

No. 636,589.

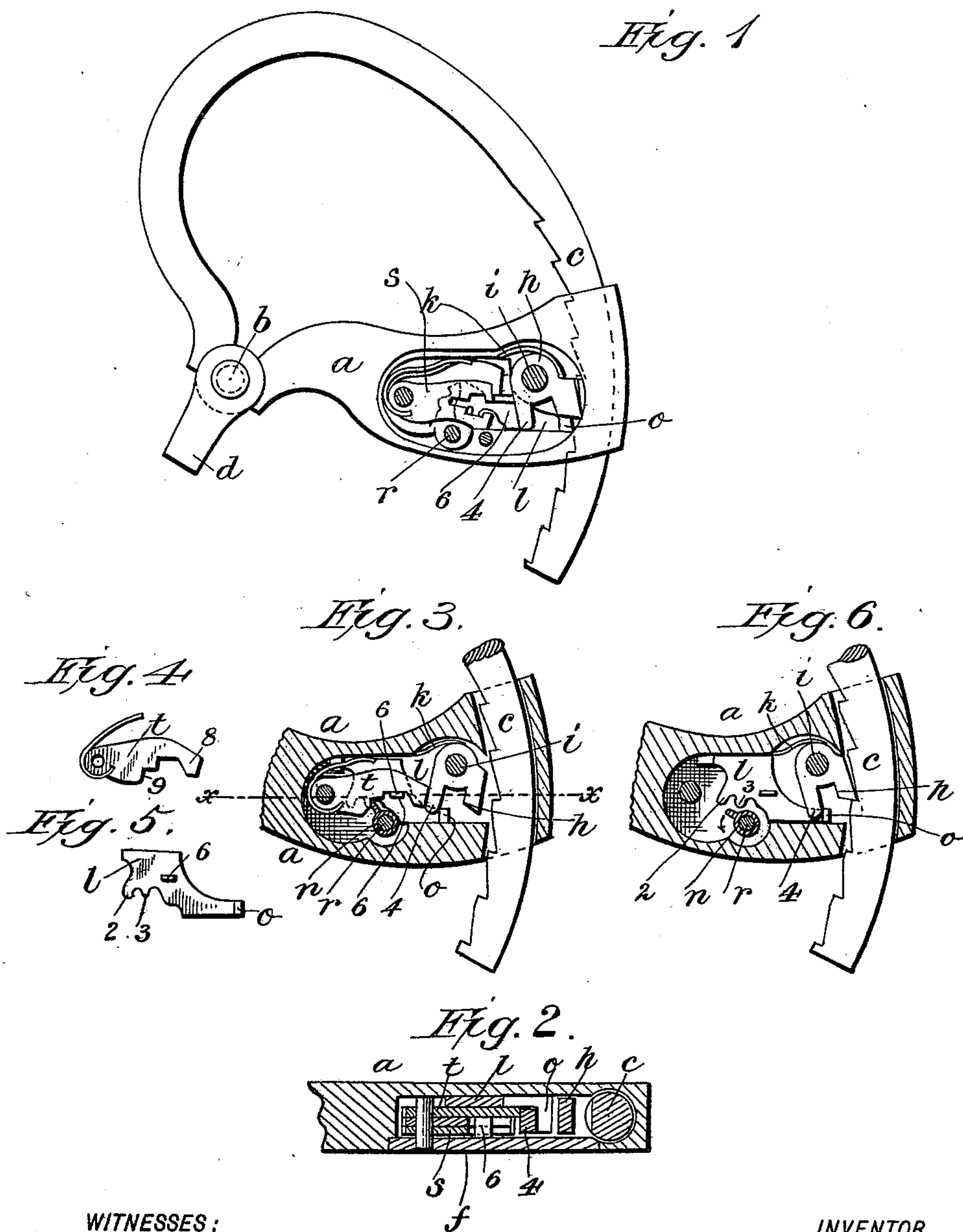
Patented Nov. 7, 1899.

