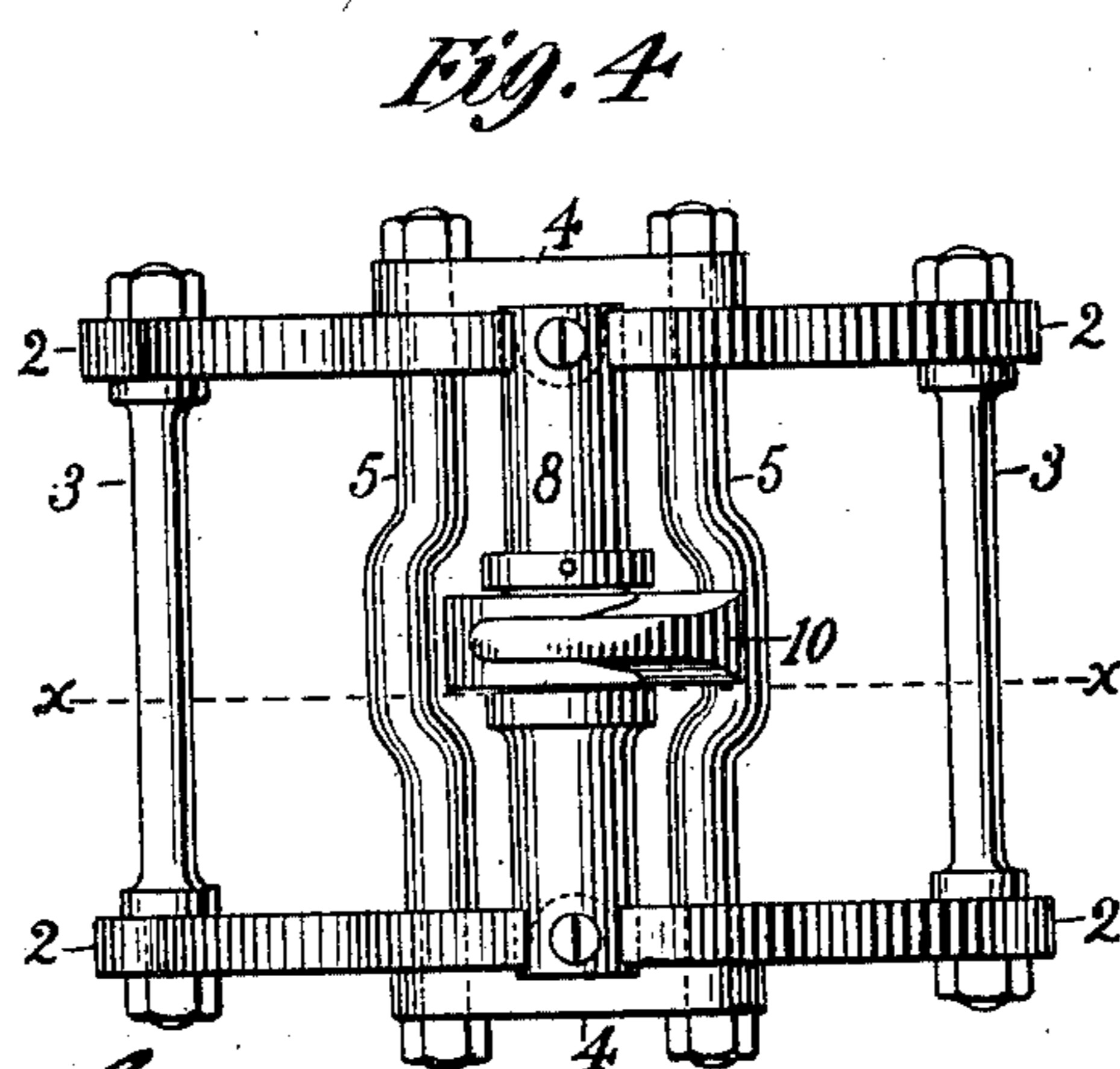
