(No Model.) 2 Sheets—Sheet 1.

F. TENTSCHERT.

CAR BRAKE.

No. 370,104. Patented Sept. 20, 1887.

FIG. 1.

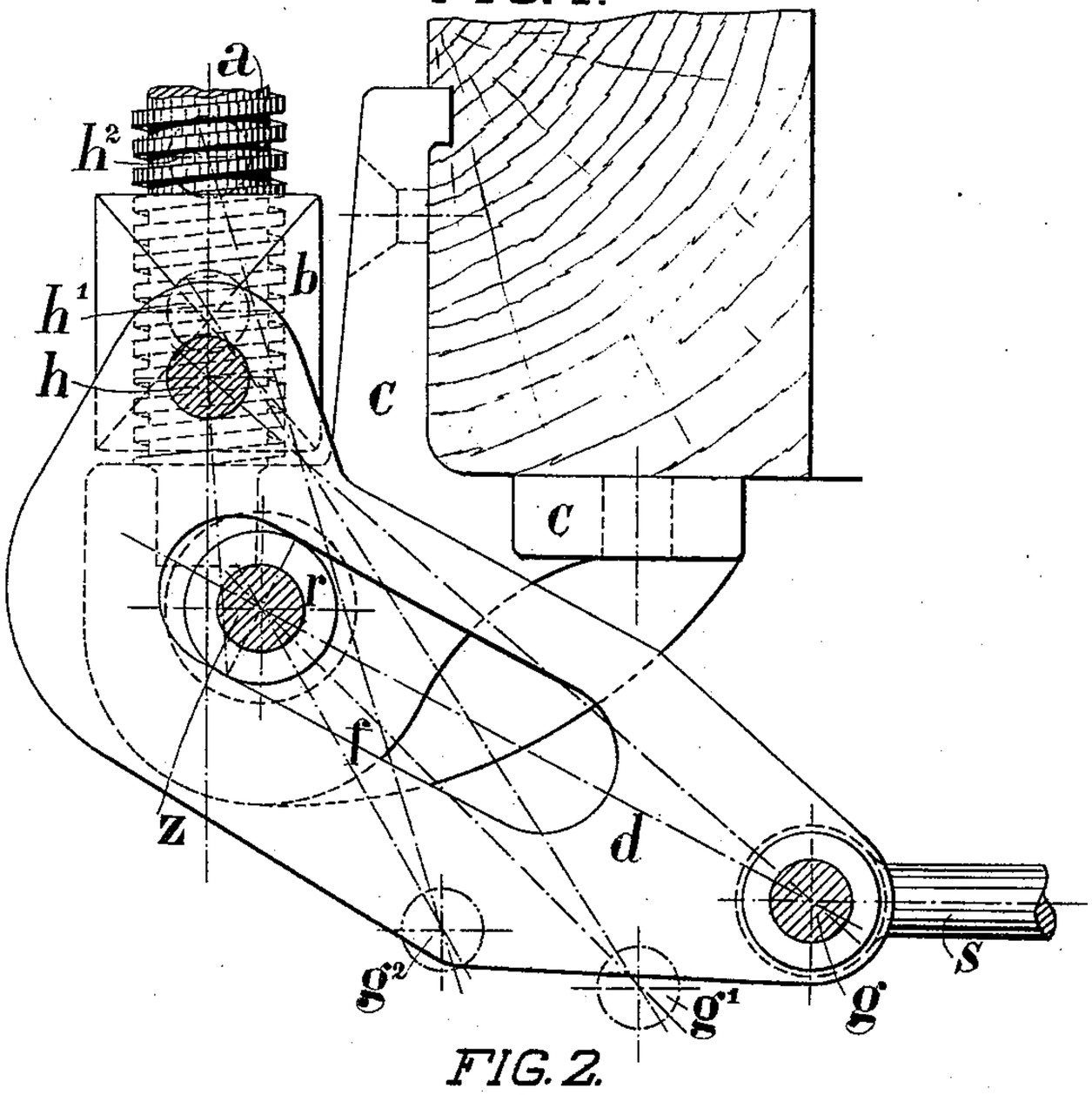
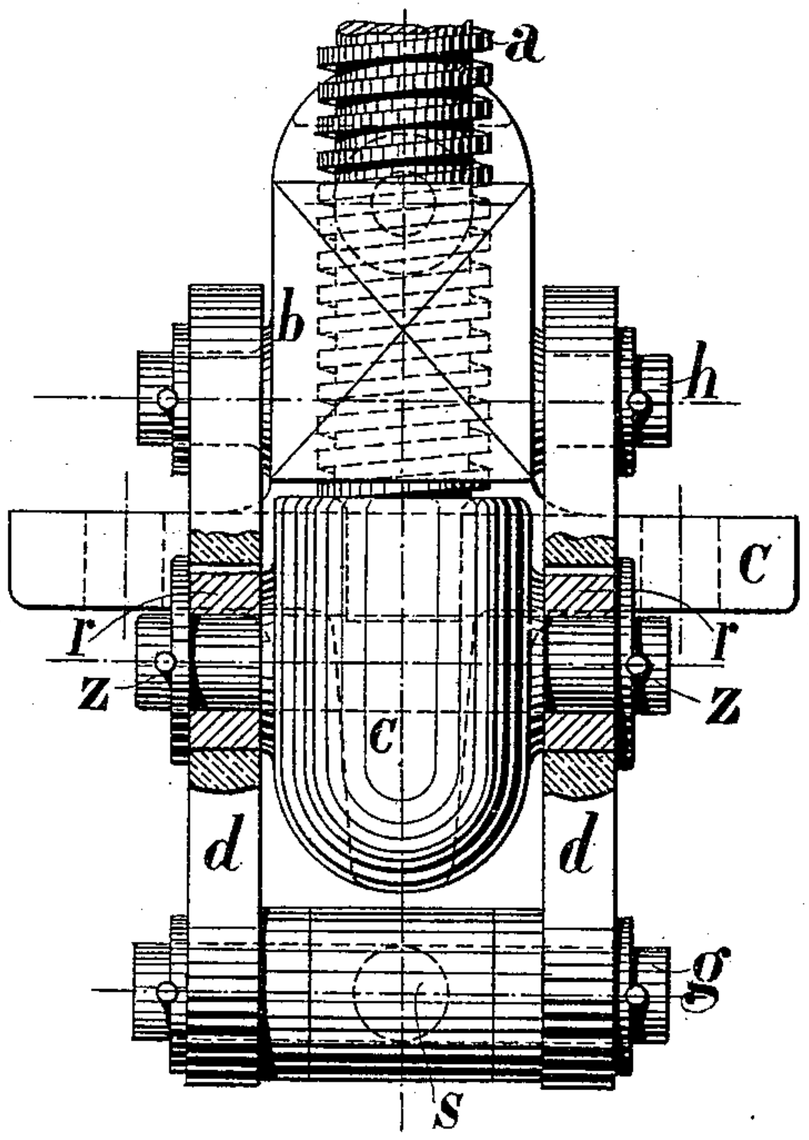


