

(No Model.)

3 Sheets—Sheet 1.

R. SMITH & H. H. MANSFIELD.

FIRE TRUCK AND EXTENSION LADDER.

No. 375,779.

Patented Jan. 3, 1888.

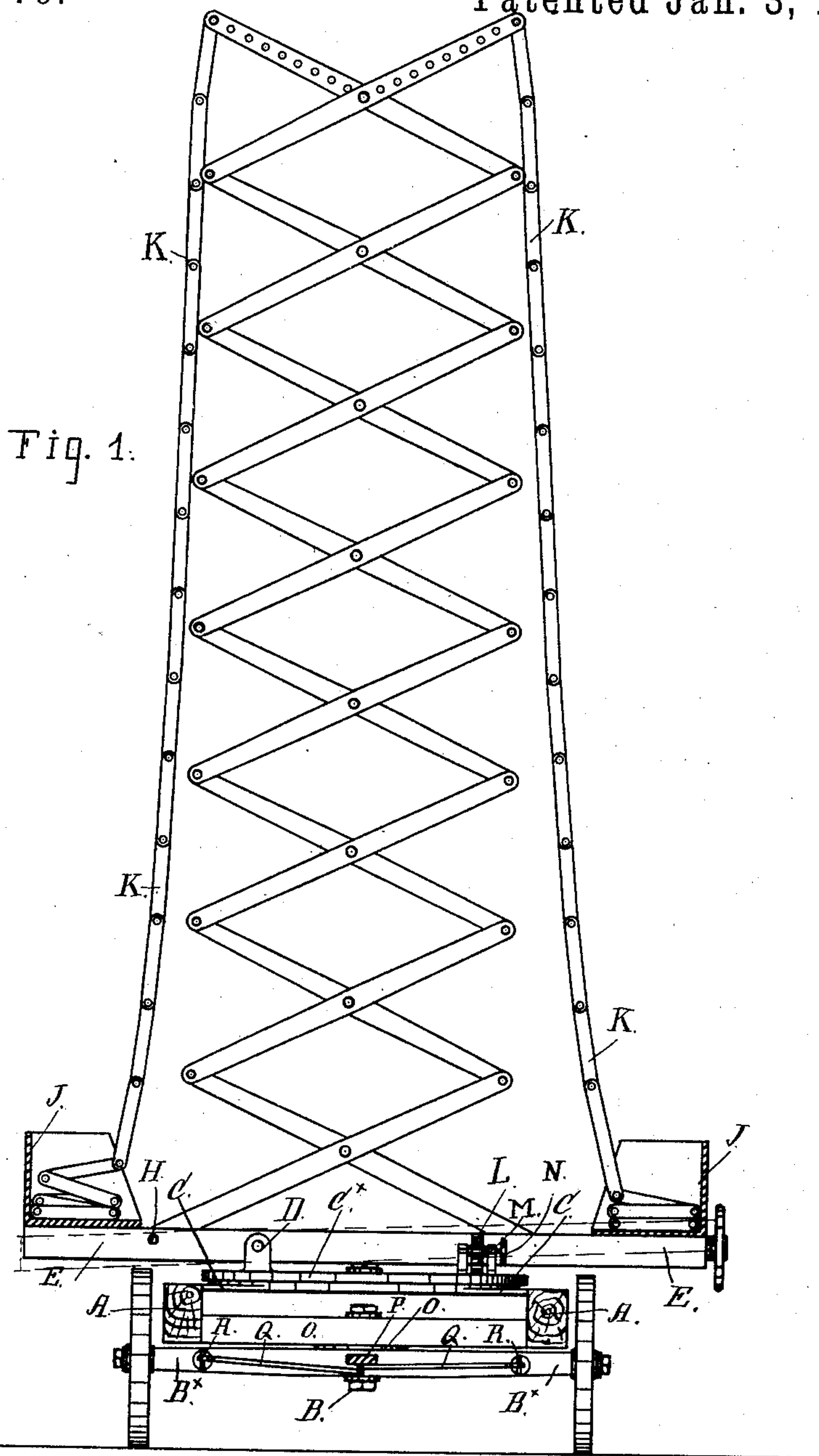
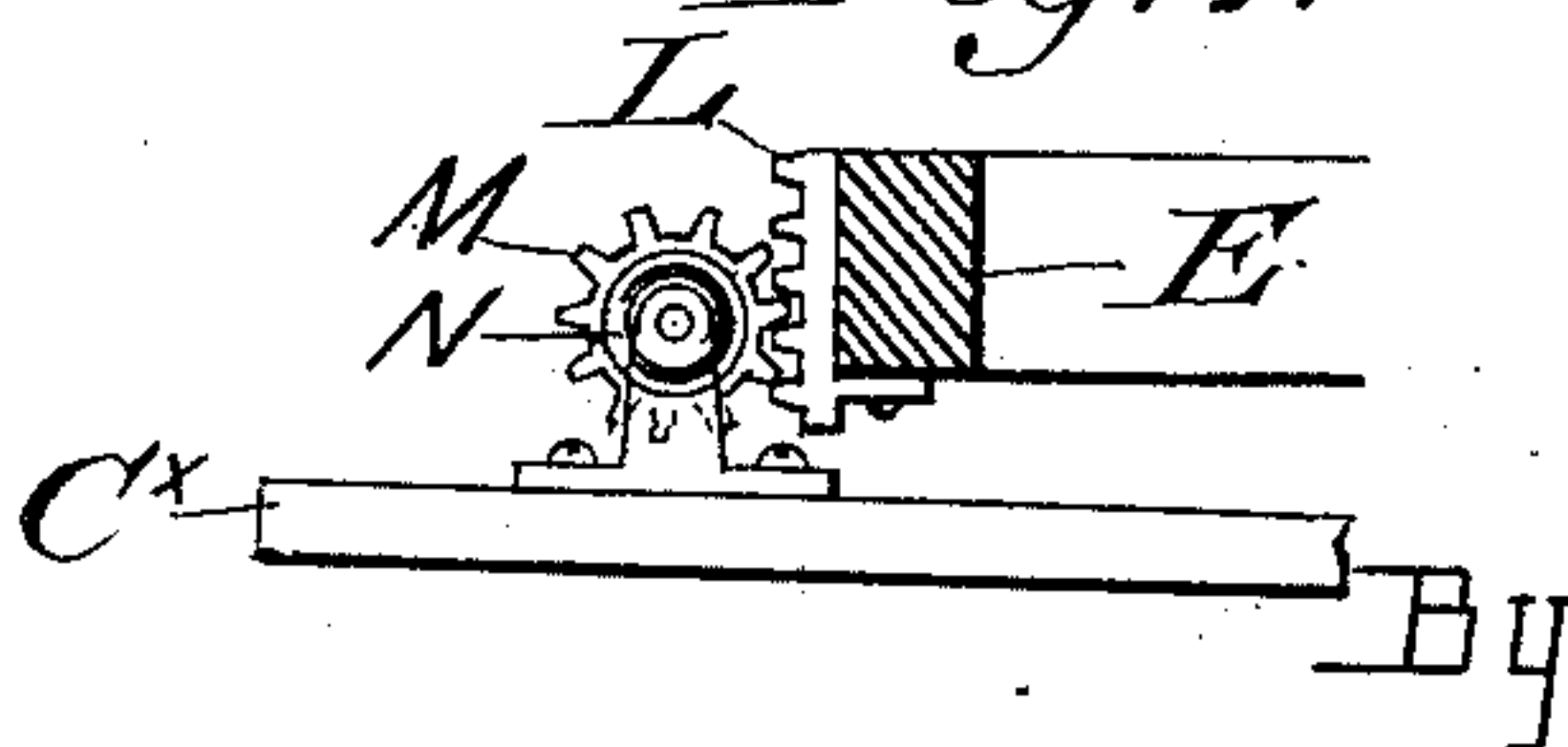


