(No Model.) 2 Sheets—Sheet 1.

# A. T. RESOW.

## SELF ACTING BRAKE FOR GUN CARRIAGES.

No. 458,491. Patented Aug. 25, 1891.

Fig 1.

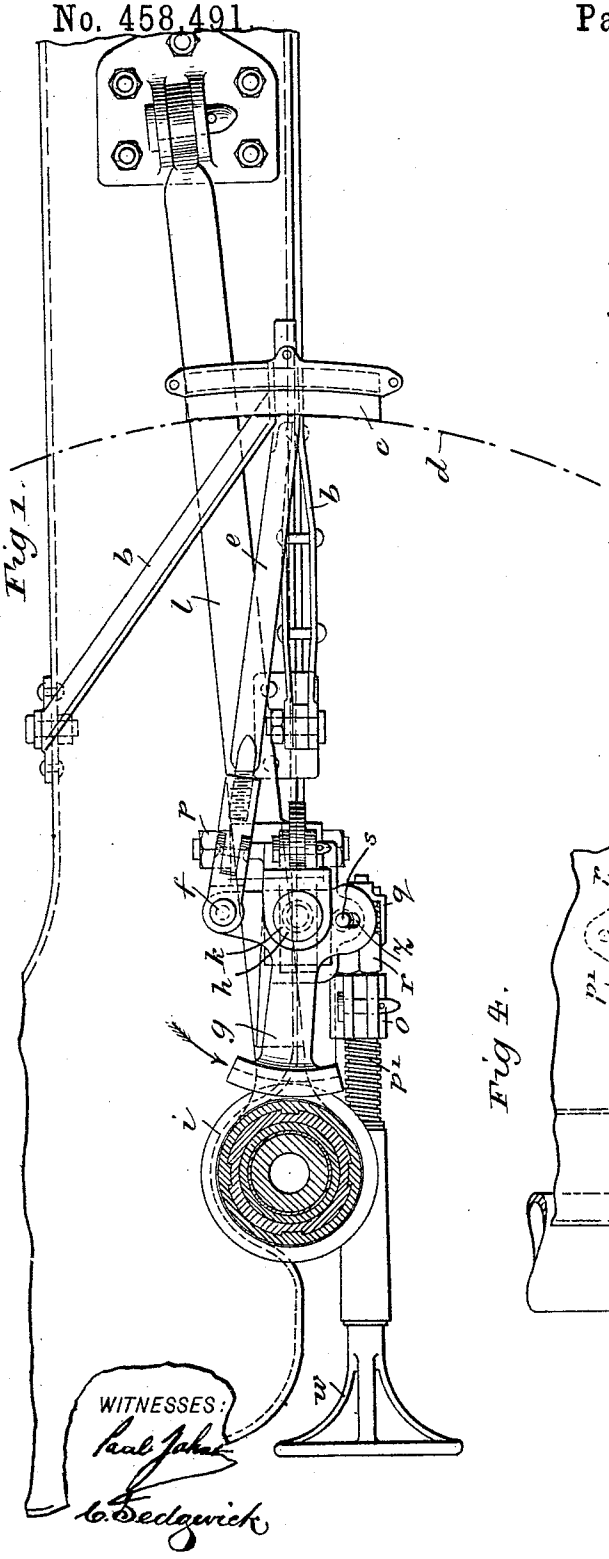



Fig 3.

