

(No Model.)

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T. SUCHLAND.

CAR BRAKE.

No. 347,841.

Patented Aug. 24, 1886.

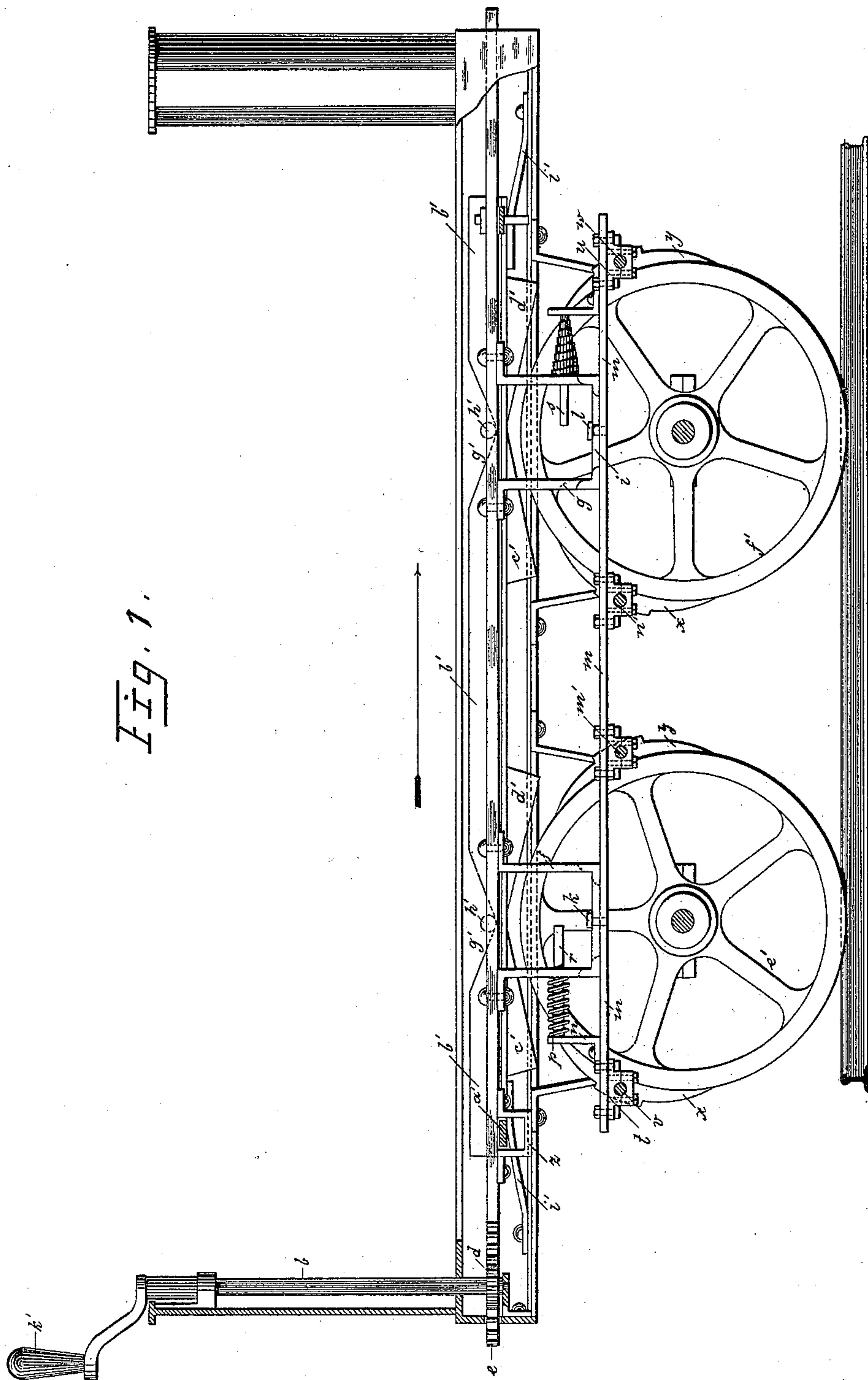


Fig. 1.

Witnesses.  
Anthony Steffen  
Wilhelm Vogt

Inventor.  
Theodor Suchland  
By Edwin A. Brydges  
his Attorney.

(No Model.)

