

Dec. 18, 1934.

J. W. HARRINGTON

1,984,677

HANDCUFF

Filed Sept. 10, 1932

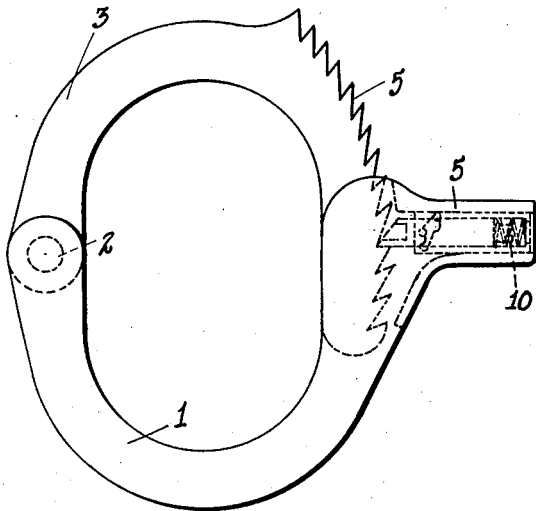


Fig. 1.

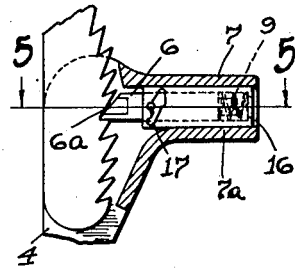


Fig. 2.

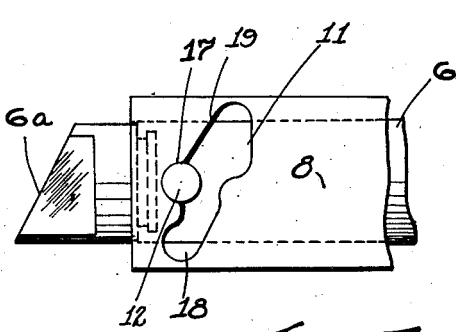


Fig. 3.

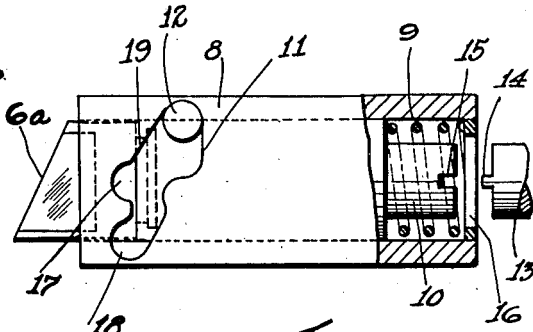


Fig. 4.

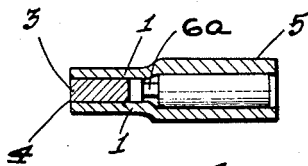


Fig. 5.

Inventor:
John W. Harrington
By Owen W. Kennedy
Attorney

UNITED STATES PATENT OFFICE

1,984,677

HANDCUFF

John W. Harrington, Worcester, Mass., assignor
to Harrington & Richardson Arms Company,
Worcester, Mass., a corporation of Massa-
chusetts

Application September 10, 1932, Serial No. 632,478

5 Claims. (Cl. 70—24)

The present invention relates to handcuffs, particularly of the type provided with a rotatable locking arm having a series of teeth, whereby the arm may be secured in different positions on the frame which affords pivotal support for the arm.

The objects of the invention are to provide simple and effective locking mechanism for the toothed arm by means of which the arm may be locked against turning movement in either direction, may be locked against turning movement in one direction only, or may be released to turn freely in either direction. Furthermore, the locking device of the present invention is so constructed as to effectively prevent the arm being released from the bolt by any manipulation of the person secured by the handcuff, or any other person not having the key in his possession. The above and other advantageous features of the invention will more fully appear from the following description with reference to the accompanying drawing, in which:—

Fig. 1 is a view in side elevation showing a complete handcuff.

Fig. 2 is a vertical sectional view of the locking mechanism shown in Fig. 1.

Figs. 3 and 4 are fragmentary views, showing on an enlarged scale the parts of the bolt actuating mechanism in different positions.

