to apply the brakes when the lever is released.

2. The combination of car-wheels, springs, and brake-levers with a frame, *a*, straps *b*, axle-boxes having pins *s*, and means, substantially as described, for preventing the rotation of the frame.

3. The combination of car-wheels, brake-levers, and brake-blocks with a frame, *a*, having guides *e* for the brake-blocks, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDRÉ BOLZANO.

Witnesses:
B. ROI,
MARC M. ROTTEN.