

No. 803,717.

PATENTED NOV. 7, 1905.

C. SCHWARZ & W. C. BRYANT.
COMBINED FIRE ESCAPE AND WATER TOWER.

APPLICATION FILED AUG. 1, 1904.

4 SHEETS—SHEET 1.

Fig. 1.

WITNESSES
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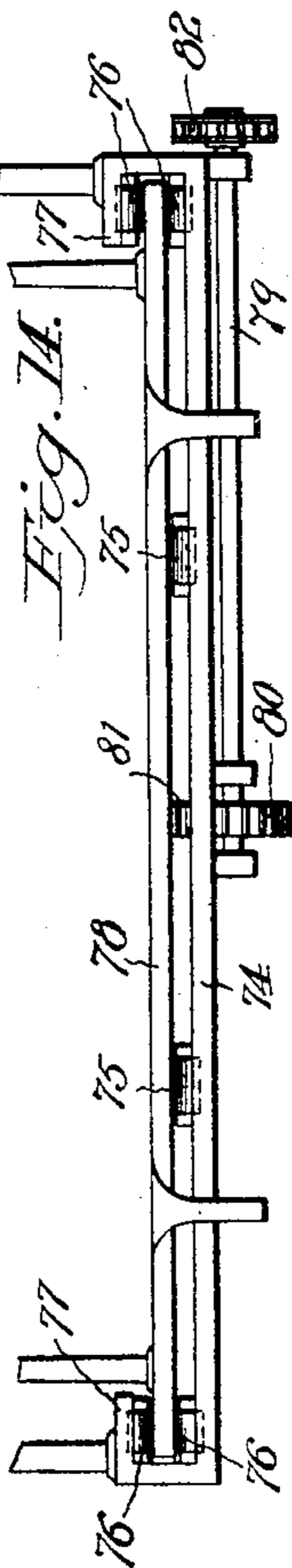
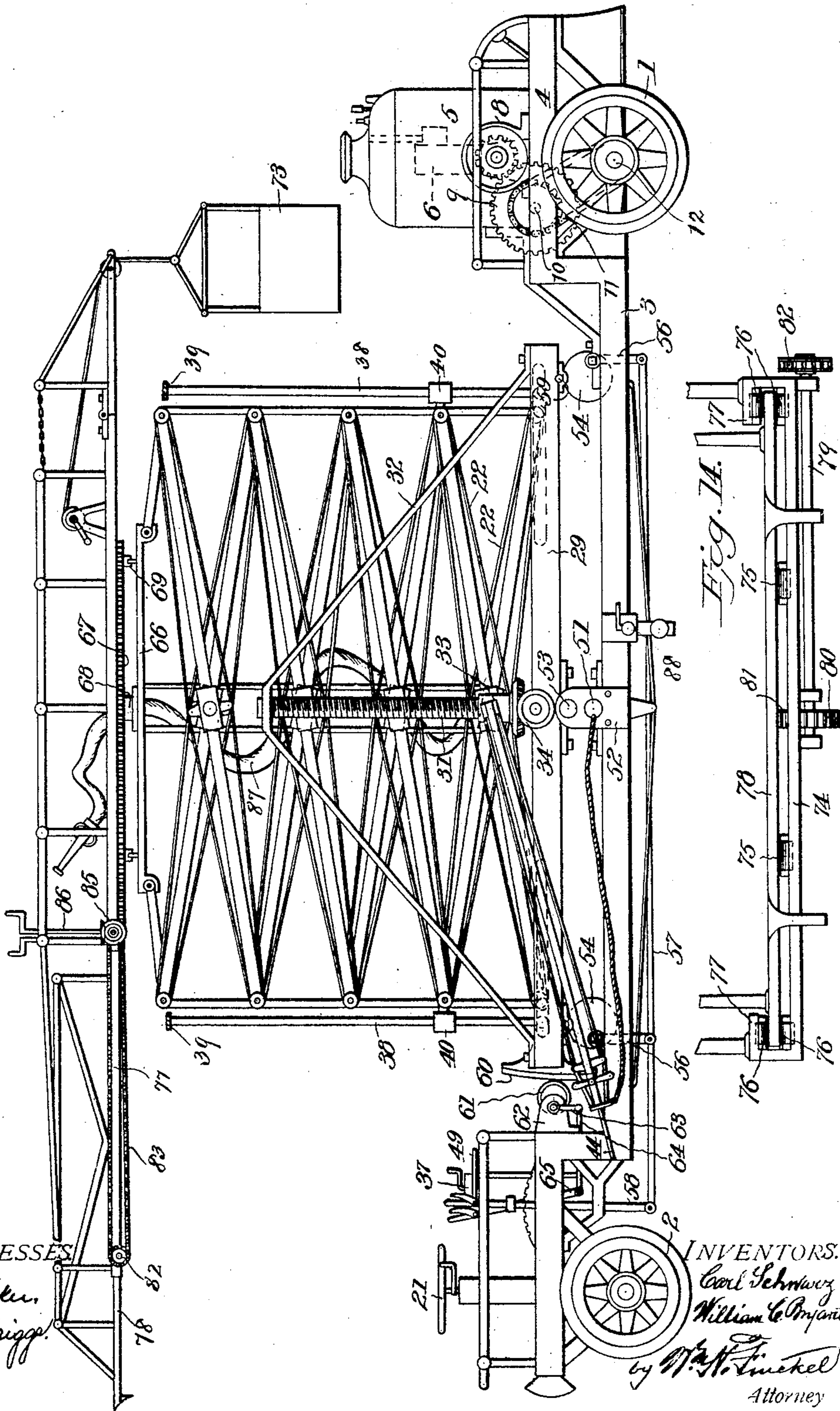