Fig. 7.



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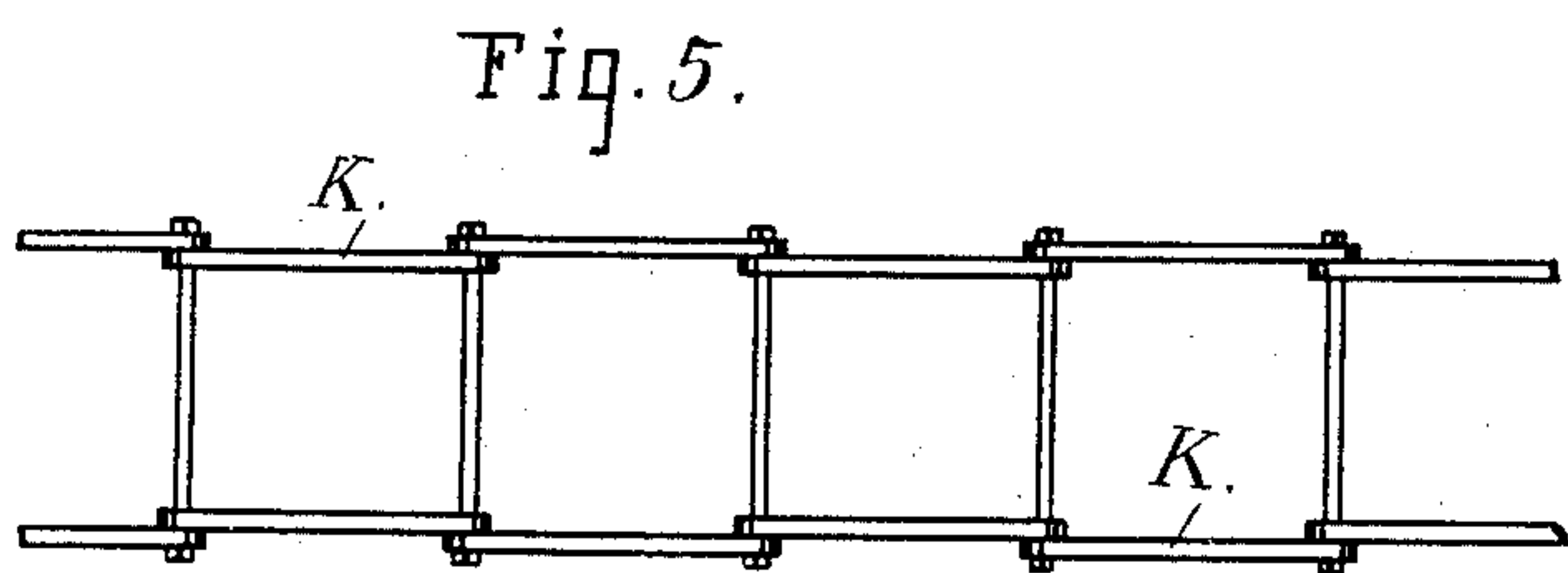
