

W. TREWHELLA.
PAWL AND RATCHET MECHANISM.
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928,892.

Patented July 20, 1909.

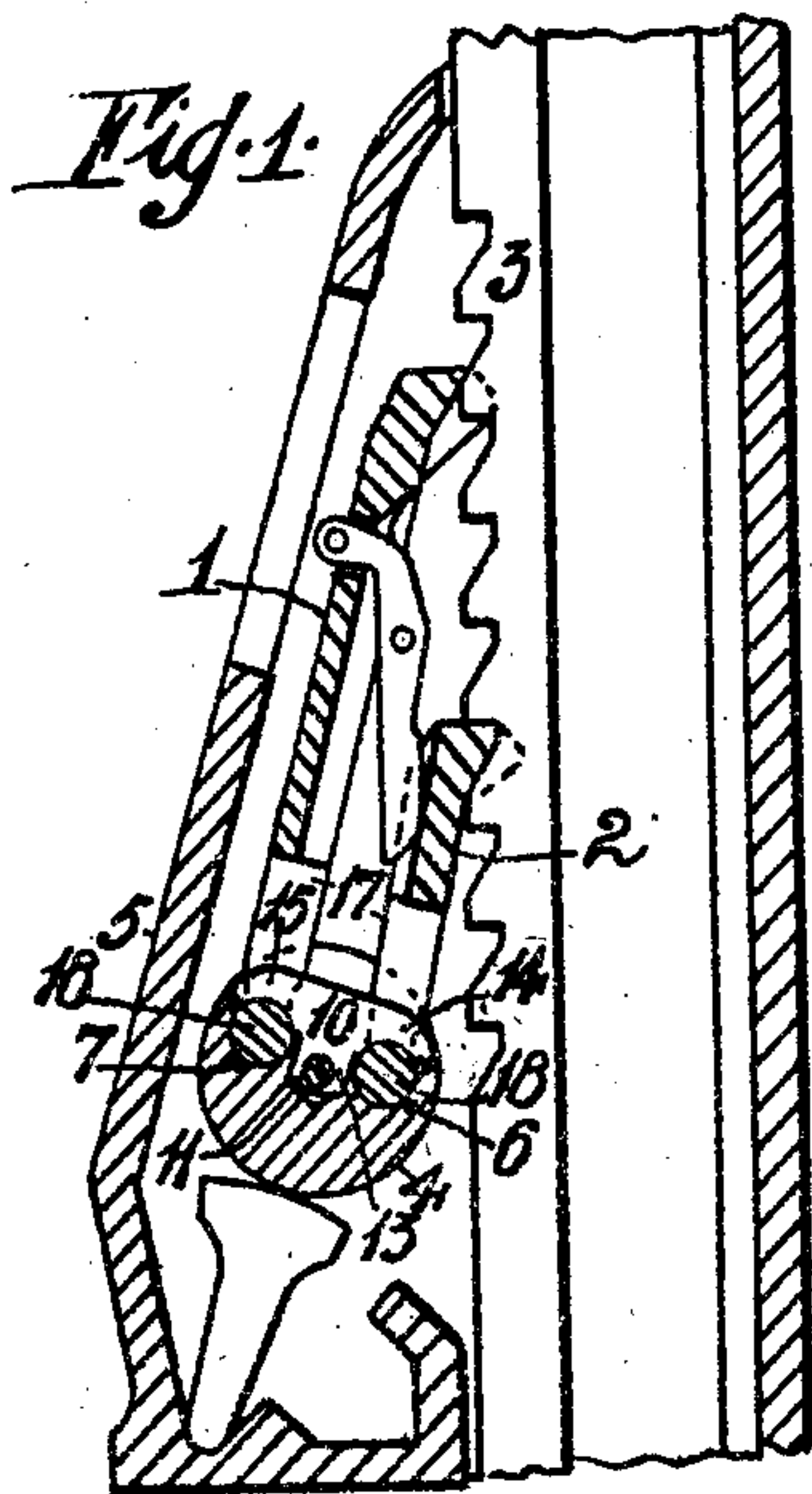


Fig. 2.