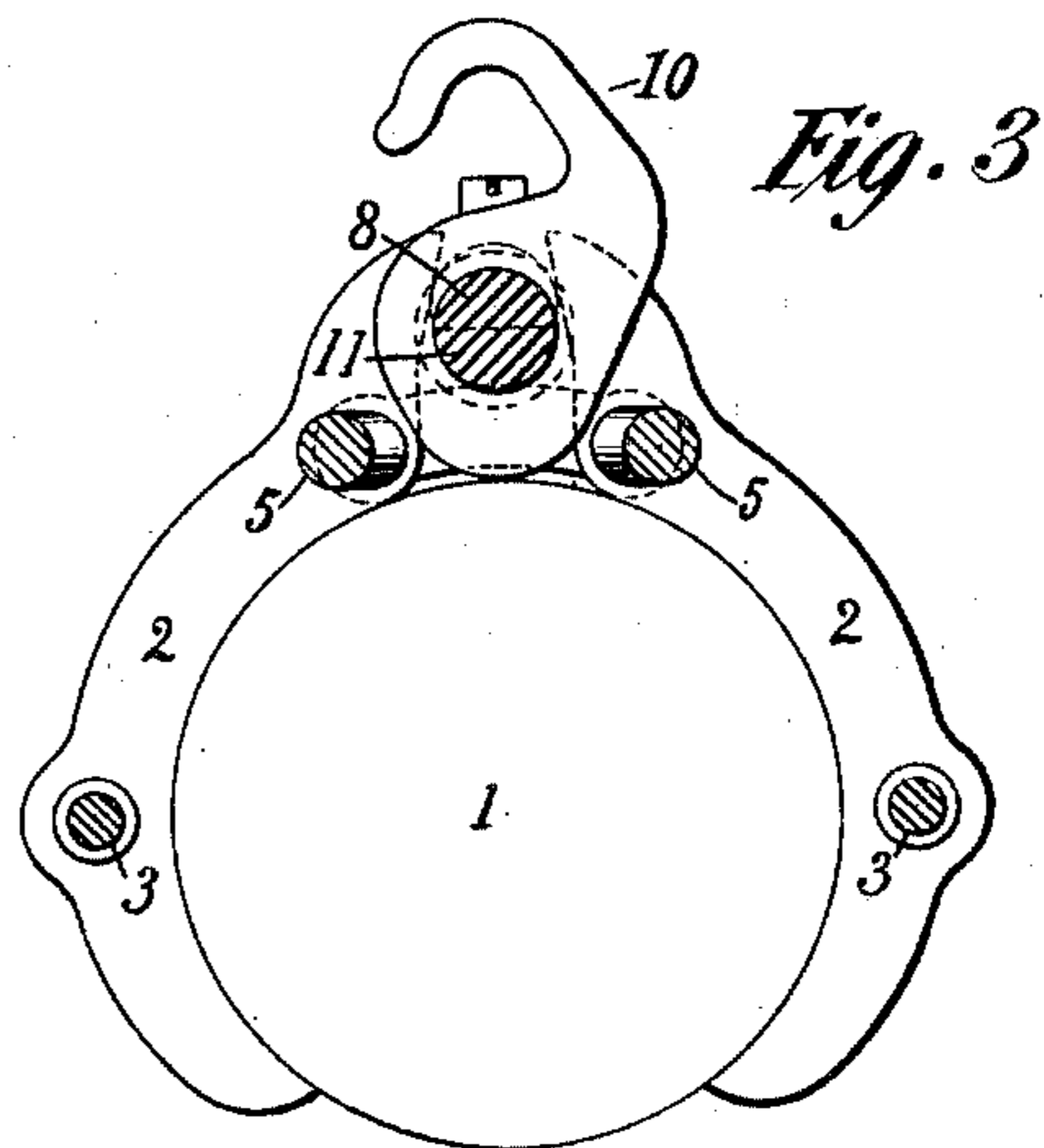
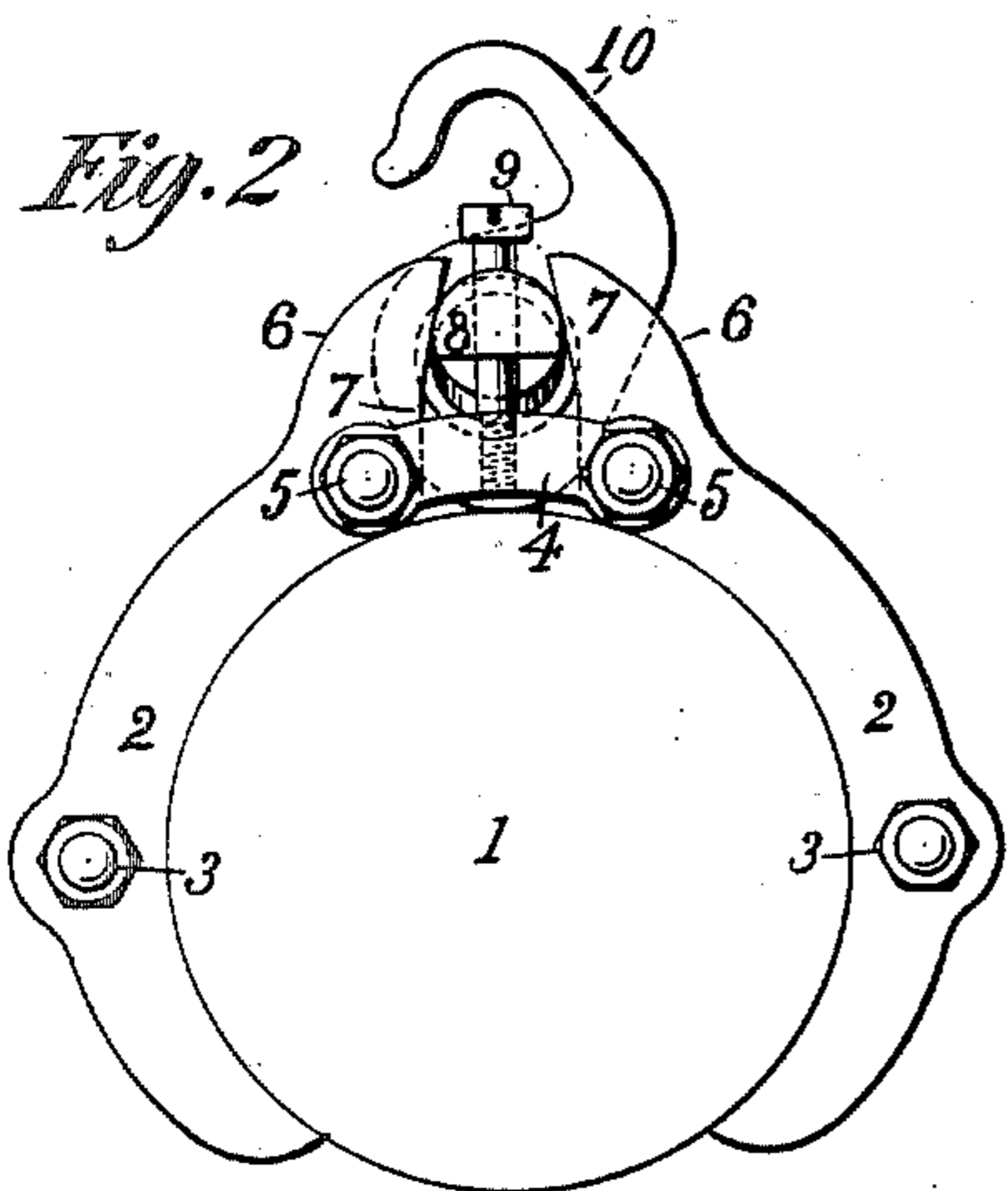