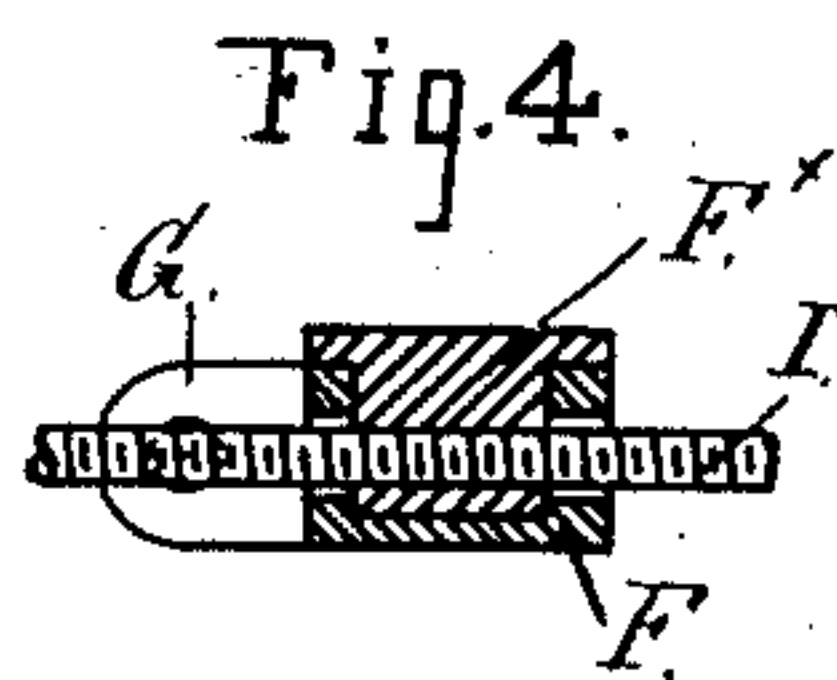
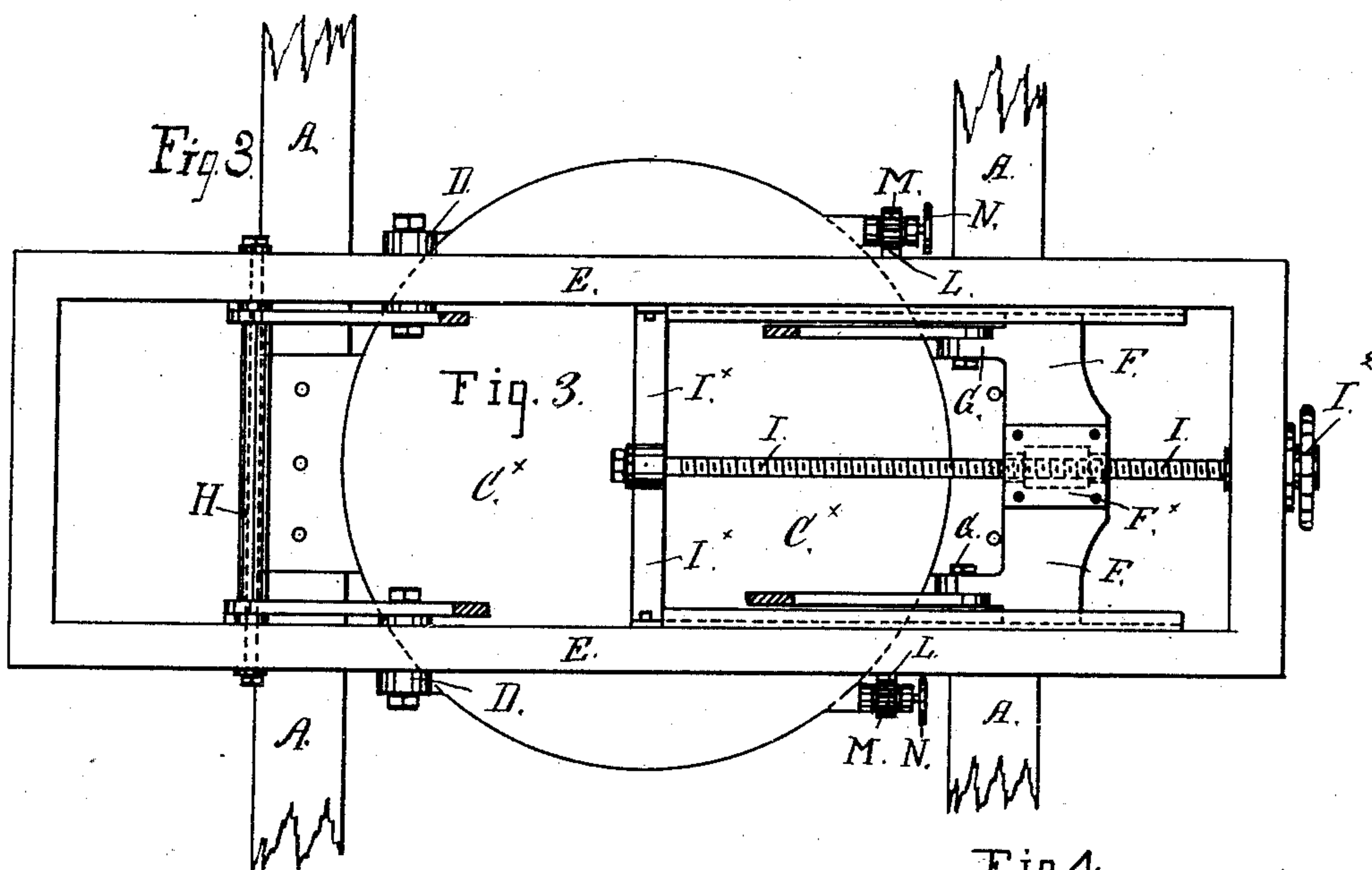
