

No. 686,626.

Patented Nov. 12, 1901.

L. F. MALTBY.  
HANDCUFF.

(Application filed June 12, 1901.)

(No Model.)

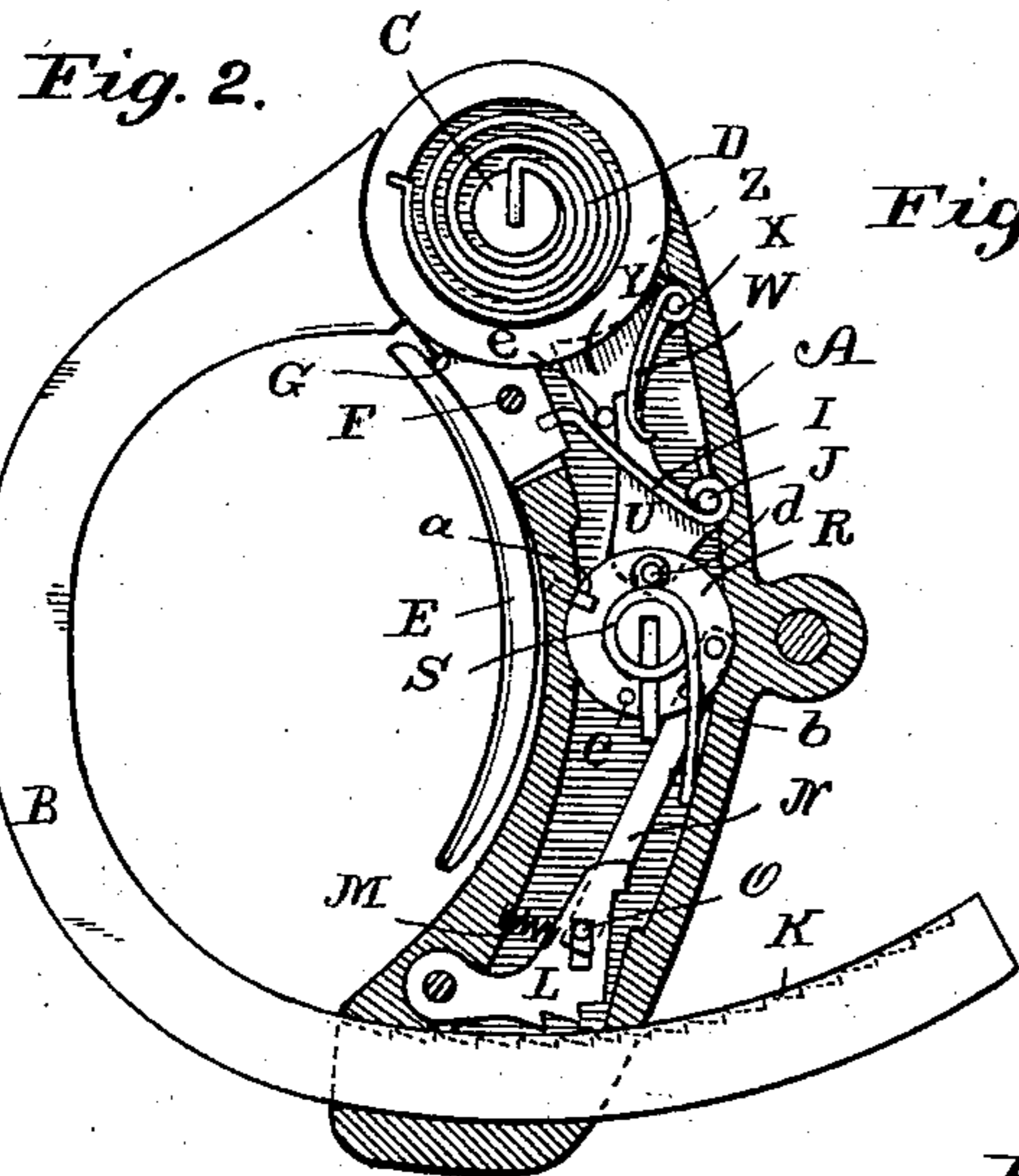
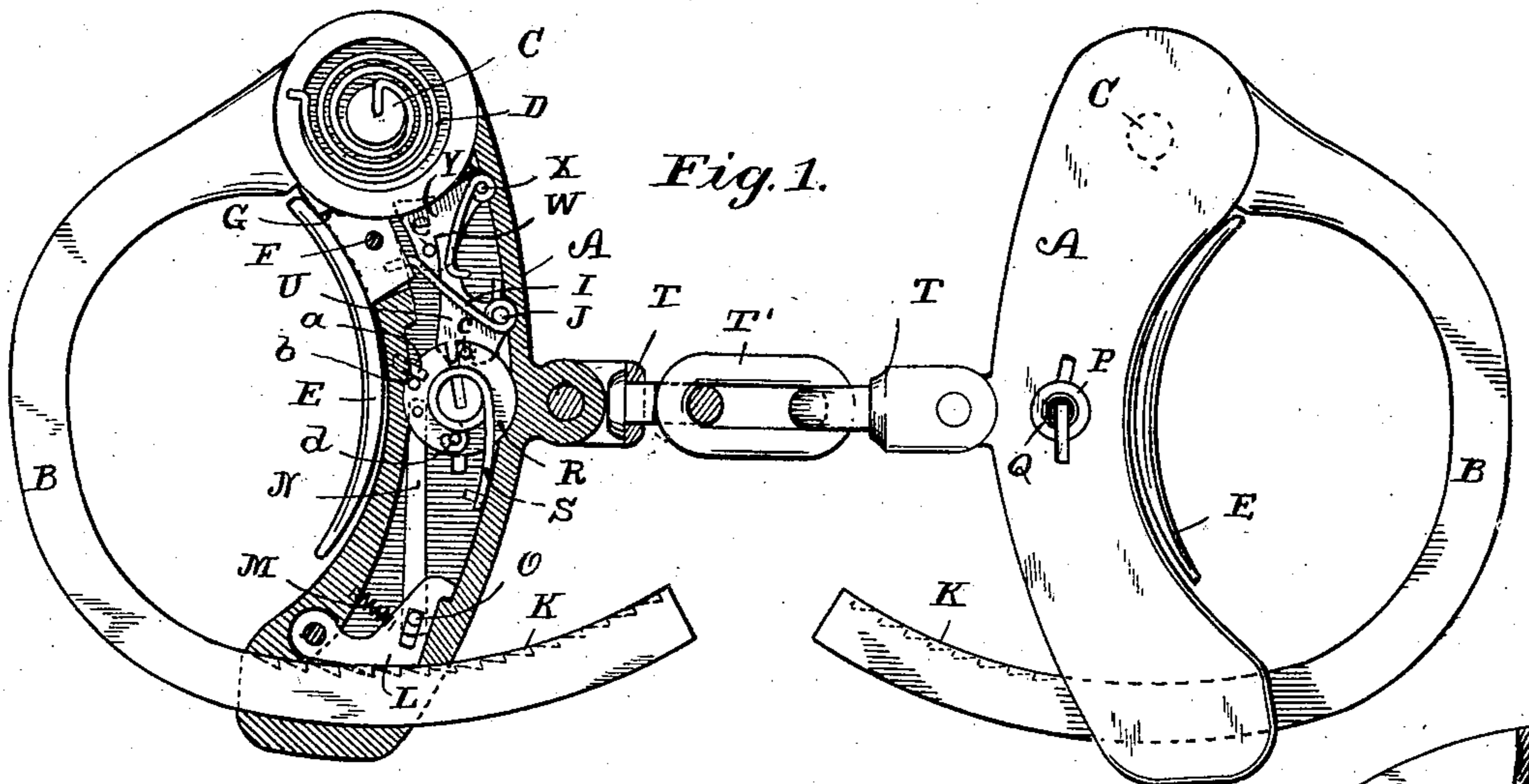