J. J. TOWER.
HANDCUFF.

(Application filed July 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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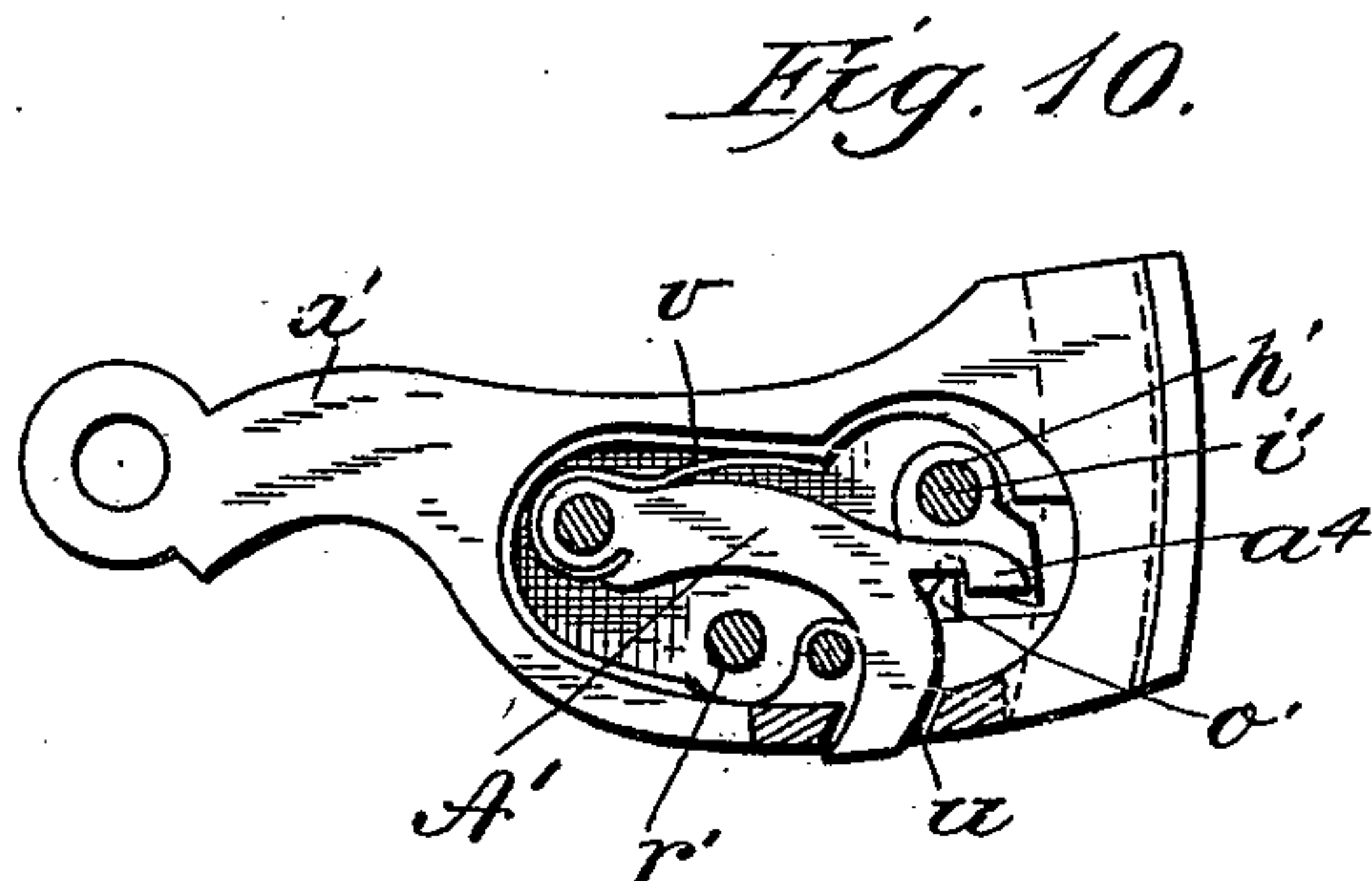
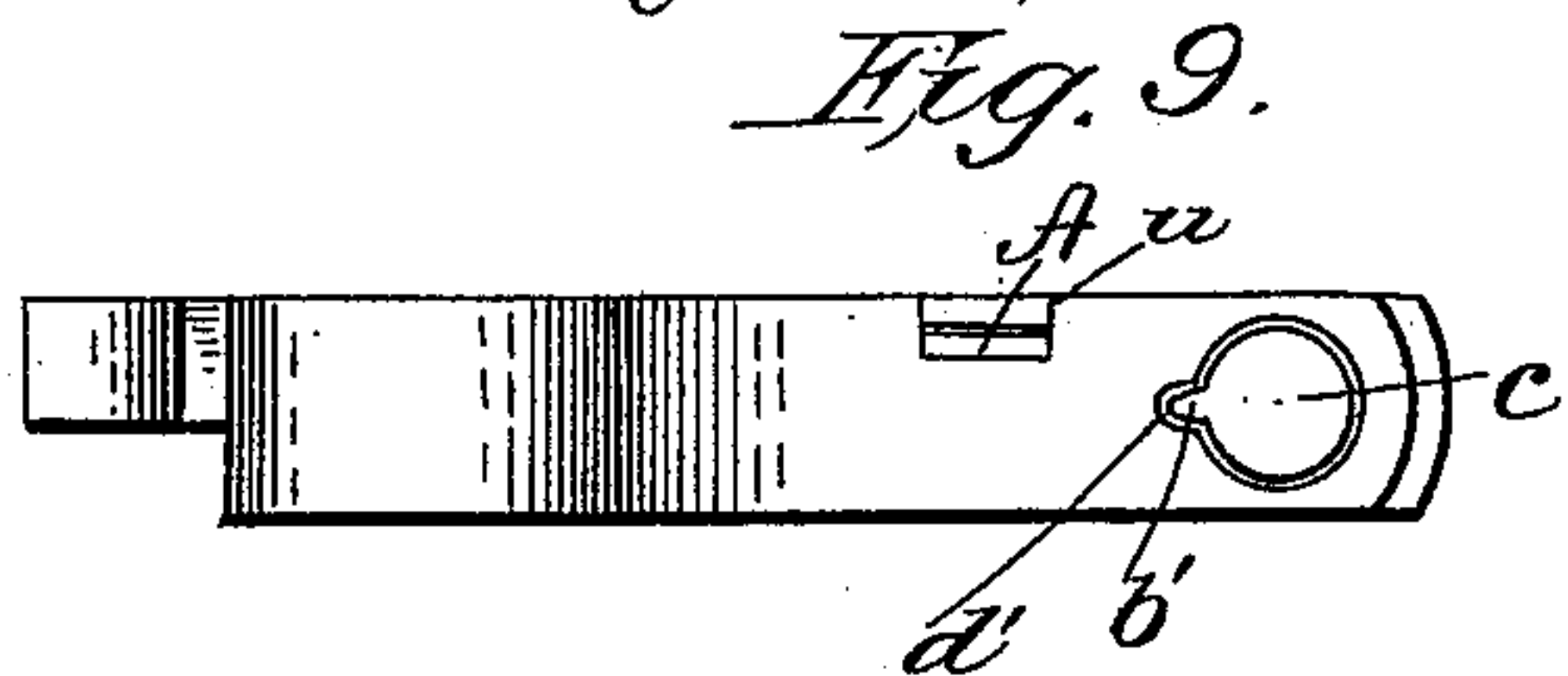