Fig. 1A.

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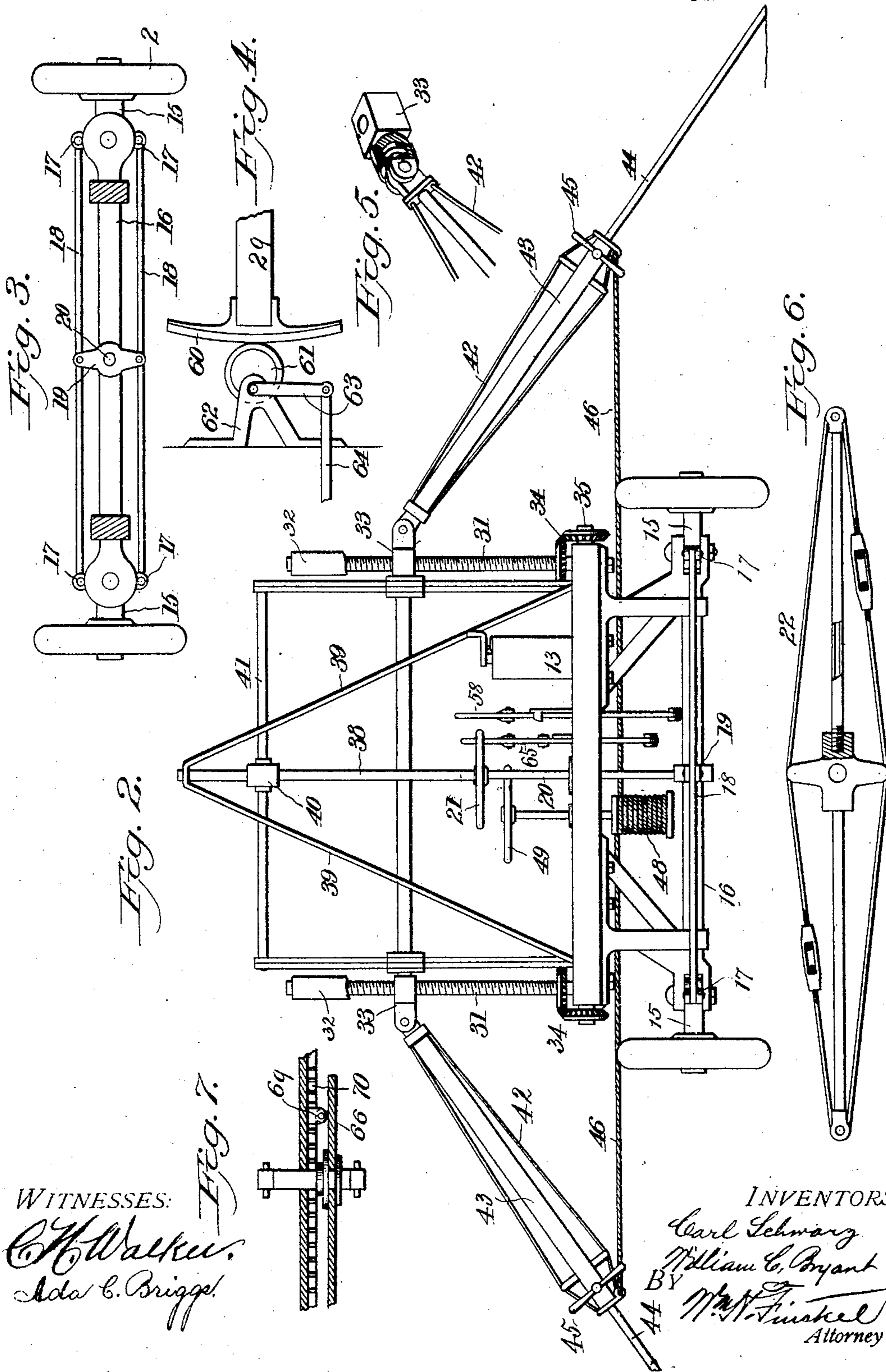
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4 SHEETS—SHEET 2.