Fig. 5.

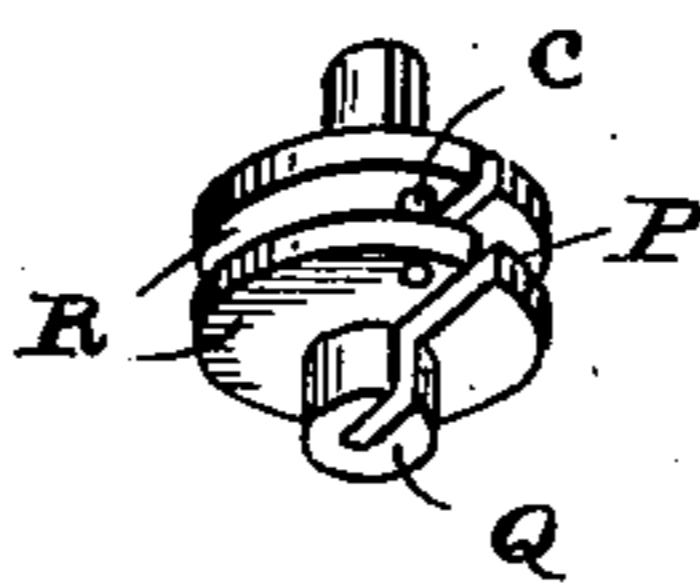


Fig. 3.

