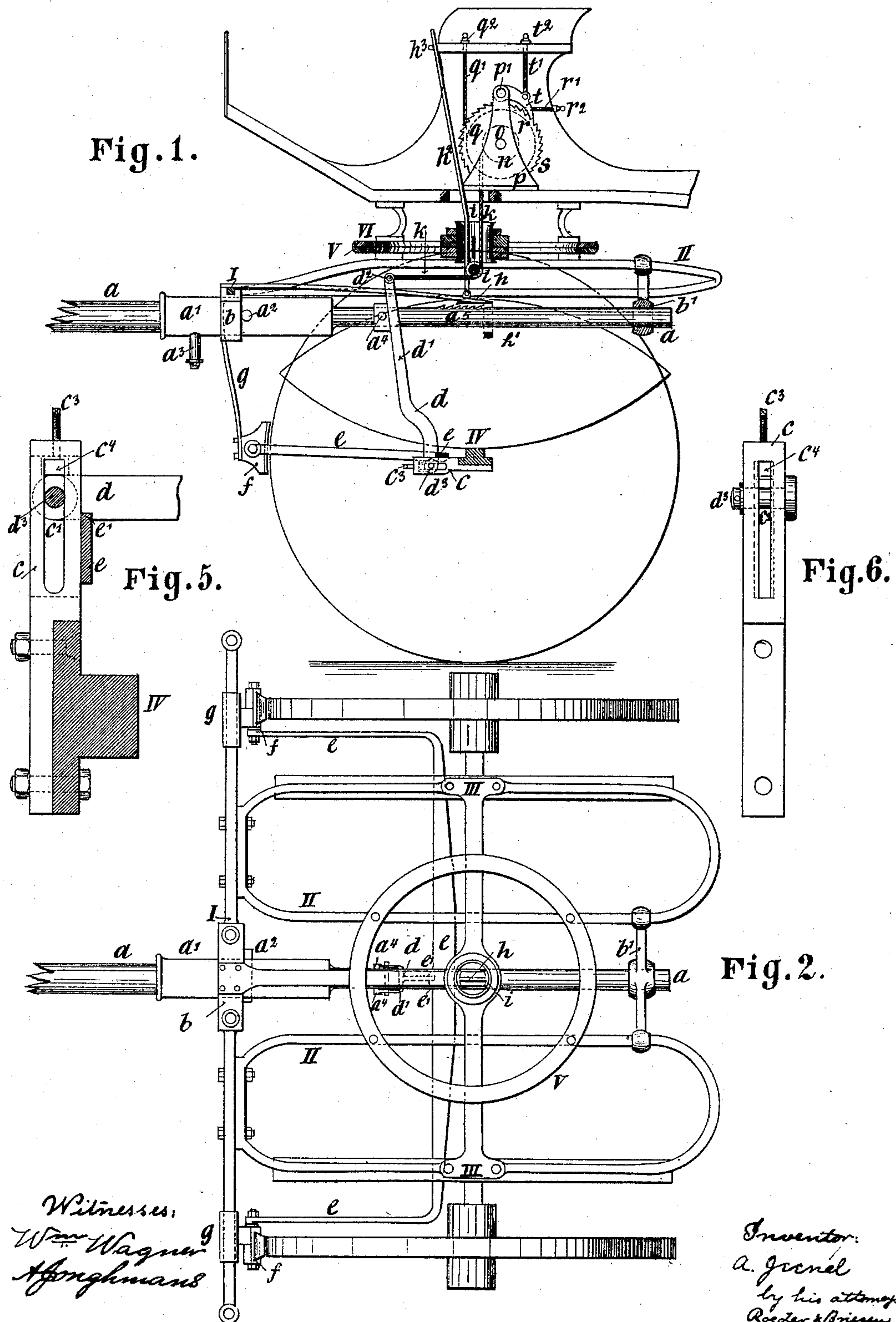


2 Sheets—Sheet 1.

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Patented Dec. 2, 1890.