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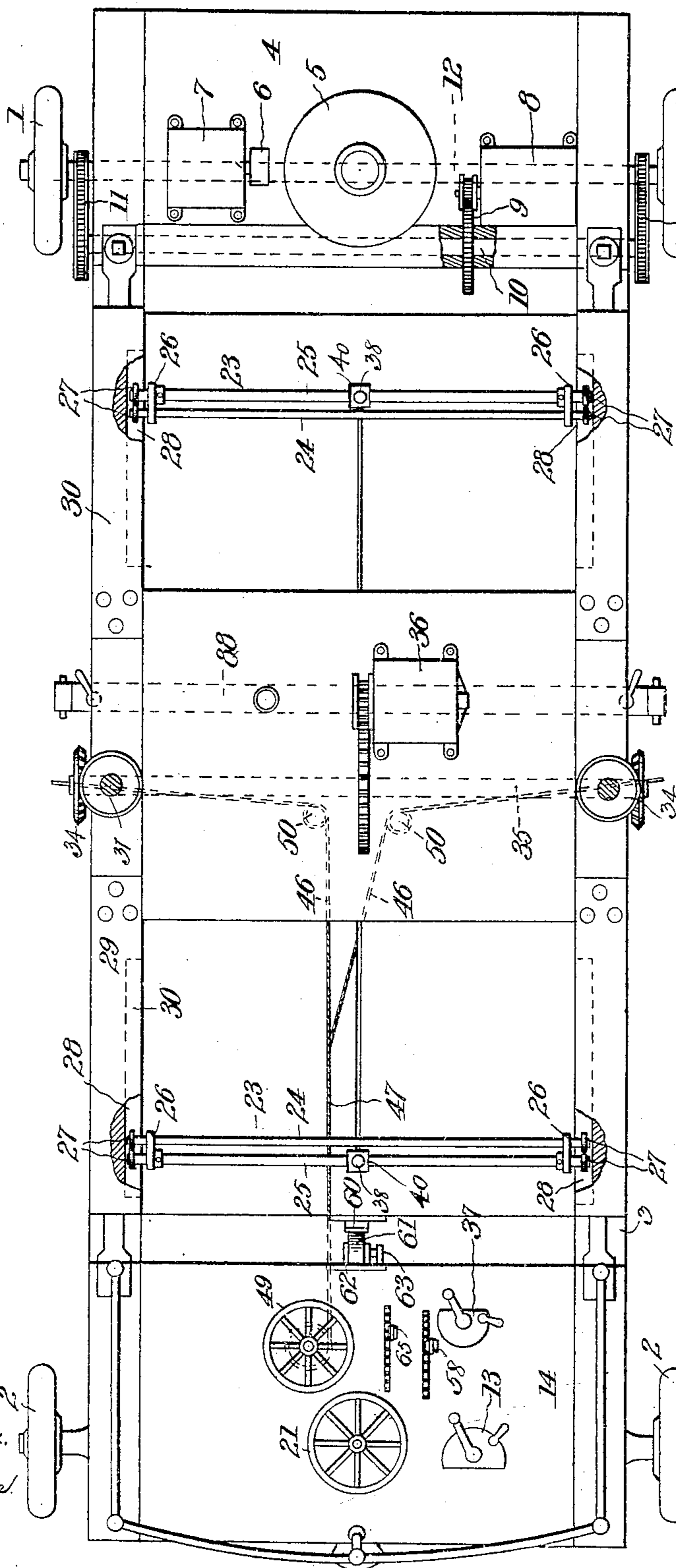
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4 SHEETS—SHEET 3.