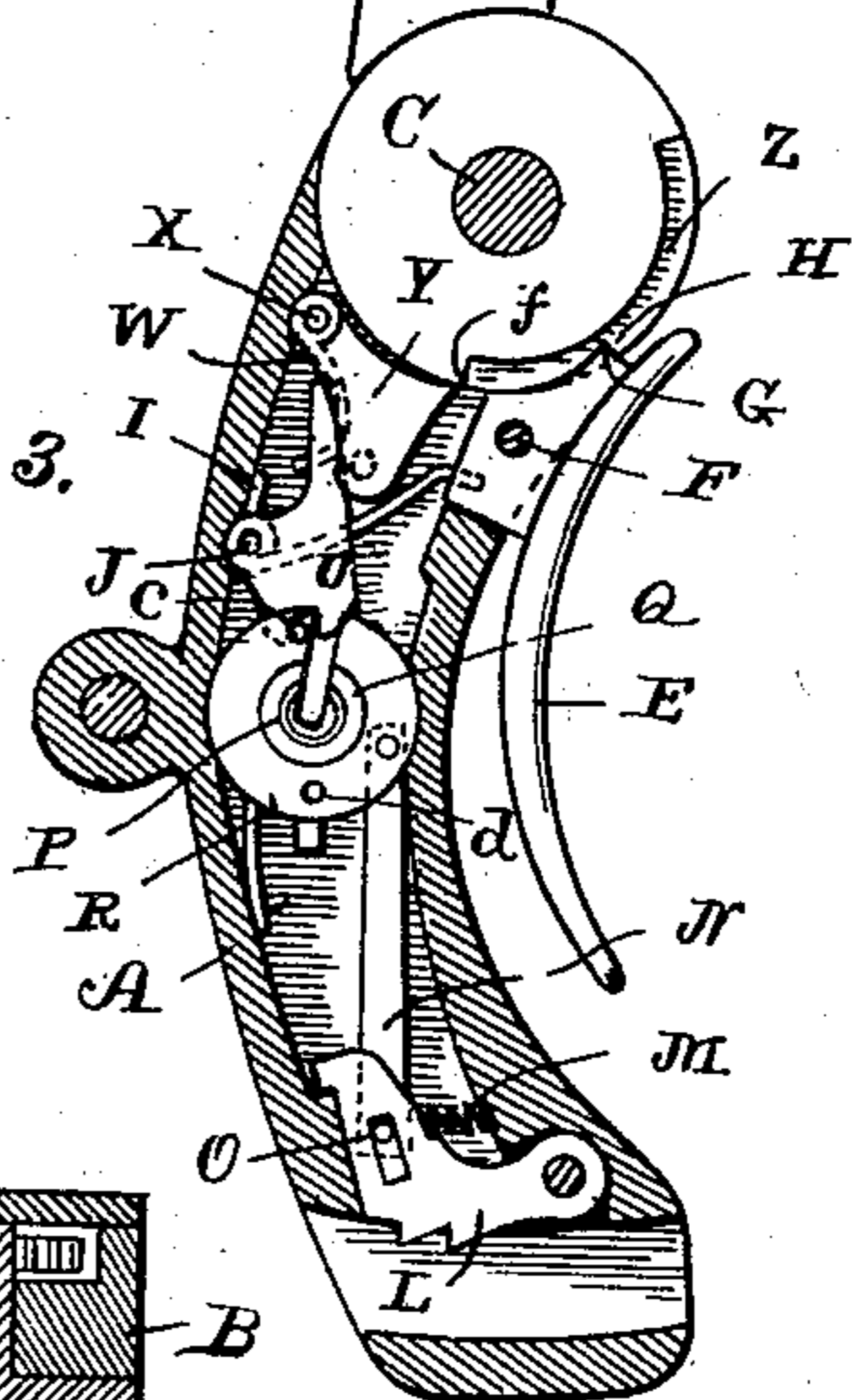
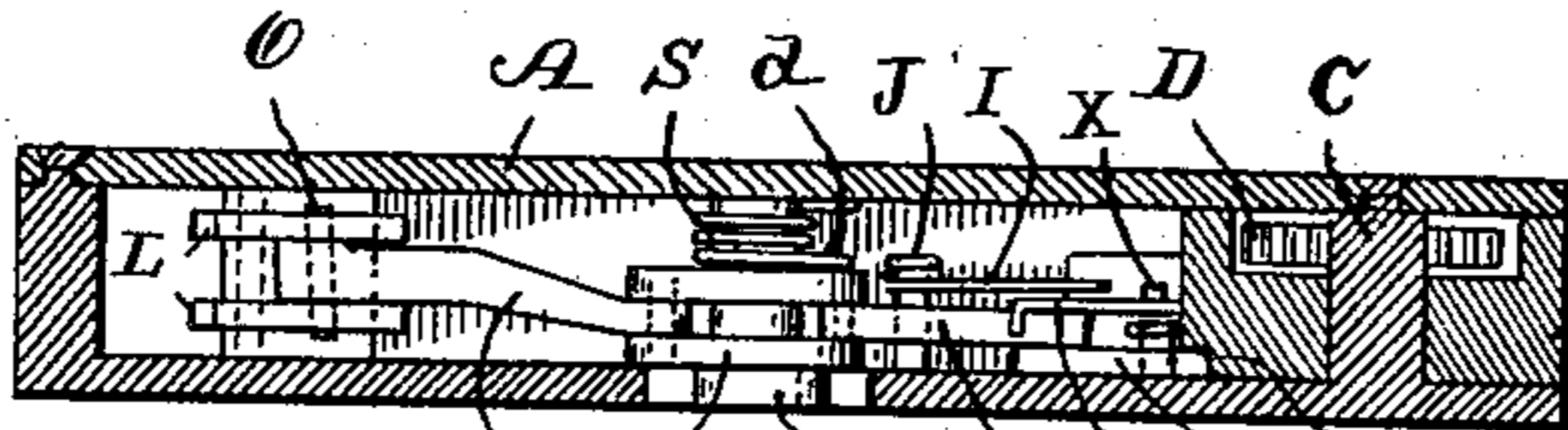


Fig. 4.



Witnesses  
William T. Devitt  
R. H. Newman

Inventor  
Louis F. Maltby

By  
Chamberlain & Newman  
Attorneys

# UNITED STATES PATENT OFFICE.

LOUIS F. MALTBY, OF WATERBURY, CONNECTICUT, ASSIGNOR OF ONE-THIRD TO FRANCIS T. OWENS, OF WATERBURY, CONNECTICUT.

## HANDCUFF.

SPECIFICATION forming part of Letters Patent No. 686,626, dated November 12, 1901.

Application filed June 12, 1901. Serial No. 64,273. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS F. MALTBY, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Handcuffs, of which the following is a specification.

My invention relates to new and useful improvements in handcuffs, such as are used by police and other officers for securing a prisoner's hands together, or for securing one prisoner to another.