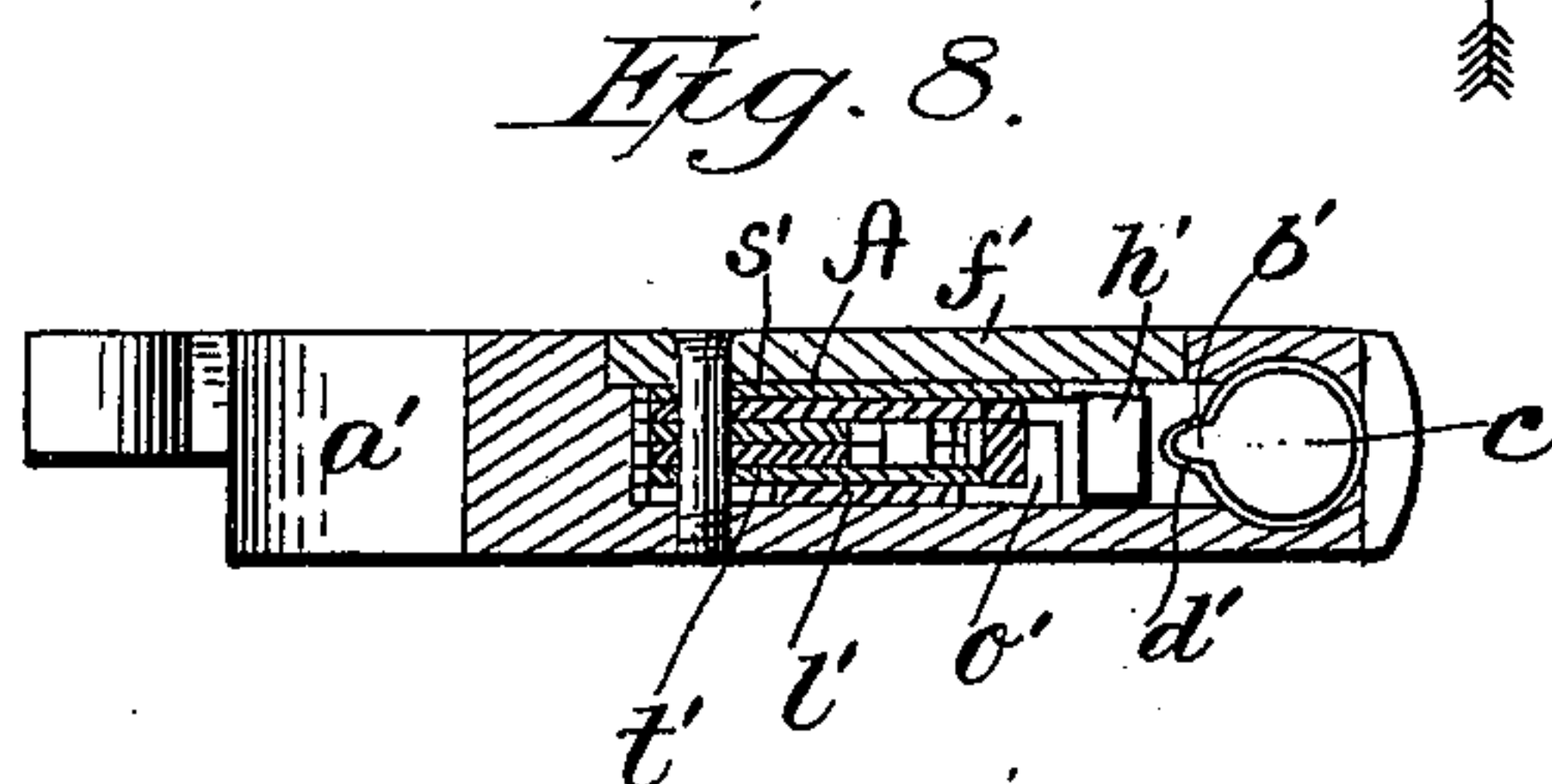
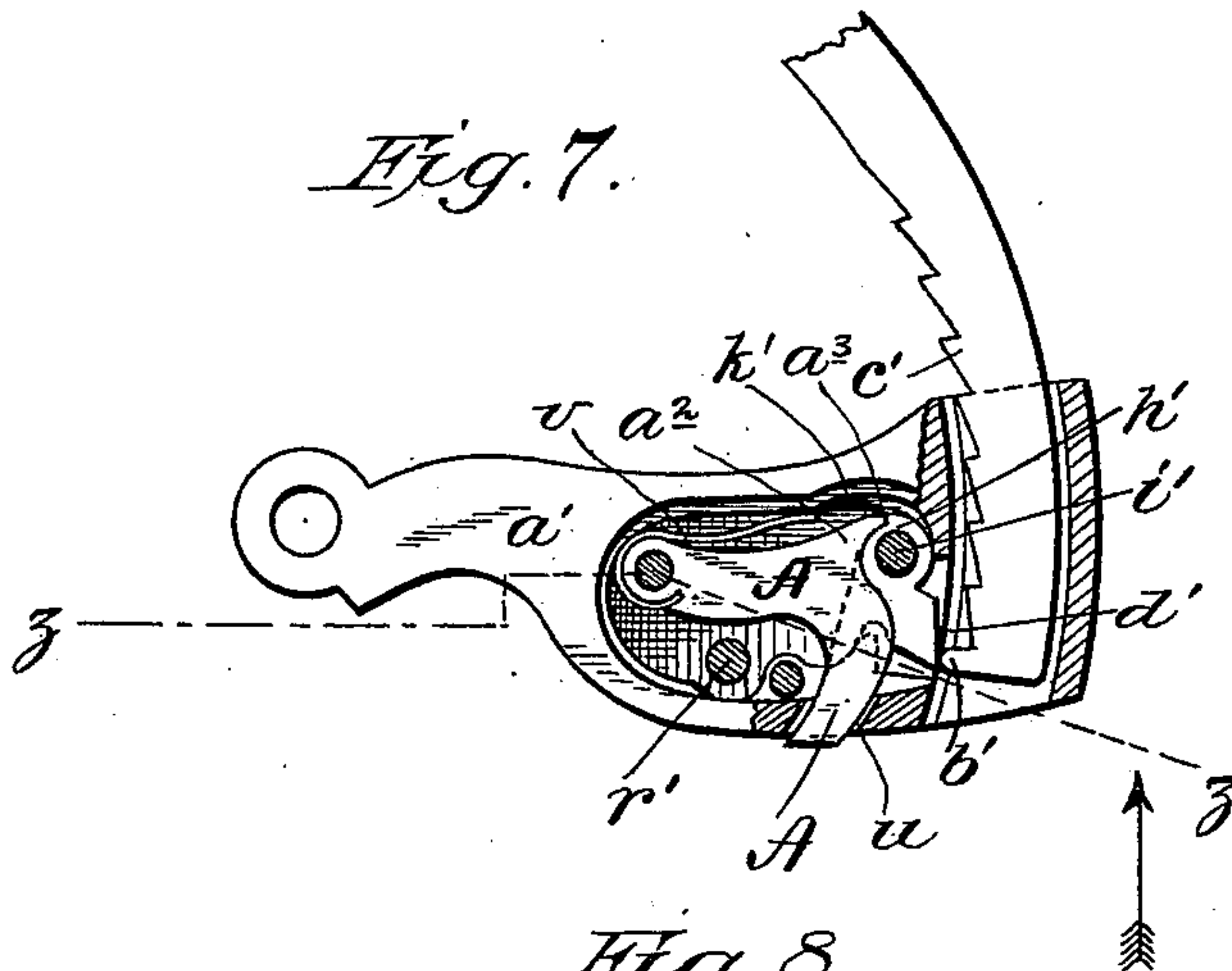
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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HANDCUFF.