Fig. 8.



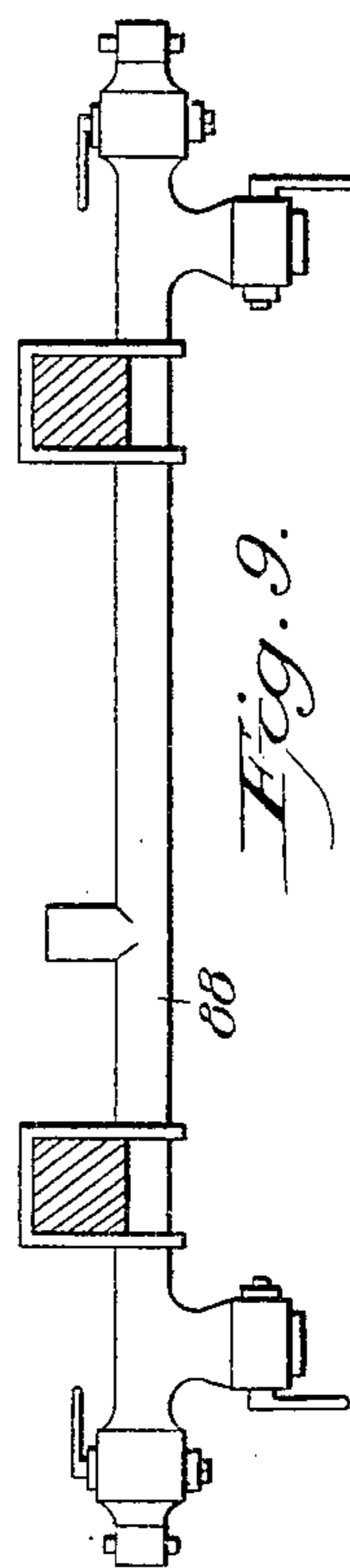
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Fig. 9.



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4 SHEETS—SHEET 4.