It is the object of my invention to improve upon devices of the above class by providing a handcuff which may be more quickly and effectively used and with less exertion than those now on the market; further, to provide a handcuff which is strong, durable, and difficult to remove without the employment of a proper key.

With the above objects in view my invention resides and consists in the novel construction and combination of parts shown upon the accompanying sheet of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several views, and of which—

Figure 1 shows a pair of handcuffs constructed in accordance with my invention, one of the pair being illustrated in side elevation, while the other is shown in sectional elevation. Fig. 2 is a sectional elevation similar to the sectional view shown in Fig. 1, the parts, however, being in an unlocked position. Fig. 3 is a similar sectional view with the arm in an open position and broken away, the arm and other operative parts of the device being in what I will term a "set" position, ready to be tripped to throw the arm closed. Fig. 4 is a longitudinal vertical section taken on line 4 4 of Fig. 1, the position of the parts agreeing with said figure. Fig. 5 is a detail perspective view of the rotary key-cylinder which appears in end and side view in the other figures.

As will later be more fully described, my invention is substantially automatic in its

operation, being designed to close upon the wrist of the wearer when thrust thereagainst and adapted to close up more or less in accordance with the size of said wrist and firmly lock when so closed. In order to remove the device from the wrist, a special key is employed, which has to be inserted in its socket and given a half-turn, whereupon the arm of the device becomes free to be opened, permitting the removal of the handcuff.

Referring in detail to the characters of reference marked upon the drawings, A indicates a casing in which are inclosed the operative parts of my handcuff. This casing is of a partial semicircular shape, having a concave and convex side surface. A circular arm B is pivoted to the upper end of the casing and, together with said casing, forms substantially an adjustable link. The curvature of the outer end of said arm is struck on its pivotal point C, while the inner portion is drawn in and backward to afford a fullness, as will be apparent from the drawings. The arm in question is pivoted to a stud C of the casing (see Fig. 4) and is provided with a pocket in its upper side, in which is seated a flat spiral spring D, one end of which is secured to said post and the opposite end attached to the arm, the tendency of this spring being to throw the arm closed at all times, as will be more fully apparent.

The contact-lever E, pivoted to the casing at F, is designed for holding the arm in an open position, as shown in Fig. 3. This contact-lever has thereon a shoulder G to engage a special peripheral pocket H in the exterior surface of the hub of the arm. A spring I is secured to the stud J within the casing and engages the contact-lever in a manner to force it outward, causing its shoulder G to drop into the pocket H of the arm, while the latter is drawn open sufficiently to retain it in said pocket until intentionally withdrawn by the user.

The inner face of the arm B is provided with a double series of shouldered recesses K, into which the teeth of a pair of locking-pawls L L are forced by the action of their springs M, as will be apparent from the sec-

tional views of the drawings. The tendency of these springs is to throw the pawls outward into the line of travel of the arm and for engagement with the recesses therein when closed. These pawls are independently forced forward by their springs, but are drawn back by the pitman N, which is located therebetween and connected therewith by means of a small transverse pin O, operating in a slot of said pawls, the opposite end of said pitman being linked to a pin of the key-cylinder P, which serves to draw the pawls backward when unlocked and turned to the position shown in Fig. 2.

The key-cylinder referred to comprises a central hub, the front end Q of which is of a slightly-greater diameter than the rear and contains two peripheral flanges R and a longitudinal key-slot. This member of the locking mechanism is rotatably mounted in the casing A and is adapted to be turned by the key against the resistance of a spiral spring S, one end of which is secured to the pin *d* of said cylinder and the other attached to the side wall of the casing. The purpose of this cylinder is to form a medium through which the several parts of the mechanism may be operated by means of a key, and especially that part known as the locking mechanism. On the inside of the casing, adjacent to the cylinder, I provide a pin *a*, and in the side of one of the flanges R is a similar pin *b*. The purpose of these is to engage one another when the cylinder is in its normal position and serve to limit the movement of the cylinder against the action of its spring, so as to insure the registration of the key-slot in the cylinder with the corresponding slot in the casing.