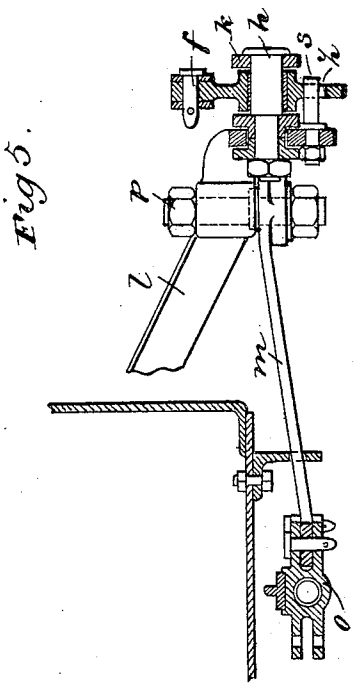
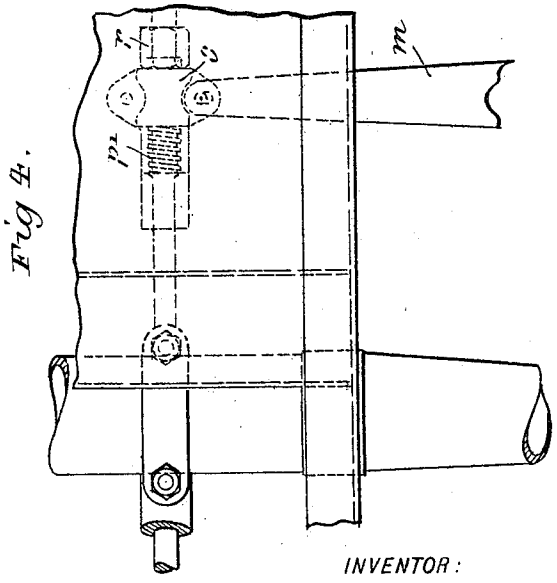



Fig 4.




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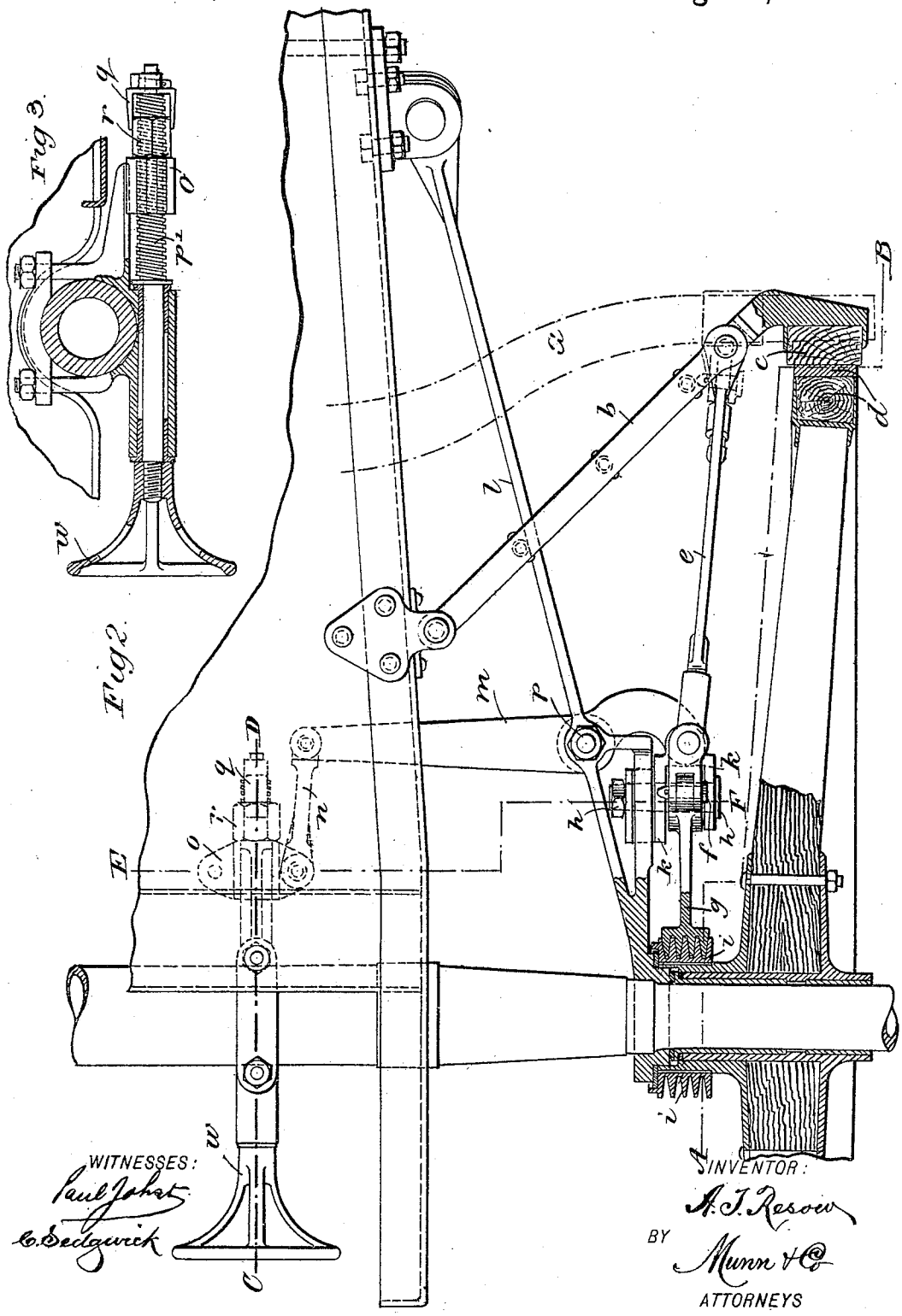
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(No Model.) 2 Sheets—Sheet 2.