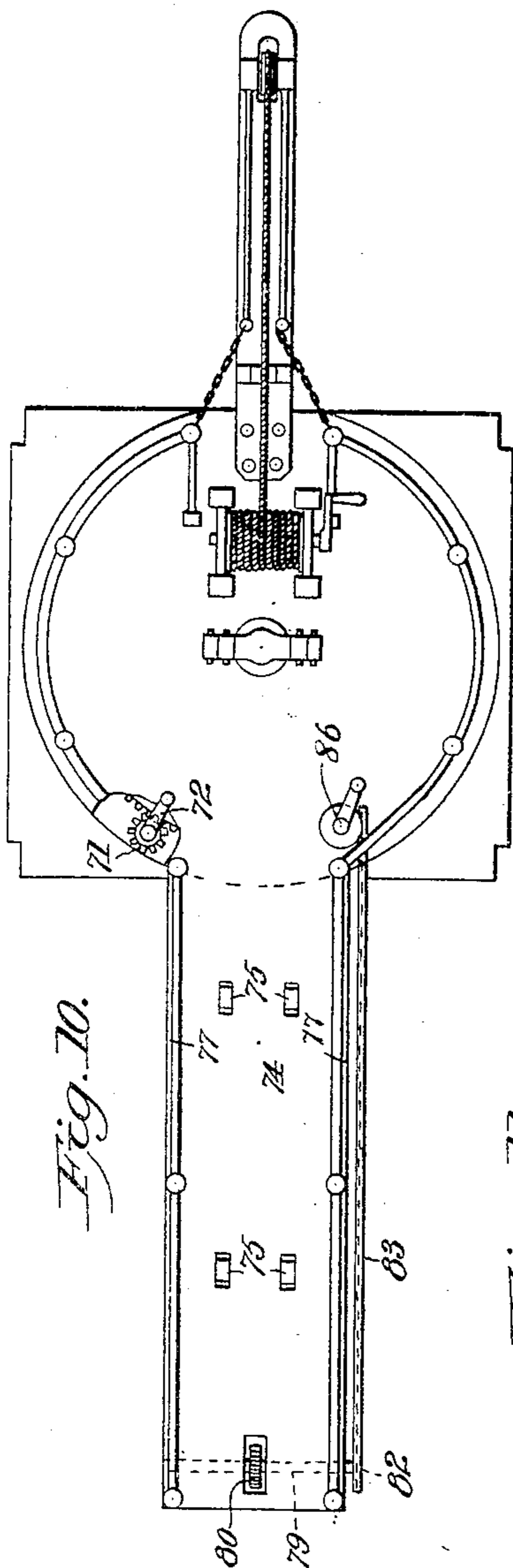


Fig. 10.

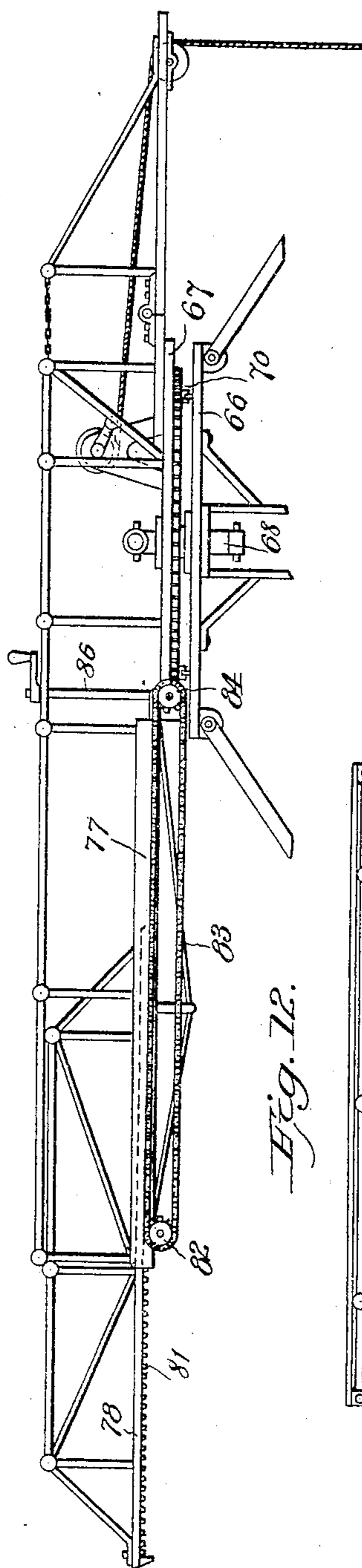


Fig. 11.

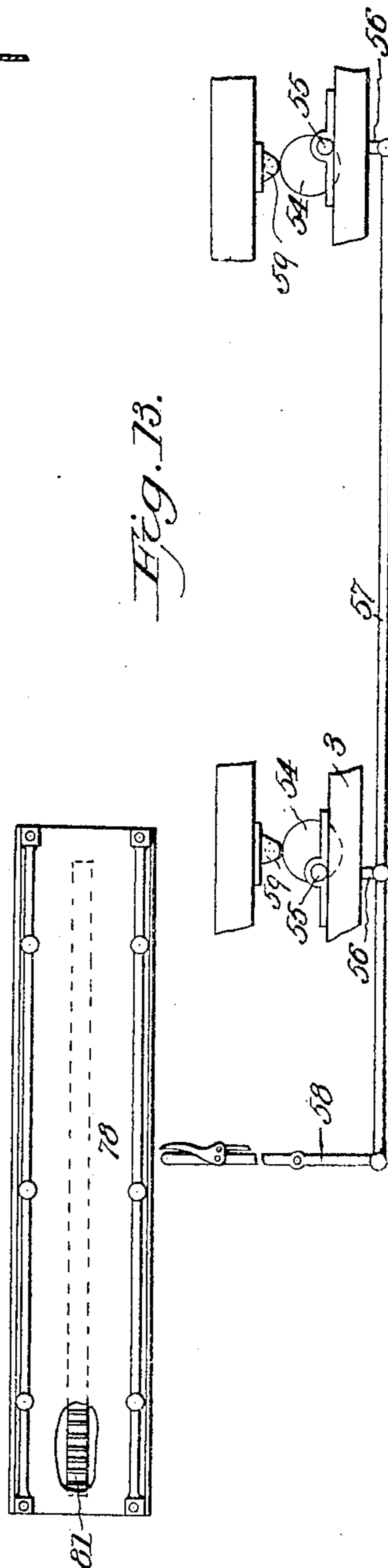


Fig. 12.