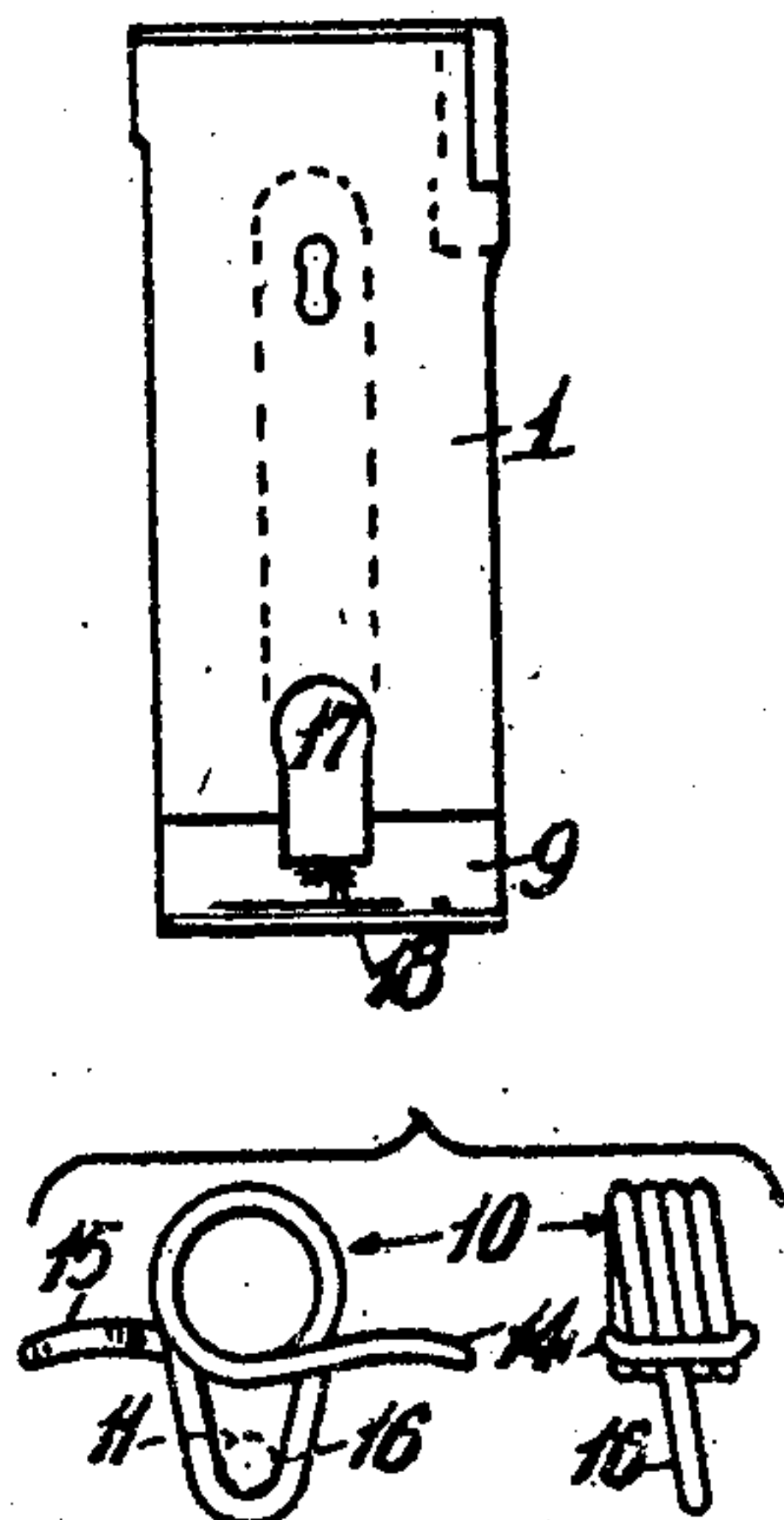


Fig. 4.