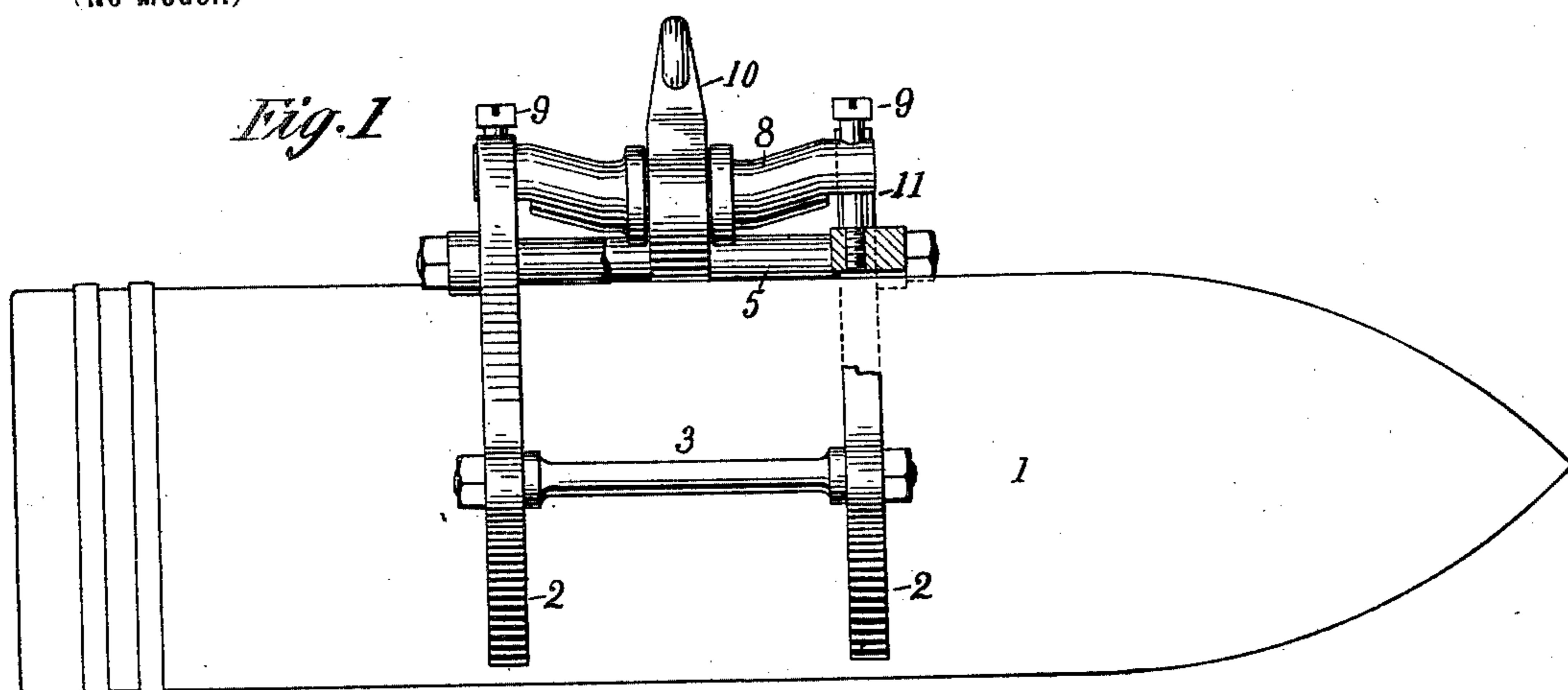


