

No. 621,585.

Patented Mar. 21, 1899.

A. RESOW.

RECOIL SPRING BRAKE FOR GUN CARRIAGES.

(Application filed Oct. 11, 1898.)

(No Model.)

3 Sheets—Sheet 1.

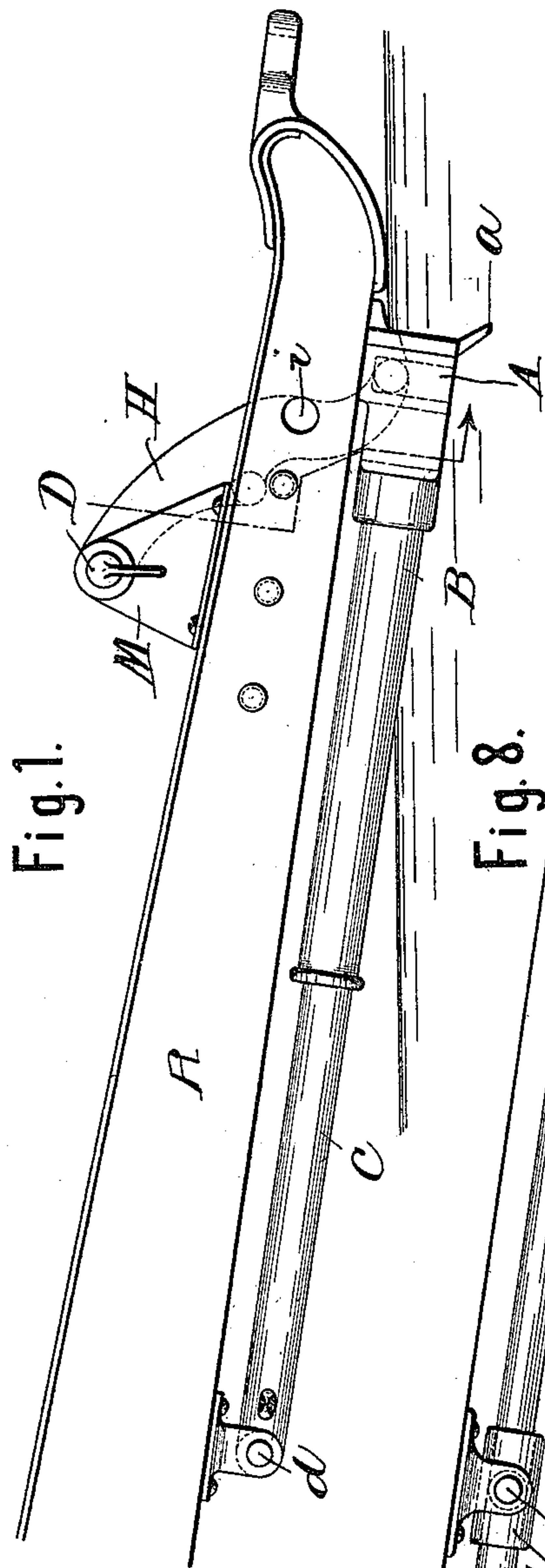
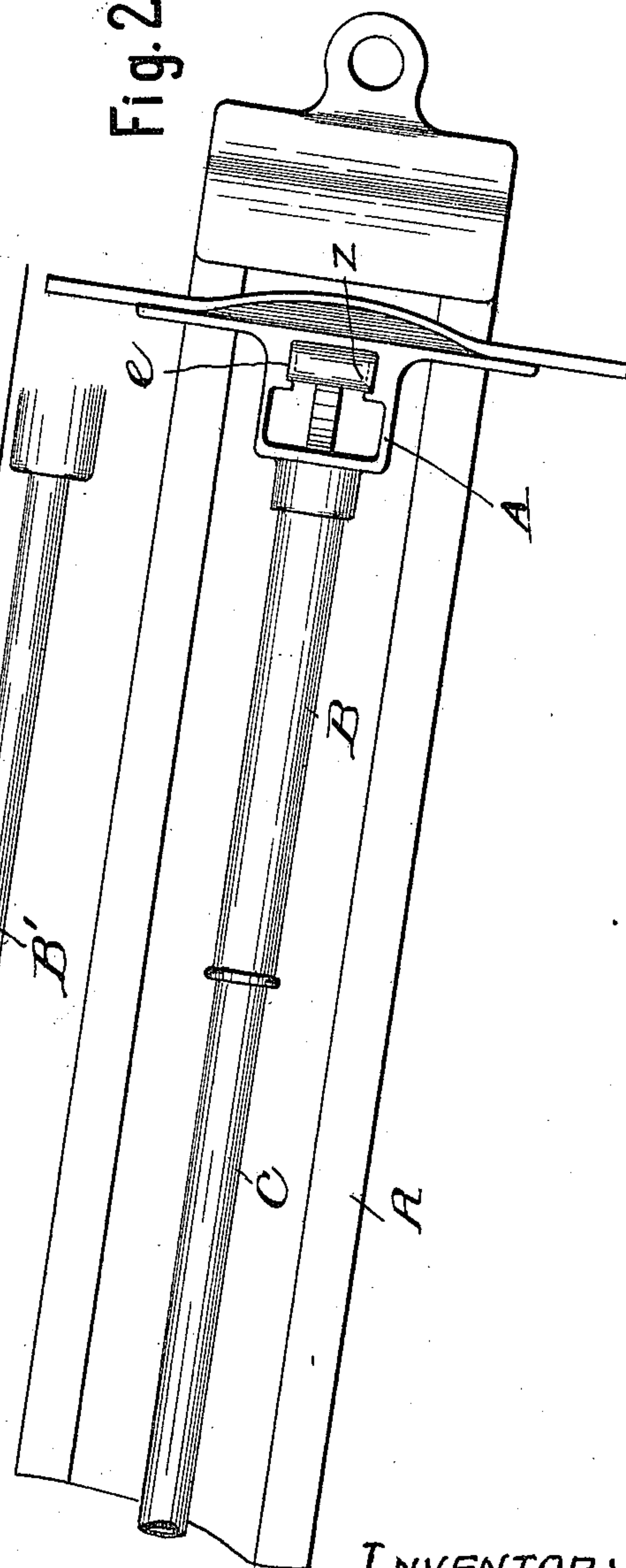