**Fig.3.**

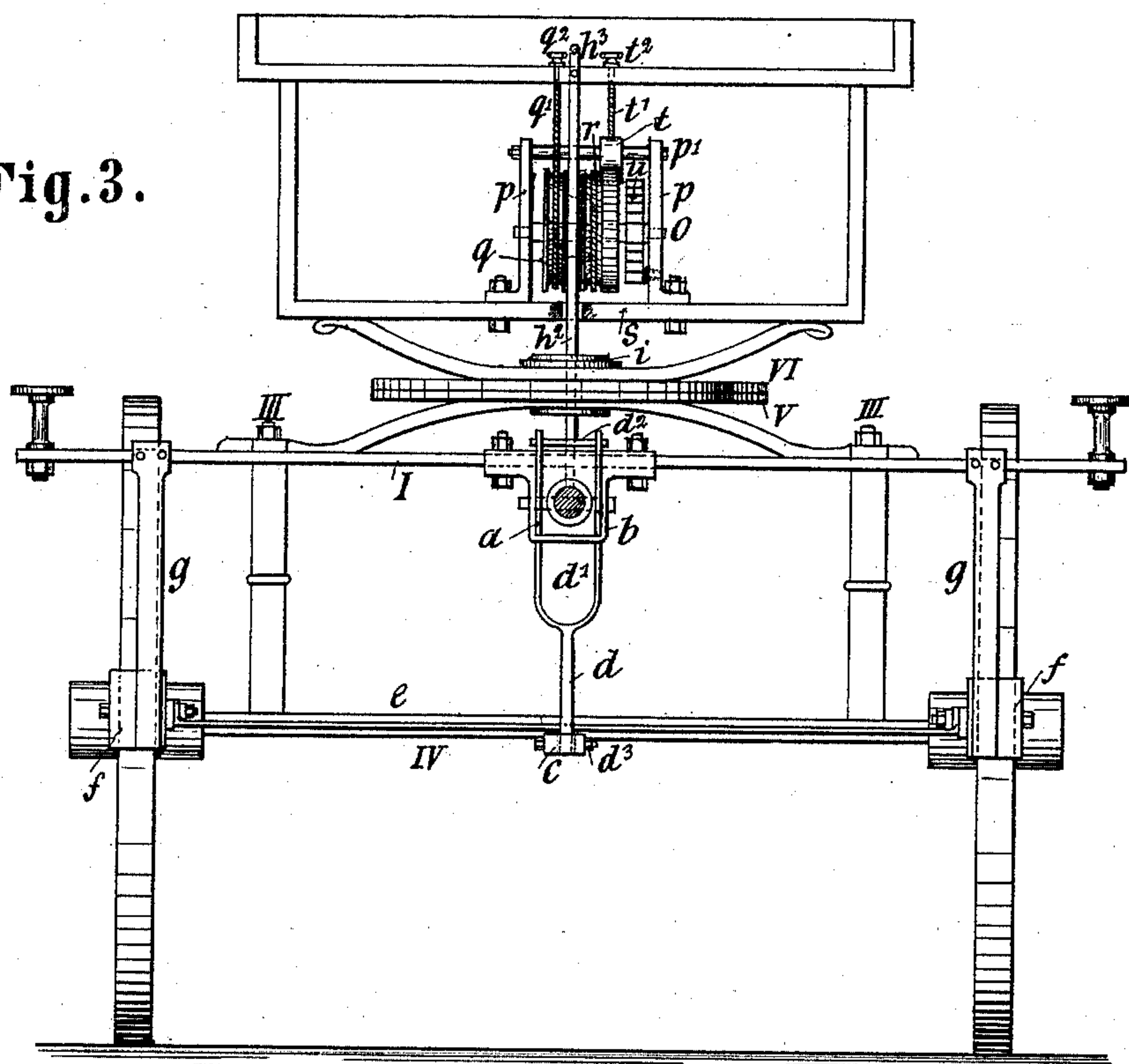