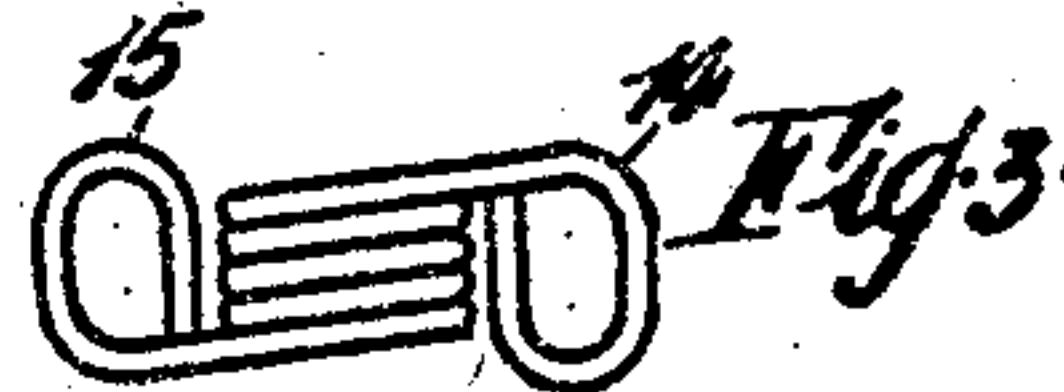
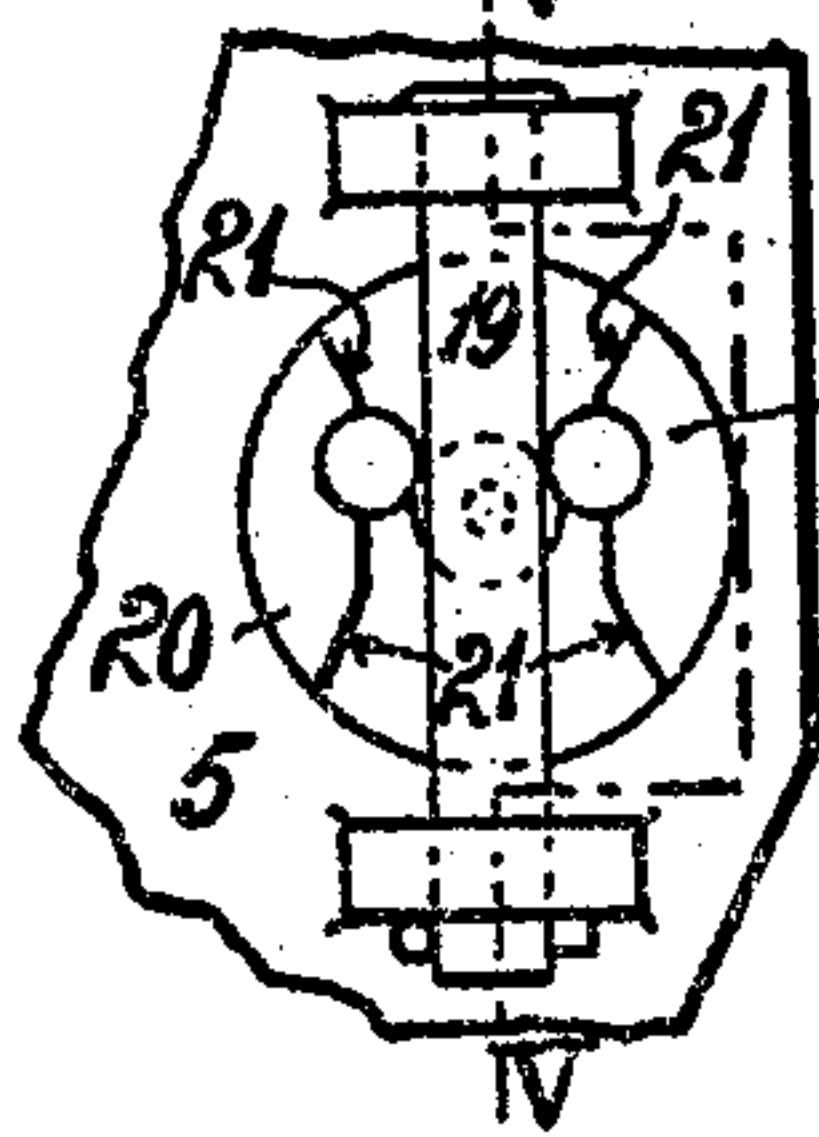