Fig. 8.



Fig. 2.



WITNESSES:  
*Sw. Eisenbraun*  
*Eugenie P. Hendrickson*

INVENTOR:  
*Adolf Resow*  
BY *Alfred A. ...*  
ATTY.

No. 621,585.

Patented Mar. 21, 1899.

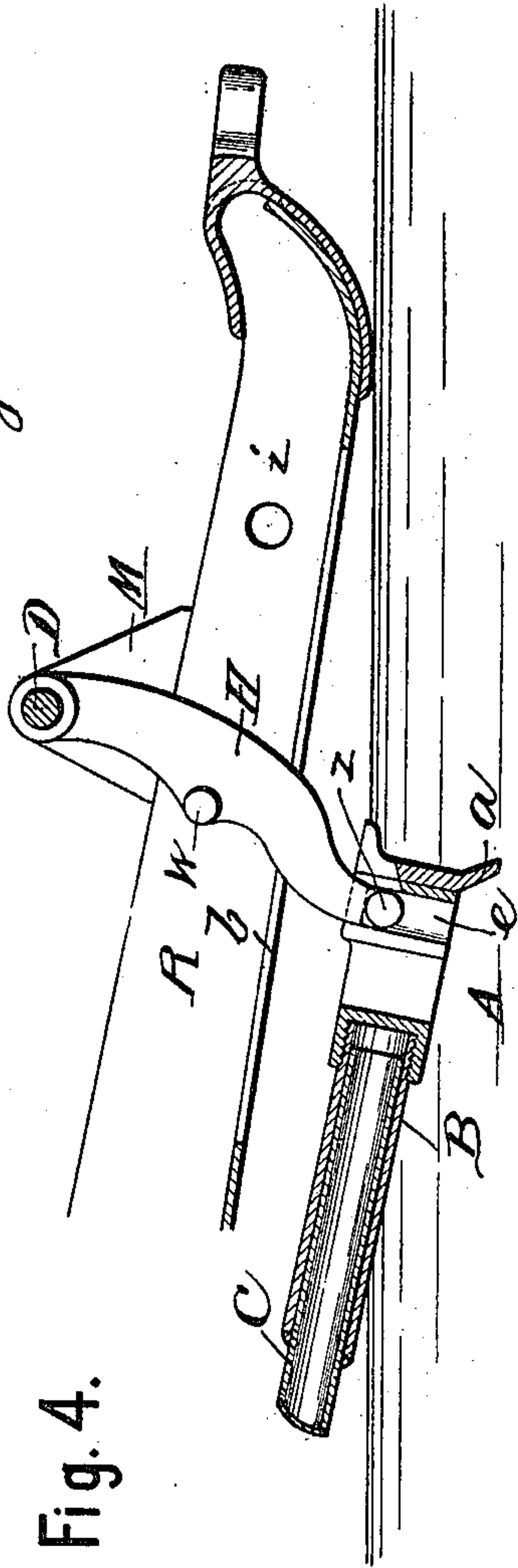
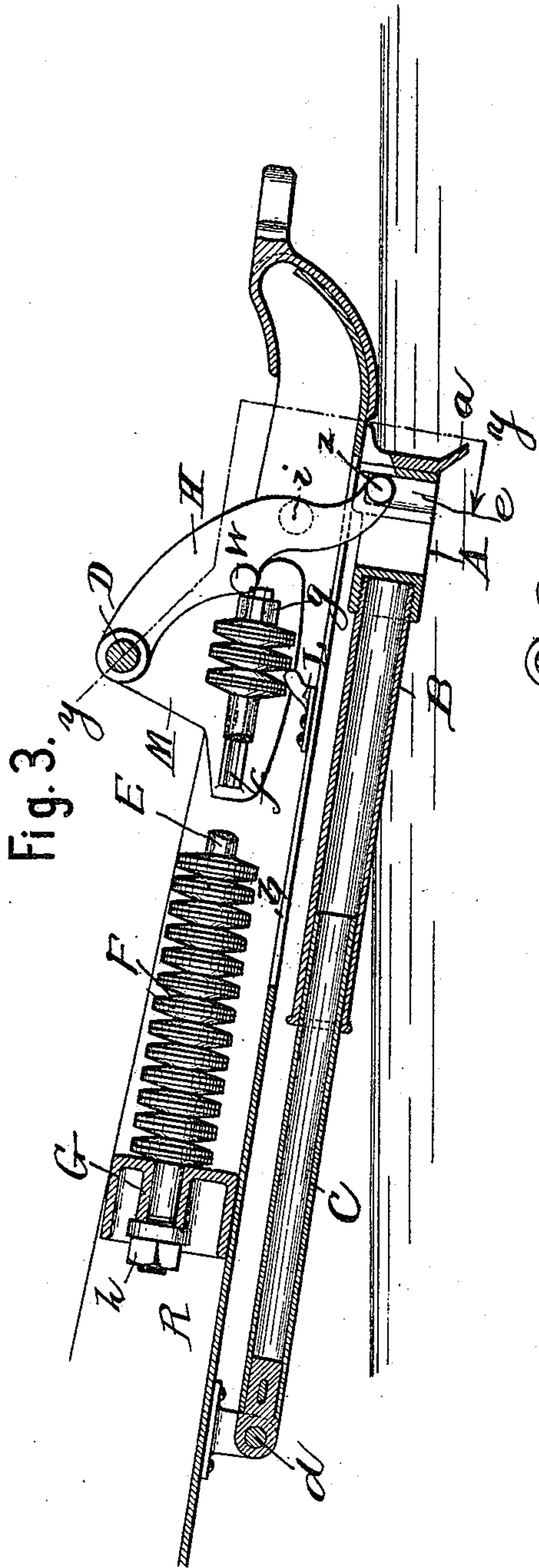
A. RESOW.

RECOIL SPRING BRAKE FOR GUN CARRIAGES.

(Application filed Oct. 11, 1898.)

(No Model.)

3 Sheets—Sheet 2.



WITNESSES:  
G. W. Esenbrenner  
Eugene P. Hendrickson.

INVENTOR:  
Adolf Resow  
BY *Robert A. Karp*  
ATTY.



No. 621,585.

Patented Mar. 21, 1899.