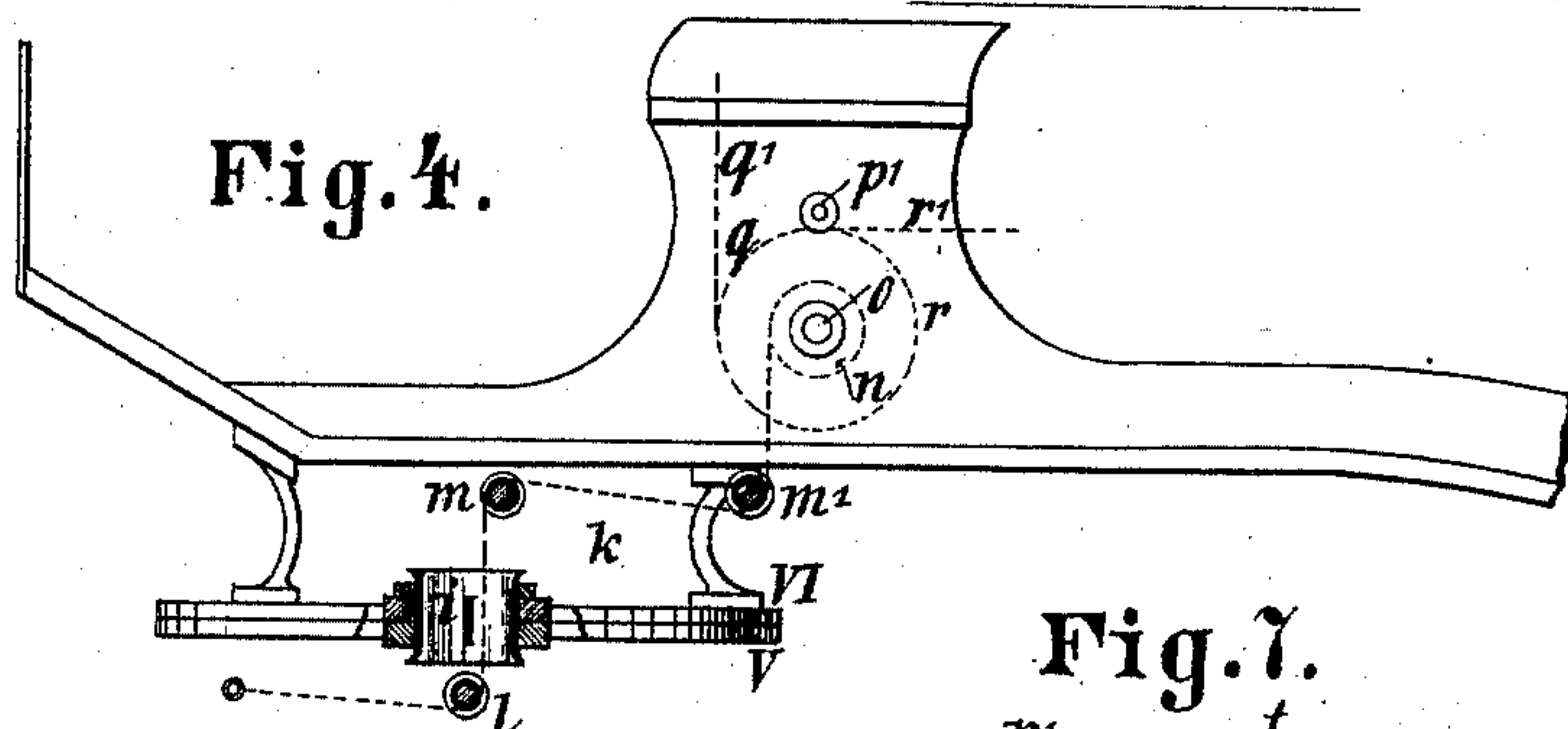