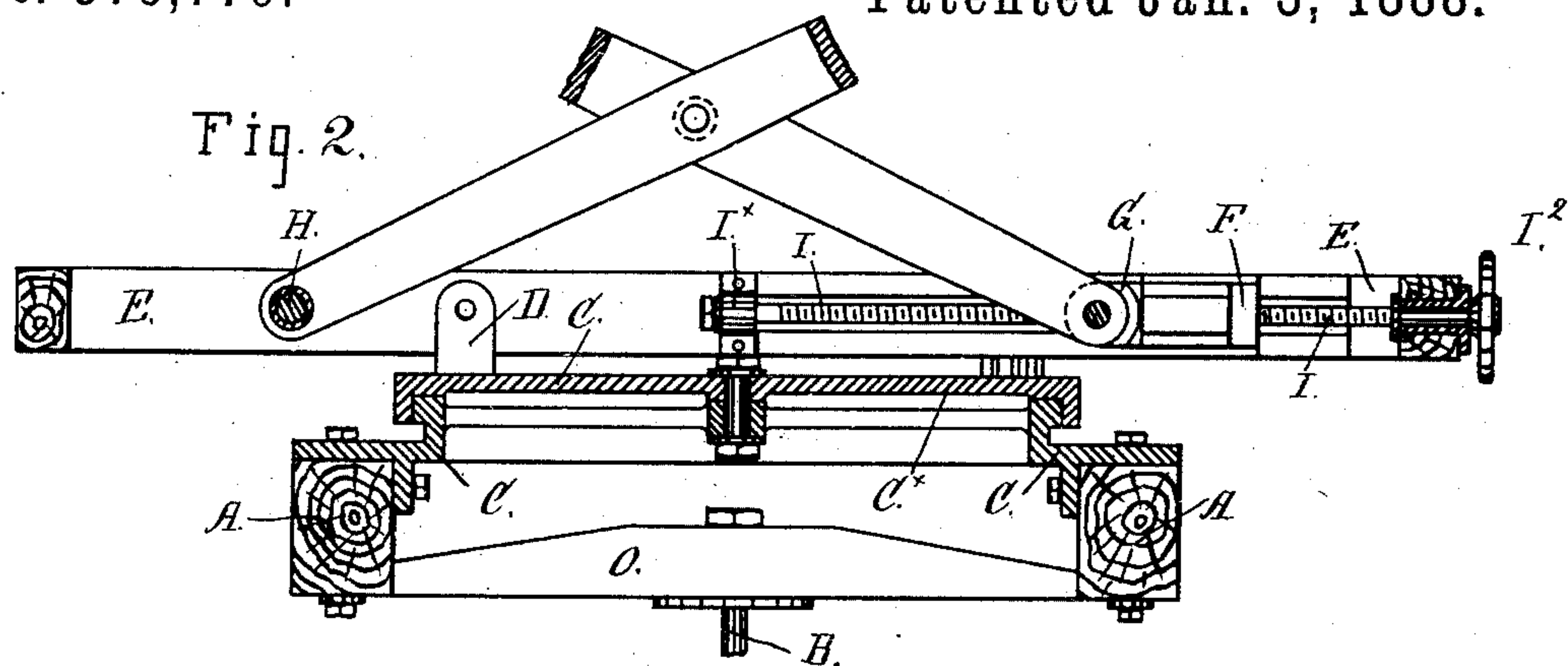
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3 Sheets—Sheet 2.