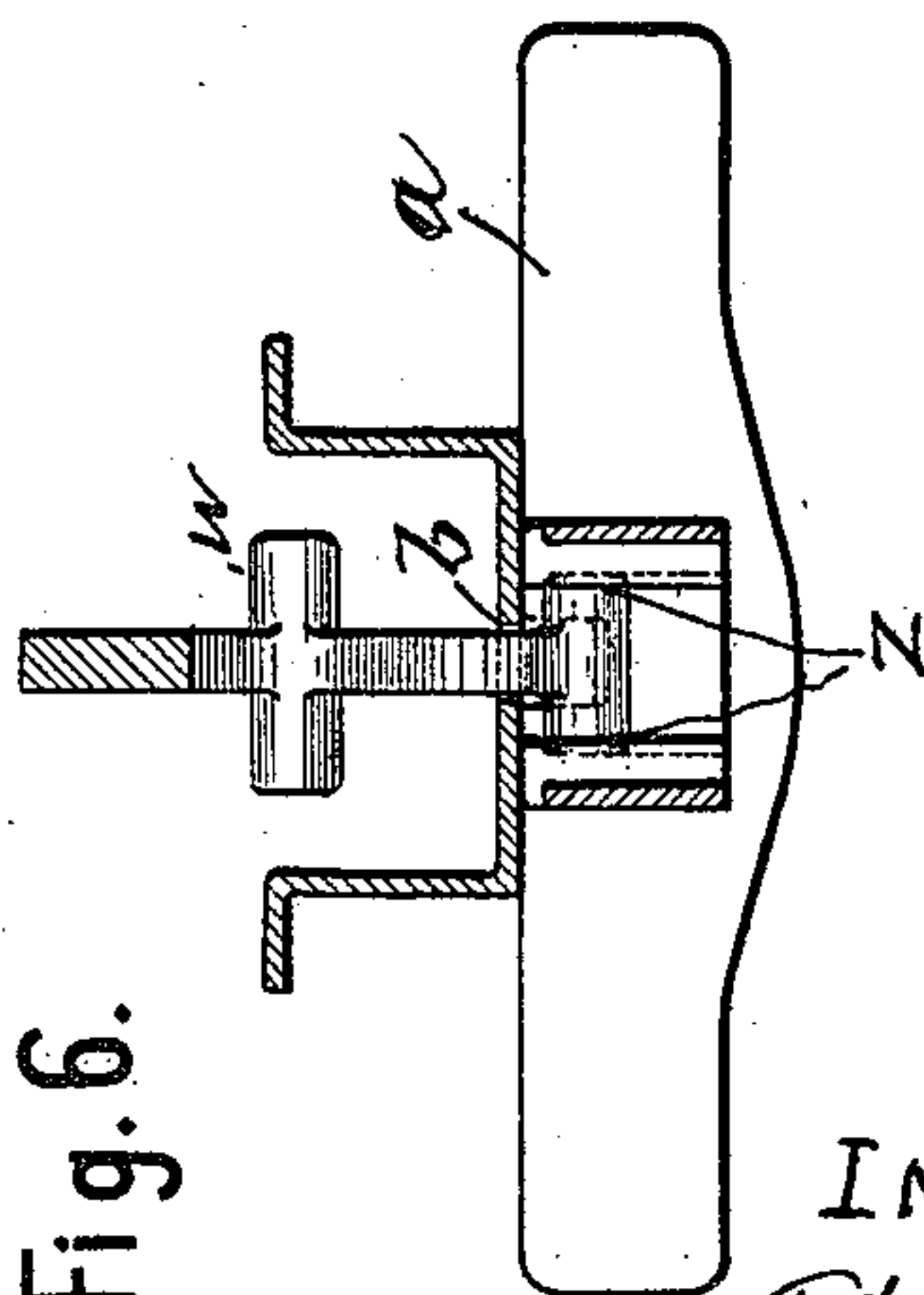
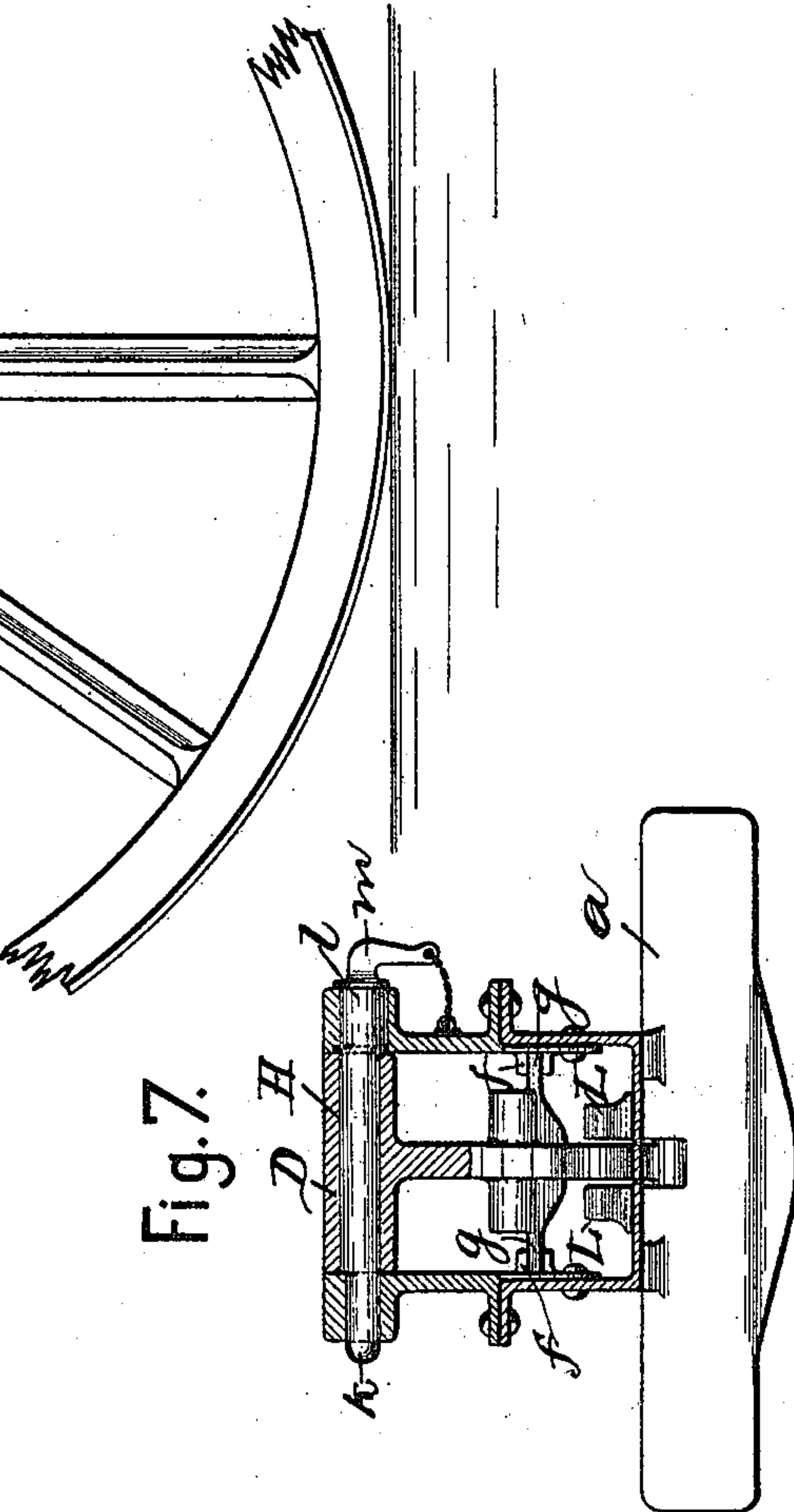