Fig. 13.

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UNITED STATES PATENT OFFICE.

CARL SCHWARZ, OF FRANKLIN TOWNSHIP, HOUGHTON COUNTY, MICHIGAN, AND WILLIAM C. BRYANT, OF BROOKLYN, NEW YORK.

COMBINED FIRE-ESCAPE AND WATER-TOWER.

No. 803,717.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed August 1, 1904. Serial No. 219,023.

To all whom it may concern:

Be it known that we, CARL SCHWARZ, residing in Franklin township, in the county of Houghton and State of Michigan, and WILLIAM C. BRYANT, residing at Brooklyn, in the county of Kings and State of New York, citizens of the United States, have invented a certain new and useful Improvement in a Combined Fire-Escape and Water-Tower, of which the following is a full, clear, and exact description.

The present invention is in the nature of improvements upon the invention of our Patent No. 705,710, dated July 29, 1902.

The improvements relate to the truck or carriage and means for propelling the same, also to the extension-tower and means for raising and lowering it and for holding it in place, also to means for leveling the tower-base, also to means for rotating the tower turn-table, and also to means for operating the extension-bridge.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation of the complete apparatus. Fig. 2 is a front elevation showing the braces in position of use. Fig. 3 is a plan view of the steering-wheel's arrangement. Fig. 4 is an elevation of the clamping arrangement or brake for holding the tower-base in adjusted position. Fig. 5 is perspective view, partly broken away, of a form of swivel-joint for the braces. Fig. 6 is an elevation, partly in section, of one of the levers of the lazy-tongs tower. Fig. 7 is a sectional elevation of part of the turn-table. Fig. 8 is a plan view of the truck. Fig. 9 is an elevation of the hose connection. Fig. 10 is a plan view of the turn-table, hoist, and fixed portion of the extension-bridge. Fig. 11 is a side elevation of the parts of Fig. 10 with the extension member of the bridge in place. Fig. 12 is a top plan view of the extension member of the bridge with part of the flooring broken away near the left-hand end. Fig. 13 is a side elevation of part of the leveling arrangement for the tower-base. Fig. 14 is an end view, on a larger scale, of the extension-bridge.

The truck comprises a pair of rear driving-wheels 1 and a pair of front steering-wheels 2, upon which is suitably mounted the under frame 3, which is depressed between the rear and front wheels to about the level of the axles

of these wheels, so as to get the extension-tower as low down as possible, and thus reduce the liability of the apparatus toppling over when in motion and especially in turning corners. Upon a platform 4 above the rear wheels are mounted a steam-generator 5, a steam-engine 6, a dynamo 7, and an electric motor 8 or any other suitable means for obtaining power and motion for propelling the apparatus and operating its parts. The motor 8 is geared at 9 with a shaft 10, which in turn is geared at 11, preferably at both ends, with the axle 12 of the rear wheels 1, so as to propel the apparatus from place to place. The control of the dynamo is effected by a controller 13 on a platform 14 over the front wheels, the wiring throughout being of usual character and omitted from the drawings, so as to free the drawings of unnecessary lines. The front wheels are provided with individual stub-axles 15, pivoted in the fixed axle 16, and these stub-axles have lateral projections 17 on opposite sides, which are connected by parallel rods 18, and these rods are connected by a double crank 19, fixed upon the end of a staff 20, having a steering-wheel 21, by which the front-wheels may be simultaneously turned in any desired direction. Since the apparatus thus equipped is practically a motor-vehicle, the wheels are preferably of the rubber-tired variety common in that class of vehicles.