# A. T. RESOW.

## SELF ACTING BRAKE FOR GUN CARRIAGES.

No. 458,491. Patented Aug. 25, 1891.




THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

ADOLF THEODOR RESOW, OF ESSEN, GERMANY, ASSIGNOR TO THE FIRM OF FRIEDR KRUPP, OF SAME PLACE.

## SELF-ACTING BRAKE FOR GUN-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 458,491, dated August 25, 1891.

Application filed April 7, 1891. Serial No. 387,944. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLF THEODOR RESOW, a subject of the King of Prussia, residing at Essen, in the Kingdom of Prussia, German Empire, have invented new and useful Improvements in Self-Acting Brakes for Field and other Traveling Gun-Carriages, of which the following is a specification.

This invention refers to mechanism and devices, as hereinafter described, whereby the brake block or blocks is or are brought automatically into and out of contact with the wheel-tires of field and other guns, and the movements of the corresponding carriage-wheels are thereby controlled.

The invention will be clearly explained by the following description, having reference to the accompanying drawings.

Figure 1 shows a vertical section, on the line A B of Fig. 2, of so much of a gun-carriage as will be necessary to illustrate the invention. Fig. 2 is a sectional plan of Fig. 1. Fig. 3 is a vertical longitudinal section on the line C D of Fig. 2. Fig. 4 is a plan showing a somewhat modified construction of a portion of the mechanism hereinafter described, and Fig. 5 is a vertical transverse section on the line E F of Fig. 2.

Similar letters of reference refer to like parts in all the figures.

According to this invention the brake-block *c* is either mounted on an ordinary brake-bar *a* or on the brake-arm *b*, (see Figs. 1 and 2,) and *d* is the wheel-tire. The brake-bar or brake-arm *b* is connected by connecting-rod *e* and joint-pin *f* with the upper arm of a three-armed lever *g*, movable round the bolt *h*. The forward arm of such lever *g* forms a segment, which is provided with wedge-shaped projections upon its periphery fitting into recesses of similar shape in the rings *i* when brought into contact. These wedge-shaped rings are fixed on the nave of the carriage-wheels. In order to facilitate the entrance of these wedges into the rings *i*, the lower part of the segment is arranged somewhat eccentrically and approaching the axis, while the really gearing upper part of the segment lies concentrical to the axis.

Immediately the gearing of the forward arm of lever *g* and ring *i* is effected by properly turning the hand-wheel *w*, the course of actions which automatically take place when the carriage is running back after discharge or up-limbered on the march is as follows: The carriage-wheels, by means of the wedge-shaped rings *i*, turn the forward arm of lever *g* in the direction of the arrow, Fig. 1, whereupon by means of the connecting-rod *e* the brake-bar *a*, or as the case may be, the brake-arm *b*, together with the brake-blocks *c*, are moved toward the wheels, and finally the blocks pressed hard against the wheel-tires, thus putting on the brake. Upon the bringing in position of the gun after discharge the carriage-wheels automatically move the forward arm of the lever *g* in the inverse direction, the brake-blocks *c* are removed to a distance from the carriage-wheels, and the latter are set free. The transmission of the motion of the carriage-wheels upon the brake-blocks, besides being effected by the rings described, may also be attained by other forms of friction-gearing or toothed wheels, &c.