FIG. 2.



Witnesses:
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William Paylen

Inventor:
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by John J. Halsted & Son
his Attys.

(No Model.) 2 Sheets—Sheet 2.

F. TENTSCHERT.

CAR BRAKE.

No. 370,104. Patented Sept. 20, 1887.

FIG. 3.

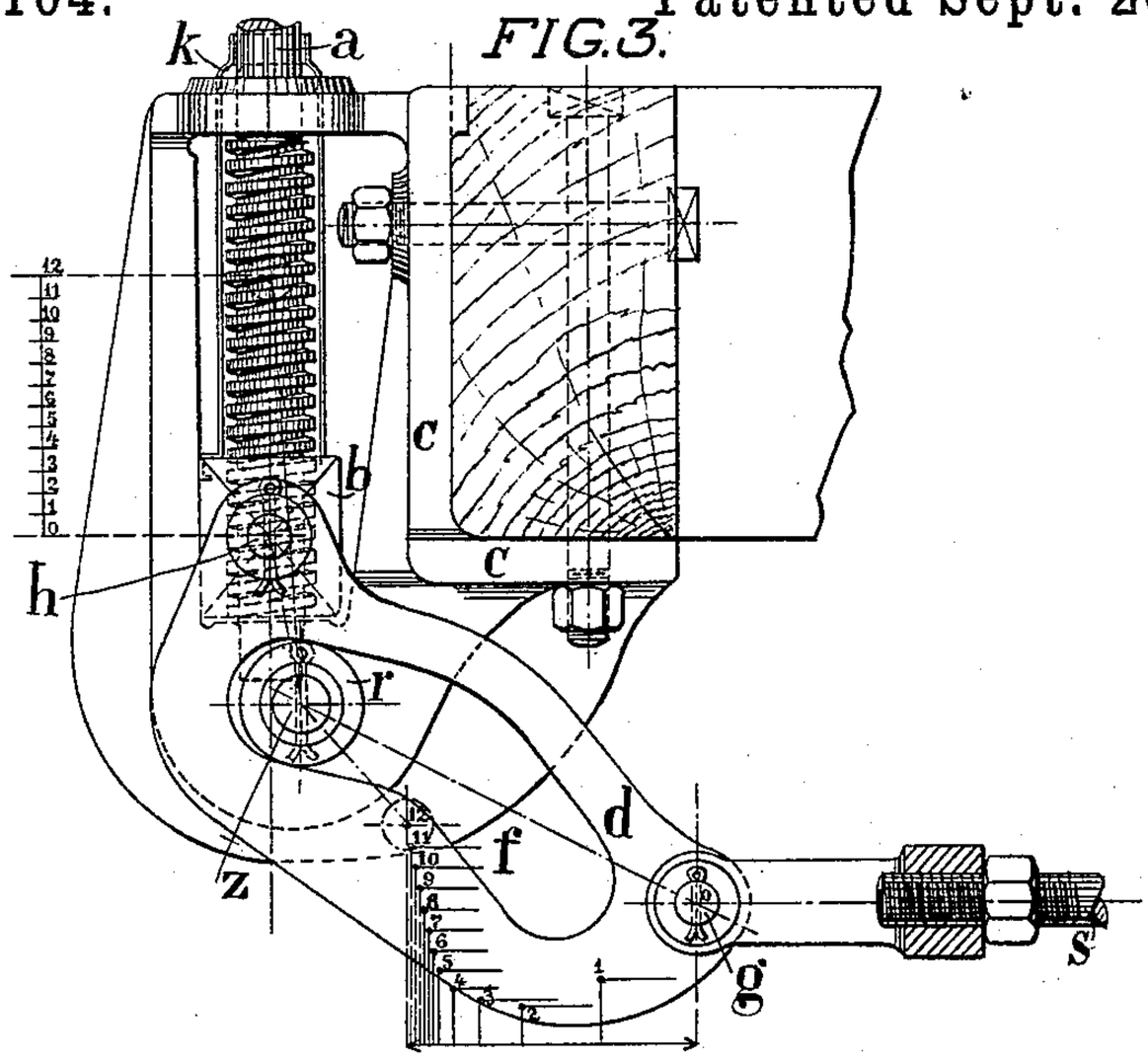
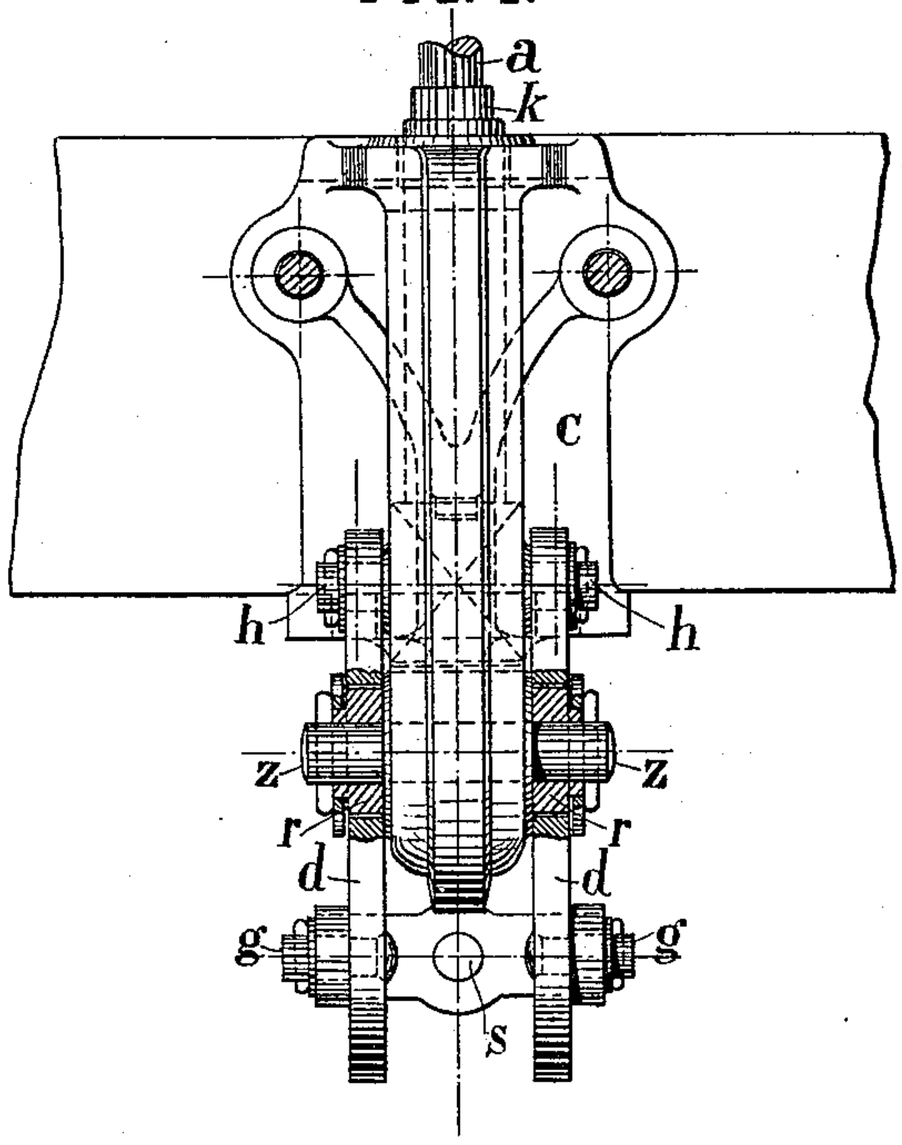