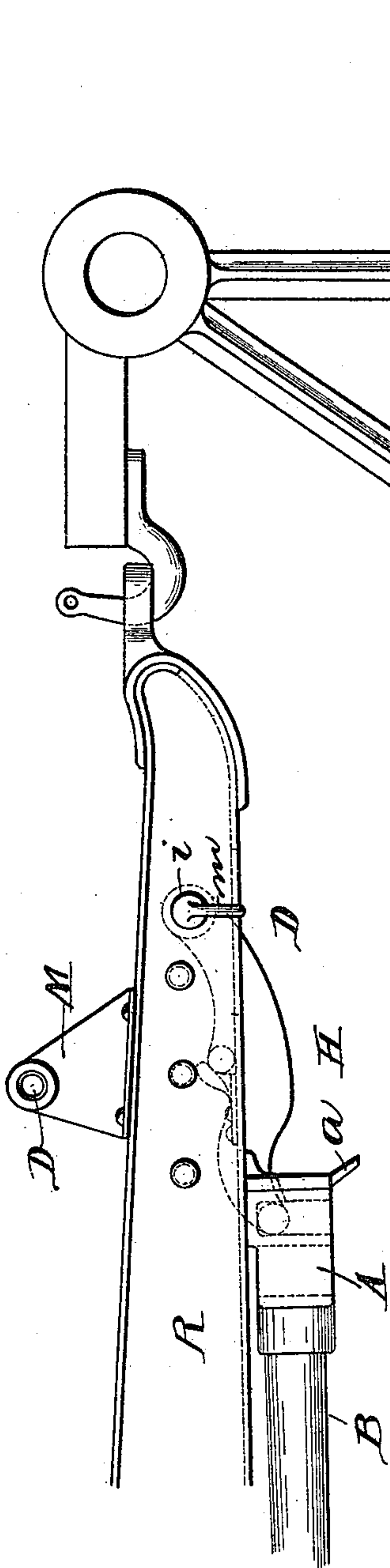
A. RESOW.  
RECOIL SPRING BRAKE FOR GUN CARRIAGES.