Fig. 5.

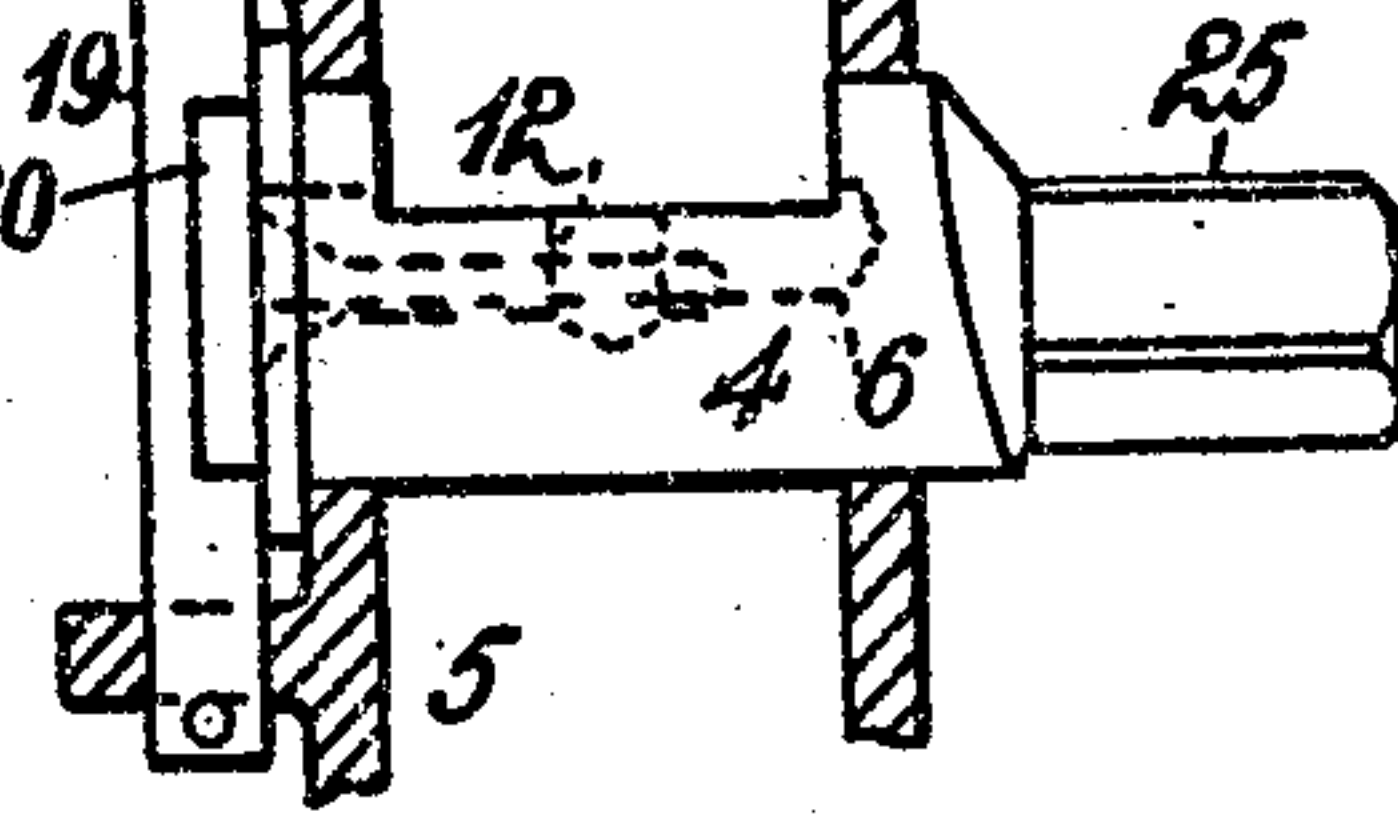


Fig. 6.