SPECIFICATION forming part of Letters Patent No. 636,589, dated November 7, 1899.

Application filed July 21, 1899. Serial No. 724,628. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. TOWER, a citizen of the United States, residing at New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Handcuffs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention being in the nature of an improvement in handcuffs is intended to prevent premature latching of the segment-bar in the socket of the radius-bar by the design or struggles of a refractory captive; and my invention consists in the mechanical provisions and combinations hereinafter fully set forth and claimed.

In the drawings, Figure 1 is an elevation of a handcuff and lock of the type to which my invention more particularly relates, the plate of the lock being removed. Fig. 2 is a section at the line $x x$ of Fig. 1. Fig. 3 shows part of the lock. Fig. 4 represents the bolt-detaining tumbler detached. Fig. 5 shows the bolt detached; and Fig. 6 is a view similar to Fig. 3, but the guard-tumbler is not shown. These several figures illustrate a type of handcuff described in Letters Patent No. 222,751. Fig. 7 represents such a handcuff and lock with my present invention applied. Fig. 8 is a section at $z z$ of Fig. 7. Fig. 9 is a front edge view of Fig. 7, and Fig. 10 illustrates a modification of one part of my present invention.

Like letters and numerals indicate corresponding parts throughout the several figures.

The radius-bar a is jointed at b to the end of the notched segment-bar c , and the link d is applied at the joint as usual. The segment-bar c passes through the outer end of the radius-bar, and the notches in the segment-bar c are on the inner surface. Within the radius-bar there is a cavity for the parts of the lock, and a cap-plate f is secured by rivets in the ordinary manner. The spring-catch h swings upon the stud i , and

it is moved toward the segment-bar by the spring k .

l is a sliding bolt having a block o , that can be moved in between the ends of the swinging catch h and the inner part of the lock-case when the catch h is in one of the notches of the segment-bar. Hence the spring-catch cannot be forced or drawn back until that block is removed from the said position shown in Fig. 1. The bolt l has two talons, so that the key n , turned upon the stud r , may act in the talon 2 and draw the bolt l and stud or block o to the position shown in Fig. 6. The spring-catch h is now free to move either way. This is the normal position of the lock and the position it assumes when the key has been once turned around and then removed from the lock. The handcuff can now be closed around the wrist and the spring-catch will yield as the segment-bar is forced through the radius-bar, and the said catch will prevent the lock being opened until some device is applied to draw the spring-catch back out of the notch of the segment-bar c . This is accomplished by giving the key a partial second turn, which causes it to act in the talon 3 of the bolt and draw the same along, and by the block o acting on the tail 4 of the spring-catch draw the same and the spring-catch back out of the way of the segment-bar teeth.

It is now to be understood that any desired character of springs or tumblers may be employed to prevent end motion being communicated to the bolt except by the key.

Two tumblers $s s$ are shown in Figs. 1, 2, 3, and 6 with springs and notches and a stud or fence 6 upon the bolt to hold the said bolt when in the projected or when in the partially-retracted position that the parts assume when the handcuff is ready for use. When the key is applied to draw the bolt back and open the handcuff, the spring-catch would immediately throw the bolt forward if the key turned all around, and thus clear the bolt. To prevent this, the talon 4 may be made so as to stop the revolution of the key at the desired place; but by preference a guard-tumbler t , made as seen in Fig. 4, is used. The incline 8 on this tumbler allows the said tumbler to swing until its heel 9 passes into the path of the key and arrests its further move-

ment. The key is now blocked and the parts of the lock do not act upon the segmental bar; but when the key is again turned forward the parts assume their normal position, the guard-tumbler is raised out of the way of the key by the stud of the bolt running under the incline 8, the key can be removed, and the handcuffs are ready for use. After they have been placed upon the prisoner so as to secure him the key is applied to move the bolt and secure the parts against any attempt to open the same, and in so doing the parts are so immovably fixed that the radius-bar cannot be moved in either direction on the segment-bar, so that the handcuff cannot become unduly tightened and preventing also any motion that otherwise might be favorable to opening of the handcuff by the captive.

The application of my present invention to this type of handcuff will be understood by the following description:

Referring to Figs. 7, 8, 9, and 10, a' , c , c' , f' , h' , i' , l' , o' , s' , and t' indicate parts hereinbefore shown and described. A in these figures is a swinging spring-catch-detaining tumbler provided, as shown in Fig. 7, with a point a^2 to engage a notch a^3 , made in the hub of the spring-catch h' , normally held by a spring v and having an arm projecting slightly externally through the mortise u in the radius-bar beneath the margin of the lock-plate, by which said detaining-tumbler may be manually operated. (See Figs. 7, 9, and 10.) In Fig. 10 this pivoted spring-catch-detaining tumbler A is modified by omitting the point a^2 and providing a notched part a^4 , which, as there shown, is to engage the stud or block o' , the latter in such case being made sufficiently high.

d' is a diminutive groove in the innermost wall and longitudinally of the socket in the radius-bar, and b' is a projection on the first tooth of the segment-bar, dimensioned so as to freely traverse said groove.

Heretofore when the handcuff was to be applied to the wrist of a captive the key was inserted, and by it the latch h' was disengaged from the notches $c c$ and the segment-bar swung out of the socket of the radius-bar. In such case a refractory prisoner by design or as the result of a struggle might thrust the segment-bar back into the socket of the radius-bar, when it would be reengaged by the catch h and locked shut and require reapplication of the key to reopen, and thus gain a chance to escape. By my present invention, as will now appear, this hazard is avoided.