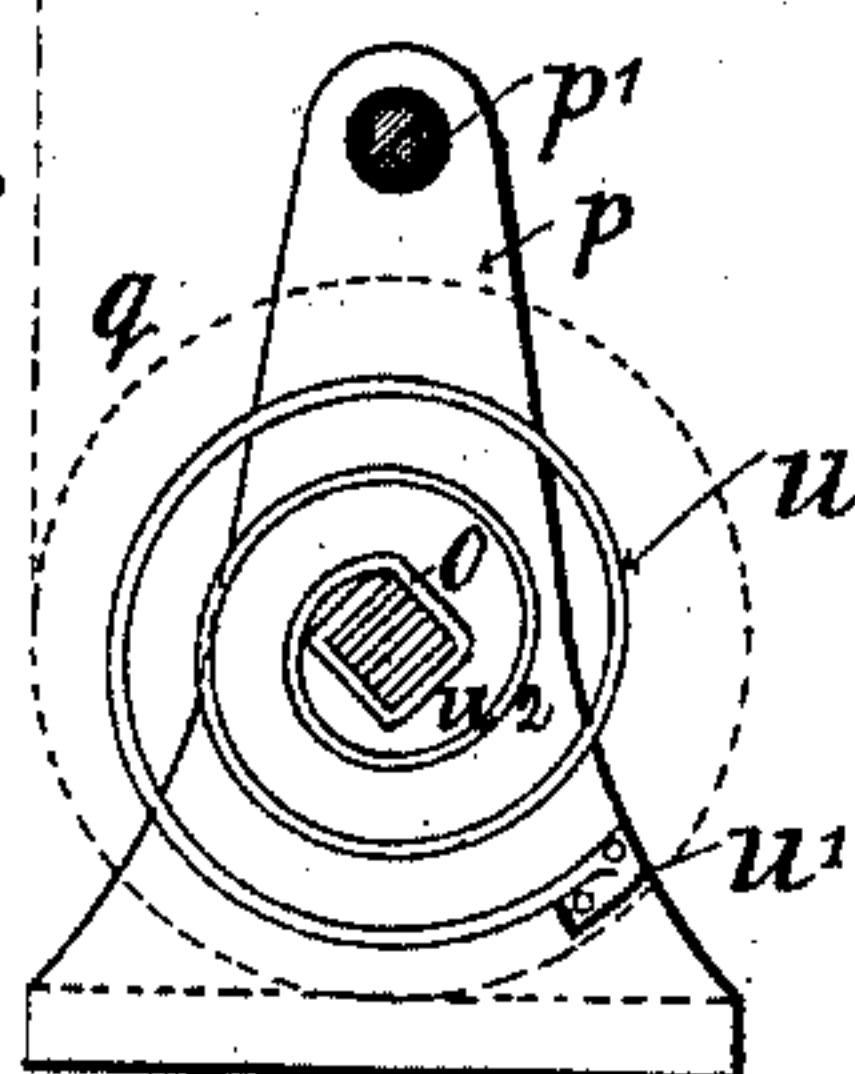