To the stud J is pivoted a locking-dog U, the inner end of which is provided with a notch to engage transverse pins *c* and *d* in the flanges R of the cylinder, so as to retain said cylinder in either the locked or unlocked position, as shown in Figs. 1 and 2, respectively. The opposite end of this dog is engaged by a spring W, which is secured to a stud X and acts to hold the dog in a locked position. In the above connection it will be noticed that the notched edge of this locking-dog is in the path of the key-slot of the cylinder when the parts are in their locked position, (see Fig. 1,) and therefore it will be apparent that with the insertion of a tapering-edged key, such as is shown in dotted lines in Fig. 4, the inclined portion of said key would engage and force the edge of the dog outward against the resistance of its spring, thus withdrawing the notch from over the pin *c*. The cylinders can then be turned substantially a half of a rotation or until the second pin *d* in the flanges comes around and engages the notch in the locking-dog which holds it in position.

A pawl Y is pivoted to the stud X and has a pin *e* extending upward to be engaged by

the edge of the rear end of the dog U, so as to be operated thereby. It will also be apparent that the spring W serves to retain both the dog U and tumbler Y in their normal or locked positions. The operative or engaging end of this tumbler Y in practice rides idly in the recess Z of the hub of the arm B when said arm is in other than a set position. Said tumbler is only forced from said recess with the engagement of the shoulder *f* (see Fig. 3) by the extreme outward movement. This withdrawal of the tumbler Y serves to move the locking-pawl, drawing it from the pin *d*, allowing the cylinder to return to its normal position against the stop *a*.

In practice two of these handcuffs are joined together substantially as shown in Fig. 1, wherein a swivel T is pivoted to the casing of each handcuff and one or more links T' are interposed therebetween. It will be obvious, of course, that should one desire to use the instrument as a nipper any suitable handle could be connected to the casing instead of the swivel and links.

With the above description of the mechanism I will next briefly describe the method of operating my invention, which is as follows: Assuming that the device is in a locked position, as shown in sectional view in Figs. 1 and 4, the key would be inserted in the slot of the cylinder, whereupon the inclined-surfaced edge of the key would engage the operative end of the locking-pawl, shoving it outward against the resistance of its spring, after which the cylinder is free to be turned by the key substantially half a rotation or to the position shown in Fig. 2. As the key is turned and moves away from the spring-actuated locking-dog the same drops back to its normal position, and when the cylinder is turned around in its unlocked position, as shown in Fig. 2, the transverse pin *d* of said cylinder engages the same notch of the locking-pawl and is retained by such engagement until the pawl is withdrawn. With the parts in this position the arm B is free to be drawn back against the resistance of this spring to the position shown in Fig. 3. Just prior to the arm reaching its extreme outward position (shown in Fig. 3) the shoulder *f* of the peripheral recess before mentioned will engage the tumbler Y and force it outward against the reduced end of the locking-dog in a manner to slightly withdraw the engaging edge from the pin *c*, thereby releasing the cylinder and allowing its spring S to throw it to its normal position. (Shown in Fig. 1.) When the arm reaches the open position, (shown in Fig. 3,) the lug G of the contact-lever E is free to drop into the recess H of the hub of the arm in a manner to hold it open against the action of the spring until such time as it is released by the tripping of its contact-lever. This tripping is accomplished by the application of the main portion of the handcuff against the wrist of the person upon whom it

is to be applied, whereupon the arm is immediately thrown shut by the action of its spring.

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

1. In a handcuff the combination with a suitable casing, of a spring-actuated arm hinged thereto, means for holding the arm in an extended position, a trigger pivoted to the casing for releasing said arm, a key-cylinder with link connections for locking said arm, and a locking-dog for said cylinder and in line with its key-socket.

2. In a handcuff of the class described, the combination with the casing, of an arm hinged thereto, means for holding said arm in an open position, comprising a trigger pivoted to the casing and adapted to release said arm, means for throwing the arm shut with its releasement, mechanism for locking said arm, a spring-actuated key-cylinder, a key-cylinder locking-dog in line with the key-socket of said cylinder and adapted to be released by the insertion of the key.

