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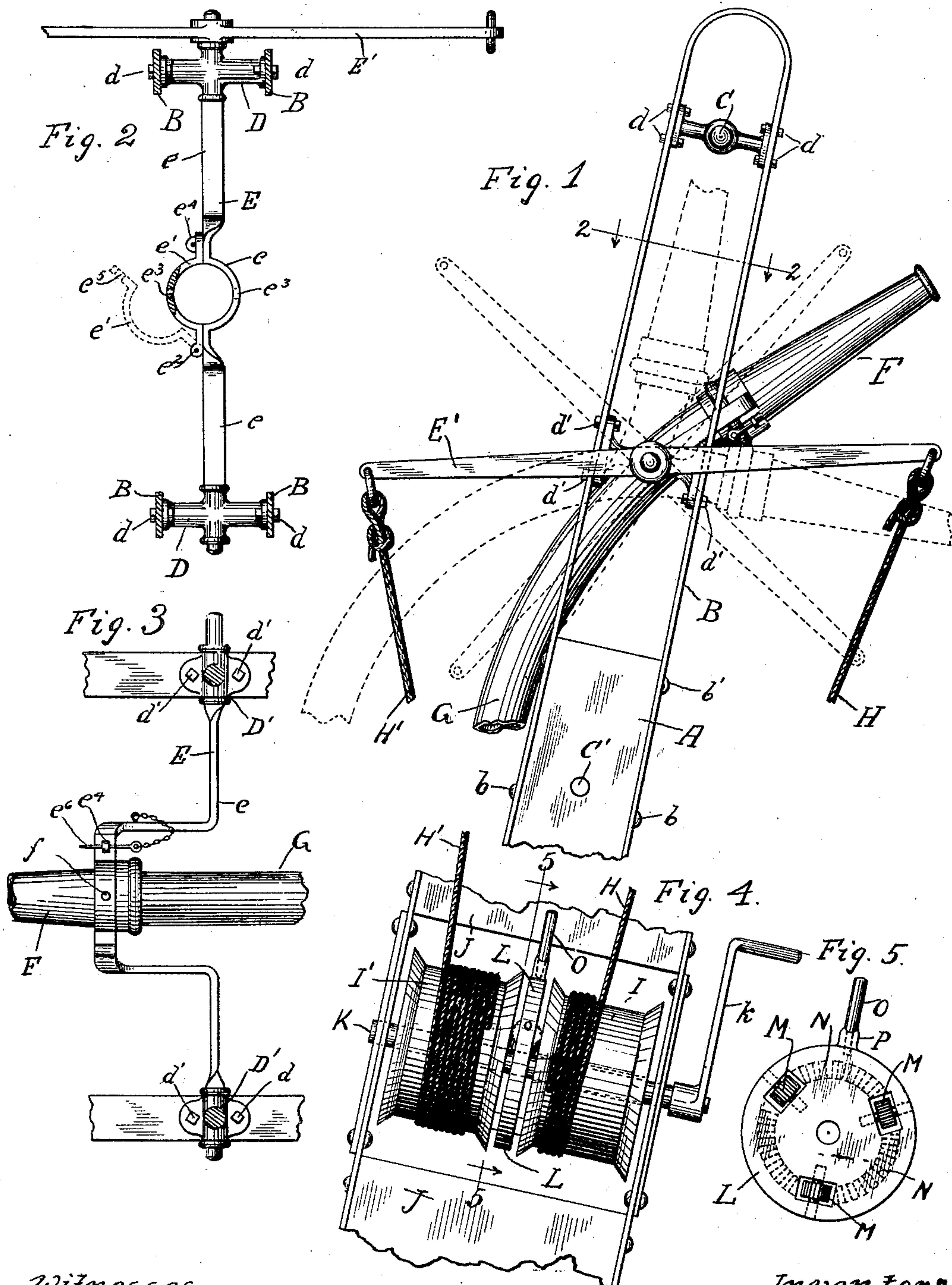
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COMBINED LADDER AND HOSE NOZZLE CONTROLLING APPARATUS.