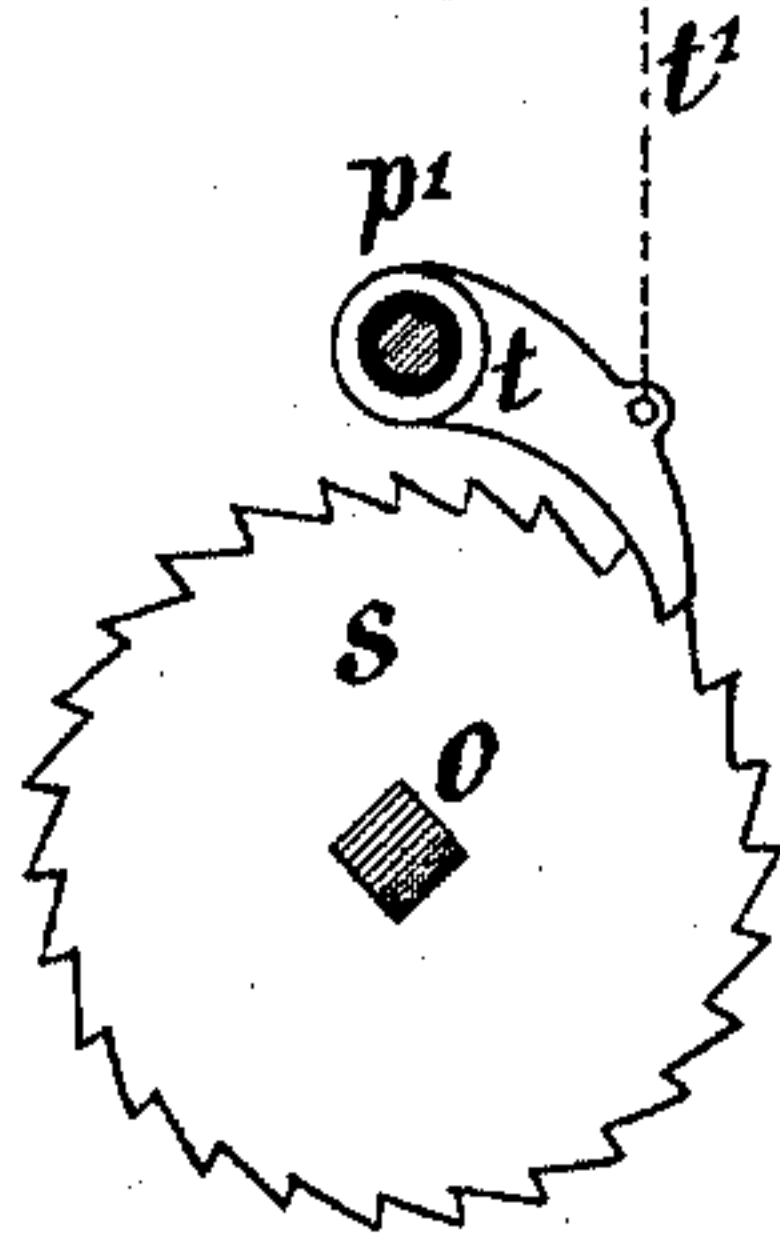
Fig. 4.