No. 667,867.

Patented Feb. 12, 1901.

J. H. COOK.
PROJECTILE TONG MECHANISM.
(Application filed July 7, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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PROJECTILE TONG MECHANISM.

SPECIFICATION forming part of Letters Patent No. 667,867, dated February 12, 1901.

Application filed July 7, 1899. Serial No. 723,059. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. COOK, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have made certain new and useful Improvements in Projectile Tong Mechanisms, of which the following is a specification, reference being had to the accompanying drawings.

10 The present invention relates to that class of mechanism used for lifting and conveying cylindrical projectiles, especially those of relatively large diameters.

15 The invention consists, essentially, of two pairs of clasp ing levers or arms adapted to engage and disengage a projectile for the purpose of lifting and conveying the same, which levers are operated to be held in open or closed position by a special form of clamping 20 mechanism to be described and claimed in detail below.

Referring to the drawings, Figure 1 shows an elevational view of a cylindrical projectile with my tong mechanism or clamping mechanism engaged therewith. Fig. 2 shows an 25 end view of such mechanism as seen from the right of Fig. 1. Fig. 3 shows a cross-section of the mechanism on plane xx of Fig. 4. Fig. 4 shows a plan view of the mechanism.

30 The numeral 1 indicates the projectile.

2 2 indicate the separate engaging levers of one pair of the tongs, which levers are curved to a diameter practically that of the projectile. One pair of levers is connected by 35 spreader-bars 3 to the other pair of levers, there being two pairs of levers operated conjointly. The levers are pivoted by links 4 to each other, the pivotally-connecting bolts 5 running from one pair of levers to the other.