The forward arms of the levers *g* and the rings *i* are set in and out of gear in the following manner. The bolt or pin *h*, which serves as an axis for the lever *g*, is fitted in a sliding bed *k*, the latter (the bed *k*) being itself attached to any fixed part of the carriage—in the present case to the tie-bar *l*—so that it (the sliding bed *k*) can slide backward and forward. To this bed *k* one arm of the brake-lever *m* is connected by means of a link. The lever *m* turns round a bolt *p*, which has its seat in a fixed part of the carriage, in this case on the tie-bar *l*. The other arm of the lever *m* is in connection with the traversing nut *o*, either by the connecting-rod *n*, Fig. 2, or directly attached to it, as shown in Fig. 4. This connection may, however, be effected otherwise—for example, by toothed gearing between the nut *o* and the lever *g*, &c. The nut *o* can be moved backward and forward by turning the brake-screw *p'* by means of the hand-wheel *w*. The brake-screw *p'* is supported on the carriage by suitable bearings in such a manner that *p'* can only turn round its axis. By means of the brake-lever *m* the motion of the nut *o* causes a corresponding motion of the bed *k*, and consequently of the forward arm of the lever *g*,

which thus is brought into and out of gear with the wedge-shaped ring upon the nave of the wheel. In order to insure a precise and unfailing getting in and out of gear, the third or lower arm of the lever *g* is provided with a slot *z*, in which fits the pin *s*, carried by the bar *l*. When the brake is thrown into gear by turning the brake-screw, the pin strikes the back end of the slot *z* and presses the forward arm of the lever *g* forcibly into the ring *i*, in case it has not yet fallen into the ring *i*, owing to its own weight. When, on the other hand, the brake is thrown out of gear, the pin *s* strikes the front end of the slot, whereby the forward arm is lifted and finally set fast, so that it cannot be thrown up and down when the gun is on the march without use of the brake. The before-described arrangement can also be reversed. The arm may carry the pin and a slot may be provided in the fixed part of the carriage. Instead of the slot two cams or projections may be provided. The pin may be replaced by a tooth or a stud.

For the adjustment of the brake, both for convenience in construction as well as to allow for wear of the brake-blocks, the connecting-rods *e* are formed of two parts, which are screw-threaded and tapped, so that by a few turns the length of the connecting rod or rods may be changed.

To prevent the forward arm being pressed too hard into the ring *i*, the motion of the traversing-nut *o* in the direction in question is limited by a stop-nut *r*, screwed on the brake-screw *p'*, which is kept in its position by the safety-clasp *q*. When the gearing parts *i* and *g* are so far worn out through long use that the pressure between them is insufficient, the stop-nut *r* is correspondingly adjusted.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A self-acting brake for traveling gun-carriages, comprising a lever with a plurality of arms, one arm being connected with the brake-block and another arm being adapted to engage the hub of the wheel, and a screw mechanism for adjusting the lever, substantially as described.

2. The combination of the brake-screw *p'* with the hand-wheel *w*, the traversing nut *o*, lever *m*, the sliding block *k*, the stop-nut *r*, and safety-clasp *q* for the purpose of causing the friction-rings or toothed wheels and the levers *g* to engage or disengage and for adjusting and regulating the pressure between the toothed wheels and levers, substantially as described.

3. The combination of the armed lever mounted in a slidable bearing and connected with the wheel and brake-block, said lever having its lower arm slotted, and the fixed pin secured to the carriage and arranged to project into the slot in the arm, substantially as described.

4. A brake attachment for traveling gun-carriages, comprising a brake-block adapted to fit the wheel-tire of the carriage, said block being pivotally connected with the carriage, a three-armed lever pivoted on a sliding block, a connecting-rod extending from one arm of the lever to connect with the brake-block, a toothed segment secured to another arm of the lever and adapted to engage a toothed ring on the wheel-nave, a lever mechanism for tilting the third arm of the lever and for adjusting the sliding block, a pivoted traverse-nut connected by a lever mechanism with the three-armed lever, and a screw mechanism for adjusting the traverse-nut, substantially as described.

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

ADOLF THEODOR RESOW.

Witnesses:
FRITZ MOCLLENHUFF,
HERMANN KUHFUS.