(Application filed Oct. 11, 1898.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 5.



WITNESSES:  
*G. W. Eisenbraun*  
*Engenie P. Hendrickson*

Fig. 6.

INVENTOR:  
*Adolf Resow*  
BY *Abraham J. ...*  
ATTY.



# UNITED STATES PATENT OFFICE.

ADOLF RESOW, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP, OF  
SAME PLACE.

## RECOIL-SPRING BRAKE FOR GUN-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 621,585, dated March 21, 1899.

Application filed October 11, 1898. Serial No. 693,212. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLF RESOW, a citizen of the German Empire, residing at Essen, Germany, have invented certain new and useful Improvements in Recoil-Spring Brakes for Wheeled Gun-Carriages, of which the following is a specification.

My invention relates to improvements in recoil-spring brakes for wheeled gun-carriages, and in particular to the class of wheeled gun-carriages provided with a spur adapted to be driven into the ground and forming an abutment to a recoil-spring which automatically returns the gun into battery, or at least nearly so.

The nature of my invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 represents a side elevation of the trail end of a gun-carriage in the firing position. Fig. 2 is a plan view of Fig. 1, taken from beneath. Fig. 3 is a vertical longitudinal section of Fig. 1, partly in elevation. Fig. 4 shows the relative position of the parts at the completion of the recoil and before the commencement of the secondary recoil or automatic return into battery. Fig. 5 is an elevation of the trail end of the gun-carriage limbered up. Fig. 6 is a vertical section on the line 6 6 of Fig. 1, looking in the direction of the arrow. Fig. 7 is a vertical section on the line 7 7 of Fig. 3, looking in the direction of the arrow. Fig. 8 shows a modified form of the brake-bolt.

Similar letters of reference designate corresponding parts throughout the several views of the drawings.

Referring now to Figs. 1 to 7 of the drawings, the letter R designates the trail end of the gun-carriage.

B and C are telescopic tubes forming the brake-bar, the forward end of the tube C being pivoted to the body or trail end of the gun-carriage by a pin *d*.

*a* is the spur attached to the head A, into which the rear end of the tube B is screwed or otherwise secured. The arrangement of the telescopic bar may, however, be modified, as shown in Fig. 8, by pivoting to the trail a short sleeve C', through which the rod B' passes, the rear end of which rod B' is at

attached to the head A, carrying the spur *a*.

H is a lever fulcrumed on a pin D, supported on brackets M, attached to the trail. This lever H projects through a slot *b* in the lower side of the trail and has at its outer lower end projections *z*, which engage vertical guides *e* in the head A. These guides are open at the bottom and closed at the top. It is readily seen that when the telescopic tubes C B are shortened by the recoil against the stationary spur *a* the lever H is caused to turn on its pivot D, and in so doing its projections will move downward within the guides *e* of the head A. When the trail of the carriage is raised, the telescopic tubes B and C, being suspended thereon by the lever H and its projections *z*, share this motion.