FIRE TRUCK AND EXTENSION LADDER.

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3 Sheets—Sheet 3.

R. SMITH & H. H. MANSFIELD.

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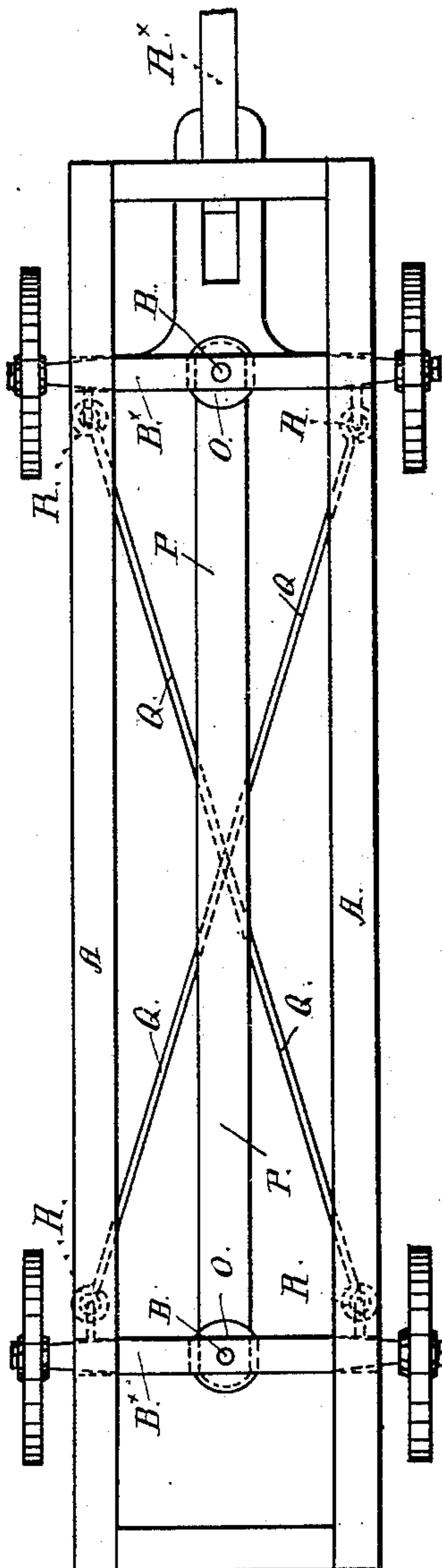


Fig. 6.

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UNITED STATES PATENT OFFICE.

RUFUS SMITH AND HENRY H. MANSFIELD, OF OAKLAND, CALIFORNIA.

FIRE-TRUCK AND EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 375,779, dated January 3, 1888.

Application filed October 13, 1886. Renewed October 31, 1887. Serial No. 253,932. (No model.)

To all whom it may concern:

Be it known that we, RUFUS SMITH and HENRY H. MANSFIELD, citizens of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Fire-Trucks and Extension-Ladders, of which the following is a specification.

Our invention relates to a fire truck and ladder constructed with a lazy-tongs, folding side ladders, a turn-table and frame, and an elevating and tilting mechanism to elevate and tilt the folding ladders and lazy-tongs. With the driving-wheels of the truck are connected rods for steering and guiding the truck in an automatic manner without the aid of a tilter.

We construct, apply, and carry out our invention in the following manner:

The drawings that form part of this specification are in three sheets, and are referred to by figures and letters.

Figure 1 is an elevation of our truck and fire-ladder with some parts shown in section. Fig. 2 is a transverse section through truck and ladder frame, showing the turn-table and ladder-elevating mechanism. Fig. 3 is a plan or top view of ladder-frame. Fig. 4 is a section through movable cross-head and traveling nut. Fig. 5 is a side view of ladder. Fig. 6 is a plan or top view of truck with turn-table, frame, and ladders removed. Fig. 7 is a detail view of one of the devices for tilting the movable frame which carries the lazy-tongs and ladders.

A is the rectangular frame mounted upon the forward and rear trucks or wheels and pivoted by the king-bolts B to the axles B^x, so that both the forward and rear trucks will freely turn in either direction. To the center of the rectangular frame A is secured the turn-table C, the lower or stationary portion of which is firmly bolted to the side rails thereof, as shown in cross-section, Fig. 2. From the upper face of the movable platform C^x of the turn-table extend the brackets or straps D, to which is pivoted the rectangular movable frame E, carrying the lazy-tongs and folding ladders. This frame is constructed in a similar manner to that of frame A, so that when in position lengthwise with the truck the dimensions will be the same as that of frame A, and when in a transverse position, as shown in Fig. 1, the outer

end can be tilted upon the two pivotal points independent of the turn-table. The inner faces of the movable frame are grooved or slotted to form ways for the traveling cross-head F, with its nut F^x.