FIG. 4.



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UNITED STATES PATENT OFFICE.

FLORIAN TENTSCHERT, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO FRIEDRICH WILHELM MINCK, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 370,104, dated September 20, 1887.

Application filed February 21, 1887. Serial No. 228,357. (No model.) Patented in Austria-Hungary August 2, 1885, No. 18,611 and No. 40,973; in Germany August 9, 1886, No. 38,490; in Belgium October 4, 1886, No. 74,726; in Luxemburg October 4, 1886, No. 742, and in England October 11, 1886, No. 12,937.

To all whom it may concern:

Be it known that I, FLORIAN TENTSCHERT, a citizen of Austria-Hungary, and a resident of Vienna, in the Empire of Austria-Hungary, civil engineer, have invented certain new and useful Improvements in Brakes, of which the following is a specification.

This invention relates to improvements in brakes for railways, tramways, and other cars or vehicles, as well as for brake-disks on machines, which brakes are characterized by their instantaneous efficiency and by their simple and economical construction.

In order that my invention may be fully understood, I shall now proceed to describe the same more particularly, reference being made to the annexed sheets of drawings, in which the same letters of reference indicate the same parts in all the figures.

Figure 1 of the drawings is a side view, partly in vertical section, of my improved brake. Fig. 2 is a front view of the same, partly in vertical and in cross-section. Figs. 3 and 4 show, respectively in a side view and in a front view, a modification of the improved brake.

The constituent parts of my instantaneous brake are the following: the brake-screw *a*, nut *b*, bearer *c*, and two sliding levers, *d d*, the latter being provided with a slot or guide, *f*, and connected at their upper part with the nut *b* of the brake-screw *a* and with the brake-rod *s* at their lower part. The bearer *c* is provided with a fixed pivot, *z*, supporting the two rollers or pulleys *r r*, which guide the two sliding levers *d d*.