(Application filed Feb. 3, 1902.)

(No Model.)



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COMBINED LADDER AND HOSE-NOZZLE-CONTROLLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 703,115, dated June 24, 1902.

Application filed February 3, 1902. Serial No. 92,405. (No model.)

To all whom it may concern:

Be it known that we, JOHN COOK and AXEL G. ENGWALL, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Ladder and Hose-Nozzle-Controlling Apparatus, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to a combined ladder and hose-nozzle-controlling apparatus for use at fires, such ladders being usually mounted on trucks on which they may be rapidly hauled to conflagrations where the same are to be used and such ladders also usually consisting of more than one section and provided with means for erecting or partially erecting the same; and the object of this invention is to obtain a combined ladder and hose-nozzle-controlling apparatus which will not interfere with the erection or partial erection of the ladder and by means of which the nozzle of a fireman's hose can be controlled by a person standing at the base of the ladder and water flowing from such nozzle may be delivered in any desired direction.

In the drawings referred to as forming a part of this specification, Figure 1 is a side elevation of the upper end of a ladder combined with a fire-hose-nozzle holder embodying the principal part of this invention. Fig. 2 is a section view on line 2 2 of Fig. 1 viewed in the direction indicated by the arrows, with the hose-nozzle shown in Fig. 1 removed from such holder. Fig. 3 is an elevation of a short section of the upper end of a ladder combined with the hose-nozzle holder shown in Figs. 1 and 2. Fig. 4 is a side elevation of the bottom of a short section at the lower end of a ladder with drums and a crank, forming a part of the apparatus embodying this invention; and Fig. 5 is a sectional view on line 5 of Fig. 4 viewed in the direction indicated by the arrows.

A reference-letter applied to designate a given part is used to indicate such part throughout the several figures of the drawings wherever the same appears.

A is the upper end of a ladder.

B is the ordinary extension of the upper end of the side rails of the upper section of a fireman's ladder and comprises a strap-iron part which is secured to the side rails of the ladder, as by bolts *b*.

C C' are rungs.

D is a standard which is secured in place in the extension B, as by bolts *d' d'*.

E is a crank-rung bent or built up to form a double crank and constitutes a nozzle-holder mounted in standards D D. The holder E consists of the movable double crank part *e*, the strap *e'*, pivoted to part *e*, as by pivot *e²*, and the lever *E'*, rigidly secured on part *e*. By means of lever *E'* and cables H H' the hose-nozzle holder E is turned or rocked in the standard D D. The part *e* and the strap *e'* of the hose-nozzle holder E are respectively provided with apertures *e³ e³*, in which apertures the ordinary wrench or spanner engaging pin *f* of the hose-nozzle F fits when the hose-nozzle is placed in the nozzle-holder and strap *e'* is closed onto such nozzle, as is illustrated in Figs. 1 and 3 of the drawings.

e⁴ is a projection on part *e* of nozzle-holder E. Strap *e'* is provided with aperture *e⁵*, through which aperture projection *e⁴* extends and in which aperture it is firmly held, as by pin *e⁶*, Fig. 3, to maintain the strap *e'* closed onto the nozzle F.

G is the hose of nozzle F.

The ropes, cords, or cables H H' respectively extend from lever *E'* to near the ground, and preferably they extend to and around the drums I I'.

J is a short section of the lower end of a ladder. Ladder A, hereinbefore described, may constitute an extension end or a section to the ladder J.

K is a shaft rotatably mounted in one of the side rails of ladder J, and *k* is the crank of such shaft K. The drum I is rigidly attached to shaft K to rotate therewith, while the drum I' is loosely mounted on such shaft K to turn freely thereon.

L is a disk loosely mounted on shaft K between the adjacent ends of the drums I I', so as to turn freely on the shaft.

M M M are gear-wheels which are respectively rotatably mounted in disk L, so that the teeth of such gear-wheels project or extend

beyond the faces of the disk, and the adjacent ends of the drums I I' are provided with gear-teeth intermeshing with the teeth of such gear-wheels M M M. The gear-teeth on the end of the drum I, which intermesh with the gear of wheels M M M, are indicated by broken lines N N in Fig. 5.

