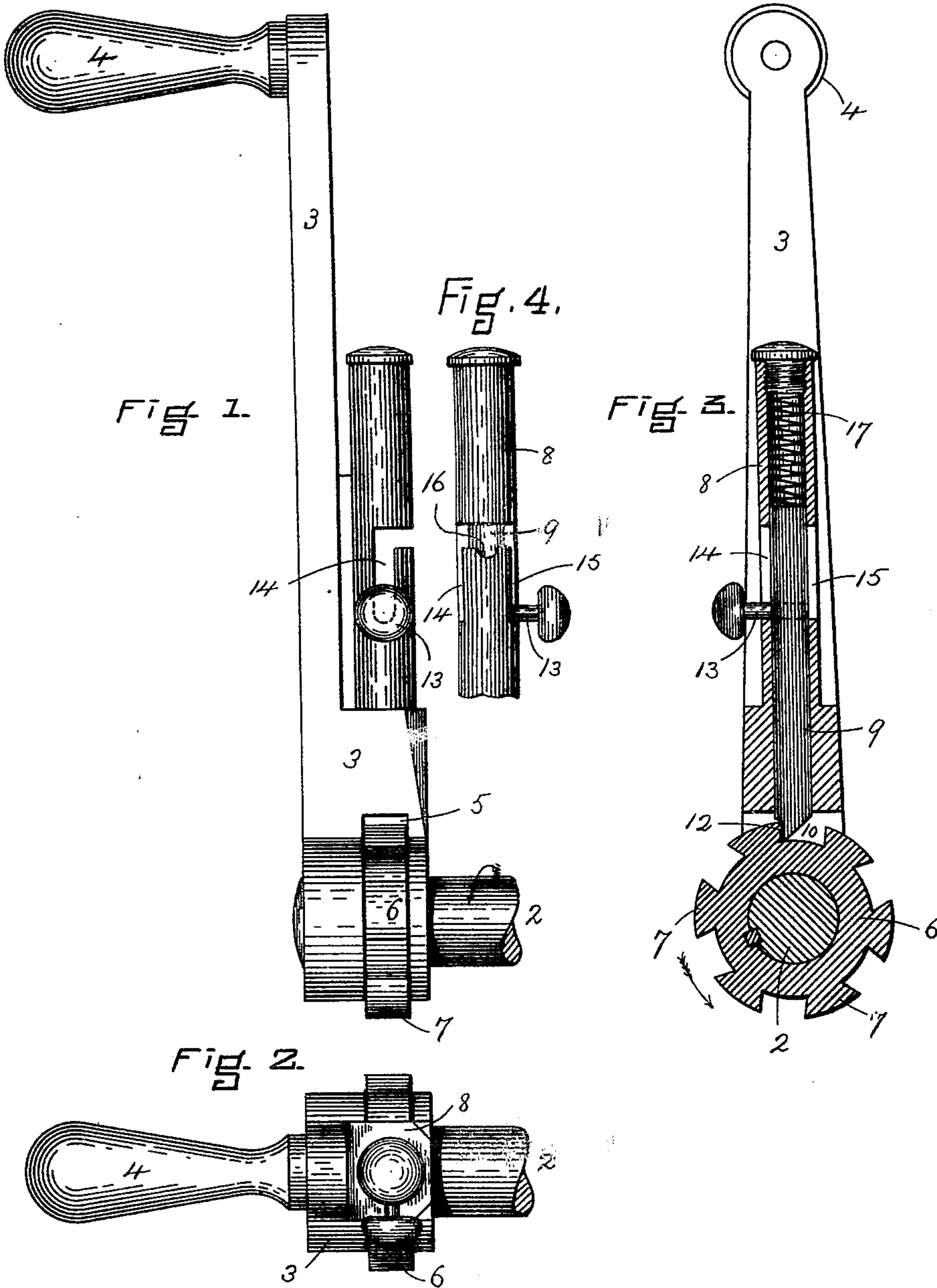


(No Model.)

J. MURPHY, Jr.
SAFETY CRANK FOR HAND CARS.

No. 406,935.

Patented July 16, 1889.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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SAFETY-CRANK FOR HAND-CARS.

SPECIFICATION forming part of Letters Patent No. 406,935, dated July 16, 1889.

Application filed April 25, 1889. Serial No. 308,579. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH MURPHY, Jr., a citizen of the United States, residing at Berkley, in the county of Bristol, and State of Massachusetts, have invented certain new and useful Improvements in Safety-Cranks for Railway Hand-Cars; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to safety-cranks for railway hand-cars, whereby the crank may stop while the shaft continues to rotate. The purpose is evident, the object being to prevent injury to the person operating the car in the event of the crank catching in his clothing, which frequently results in severe injuries to the individual when the car is in motion.

The drawings represent in Figure 1 a side elevation. Fig. 2 is a plan, and Fig. 3 is a sectional elevation transversely of the shaft. Fig. 4 is a front view of the inclosing-tube for the pawl.