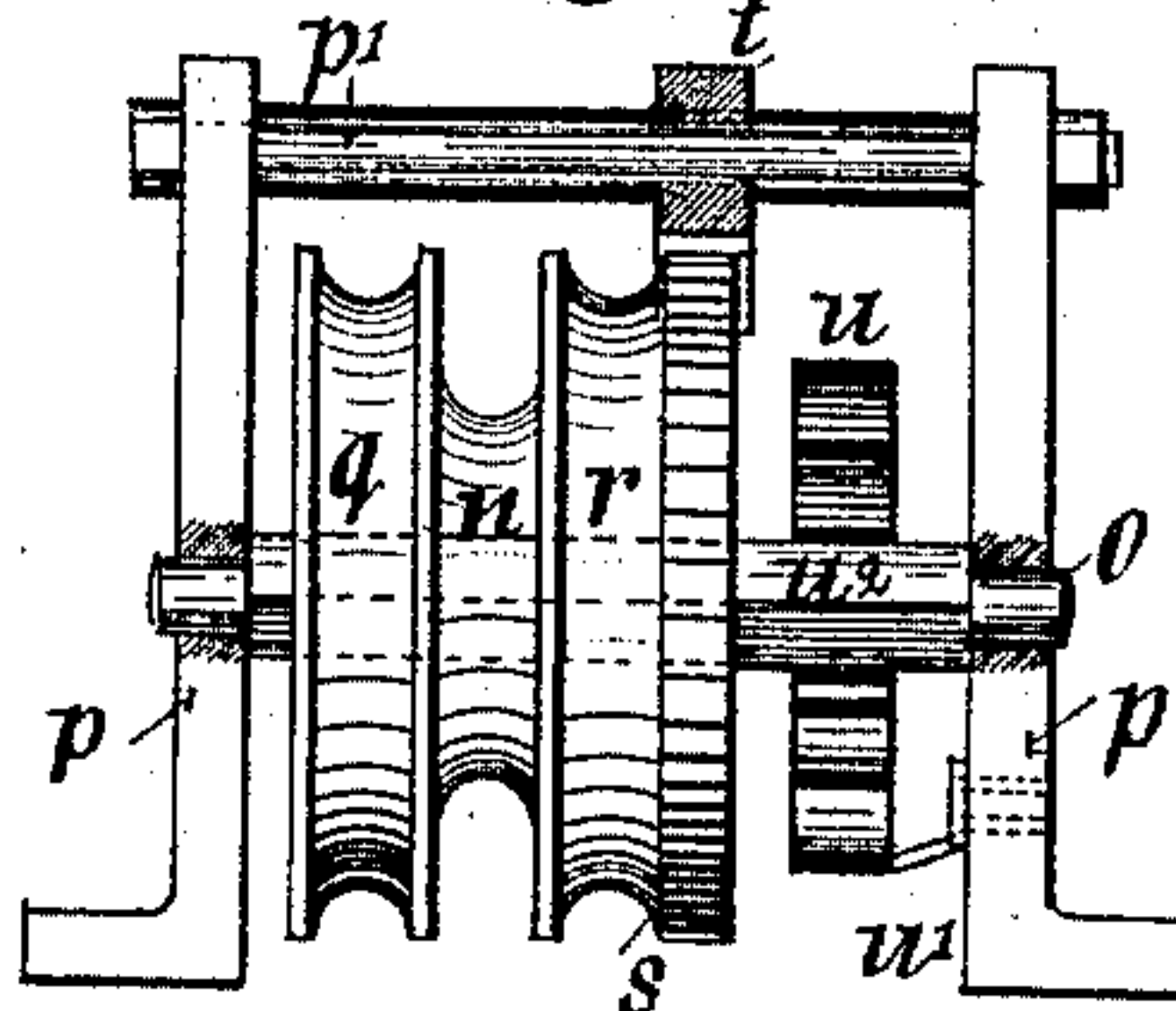
**Fig. 8.**



**Fig. 9.**



**Fig. 7.**



Witnesses:  
Wm Wagner  
A. Bongmans.

Inventor:  
A. Jeensel  
by his attorneys  
Rooden & Briesen



# UNITED STATES PATENT OFFICE.

ADOLF JEENEL, OF BRESLAU, GERMANY.

## WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 441,874, dated December 2, 1890.

Application filed September 5, 1890. Serial No. 364,002. (No model.)

### *To all whom it may concern:*

Be it known that I, ADOLF JEENEL, a subject of the Emperor of Germany, residing at Breslau, in Silesia, Prussia, German Empire, have invented certain new and useful Improvements in Wagon-Brakes, of which the following is a specification.

My invention relates to new and useful improvements in brakes for carriages and other vehicles; and the object of my invention is to provide a self-acting brake which may be worked automatically or by hand.

The invention consists in the various features of improvement, more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved brake. Fig. 2 is a plan thereof; Fig. 3, a front view thereof; Fig. 4, a side elevation of the driving-box, showing a modification in the position of the brake-operating strap *k*. Fig. 5 is a side elevation of the arm *c*; Fig. 6, a plan thereof; Fig. 7, a front elevation of the hand braking-pulleys. Fig. 8 is a side view thereof, and Fig. 9 is a side view of the ratchet-wheel *s* and pawl *t*.

The brake mechanism is operated by means of the carriage-pole, which has a sliding motion in the direction of its length. When the forward motion of the carriage or vehicle is checked, the pole will be forced backward to apply the brake-shoes.