3. The combination in a handcuff, of a suitable casing, an arm hinged thereto, means for normally holding it closed, mechanism for retaining it in an open position, a contact-trigger exterior of, but pivoted to the casing adapted to engage the wrist of the wearer in a manner to release the arm and permit it to close around the said wrist, means for locking said arm in its closed position, a spring-actuated key-cylinder and link connections with the locking means for releasing said arm.

4. The combination in a handcuff, of a casing, a spring-actuated arm pivoted to said casing and adapted to close into the same, means for automatically locking said arm in its closed position, a rotatable spring-actuated key-cylinder and link connections from said cylinder to said locking mechanism whereby the latter is released.

5. The combination in a handcuff, of a suitable casing, an arm pivoted thereto with means for normally throwing it shut, a pawl adapted to engage and lock said arm in its closed position, a rotary spring-actuated key-cylinder journaled within the casing, links connecting said cylinder and locking-pawls whereby the latter may be released by a movement of the cylinder, to permit the withdrawal of the arm.

6. The combination in a handcuff of the class described, of a suitable casing, an arm hinged thereto, means to engage said arm and lock it in its closed position, a spring-actuated key-cylinder journaled within the casing, links connecting the cylinder and locking-pawls whereby the latter are lifted out of engagement with the arm to permit the withdrawal.

7. The combination in a handcuff, of a suitable casing, an arm pivoted therein adapted to close around the wrist of a person, a pawl for locking said arm in its closed position, a

spring-actuated key-cylinder within the casing and connections between said cylinder and said pawl whereby the latter is operated from the former, a dog to lock said cylinder against rotary movement when the key is withdrawn.

8. The combination in a handcuff, of a casing, an arm pivoted thereto adapted to close around the wrist of a person, means for locking said arm closed, a spring-actuated key-cylinder journaled within said casing, connections with and for operating said locking mechanism, a dog pivoted in the casing and adapted to engage the cylinder and hold it against rotary movement when the key is withdrawn and also for holding said cylinder in an unlocked position substantially as described.

9. The combination in a handcuff, of a suitable casing having an arm pivoted thereto adapted to close around the wrist of the wearer, a contact-lever for engaging and holding the arm open, mechanism for locking the arm when closed, a rotary spring-actuated key-cylinder journaled in the casing, connected with and for operating said locking mechanism, a dog for holding the key-cylinder in either a locked or unlocked position, connections between the dog and a shoulder on the hub of the arm whereby the key-cylinder is released and permitted to return to its normal position when the arm is extended and set.

10. The combination in a handcuff, of a suitable casing and an arm pivoted thereto adapted to close around the wrist of a person, a key-cylinder journaled in said casing, locking mechanism connected with and operated by said key-cylinder, a dog for locking the cylinder in position the same being in the path of the key-opening so as to release the cylinder by the insertion of the key, connections between said dog and the arm such as a tumbler, and a shoulder upon the arm whereby the dog is operated by the movement of the arm to release the cylinder from engagement with the dog substantially as shown and described.

11. The combination in a handcuff, of a casing, an arm pivoted in one end thereof, adapted to close through the opposite end, a spring-actuated contact-lever adapted to hold the arm in an open position, means for throwing the arm closed with the releasement of the contact-lever, a key-cylinder journaled within the casing, locking mechanism for the arm, connected with and operated by the cylinder, a dog for normally holding the cylinder in either a locked or unlocked position, a tumbler interposed between said arm and the dog whereby the latter is disengaged from the cylinder to permit it to automatically return to its normal position.

12. The combination in a handcuff, of a casing, a spring-actuated key-cylinder journaled therein, a dog for locking the cylinder in its

normal position, a tumbler pivoted in the casing and engaging the dog, an arm pivoted to the casing, adapted to encircle the wrist of the wearer, a pocket within the arm to receive the tumbler when the arm is in a closed position, a shoulder of said pocket to engage the tumbler when the arm is open in a manner to operate the dog and release the cylinder and locking mechanism connected with the

cylinder for retaining the arm in its closed position.

Signed at Waterbury, in the county of New Haven and State of Connecticut, this 22d day of May, A. D. 1901.

LOUIS F. MALTBY.

Witnesses:

GEORGE FRITZ,  
ERNEST W. HALE.