To apply a handcuff having my present invention embodied, proceed in the following manner: Unlock with the key, as before, which operation turns the spring-latch h' on its pivot i' to the position shown in Fig. 7, when the point a^2 of the detaining-tumbler A there shown is forced by the spring v into the notch a^3 in the hub of the spring-catch h' , retaining it out of engagement with the

notches $c' c'$ of the segment-bar. At the same time the arm of this tumbler A, which is normally flush with the surface of the lateral edge of the radius-bar, now projects slightly beyond the same through the mortise u . (See Fig. 7.) The struggles or design of the prisoner are not now effective to prematurely close and lock the handcuff as before, because unless he can bring firm hard pressure to bear directly upon the protruding arm of the detaining-tumbler A the mere thrusting of the segment-bar back into its socket will fail to effect a latching and locking of the handcuff, while the officer by keeping his thumb-nail upon the projecting arm of the said detaining-tumbler will be able to instantly trip the spring-catch h' when the wrist of his prisoner is clasped and to lock the handcuff upon him.

In the modification of this part of my invention (shown in Fig. 10) precisely like order of procedure produces the same results, the catch a^4 and the block o' operating in place of the point a^2 and notch a^3 .

The operation of the further improvement indicated by b' and d' , Figs. 7, 8, and 9, is as follows: If as a result of the struggles of the captive or from other causes the protruding arm of the tumbler A should be depressed while the segment-bar is open—i. e., out of the socket in the radius-bar—thrusting the same back into the socket would not prematurely lock the handcuff closed, but would again automatically reset the spring-catch-detaining tumbler A, because the projection b' on the first tooth of the segment-bar would turn the spring-catch h' far enough for the point a^2 to drop into the notch a^3 again, or in case of the modification for the notch a^4 to advance over the block o' . This feature of my invention, however, may or may not be employed with the specific mechanisms shown for a lock and might be employed with advantage with a lock of different character.

I claim—

1. A notched segment and a radius bar, and a spring-catch to hold the segment-bar, in combination with a spring and a manually-operable spring-catch-detaining tumbler A held by said spring having an integral arm projecting through the radius-bar, substantially as set forth.

2. The combination, with the notched segment-bar, of a spring-catch, a bolt l' , a block o' , a guard-tumbler t' , and a manually-operable spring-catch-detaining tumbler A, substantially as set forth.

3. The combination of a notched segment-bar, a swinging radius-bar, a swinging spring-catch, a manually-operable spring-catch-detaining tumbler, bolt l' , block o' , guard-tumbler t' , having incline 8, and heel 9, tumblers $s' s'$, and fence or stud 6, substantially as set forth.

4. The combination, with the notched segment and radius bars in a handcuff, of a spring-catch to hold the segment-bar, a means to hold the spring-catch, a manually-operable spring-

catch-detaining mechanism, and a projection b' , on the first tooth of the segment-bar to automatically set said spring-catch and detaining mechanism, and a groove d' , in the socket 5 of the radius-bar, substantially as set forth.

5. The combination, with the notched segment and radius bars in a handcuff, of a spring-catch to hold the segment-bar, a bolt, a block to hold the spring-catch, a manually-operable spring-catch-detaining tumbler, a projection b' , on the first tooth of the segment-bar, and a groove d' , in the socket of the radius-bar, substantially as set forth.

6. The combination, with the notched segment-bar, of a spring-catch, a bolt l' , a block o' , a guard-tumbler t' , a manually-operable spring-catch-detaining tumbler A, a projection b' , on the first tooth of the segment-bar, and a groove d' , in the socket of the radius-bar, substantially as set forth.

7. The combination of a notched segment-bar, a swinging radius-bar, a swinging spring-

catch, a manually-operable spring-catch-detaining tumbler, a projection b' , on the first tooth of the segment-bar, a groove d' , in the socket of the radius-bar, bolt l' , block o' , guard-tumbler t' , having incline 8, and heel 9, tumblers $s' s'$, and fence or stud 6, substantially as set forth.

8. The combination, with a notched segment-bar c , radius-bar a' , a bolt moved by a key and acting to prevent swinging of the radius-bar in either direction on the segment-bar, a manually-operable spring-catch-detaining tumbler, of a projection b' , on the first tooth of the segment-bar, and a groove within the socket of the radius-bar, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN J. TOWER.

Witnesses:

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