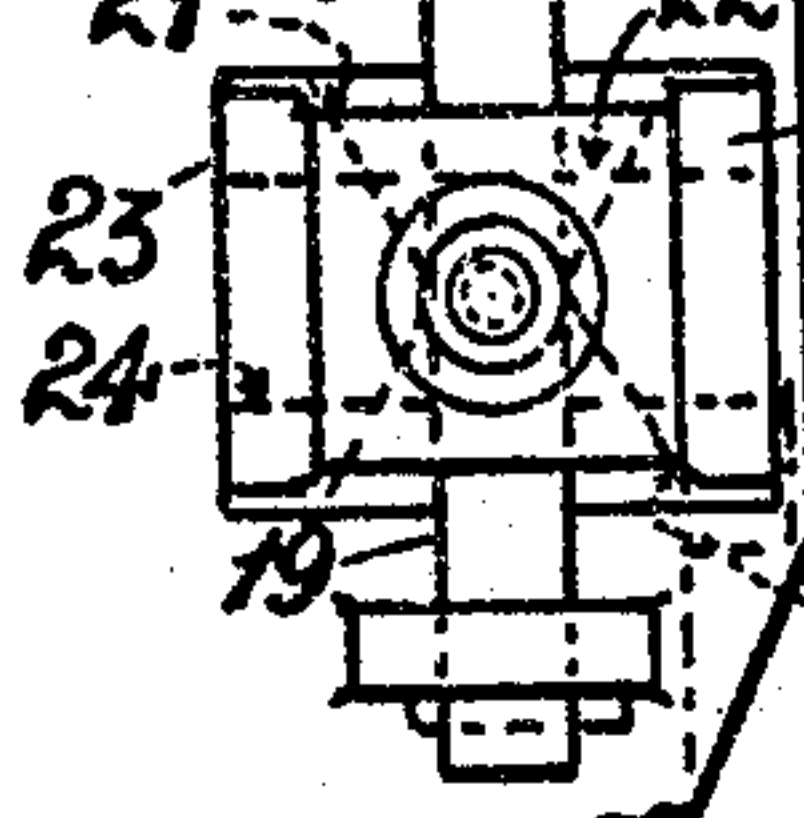
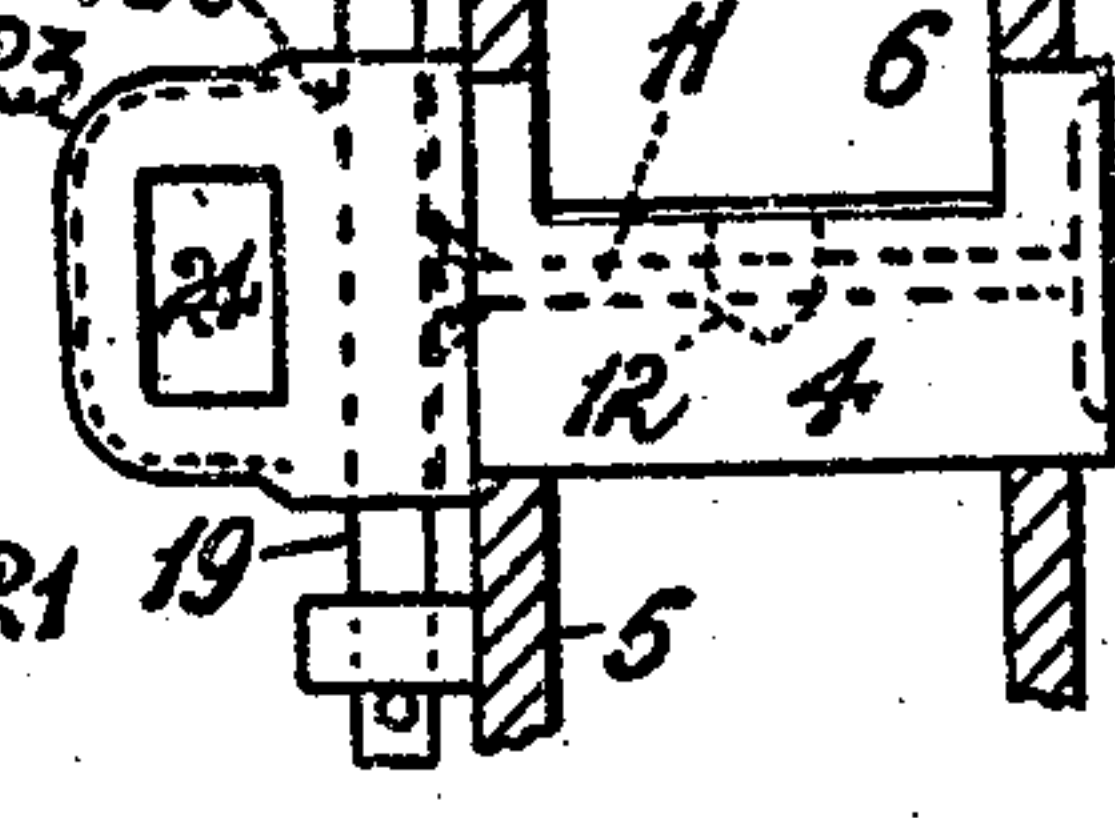


