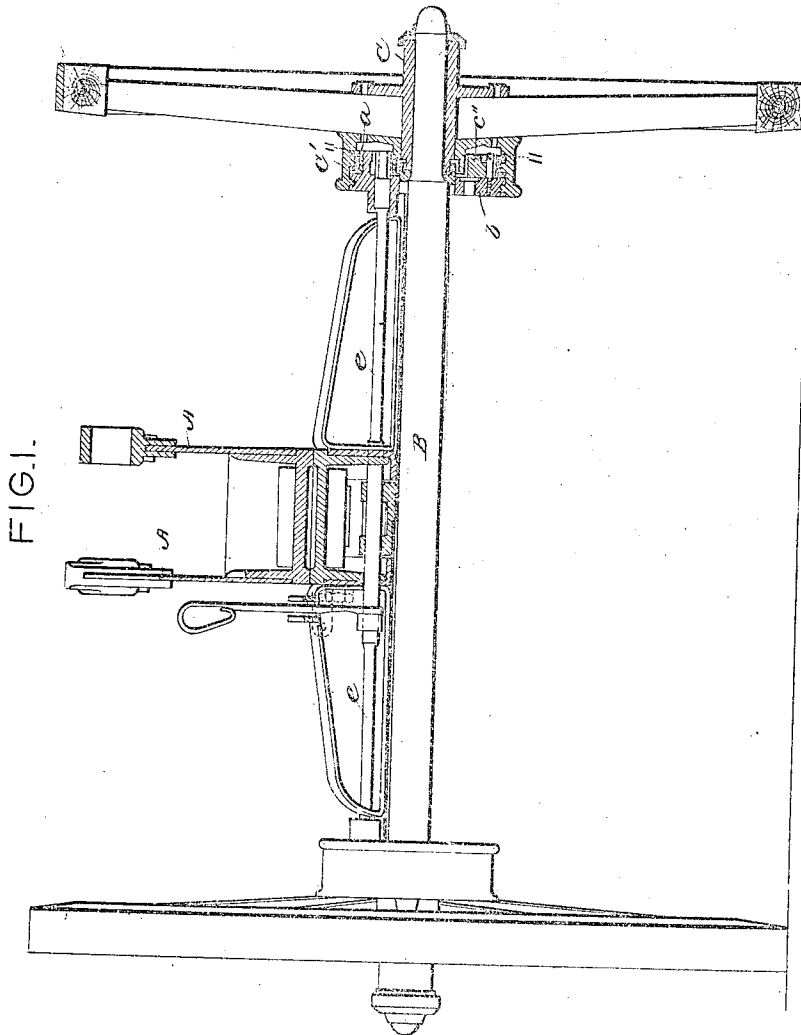


(No Model.)

3 Sheets—Sheet 1.

C. RÖSTEL.
FRICTION BRAKE FOR GUN CARRIAGES.
No. 466,261. Patented Dec. 29, 1891.



Witnesses:
Henry D. Lee
George E. Case

Inventor.
Carl Röstel.
By Knight Bros.
Attorneys

(No Model.)

3 Sheets—Sheet 2.

C. RÖSTEL.
FRICTION BRAKE FOR GUN CARRIAGES.
No. 466,261.
Patented Dec. 29, 1891.

FIG. II.

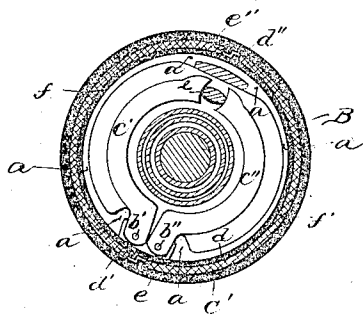


FIG. III.



Witnesses:
Hans S. Rohrer
George E. Cruise

Inventor:
Carl Röstel.
By Knight Bros
Attorneys.

(No Model.)

3 Sheets—Sheet 3.

C. RÖSTEL.
FRICTION BRAKE FOR GUN CARRIAGES.
No. 466,261. Patented Dec. 29, 1891.

FIG. IV.

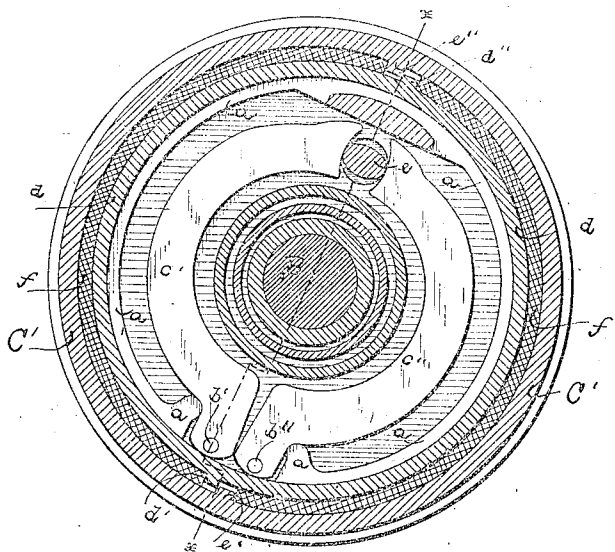
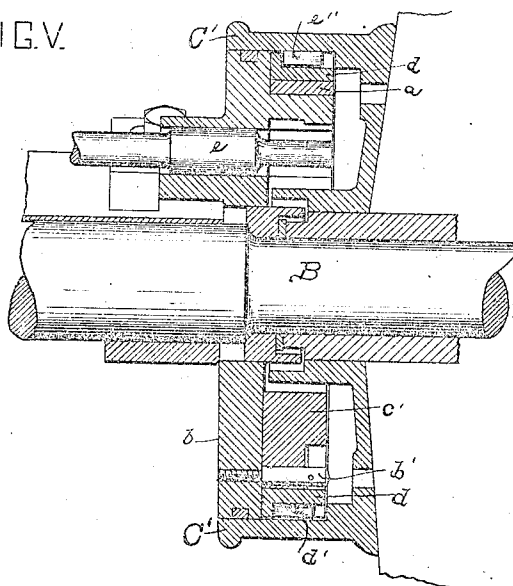


FIG. V.