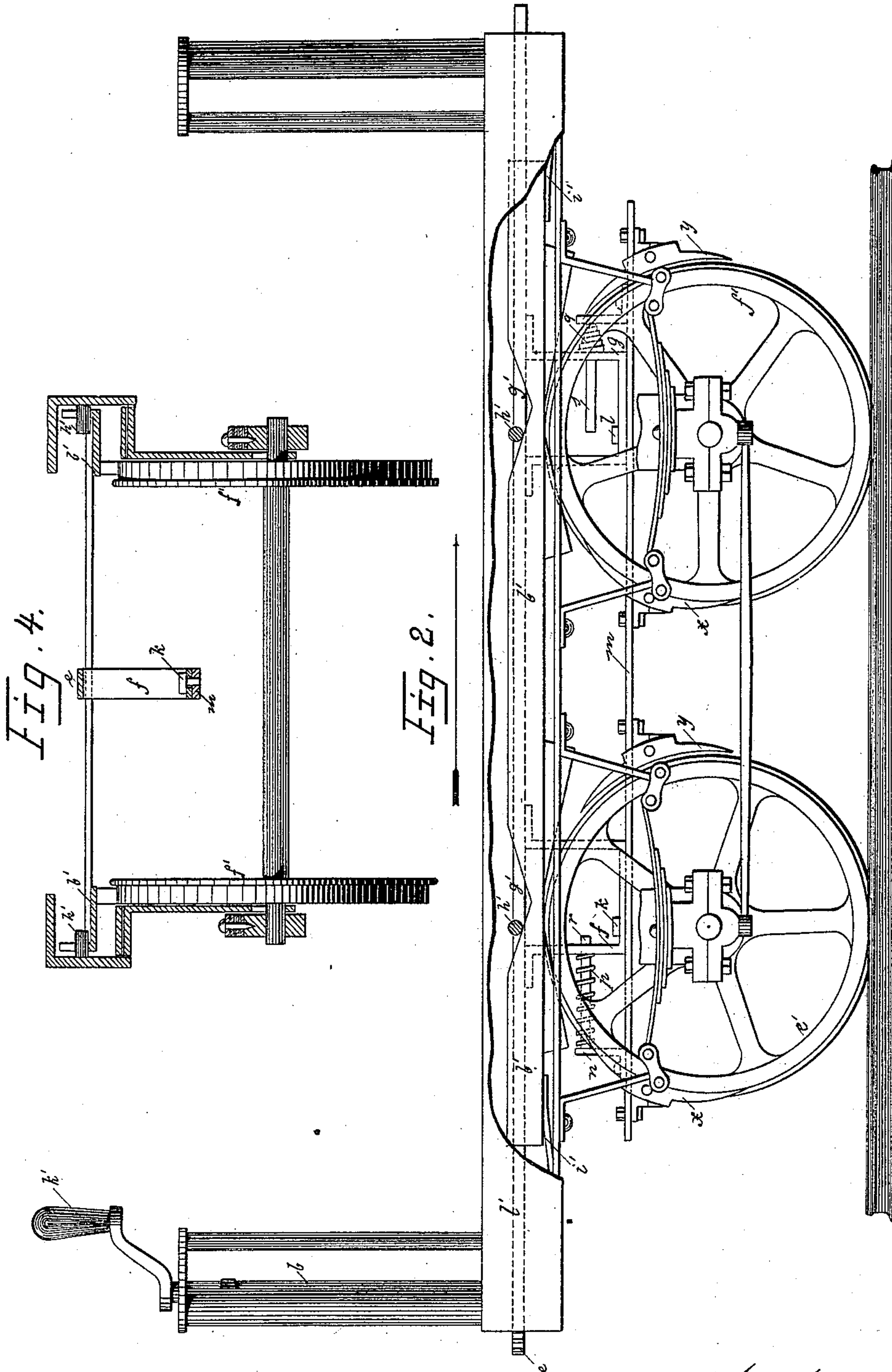
3 Sheets—Sheet 2.

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(No Model.)