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

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PAWL-AND-RATCHET MECHANISM.

No. 928,892.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed November 2, 1908. Serial No. 460,703.

To all whom it may concern:

Be it known that I, WILLIAM TREWHELLA, a subject of the King of Great Britain, residing at Trentham, in the State of Victoria, Australia, trading with Benjamin Trewhella, a subject of the King of Great Britain, residing at Trentham aforesaid, as Trewhella Bros., engineers and ironworkers, have invented Improvements in Pawl-and-Ratchet Mechanism, of which the following is a specification.

The object of this invention is to provide a strong compact and durable mechanism for supporting the pawls in rockers or tumblers of lifting jacks, winches, etc., which can easily be assembled inside the case, and is not liable to get out of order. The invention also controls the oscillation of the rocker or tumbler and prevents same falling out of the casing.

Shortly stated the improvements involve the employment of a toothed bar or segment, an oscillating tumbler having two grooves parallel with its axis into which a pair of pawls are fitted and held in position by a clip. This clip is retained in position by a pin inserted longitudinally or in an axial direction through the end of the tumbler, and a bar is placed across the end of said tumbler to hold same longitudinally in position and also to limit the extent of its oscillation. The rocker or tumbler is thus prevented from falling out of the frame.

The drawings show the invention applied to a lifting jack, and comprise:—Figure 1 a vertical section through a portion of jack; Fig. 2 an elevation of one of the pawls; Fig. 3, three views of a spring clip; Fig. 4 a fragmentary side elevation showing one end of the tumbler and the locking means therefor; Fig. 5 a vertical section on line V—V Fig. 4; Figs. 6 and 7 modified views corresponding to Figs. 4 and 5.