The extension-tower is built up on the lazy-tongs principle and its several constituent levers 22 are represented by that shown in detail, Fig. 6, the tower and its levers being substantially like what is shown in our patent above mentioned. The ends of the lowermost levers are provided with carriages 23, comprising, preferably, parallel bars 24 and 25, mounted in blocks 26 and having at their ends rollers 27, fitted to travel in ways 28, made in the tower-platform 29 and arranged at a level within or between the front and rear platforms. These ways are covered in by cover-plates 30, and they extend lengthwise of the tower-platform, so that the carriages 23 may approach and recede as the tower is raised and lowered. Upright screw-threaded shafts 31 are stepped in the sides of the tower-platform on opposite sides of the tower and held and braced by the braces 32, fixed to the said platform. The lowermost pairs of tower-levers are provided at their intersections with nuts 33,

running on these screw-threaded shafts, so that as said shafts are rotated the nuts are carried up or down the shafts, as the case may be, and the tower raised or lowered, respectively. The
 5 shafts 31 are rotated by bevel-gears 34, connecting them with a shaft 35, mounted on the tower-platform and geared with an independent electric motor 36 on said platform, which motor is controlled by a controller 37 on the
 10 front platform.

The bars 25 of the tower-carriages are provided with uprights 38, and these uprights are braced by the braces 39, also rigidly fixed to the carriage-bars 25. The uprights 38 are
 15 engaged by sockets 40, applied to the transverse connecting-rods 41, used to connect the first and second pairs of lazy-tongs levers. These uprights 38 and sockets 40 serve to guide and stay the lazy-tongs tower as it is
 20 raised and lowered.

On the nuts 33 are swiveled or otherwise movably applied the movable tower-braces 42, and these braces, preferably in the form of trusses, are each provided with a central hol-
 25 low member 43, in which telescope extension brace-rods 44 are held in place therein by set-screws or other suitable clamping devices 45 at any desired point of extension. As shown in Fig. 2, when the tower is being raised these
 30 braces are thrown out obliquely from the sides of the tower and the extension-rods 44 projected in such a way as to get a firm grip upon the earth's surface. The braces are held in their thus adjusted position by means of ropes
 35 46, which are branches of the main rope 47, wound upon the drum 48, and which drum is operated by a hand-wheel and staff 49 on the front platform. As shown in Fig. 8, the branch
 40 ropes 46 extend over pulleys 50 and thence laterally out through holes 51 in the housings 52. The ropes 46 47 are in the nature of guy-ropes, and serve to hold the braces from slipping when in extended position for use, as shown in Fig. 2.

The housings 52 receive the stud-shafts 53 upon the tower-platform 29, so that the said platform may be tilted in the direction of the length of the apparatus in order that when the apparatus is at rest upon a hillside or other
 50 inclined surface the said platform may be leveled in order to raise the tower into as nearly a vertical position as is consistent with safety of use. This tilting of the platform is effected by means of eccentrics 54, mounted
 55 upon shafts 55 in bearings on the underframe 3, and these shafts have depending cranks 56, which are connected by a rod 57, extending forwardly and jointed to a lever 58, which projects upon the front platform in convenient
 60 reach of an operator. The eccentrics play upon pin-rollers 59, placed upon the bottom of the tower base or platform 29. The forward end of the tower base or platform is provided with a segmental shoe 60, with which

coöperates an eccentric 61, carried in the
 brackets 62, fast to the platform, and both the shoe and the eccentric may be provided with rubber or other tractive faces, so that these two elements serve as a sort of brake or clamp to hold the platform in any position
 70 given to it by the adjustment of the eccentrics 54. The shaft or axle of the eccentric 61 is provided with a crank 63, to which is applied a rod 64, which in turn is jointed to a lever 65 on the front platform, whereby the said
 75 eccentric may be readily operated.