3 Sheets—Sheet 3.

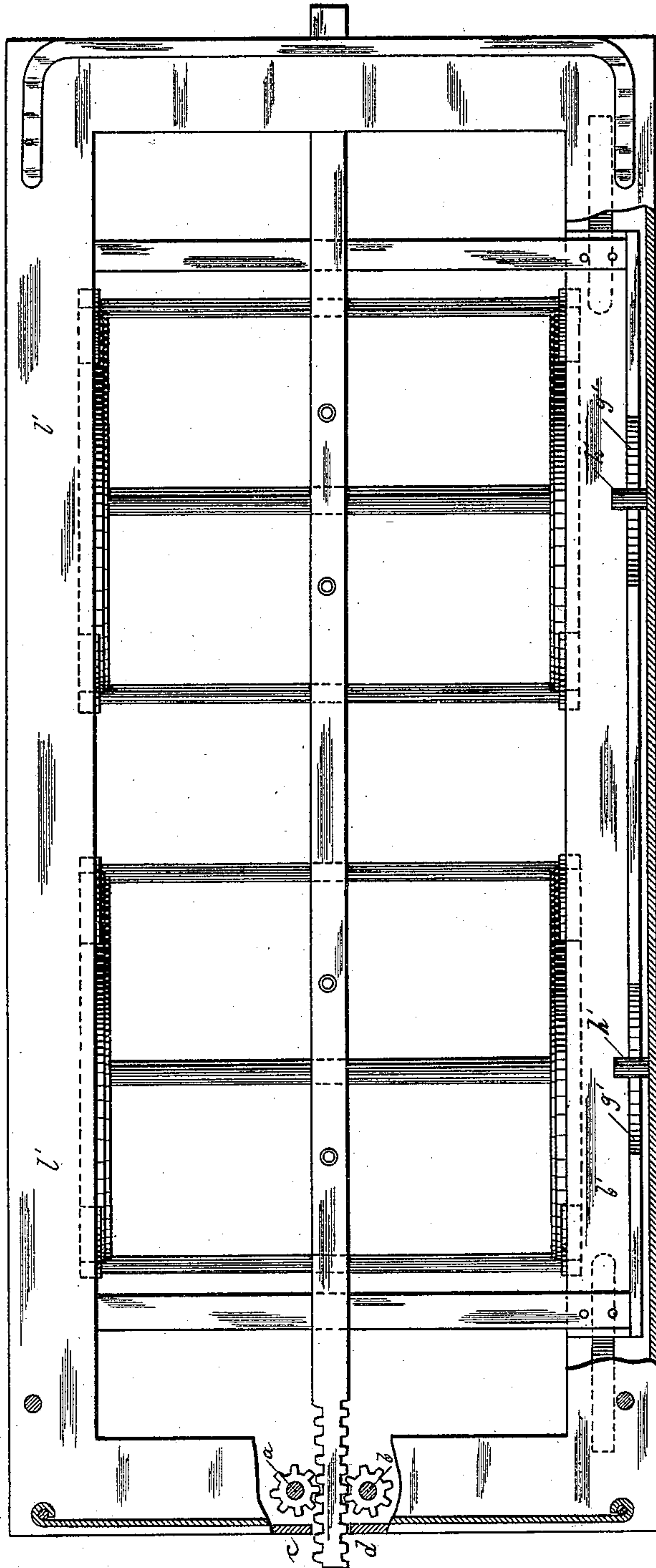
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

THEODOR SUCHLAND, OF BERLIN, GERMANY.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 347,841, dated August 24, 1886.

Application filed April 29, 1886. Serial No. 200,619. (No model.) Patented in Germany January 25, 1886.

*To all whom it may concern:*

Be it known that I, THEODOR SUCHLAND, of the city of Berlin, Prussia, Germany, have invented certain new and useful Improvements in  
5 Car-Brakes, (for which a patent was applied for in Germany on the 25th January, 1886,) of which I declare the following to be a specification.

My invention relates to improvements in brakes for railway and other cars or carriages.

10 In order to effectually brake railway and other cars with rapidity in case of danger, I employ a wedge-brake, either alone or in combination with the customary brake. If my said improved brake is employed alone, it is  
15 arranged to operate gradually, or, if desired, with great energy, and almost instantaneously. If the same is employed in conjunction with the ordinary brake mechanism as danger-brake only, it is arranged to act instantane-  
20 ously, and will bring the car or carriage to which it is attached, in the shortest possible space of time, to a standstill. As a matter of course, the brake is arranged to act on the car or carriage irrespective of the direction in  
25 which the same is driven.

Figure 1 is a longitudinal section of the lower part of a tramway-car with my improved brake mechanism. Fig. 2 is a side view of the same with the brake applied. Fig. 3 is a top  
30 view and Fig. 4 a cross-section.

The brake is arranged at one end of the car, and in order to avoid having to turn the brake-handle to the right when driving in the one and to the left when driving in the other  
35 direction, I employ two spindles, *a* and *b*, which carry the pinions *c* *d*, which latter are in gear with the double toothing of the rod or rail *e*. This said rack or rod *e* runs along the entire length of the car or carriage, and is car-  
40 ried at each end, and, if necessary, at any suitable intermediary part, in appropriate bearings.