E is a bolt having at its rear a cross-head *g*, arranged to slide in guide-grooves *f* on the inner sides of the body of the trail. A bearing G for the forward end of the bolt E is secured to the trail. A spring F, consisting of a series of dish-shaped elements, is placed on the rod E between its head *g* and the thrust-bearing G; but in place of the dish spring other suitable springs, such as a spiral spring, may be used. During the recoil of the gun against the spur *a*, which is held substantially stationary in the ground, the lever H is moved forward relatively to the trail and by its cylindrical cross-piece *w* causes the cross-head *g* to slide forward in its guides *f*, thereby compressing the spring F against the thrust-bearing G, the initial degree of compression being regulated by the nut *h*. After the completion of the recoil the gun is automatically returned into battery, or nearly so, by the action of the spring on the lever H. The travel of the spring is less than the shortening of the telescopic bar, so that the spring may be comparatively short; but the length of the telescopic bar depends solely on the length of recoil and may for this reason be comparatively short. When limbered up, the spur may be put out of the way by pulling out the bolt D and placing the lever in the position shown in Fig. 5, the telescopic bar being pushed together or shortened and the lever H held in its position by passing the bolt D through



holes *i* in the trail and through the bore of the lever and by the cross-piece *w* resting upon the bottom of the trail beneath hooks *L*.

During firing dirt is apt to accumulate between the upper side of the hollow head *A* and the lower side of the trail, longitudinally straining the lever *H* and causing pressure on the bolt *D*, jamming it in its bearing so that it cannot be easily pulled out. To obviate this difficulty, I make the central part of the bolt on which the lever *H* turns eccentric to the end gudgeons *k* and *l*, so that when the handle *m* of the bolt *D* is turned down the axis of the middle part of the bolt *D* is vertically above the axis of the gudgeons *k* and *l*. In this position of the bolt *D*, Fig. 7, the lever *H* raises the head *A* up against the bottom of the trail. By turning the bolt one hundred and eighty degrees, so as to place the axis of the middle part beneath the axis of the gudgeons, the lever is depressed and a space is left between the head *A* and the bottom of the trail. The bolt *D* is then released from any pressure caused by the accumulation of dirt between the head *A* and the trail. The bolt is, furthermore, so arranged that in the last-mentioned position it can be pulled out, because a nose arranged on the gudgeon *l* and in all other positions engaging an annular groove in the bearing *M* is now within a longitudinal groove of the same.

What I claim as new is—

1. In a wheeled gun-carriage, the combination of a spur *a* rigidly attached to a head *A*, a telescopic bar pivoted by its forward part to the trail and fastened by its rear end to the head *A* of the spur, a lever *H* pivoted to the trail and extending down into guides of the head *A*, a spring located between the sides of the trail, a forward thrust-bearing for the spring attached to the trail, and a cross-head at the rear end of the spring abutting against the lever *H* between its fulcrum and its lower

end and guided on the trail, substantially as and for the purpose specified.

2. In a wheeled gun-carriage, the combination of a spur *a* rigidly attached to the head *A*, a telescopic bar pivoted by its forward part to the trail and fastened by its rear end to the head *A* of the spur, a lever *H* pivoted to the trail and extending down into guides of the head *A*, a dish spring located between the sides of the trail, a forward thrust-bearing for the spring attached to the trail, and a cross-head at the rear end of the spring abutting against the lever *H* between its fulcrum and its lower end and guided on the trail, substantially as and for the purpose specified.

3. In a wheeled gun-carriage, the combination of a spur *a* rigidly attached to a head *A*, a telescopic bar pivoted by its forward part to the trail and fastened by its rear end to the head *A*, a lever *H* removably pivoted to the trail by an eccentric pin *D* and extending down into guides of the head *A*, a spring *F* located between the sides of the trail, a forward thrust-bearing for the spring attached to the sides of the trail, and a cross-head at the rear end of the spring and abutting against the lever *H* between its fulcrum and its lower end, substantially as and for the purpose specified.

4. In a wheeled gun-carriage, the combination of the spur *a*, a head *A*, bars *B*, *C*, spring *F*, lever *H* removably pivoted on the trail, and holes *i* and hook *L* for securing the lever when not in action, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ADOLF RESOW.

Witnesses:

DEAN B. MASON,  
JEAN GRUND.