Attest:
Jesse Heller.
Harry B. Cohen.

Inventor:
Carl Röstel
By Knight Bros.
Attys.

UNITED STATES PATENT OFFICE.

CARL RÖSTEL, OF MAGDEBURG-BUCKAU, GERMANY, ASSIGNOR TO THE GRUSONWERK, OF SAME PLACE.

FRICTION-BRAKE FOR GUN-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 466,261, dated December 29, 1891.

Application filed December 23, 1890. Serial No. 375,596. (No model.)

To all whom it may concern:

Be it known that I, CARL RÖSTEL, a subject of the Emperor of Germany, residing at Magdeburg-Buckau, Kingdom of Prussia, and Empire of Germany, have invented a certain new and useful Friction-Brake for Gun-Carriages, of which the following is a specification.

This invention relates to friction-brakes for gun-carriages, and has for its object to increase the effect of such brakes and to facilitate the operation of the same.

In the accompanying drawings, Figure I is a rear view of a gun-carriage with the trail removed and showing one wheel in section with my improvements applied thereto. Fig. II is a section on the line II II of Fig. I. Fig. III represents in side and end elevation the operating-shaft. Fig. IV is an enlarged sectional view or elevation of the invention, showing more fully the internal arrangement of the parts; and Fig. V is a cross-sectional view of the same on the line *x x*, parts being broken away.

A A designate the brackets or cheeks of the gun-carriage, B the axle, and C the nave of the wheel. Upon each journal of the axle is secured a disk *b*, carrying the pins *b'* and *b''*, upon which the bent levers *c'* and *c''* are supported. When these levers are turned outward upon the pins, they force a brake-spring *a* with such power against a ring *d*, loosely held upon the same that the two parts will be firmly coupled with each other. The ring *d* carries on its outer periphery two tappets *d'* and *d''*, and is surrounded by a ring *C'*, cast on the nave of the wheel and provided on its inner periphery with two tappets *e'* and *e''*. Between the aforesaid ring *C'* and the ring *d* are inserted two pieces *f* and *f'* of elastic material. Now when on applying the brake the spring *a* is coupled with the ring *d* by the turning of the bent levers *c'* and *c''*, the tappet *e'* in the movement of the wheel forces the piece *f'* against the tappet *d''*, while the tappet *e''* forces the piece *f* against the tappet *d'*. Accordingly the pieces *f* and *f'* of elastic material are compressed, thereby obtaining a period of transition from the movement to the stoppage, such as is necessary for the brake of a wheel.

The turning of the bent levers *c'* and *c''*, provided in the ring on the nave of each wheel, is effected by means of a rod *e*, which is supported upon the axle of the wheel and has flattened heads extending between the upper ends of the said levers. When the rod *e* is turned, the head of the same in the ring of each nave forces the bent levers *c'* and *c''* asunder, and causes them to turn upon the pins *b'* and *b''*. Now as the turning of the rod *e* can be effected by a long lever-arm while a very short arm (half the breadth of the flattened head) acts upon the resistance, and as, moreover, the bent levers are applied with a very great leverage to the brake-spring *a*, it is evident that the brake will require only a small expenditure of power and yet be applied with extremely great force.

This improved apparatus presents the advantage that it can be readily converted into a brake, which operates automatically in the firing of a gun by utilizing the recoil of the latter for turning the rod *e*.

The brake is completely protected from dirt by the disk *b*, fitting accurately against the ring *C'* of the nave.

It may be observed that the ring *d* and the elastic material are not absolutely necessary, as the spring *a* may also be adapted to press directly against the ring *C'* of the nave. In this case there will be no period of transition from the motion to the stoppage, the latter taking place suddenly.

I claim—

1. In a friction-brake, the combination of the wheel, the brake-spring adapted to oppose the rotation of the wheel, the levers engaging said brake-spring for spreading it, and the operating-rod engaging said levers, all substantially as and for the purpose set forth.

2. In a friction-brake, the combination, with the wheel and a suitable brake for the hub of said wheel, of a transmitting medium between the brake and hub comprising rings on the respective parts provided with tappets and elastic material between said tappets, substantially as and for the purpose set forth.

3. In a friction-brake for gun-carriages, the combination of the wheel-hub, the brake-spring adapted to oppose the rotation of the

hub, the spreading-levers having engagement near their fulcrums with the ends of the brake-spring, and the operating-shaft engaging said spreading-levers, substantially as
5 and for the purpose set forth.

4. In a friction-brake, the combination of the hub and axle, the pivoted levers and their means of support upon the axle, the brake-spring having the ends engaging the levers
10 near their fulcrums, and the operating-shaft adapted to force the levers asunder, substantially as and for the purpose set forth.

5. In a friction-brake for gun-carriages, the

combination of the axle and hub, the ring, the tappets on said ring and hub, the elastic
15 material interposed between the tappets, the brake-spring adapted to act upon said ring, the levers and their means of support upon the axle, and the operating-shaft adapted to
act upon said levers, substantially as and for
20 the purpose set forth.

C. RÖSTEL.

Witnesses:

JULIUS VON SCHÜTZ,
EMIL KALLNUKER.