The rod *e* is provided with the two U-formed standards or double brackets *f* *g*, which are  
45 each slotted at *h* *i*, and in which said two slots the pins or bolts *k* *l*, affixed to the longitudinal rod *m*, are guided, so that the said rod can glide beneath the two standards *f* *g*.

Two brackets, *n* *o*, are fixed to the longitudi-  
50 nal rod *m* in such manner that the springs *p* *q* on the rods or spindles *r* *s*, which have their bearings at the one end in the brackets

*n* *o* and at the other end in the standards or double brackets *f* *g*, will press at the one end against the bracket *n* or *o* and at the other end  
55 against the standard or double bracket *f* or *g*. At about the center of the length of the rod *m*, I attach two bearings, *m'* *n'*, and at the ends of the same like bearings, *t* *u*, in which the cross-rods *v* *w* *o'* *p'* are arranged, which latter  
60 carry at their ends the brake-blocks *x* *y*.

At the forward end of the rod *e* is a frame or sliding guide, *z*, in which the sliding rod *a'* is guided, to the ends of which the two  
65 slides *b'* are attached, which glide in the two U-shaped standards *l'*, and carry the eight brake-wedges *c'* *d'*, which are located above the wheels *e'* *f'*.

The vertical side of the rectangular slides *b'* is provided with curved slots *g'*, in which the  
70 pivots so gear that by the longitudinal movement of the slides the brake-blocks are pressed against the wheels. Springs *i'* are arranged beneath the slides and press continuously against the same, so as to hold the said slides  
75 constantly in their highest position, when the rods *h'* will lie in the lowest point of the same, where the two converging inclines of the slides meet.

The operation of my improved brake is as  
80 follows, whereby it is supposed that the car is being driven in the direction as represented by the arrows: The crank-handle *k'*, which can be readily applied or removed, is placed on  
85 the right-hand spindle *b*, and in braking is turned to the right, so that the toothing of the rod *e*, and thus the entire rod, is moved in the direction of the arrow and the spring *q* com-  
90 pressed, whereby the rod *e*, or its standards or double brackets *f* *g*, will, in consequence of the slots in the same and the guide-pins *k* *l*,  
95 glide on the longitudinal rod *m*, which is drawn forward by the spring *q*, so that the brake-blocks *x* are brought in contact with the wheels and a gradual braking operation at-  
100 tained. If, however, it is desired to effect a rapid braking, the crank *k'* is rotated farther, so that the brake-blocks *c'* are pressed onto the wheels, and are automatically drawn faster and  
an almost instantaneous stoppage of the car or carriage obtained. In moving the wedges  
toward the wheels the connecting-rod *a'* glides in the frame *z*. If the crank *k'* is now given free  
movement, the brake-wedges *c'* will retire from



the wheels and the slide *b'* will be returned to its original position, as shown in Fig. 1, by means of the springs *i'*. If the car or carriage is running in an opposite direction, the crank *k'* is applied to the spindle *a*, in consequence of which the brake-blocks *y* and brake-wedges *d'* come into action.

In order to retain the brakes in braking position, the spindles *a* and *b* can be provided with a suitable ratchet-wheel and pawl, and instead of making the crank *k'* removable, a suitably-bent crank can be so applied to each of the spindles *a b* that the operation of the one is not hindered by the other.

Having now particularly described and ascertained the nature of my said invention for improvements in car-brakes and the manner in which the same is to be performed, I declare that what I claim is—

1. In brakes for railway and other cars or carriages, the combination of the rod *e* with the pinions *c d*, spindles *a b*, and crank *k'*, substantially as described in the foregoing specification, and shown on the accompanying drawings.

2. In brakes for railway and other cars or carriages, the combination of the rod *e*, pinions *c d*, spindles *a b*, and crank *k'* with the longitudinal rod *m*, brackets *f g*, and pins or bolts *k l*, substantially as and for the purpose set forth in the foregoing specification, and represented on the accompanying drawings.

3. In brakes for railway and other cars or carriages, the construction of the rod *e*, pinions *c d*, spindles *a b*, crank *k'*, longitudinal rod *m*, brackets *f g*, and pins *k l*, in combination with the brake-blocks *x y*, springs *p q*, rod *a'*, frame *z*, slide *b'*, wedges *c' d'*, the pins or bolts *h'*, and the springs *i'*, substantially as and for the purpose set forth in the foregoing specification, and shown in the accompanying drawings.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THEODOR SUCHLAND.

Witnesses:

ANTHONY STEFFEN,  
B. ROl.