The letter *a* represents the carriage-pole passing through a box or tube *a'*. This box is carried by the bars or frame I II of the carriage, and the pole is secured within the box by means of a headed bolt *a<sup>2</sup>*. To a downwardly-extending pin *a<sup>3</sup>* of box *a'* the whiffle-tree is adapted to be attached. The box *a'*, with the rearward extension of the pole *a*, is arranged to slide in the direction of its length within guides *b b'*, secured to the bars I and II of the frame. To the axle IV of the carriage an arm *c* is secured, which has a horizontal slot *c'*, within which the pivot *d<sup>3</sup>* of a lever *d* is guided, and a vertical slot *c<sup>2</sup>*, through which the lever *d* extends upward. The pivot *d<sup>3</sup>* is adjustable within the slot *c'* by means of a screw-spindle *c<sup>3</sup>* and a sliding block *c<sup>4</sup>*, which bears against the lower part of the lever *d*. At the upper end the lever *d* is forked, as at *d'*, Fig. 3, said fork embrac-

ing the extension of the pole *a*. The shanks of the fork *d'* are on top connected by a cross-bar *d<sup>2</sup>*.

The extension of pole *a* carries two laterally-projecting bolts or pins *a<sup>4</sup>*, provided with anti-friction rollers that act against the fork of the lever *d* when the pole is forced backward. This lever *d* is swung to the rear by the rearward motion of the pole *a*.

*e* is a bar that embraces or engages lever *d*. The ends of bar *e* are pivotally secured to the brake-shoes *f*. These brake-shoes are carried by the ends of spring-bars *g*, secured to cross-bar I of the frame. The bars *g* have a tendency to draw the shoes *f* and the bar *e* away from the axle IV and the wheels.

The screw-spindle *c<sup>3</sup>* serves to adjust the lever *d* and bar *e* to compensate for the loss of bearing-surface of the shoes *f*. If a thill or a pair of shafts be employed instead of a pole, the thill is also secured to box *a'* by an extension-piece on the thill.

The shoes *f* are automatically applied to the wheels whenever the horses are checked or stopped. The checking or stopping of the horses will cause the carriage to slide forward on the extension-piece of the pole, said pole being thereby forced rearward to the frame. By this rearward motion the pins *a<sup>4</sup>* will bear against the fork of lever *d*, which will carry the bar *e* backward and will force the shoes *f* against the wheels. If the pole or thill is subsequently drawn forward, the box *a'* is also drawn forward till the bolt *a<sup>2</sup>* bears against a strap *b* and carries the vehicle along. The lever *d* then returns to its normal position, the return motion being partially assisted by the spring-bars *g*, that also take the shoes off the wheels.

The brake may be locked, if desired, to prevent its automatic working. The locking mechanism consists of a spring-catch *h*, secured to the cross-bar I of the frame, the catch *h* having an eye that encircles the pole *a*. The catch has the tendency to bear downward and to engage with a rack *a<sup>5</sup>*, formed on pole *a*. To the free end of said catch *h* a strap *h<sup>2</sup>* is secured, which passes upward through a tube *i*, which forms the center of motion of the fore-carriage frame, thence through an aperture in the frame and up to the driver's box, where the strap is attached



to a pin  $h^3$ . The tube  $i$  is secured to the lower part V of the fore-carriage, the upper part VI being loosely fitted around said tube. The tube therefore forms the joint or bolt between the lower frame of the fore-carriage and the body of the carriage.

When it is desired to lock the self-acting brake, the coachman releases the strap  $h^2$  from pin  $h^3$  to cause an engagement of catch  $h$  with rack  $a^5$ . This prevents the pole  $a$  from moving backward, and accordingly the brake will not be set into action. The brake may also be worked by hand in the following manner: A strap  $k$  is secured at one end to the lever  $d$ , passes over a guide-pulley  $l$ , up through the tube  $i$ , and is secured at its other end to a sheave  $n$  below the driver's box. If the strap  $k$  is arranged above the center of motion of the fore-carriage, as in Fig. 1, it may pass down directly through the tube  $i$ ; but where it is arranged behind the said tube  $i$ , as in Fig. 4, the strap is guided by pulleys  $m$   $m'$ . A similar arrangement of guide-pulleys is employed should the strap be arranged in front of the tube  $i$ . The sheave  $n$  is mounted on a shaft  $o$ , turning in standards  $p$  below the coachman's seat. On the shaft  $o$  are mounted two sheaves  $q$  and  $r$  and a ratchet-wheel  $s$ , all fast on the shaft. To the sheave  $q$  a strap  $q'$  is attached, which leads upward to the coachman's seat, where it ends in a handle  $q^2$ . To the sheaves  $r$  a strap  $r'$  is attached, which leads to the rear of the carriage and terminates in a handle  $r^2$ . The cross-bar  $p'$  of the standards  $p$  carries a pawl  $t$ , engaging ratchet-wheel  $s$ . To this pawl a strap  $t'$  is attached that leads up to the coachman's seat and terminates in a handle  $t^2$ . Around the shaft  $o$  a spring  $u$  is wound, one end of which is fastened to the standard  $p$ , while the other end is fixed to the shaft  $o$ , as at  $u^2$ .