Fig. 5 is a horizontal sectional view along the line 5—5 of Fig. 2, looking in the direction of the arrows.

Like reference characters refer to like parts in the different figures.

Referring to the drawing, the handcuff consists of a frame 1, semi-elliptical in form, with one end of the frame providing a pivot 2 for a locking arm 3. The locking arm 3 is turnable on its pivot 2 through a slot 4 provided in the frame and is adapted to be locked in different angular positions with respect to the frame 1 by a locking device cooperating with a series of teeth 5 provided on the outer edge of the arm 3.

As best shown in Fig. 2, the locking device for the arm 3 consists of a bolt 6 movable longitudinally in a boss 7 provided by the frame 1, one end of the bolt 6 being beveled at 6a, so that it will readily engage the teeth 5 of the locking arm 3. The bolt 6 is slidable within a sleeve 8 received in a bore 7a extending through the boss 7, and a spring 9 surrounding a reduced portion 10 of the bolt 6 within the sleeve 8 serves to press the bolt 6 in the direction of the teeth 5 on the locking arm 3. With the beveled portion 6a of the bolt 6 yieldingly held in engagement with a tooth 5 by the spring 9, as shown in Fig. 2, the locking arm

3 is maintained against turning on its pivot 2 in a counterclockwise direction, although turnable in a clockwise direction by the ratcheting action of the teeth. That is the normal condition of the handcuff in which the locking arm 3 may be swung through the frame 1, at will, in one direction of rotation, to open the handcuff, although the bolt 6 will prevent turning of the locking arm in the other direction, when the arm is closed upon the wrist of a prisoner.

For the purpose of actuating the bolt 6 from the position of Fig. 2 to either lock the arm 3 against rotation in either direction, or to entirely release the arm 3, the sleeve 8 provides a slot 11 adapted to cooperate with a pin 12 carried by the bolt 6. The main portion of the bolt 6 is turnable within the sleeve 8 to move the pin 12 within the slot 11 by means of a suitable key 13 provided at its ends with a tooth 14 receivable in a notch 15 formed in the end of the reduced bolt portion 10. The key 13 is insertable through an opening 16 provided at the end of the boss 7, as shown in Fig. 2, turning of the bolt 6 by the key 13 causing the pin 12 to cooperate with the contour of the slot 11 in a manner next to be described. Turning of the bolt 6 within the sleeve 8 is not imparted to the tooth engaging beveled portion 6a, since the latter is freely mounted on the end of the bolt, in any suitable manner, as by peening over the recessed end of the bolt 6 to loosely surround a shoulder provided on the rear end of the beveled portion 6a, as indicated in dotted lines in Fig. 3.

In the position of parts shown in Fig. 2, the spring 9 pressing on the bolt 6 maintains the pin 12 carried by the bolt in a notch 17 provided along one edge of the slot 11, in which position the end of the bolt 6 is yieldingly maintained in engagement with a tooth 5 to hold the locking arm 3 against rotation in one direction only. This is the normal condition of the handcuff, wherein the locking arm 3 can be readily swung through the frame 1 to close on the wrist of a prisoner with a ratcheting action. When the handcuff has been applied and it is desired to positively lock the arm 3 against rotation in either direction, the key 13 is inserted in the opening 16 to bring its tooth 14 into register with the notch 15 at the end of the bolt portion 10. By turning the key in a counterclockwise direction, the pin 12 is withdrawn from the notch 17 accompanied by a slight retraction of the bolt, continued turning of the bolt causing the pin 12 to seat in a second notch 18 spaced from the notch 17. With the pin 12 in this notch 18, the locking arm 3 is pre-

vented from turning in a clockwise direction, as viewed in Fig. 1, since the bolt is unable to yield in response to the pressure exerted on the beveled end 6a by a tooth 5.