O is a pin fitting into the projection P in the edge of the disk L. When the pin O is fitted into such projection P, the outer end of the pin comes in contact with side rail j of ladder J, thereby preventing the disk L from turning. At such time when crank K and drum I are turned in one direction by means of the crank k the remaining drum I' is turned in the other direction by the interposed gear-teeth M M M between the drums, and thereby as the rope H is wound on or unwound from drum I the rope H' will be unwound from or wound onto the drum I' a corresponding amount. When the pin O is taken from the projection P, disk L may turn freely on shaft K, and the drums I I' may turn freely relative to each other. The pin O is thus removed while the ladder A is being extended on ladder J. When the ladders A J have been adjusted relative to each other, the pin O is inserted in projection P to prevent rotation of disk L, and the crank k is turned until the nozzle F is in position to direct the water flowing therefrom in the direction desired.

When the ladder is to be used without the hose-nozzle F being attached to the nozzle-holder E, the pin e^6 is withdrawn from projection e^4 , and the strap e' is thrown back from the part e of the nozzle-holder and the nozzle taken therefrom. When the nozzle F is contained in the nozzle-holder E, as illustrated in Figs. 1 and 3 of the drawings and hereinbefore described, with the spanner-pins $f f$ of the nozzle in the apertures $e^3 e^3$, such nozzle is maintained firmly in position and may be turned, by means of the ropes or cables H H', to direct water in a desired direction and from a position so close to fire or smoke that a fireman or other person would be unable to stand and maintain such nozzle in such position.

Having thus described the invention, what we claim, and desire to secure by Letters Patent, is—

1. In a combined ladder and hose-nozzle-controlling apparatus, the combination, with the side rails of a ladder, of a rung built up to constitute a double crank, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, and means to control the position of the double crank; substantially as described.

2. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rails of a ladder, of strap-iron extensions to such side rails, standards attached to the extensions between the strap-iron sides

thereof, a rung built up to constitute a double crank, such crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, and means to control the position of the double crank; substantially as described.

3. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rails of a ladder, of strap-iron extensions to such side rails, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, such crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, drums around which the cables are wound and means to turn the drums in opposite directions; substantially as described.

4. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rails of a ladder, of strap-iron extensions to such side rails, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, such crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums secured rigidly to the rotatable shaft, a connection between the drums whereby when one of the drums is turned in one direction the other drum is turned in the opposite direction and means to release the drums from their position relative to each other to permit a change in the relative position of the ladders; substantially as described.

5. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rails of a ladder, of a rung built up to constitute a double crank, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the spanner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums

secured rigidly to the rotatable shaft, gear-teeth on adjacent ends of the drums, a disk loosely mounted on the drum-shaft between the drums, gear-wheels rotatably mounted in the disk to intermesh with the gear-teeth on the ends of the drums, and means to hold the disk to prevent rotation thereof when desired; substantially as described.

6. In a combined ladder and hose-nozzle-controlling apparatus, the combination with the side rails of a ladder, of strap-iron extensions to such side rails, standards attached to the extensions between the strap-iron sides thereof, a rung built up to constitute a double crank, such crank-rung pivotally mounted in the standards, a strap, means to detachably attach the strap to the wrist of the crank, such strap and wrist of the crank fitting around the hose-nozzle and respectively provided with an aperture in which the span-

ner-pins of the nozzle fit, a lever attached to the crank-rung, cables attached to the lever, an additional ladder, drums mounted on a rotatable shaft in one of the side rails of the additional ladder, around which drums the cables are wound and one of such drums secured rigidly to the rotatable shaft, gear-teeth on adjacent ends of the drums, a disk loosely mounted on the drum-shaft between the drums, gear-wheels rotatably mounted in the disk to intermesh with the gear-teeth on the ends of the drums, and means to hold the disk to prevent rotation thereof when desired; substantially as described.

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AXEL G. ENGWALL.

In presence of—

CHARLES TURNER BROWN,

CORA A. ADAMS.