If the coachman desires to apply the brake, he draws strap  $q'$  upward to revolve shaft  $o$  and wind strap  $k$  upon sheave  $n$ . Thus the lever  $d$ , to which said strap  $k$  is attached, is forced back in the same way as if pushed by the bolts  $a^4$  of the pole  $a$ , in the automatic brake apparatus before described. The ratchet-wheel  $s$  follows the rotary motion of the sheaves  $q$  and  $n$ , and the pawl  $t$  slides over the teeth and engages the wheel as soon as the rotary motion stops, thus preventing the wheel  $s$  and the sheaves  $q$  and  $n$  from turning in the opposite direction under the influence of spring  $u$ . The brake accordingly is locked in any desired position or degree of

pressure by the pawl  $t$  and ratchet-wheel  $s$ . When the coachman desires to release the brake again, he draws the strap  $t'$  up to lift pawl  $t$  out of wheel  $s$ . The spring  $u$  will now return the shaft  $o$ , with the sheaves  $q$  and  $n$ , to its normal position. The strap  $k$  will become unwound and the brake-shoes are taken off.

If the brake is to be operated by the occupants of the carriage, they pull the strap  $r'$ , which has the same effect as a pull on strap  $q'$ . The straps may be replaced by any other suitable or equivalent means of traction, such as chains, cords, or the like.

What I claim is—

1. The combination of sliding pole  $a$ , having pins  $a^4$ , with lever  $d$ , engaged by the pins, bar  $e$ , engaging said lever, brake-shoes  $f$ , pivoted to said bar, and spring-bars  $g$ , to which the brake-shoes are attached, substantially as specified.

2. The combination of sliding pole  $a$  with slotted arm  $c$ , having set-screws  $c^3$  and sliding block  $c^4$ , and with lever  $d$ , pivoted to said arm, bar  $e$ , engaged by the lever and brake-shoes  $f$ , connected to the bar, substantially as specified.

3. The combination of sliding pole  $a$ , having rack  $a^5$ , with lever  $d$ , bar  $e$ , and brake-shoes  $f$ , and with a pawl  $h$ , adapted to engage the rack and lock the pole, substantially as specified.

4. The combination of sliding pole  $a$  with lever  $d$ , bar  $e$ , and shoes  $f$ , and with the shaft  $o$ , carrying a series of sheaves, a strap  $k$ , operating the lever  $d$  and wound around one of the sheaves, hand-straps wound around the other sheaves, and a pawl  $t$  and ratchet-wheel  $s$ , for locking shaft  $o$ , substantially as specified.

5. The combination, in a wagon-brake, of the following elements: a sliding pole  $a$ , arm  $c$ , lever  $d$ , pivoted thereto, a bar  $e$ , operated by the lever and carrying the brake-shoes  $f$ , spring-bars  $g$ , from which the shoes are suspended, a shaft  $o$ , carrying a series of sheaves, a strap  $k$ , connecting one of said sheaves with lever  $d$ , and hand-straps secured to the other sheaves, substantially as specified.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 11th day of August, 1890.

ADOLF JEENEL.

Witnesses:

HERMANN MISOPPE,  
H. J. DUNLAP.