The outer ends of the lower series of levers composing the lazy-tongs are pivoted to the lugs G of the traveling cross-head, while the ends of the opposite series of levers are pivoted upon the rod H, which latter is stationary in the frame E. Through the end of the frame and nut F^x passes the operating screw-shaft I, which has its end bearing in the center of the fixed cross-bar I^x, so that by turning up the screw-shaft by means of the hand-wheel I² the cross-head will move forward or backward in the ways of the frame and carry the lower levers with it and rapidly elevate and lower the whole series of levers composing the lazy-tongs, the outer series of the opposed lower levers moving upward or downward upon the fixed rod H. Within suitable boxes J upon the ends of the movable frame E are placed the jointed folding ladders K. The upper ends of these ladders are connected to the upper rounds of the lazy-tongs and rise and fall with it, each series unfolding as the lazy-tongs ascend and folding back upon themselves as the lazy-tongs descend, and are always in position for immediate use.

As before stated, the frame E is adapted to be moved upon the turn-table to a position at right angles with the truck-frame A in either direction, and in order to tilt the frame and the ladder the upright ratchets L L are employed. These are secured to the ladder-frame, as shown in Figs. 1, 3, and 7, and the toothed pinions M run in bearings connected to the turn-table on each side of frame E, and operate in the racks by means of the hand-wheels N, which tilt the frame and ladders and lazy-tongs either before or after they are elevated to the desired pitch or angle.

The ladders and lazy-tongs are all constructed, preferably, of light strong iron or metal; but the levers of the lazy-tongs may be made of wood, and when so constructed the ends of the levers should be bound with iron straps.

The frame A is supported upon the two bolsters O O, and a reach, P, is connected to the forward and rear trucks, the ends being piv-

oted between the two axles and bolsters and intermediate bolster-plate by the king-bolts B, so that both axles will turn freely in either direction.

5 Rods Q Q are connected to the inner faces of the axles by means of the eye-holes and eye-bolts R. These connecting-rods intersect and cross each other diagonally beneath the reach P, as shown in Fig. 6, so that when the pole
10 R^x is turned to the right or left the forward truck will be cramped inwardly and carry the rear truck with it upon that side of the frame in the same direction and permit the machine to be turned in either direction when meeting
15 oppositely-approaching objects or turning the corners of streets without the aid of a tilter or steering-lever upon the rear of the truck, as in the ordinary manner of operating fire-trucks when proceeding to fires.

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

1. In a fire-truck, the combination of the rectangular frame A, mounted upon the wheels,
25 the turn-table C, secured to the frame A, the movable platform C^x, operating on the table C and having straps D, the movable rectangular frame E, pivoted to the straps D and carrying the lazy-tongs and folding ladders,
30 and suitable mechanism for elevating the lazy-tongs, substantially as described.

2. In a fire-truck, the combination of frame A, turn-table C, secured thereto, movable plat-

form operating on table C and having straps D, the movable rectangular frame E, pivoted 35 to the straps D, the stationary transverse rod H in said frame, the cross-head F, traveling in frame E and having nut F^x, the operating screw-shaft I for the cross-head, and the lazy-tongs, having the lower member of one series 40 of its levers pivoted to the lugs G on the traveling cross-head and the lower member of the other series of its levers pivoted to the rod H, all arranged for joint operation substantially as shown and described. 45

3. The combination of frame A, turn-table C, secured thereto, movable platform C^x on the table C and having straps D, the movable frame E, pivoted to the straps and having its ends provided with boxes J J, the transverse 50 rod H, secured in said frame, the traveling cross head F, having nut F^x and operated by screw-shaft I, the lazy-tongs, whose lower members are pivoted, as described, to the rod H and lugs G on the traveling cross-head, and 55 the ladders K K, affixed to the upper members of the lazy-tongs and folding within the boxes J, all combined and operated substantially as shown, and for the purposes set forth.

In testimony that we claim the foregoing we 60 have hereunto set our hands and seals.

RUFUS SMITH. [L. S.]

HENRY H. MANSFIELD. [L. S.]

Witnesses:

C. W. M. SMITH,
JOSEPH E. FORD.