40 The shorter arms or heels of each pair of levers 6 are separated from each other and their inner faces 7 are oppositely beveled, especially as shown in Fig. 2. In the slot thus formed is arranged the locking-bar 8, which 45 moves up and down, preferably the movement of said bar being limited by suitable guides, as by guide-bolts 9, carried by the said links 4. Fixed to the center of this locking-bar is the chain or other carrying or support- 50 ing hook 10, which hook is to be attached to whatever mechanism is utilized for lifting

and transferring the projectile. The supporting-hook is preferably pivotally attached to the center of the locking-bar by means of a heavy collar, which is oblong in shape and 55 flattened on one side, as shown in Figs. 2 and 3. This collar is made of such size and shape that when the hook is raised into the vertical position the lower end of the collar is caused to bear upon the projectile held by the tongs, 60 thus preventing any slip of the projectile longitudinally through the tongs. When the hook is released and is in a horizontal position, the flat part of the collar is opposite the projectile and the protruding part of the col- 65 lar is moved out of contact with the shell, thus permitting the shell to be moved longitudinally. The ends of the locking-bar are cut away, as seen at 11 in Figs. 1, 2, and 3, so that upon these ends coming in contact 70 with links 4 the uttermost practical range of clearance for the shorter ends of the levers will be afforded. The locking-bar 8 is constructed with a drop, as seen in Fig. 1, which is for the purpose of bringing the top of the 75 hook as closely to the projectile as is practicable in order to bring the projectile as closely to the power-carrying mechanism as possible.

The operation is as follows: Assuming that 80 the projectile is on a support and that the tong mechanism is therefore free to descend and engage the same, the longer arms of the levers may then open to an extent sufficient to pass over and around the projectile, so as 85 to be in position to engage the same. Upon applying lifting power to the hook of the tong mechanism the locking-bar will be raised, causing the levers to engage the projectile and causing the lower end of the hook-collar 90 to engage the top of the projectile. After the projectile has been carried to whatever position desired and deposited upon some support the releasing of the strain on the hook of the tong mechanism will permit the lock- 95 ing-bar to descend and the levers to be opened to free the projectile, the essential features being a pair of beveled linked levers the locking-arms of which are closed or allowed to be opened by the action of a wedging de- 100 vice, to which is attached the carrying or lifting mechanism. The oblong hook-collar

engaging with the top of the projectile is also an important feature of my device.

While I have here shown what now seems to me to be the preferable form of my mechanism, I am aware that it is capable of modification in various of its details without departing from the spirit of my invention, and therefore I do not intend to limit myself to the exact construction shown and described.

10 What is claimed as new is—

1. In a projectile-carrying mechanism, a pair of lever-arms pivoted together by a common link, a wedging device acting between the adjacent ends of said arms for the purpose of causing said arms to close and permitting them to open, and a guide for said wedging device connected with said link, substantially as set forth.

2. In a projectile-carrying mechanism, two pairs of lever-arms, the arms of each pair being pivotally joined, and said pairs of arms being rigidly connected, and a wedging-bar extending from one pair of arms to the other pair and acting between the adjacent ends of each pair of arms to close and to permit the opening of the same, substantially as set forth.

3. In a projectile-carrying mechanism, two pairs of lever-arms, the arms of each pair being pivotally joined, and said pairs of arms being rigidly connected, a wedging-bar extending from one pair of arms to the other pair and acting between the adjacent ends of each pair of arms to close and to permit the

opening of the same, and guides for said wedging device. 35

4. In a projectile-carrying mechanism, rigidly-connected pairs of lever-arms, the arms of each pair being pivotally joined, a wedging-bar extending from one pair of arms to the other and acting between the adjacent heel ends of each pair of arms, and an oblong hook-collar pivotally connected with the wedging-bar and adapted in the raised position to engage with its lower end the projectile held in the lever-arms. 45

5. In the herein-described tong mechanism, pairs of arms as 2 2, the arms of each pair being pivotally joined as by the links 4 4, a locking-bar as 8 acting between the adjacent and beveled heel ends 6 6 of said levers, for the purpose of closing said arms and permitting the opening of the same, and guides for said locking-bar. 50

6. In the herein-described tong mechanism, pairs of arms as 2 2, the arms of each pair being pivotally joined as by the links 4 4, a locking-bar as 8, acting between the adjacent and beveled heel ends as 6 6 of said levers for the purpose of closing said arms and permitting the same to open, guides for said locking-bar, and an oblong hook-collar as 10 adapted to engage with its lower end the top of the projectile. 60

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