5 When it is desired to withdraw the bolt from either of the positions shown in Figs. 2 and 3 respectively, so as to entirely free the locking arm 3, the bolt 6 is turned by the key 13 in a clockwise direction, which has the effect of moving
10 the pin 12 upwardly in the slot 11, as viewed in Fig. 4. Movement of the pin 12 past the upper notch 17 engages it with an inclined surface 19, so that continued turning of the bolt with its pin 12 in engagement with the surface 19 serves to
15 retract the bolt and disengage it entirely from the teeth 5, as shown in Fig. 4. This permits the handcuff to be disengaged from the wrist of the prisoner. When the key 13 is withdrawn, following retraction of the bolt, the spring 9 pressing
20 on the plunger 6 immediately returns the pin 12 to the notch 17, thereby restoring the handcuff to its normal condition in which the locking arm 3 can be swung in one direction only for quick application to the wrist of a prisoner.

25 With the pin 12 in the notch 17, the pressure of the spring 9 tends to maintain the pin seated therein, so that the bolt will not rotate accidentally as a result of receiving a blow. That is to say, the arm 3 cannot become accidentally locked
30 against rotation in either direction without inserting the key to positively move the pin 12 from the notch 17 to the notch 18. Similarly, the notch 18 prevents the pin from becoming displaced accidentally to unlock the bolt.

35 As previously pointed out, the invention also contemplates a construction in which it is impossible to disengage the locking arm 3 from the bolt 6 without the use of the key 13, as by forcing a thin piece of metal between the arm 3 and the
40 frame 1 to engage the end of the bolt. To this end, the width of the beveled end portion 6a of the bolt 6 is made less than the width of the teeth 5, as clearly shown in Fig. 5, so that a thin piece of metal forced along either side of the locking
45 arm cannot be engaged with the end of the bolt.

50 From the foregoing, it is apparent that by the present invention there is provided an improved handcuff construction in which the swinging toothed arm may be readily locked against rotation in either direction, against rotation in one
55 direction, or released for free rotation, with no possibility of accidental locking or unlocking of the bolt, either from external blows or through the insertion of a thin piece of metal by an unauthorized person not in possession of the key.

I claim,

1. In a handcuff construction, the combination with a frame carrying a pivoted toothed locking arm and a slidable bolt having its beveled end portion adapted to cooperate with the teeth on said arm, of means for rotating a portion of
5 said bolt on its axis to move it into a position in which the beveled end portion thereof is yieldingly maintained in engagement with a tooth on said locking arm to hold said arm against turning
10 movement in one direction on its pivotal axis while permitting said arm to turn in the opposite direction.

2. In a handcuff construction, the combination with a frame carrying a pivoted toothed locking arm and a slidable bolt having its beveled end
15 portion adapted to cooperate with the teeth on said arm, of means for rotating a portion of said bolt on its axis to move it into a position in which its beveled end portion is unyieldingly maintained in engagement with a tooth on said locking arm
20 to hold said locking arm against turning movement about its pivotal axis in either direction.

3. In a handcuff construction, the combination with a frame carrying a pivoted toothed locking arm and a slidable bolt having its beveled end
25 portion adapted to cooperate with the teeth on said arm, of means for rotating a portion of said bolt about its axis to move it into a position in which its beveled end portion is held out of engagement with the teeth on said locking arm to
30 permit free swinging movement of said arm about its pivotal axis.

4. In a handcuff construction, the combination with a frame carrying a pivoted toothed locking arm and a slidable bolt having its beveled end
35 portion adapted to cooperate with the teeth on said arm, of means for rotating a portion of said bolt on its axis, a pin carried by said bolt and a fixed slot cooperating with said pin so formed as to positively maintain said bolt in a position
40 in which its beveled end portion is yieldingly held in engagement with a tooth on said locking arm.

5. In a handcuff construction, the combination with a frame carrying a pivoted toothed locking arm and a slidable bolt having its beveled end
45 portion adapted to cooperate with the teeth on said arm, of means for rotating a portion of said bolt on its axis, a pin carried by said bolt and a stationary slot cooperating with said bolt, said slot being so formed as to positively maintain
50 said bolt in a position in which its beveled end portion is unyieldingly maintained in engagement with a tooth on said locking arm to prevent turning of said arm about its pivotal axis.

JOHN W. HARRINGTON.