My brake works as follows: When the brake-screw *a* is turned to the right hand, the nut *b* of the screw *a* and the sliding levers *d d* are drawn upward, whereby these levers are turned on and simultaneously displaced in a tangent to the fixed pivot *z* by means of the rollers *r r*. In consequence of this combined movement of the two levers *d d* around the common fulcrum *z*, and in consequence of the different lengths between the pivot *z*, the nut *b*, and brake-rod *s*, the way of the brake-rod *s* becomes longer than that of the nut *b* of brake-screw *a*. Therefore the brake-blocks approach instantly to the wheels or disks, as it may be seen from the position of the pivots or trunnions *g'* and *h'*, indicated in dotted lines in Fig. 1 of the drawings. If the brake-screw *a* is further turned to the right, the upward displacement of the sliding levers *d d* proceeds, and the proportion of the lengths of the lever-arms between *z*, *b*, and *s* changes continuously. In a certain position of the sliding levers *d d* the lever-arms will be of equal length, and on further displacement of the sliding levers the above-mentioned proportion will become an inversed one—that is to say, the lever-arm or distance between *z* and h^2 becomes greater than that from *z* to g^2, as it may clearly be seen from the position of the pivots g^2 and h^2 indicated in dotted lines.

It follows from the preceding that the brake-blocks can be firmly pressed against the wheels.

In order to facilitate the adjustment and application of the brake to the carriage, the brake-rod *s* may be provided with a pin or forelock or with a double nut of right-and-left-handed thread.

I would here remark that my brake may be used with only one lever *d*, and the latter may also be indirectly connected with the nut *b* and the brake-rod *s*.

In lieu of the rollers *r r*, small sliding blocks may be used, which fit in the slot *f* of the sliding levers *d d* and are put on the fulcrum or pivot *z*.

In the modification of my improved brake represented by Figs. 3 and 4 of the annexed drawings, the slot *f* in the sliding levers *d d* is not rectilinear, like in Fig. 1, but has an obtuse-angular form. By this form of the slot *f*, I obtain considerable advantages—viz., on beginning to turn the brake-screw *a* the brake-blocks are rapidly approached to the wheels or disks, and on continuing to turn the brake-screw to the right the blocks are more efficiently pressed against the wheels or disks, as it may be seen in Fig. 3, in which the positions 1 to 12 of the trunnion *g*—corresponding to twelve turns of the brake-screw *a*—are shown.

By a simple inspection of Fig. 3 it will be

seen that after the trunnion *g* has passed the position No. 5 an efficient retransmission of the power exercised upon the brake-screw takes place, so that the brake-blocks are pressed against the wheels or disks with nearly the twenty fold of the power exercised on the brake-screw.

The above-mentioned retransmission of power results partly from the leverage between *h r* and *r g*, (after position 5 has been passed,) and partly from the proportion of the way made by the nut *b* of the brake-screw to that made by the trunnion *g* in the same time. In consequence of the obtuse-angular shape of the slot *f* any sliding friction is obviated.

In this construction I further provide a guide, K, for the brake screw *a*, which, in consequence of the considerable power exercised on it, tends to bend outward.

Having now described and particularly ascertained the nature of my invention and the manner in which the same is or may be carried into effect, I declare as my invention and desire to secure by Letters Patent—

1. A differential lever for brakes for railway, tramway, or other cars, vehicles, &c., consisting of one or two sliding levers, *d d*, provided with slots or guides *f* and disposed on a fulcrum, *z*, and serving to operate the brakes, substantially as set forth.

2. A differential brake mechanism for railway, tramway, or other cars or vehicles, and for brake-disks on machines, consisting of one or two sliding levers, *d d*, provided with slots or guides *f* and disposed on a common fulcrum or pivot, *z*, and having a screw, *a*, and nut *b* and brake-rod, the construction being, as set forth, such that the proportions of the arms of levers *d d* between their extremities *g h* and the fulcrum *z* shall constantly vary when the brake is turned on or released, substantially as hereinbefore described.

Signed at Vienna, in the Empire of Austria-Hungary this 8th day of February, 1887.

FLORIAN TENTSCHERT.

Witnesses:

EDMUND JUSSEN,

OTTO SCHEFFER.