Attached to the top of the lazy-tongs members is a platform 66. A turn-table 67 is mounted upon this platform upon the central stud-shaft 68, and said turn-table has depend-
 80 ing from it rollers 69, which run upon the platform 66. The turn-table is further provided with an annular toothed rack 70, which is engaged by a pinion 71 on a shaft 72, the operating crank or wheel of which extends
 85 upwardly above the turn-table in convenient position for an operator standing upon the turn-table, who by rotation of such crank-shaft rotates the turn-table so as to present its apparatus—namely, the hoisting-bucket
 90 and extension-bridge—in any desired direction. The hoisting-bucket 73 may be mounted and operated as in the patent above mentioned. On the turn-table is the fixed member 74 of the extension-bridge, and this fixed member
 95 is provided with rollers 75 and also pairs of rollers 76, arranged within suitable ways 77, (see Fig. 14,) to receive the extension member 78 of this bridge, to reduce friction on the moving extension member, and also to keep
 100 it from tilting over when extended beyond the center of gravity, the top rollers of the pairs of rollers 76 keeping the extension member down. A transverse shaft 79 is mounted in the fixed member of the bridge and is pro-
 105 vided with a pinion 80, which meshes with a toothed rack 81 on the bottom of the extension member of the bridge. The shaft 79 further has a sprocket-wheel 82, which is connected by a sprocket-chain 83 with another
 110 sprocket-wheel 84 on the turn-table, and this sprocket-wheel 84 is driven by bevel-gears 85, operated by the crank-shaft 86, so that an operator on the turn-table may project and retract the extension member of the bridge, as
 115 desired.

The hose 87 (shown as coiled back and forth through the extension-tower and having its nozzle above the turn-table) may be and is here shown as in the patent above mentioned.
 120

The hose connection 88 (shown in detail in Fig. 9) also may be as in the patent above mentioned.

We have thus described in detail the particular features of improvement of this appa-
 125 ratus over the apparatus of the patent mentioned, and for other details of construction reference is made to the said patent, or they

may be of such character as may be demanded by the service to which the apparatus is to be put.

What we claim is—

5 1. A combined fire-escape and water-tower, having an extension-tower composed of lazy-tongs levers, a platform upon which said tower is mounted, means to raise and lower said tower arranged upon the sides of said tower
10 and platform, upright guides movably mounted upon the front and rear of said tower-platform, and slidable connections between the tower and said guides.

2. In a combined fire-escape and water-
15 tower, an extension-tower, means for raising and lowering said tower, comprising vertically-arranged screw-threaded shafts, nuts fitted to and movable upon said shafts and connected with the lower members of said
20 tower, and power appliances for rotating said shafts, combined with lateral braces swiveled to said nuts and adapted to be raised and lowered thereby when the tower is operated.

3. In a combined fire-escape and water-
25 tower, an extension-tower, means for raising and lowering said tower, comprising vertically-arranged screw-threaded shafts, nuts fitted to and movable upon said shafts and connected with the lower members of said
30 tower, and power appliances for rotating said shafts, combined with lateral braces swiveled to said nuts and adapted to be raised and lowered thereby when the tower is operated, and
35 guy-ropes connected with said braces for retaining them in position of use.

4. In a combined fire-escape and water-
tower, an extension-tower, means for raising and lowering said tower, comprising vertically-arranged screw-threaded shafts, nuts
40 fitted to and movable upon said shafts and connected with the lower members of said tower, and power appliances for rotating said shafts, combined with lateral braces swiveled to said nuts and adapted to be raised and low-
45 ered thereby when the tower is operated, guy-ropes connected with said braces for retain-

ing them in position of use, and means for controlling and securing said guy-ropes.

5. In a combined fire-escape and water-
tower, a truck, and a tower platform or base 50 pivoted upon said truck and provided with pin-rollers, combined with eccentrics arranged opposite said pin-rollers at opposite ends of the platform, a connecting-rod common to
55 and directly connecting both of said eccentrics, and an operating-lever pivoted directly to said rod to actuate said rod to adjust the said eccentrics simultaneously for purposes of leveling the platform and the superposed
60 tower.

6. In a combined fire-escape and water-
tower, a truck, a tower platform or base pivoted upon said truck, means to tilt the said platform, and a clamping mechanism for hold-
65 ing the tower in given position comprising a segmental shoe secured to the tower-platform, a cooperating eccentric mounted upon the truck, and means to operate said eccentric.

7. In a combined fire-escape and water-
tower, an extension-tower, a turn-table 70 mounted thereon, an extension-bridge on the turn-table, the extension member of the bridge having a toothed rack, and the fixed member of the bridge having a pinion arranged at its
75 outer end engaging said rack, and antifric-tion devices applied between the extension member and the fixed member, a power appliance arranged upon the turn-table, and gearing connecting said power appliance and
80 pinion for operating the extension member.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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WILLIAM C. BRYANT.

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HENRY W. ROZELL,
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