According to this invention the pawls 1, 2, which engage the toothed bar 3, segment, or any other toothed element, are mounted at one end in an oscillating rocker or tumbler 4 suitably journaled in the frame 5 and provided with two grooves 6, 7, parallel with the axis of said tumbler and adapted to receive the rounded ends 9, 9 of said pawls. A clip 10 is situate between the ends 9, 9 of the pawls and is held in position by a pin 11, inserted longitudinally through

the tumbler preferably at about the axis thereof which pin extends through a central recess 12 in the tumbler and through the central part of said clip. Said latter is preferably T-shaped and its central projection 13 is seated in the recess 12 of the tumbler while its bearing ends 14, 15, are turned over the ends of said pawls and so maintain the latter in the grooves 6, 7, of the tumbler. When the clip is a coil spring one (Fig. 3) the axial pin passes through an elongated loop or coil 16, while the ends 14, 15, may be bent back upon themselves to provide a wider bearing surface. The pawls may be provided with lateral studs for the engagement of the ends of the clips, but by preference the latter engage the pawls in the center and for this purpose said pawls are each formed near their bearing ends with an opening 17 through which the end of the clip passes, which bears against the central stud or cylindrical portion 18 formed by the bottom of said opening.

The tumbler 4 is held in position in the frame 5 and prevented from longitudinal movement through the medium of a bar 19 secured to the latter, which lies across the end of the tumbler and preferably across its axis. Said bar is moreover employed as a limiting stop to the degree of oscillation of said tumbler and to this end projections 20, 20 are formed on the end of the tumbler and have abutting faces 21 adapted to contact with the intermediate bar 19. The bar preferably lies across the tumbler in the approximate direction of the thrust of the pawls because in such case any wear in the supporting bearing of said tumbler does not affect the degree of its oscillation. The end of the tumbler moreover may be extended as in Figs. 6 and 7, in which case the abutting faces 21 are formed by the sides of a hole 22 formed in said extended end and through which the bar 19 is passed. This hole is preferably tapered or flared outwardly from the center to each end to permit the tumbler to oscillate a limited degree before its sides contact with the bar.

In Fig. 6 there are lugs 23 formed with holes 24 on the end of the tumbler to receive the operating lever thereof, but in Fig. 5 the lever is fitted on a sided projection 25 on said tumbler.

It will be apparent by this invention that

the pawls will be retained in the tumbler irrespective of the manner in which it is used.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. In pawl and ratchet mechanism, an oscillating tumbler formed with two grooves, a pair of pawls seated respectively in said grooves, a clip in said tumbler for holding the pawls therein and permitting free movement of the latter and a pin adapted to be passed longitudinally through said clip and tumbler.

2. In pawl and ratchet mechanism, an oscillating tumbler formed with two grooves, and a central recess, a pair of pawls seated respectively in said grooves, a T-shaped clip formed with two bearing ends adapted to hold the pawls and permit a free movement thereof in said grooves and a central projection adapted to fit into said recess, and a pin extending longitudinally through said clip and tumbler for the purpose specified.

3. In pawl and ratchet mechanism, an oscillating tumbler formed with two grooves and a central recess, a pair of pawls formed with openings near their bearing ends and seated respectively in said grooves, a T-

shaped clip formed with two bearing ends adapted to pass through said respective openings and formed with a central projection adapted to fit into said recess and a pin extending longitudinally through said clip and tumbler for the purpose specified.

4. In pawl and ratchet mechanism, a frame, an oscillating tumbler mounted therein and formed with two grooves, a pawl secured in each of said grooves by a central clip, and a bar on said frame extending across the axis of said tumbler and lying approximately in the direction of the thrust of said pawls for the purposes specified.

5. In pawl and ratchet mechanism, a frame, an oscillating tumbler mounted therein and formed with two grooves and with abutting faces about its end, two pawls secured in said respective grooves by a central clip, and a bar on said frame extending across the axis of said tumbler and between the abutting faces thereof for the purposes specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM TREWHELLA.

Witnesses:

WILLIAM HERBERT WATERS,
WILLIAM GUEST HOLDEN.