In the above drawings, 2 represents the actuating-shaft, only one end of which is shown, both being provided with similar operating mechanism. Loosely mounted upon said shaft is the crank 3, provided with a hand-grasp 4. The lower portion of said crank is longitudinally slotted at 5, to admit a toothed wheel 6. The teeth of the latter are square-faced, but oppositely undercut, to enable said wheel to be revolved in either direction. Vertically aligned above the wheel and resting upon a shoulder formed in the crank is secured a hollow tube 8. Within this tube is located a "pawl" 9, so called, which consists of a cylindrical rod. The active end is forwardly inclined upon the rear side at 10, and cut away in front at 12, the angle of the latter surface coinciding with the under-cut upon the teeth 7. Thus the shape of this pawl is such that it will engage and hold a tooth upon the wheel so long as the crank moves at the same rate of speed. Should said crank be retarded or stopped, the

rear side 10 is simply wiped by the other teeth, which now move against it, and the forward advance rotation of the shaft thus continues while, the pawl and crank may be stopped.

In hand-cars it is frequently necessary to reverse the motion to back the car, as also to render the crank free or place it in an idle position, in some instances in order to transfer a rail a short distance. These results are obtained by means of a transverse pin 13, inserted in the upper part of the pawl. In connection with said pawl-actuating pin I have cut in the shell of the tube 8 two slots 14 15, diametrically located, and which connect after the manner of a bayonet-fastening. Said slots are situated in the same plane with but above the toothed wheel. Furthermore, the shell of said tube is formed with a notch 16, located between the slots 14 15, at the upper ends of the latter, in order that the actuating pawl-pin, when resting therein, shall be at right angles to such positions as it assumes when located in either of the slots 14 or 15.

The upper end of the tube 8 is closed by a screw-plug, which serves to retain a spring 17, confined between said plug and the upper end of the pawl. By this means the pawl is held in contact with the toothed wheel when ever permitted to engage therewith.

By reference to Fig. 3 the pawl is shown positioned with its active face advanced toward the left and in engagement with one side of a tooth, whereby, when the crank is turned, the shaft must necessarily rotate in direction of the arrow. This may be instanced as "forward-advance rotation." In the event of reverse movement, or when the hand-car is to be backed, the actuating-pin 13 is lifted, raising the pawl against the tension of its spring until said pin reaches the upper end of the slot 14. The pin is then swung through an arc of one hundred and eighty degrees, as likewise the pawl. The pin is now allowed to descend in the slot 15 until the active end of the pawl strikes the periphery of the toothed wheel, where it engages a tooth, and the shaft is then in readiness to be revolved in an opposite direction to that before described.

Many times in the use of hand-cars, when

repairs upon the line necessitate the transfer of rails for a short distance, it becomes necessary to load the rails upon the car, in which event it is impossible to allow the crank to revolve. At such times, and in order to render the crank inoperative upon the toothed wheel, the pawl is lifted up and the pin 13 is disengaged from one of the slots 14 or 15 in which it may be located at the time. The pin and pawl are now swung through an angle of ninety degrees, when the pin is permitted to drop and rests in the notch 16. In this position the shaft is free to revolve, while the crank, placed in any desired position, remains stationary and idle.

There are several obvious advantages: First, the simplicity of the parts, which are few in number; secondly, in the easy adaptation of this device to any hand-car propelled by crank motion; thirdly, in the ease by which the crank may be caused to operate the shaft in either direction, as likewise the facility with which it may be disconnected and rendered inoperative; and, lastly, in the fact that but one pawl is employed, which renders the device particularly easy to operate.

What I desire to claim is—

1. In a hand-car for railway-service, the combination, with the main shaft and the toothed wheel fast thereon, of a crank loose upon said shaft, a hollow tube at right angles

to the longitudinal axis of the shaft, and a single pawl within the tube and adapted to turn upon its own axis, as likewise to move endwise with respect to the toothed wheel with which it engages, substantially as herein described.

2. In a hand-car, a revoluble shaft provided with a wheel fast thereon, having oppositely undercut teeth, a crank loose thereon which straddles said wheel, and the reversible spring-actuated pawl having radial movement with the wheel, combined with a slotted tube which incloses the pawl, and an actuating-pin by which the pawl has axial as likewise endwise movement, substantially as herein set forth and specified.

3. In combination with a shaft 2, the crank 3, loose thereon, the tube 8, provided with the slots 14 15, and the wheel 6, with its teeth 7 oppositely undercut, a single pawl 9, substantially as described, its spring, and an actuating-pin 13, moving in the slots, whereby the pawl is given axial as likewise endwise movement, substantially as and for purposes herein stated.

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

JEREMIAH MURPHY, JR.

Witnesses:

H. E. LODGE,
FRANCIS C. STANWOOD.