

R. S. BERGSATHER.

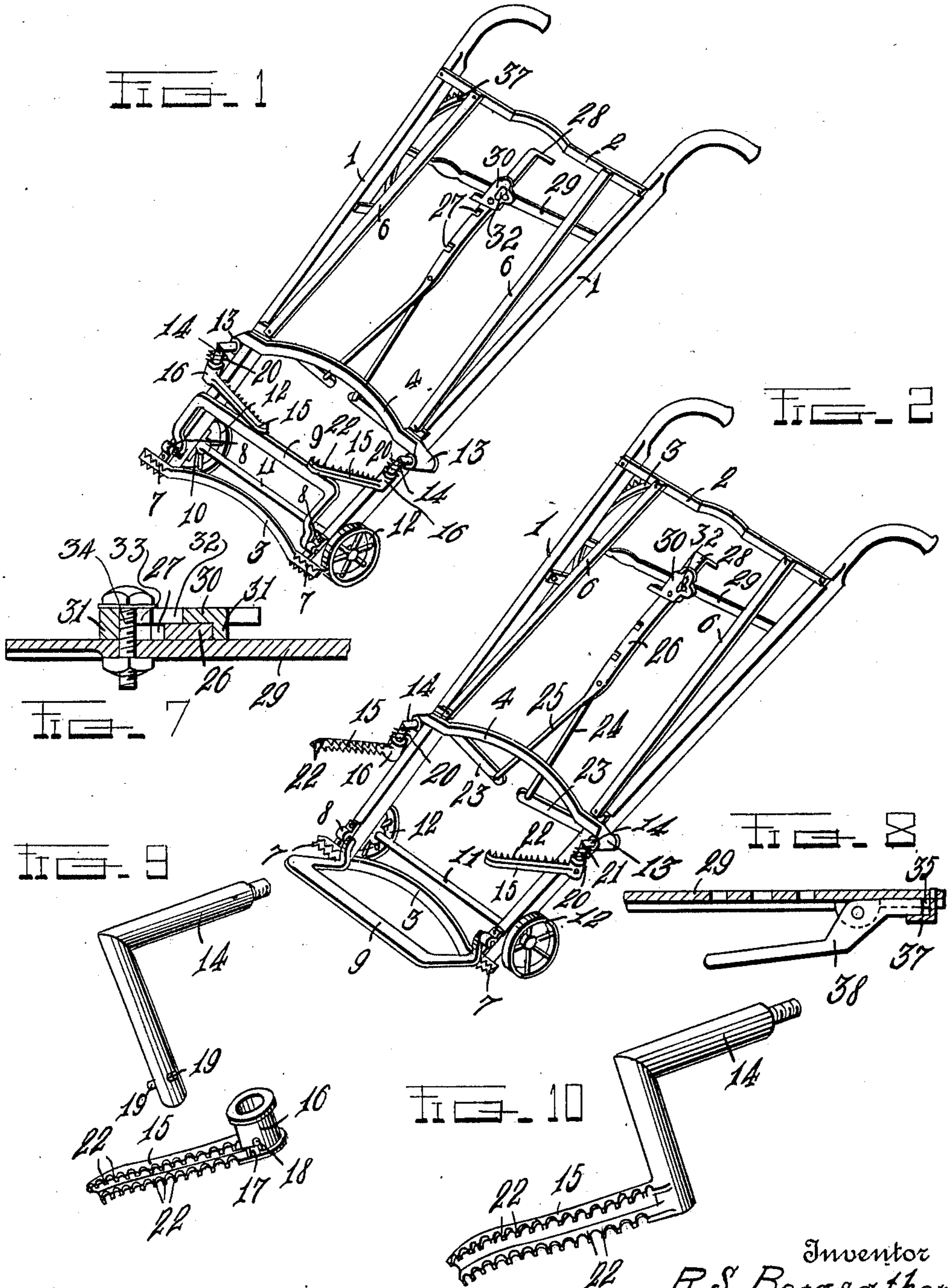
WAREHOUSE TRUCK.

APPLICATION FILED OCT. 18, 1909.

Patented Apr. 18, 1911.

2 SHEETS-SHEET 1.

990,187.



Witnesses
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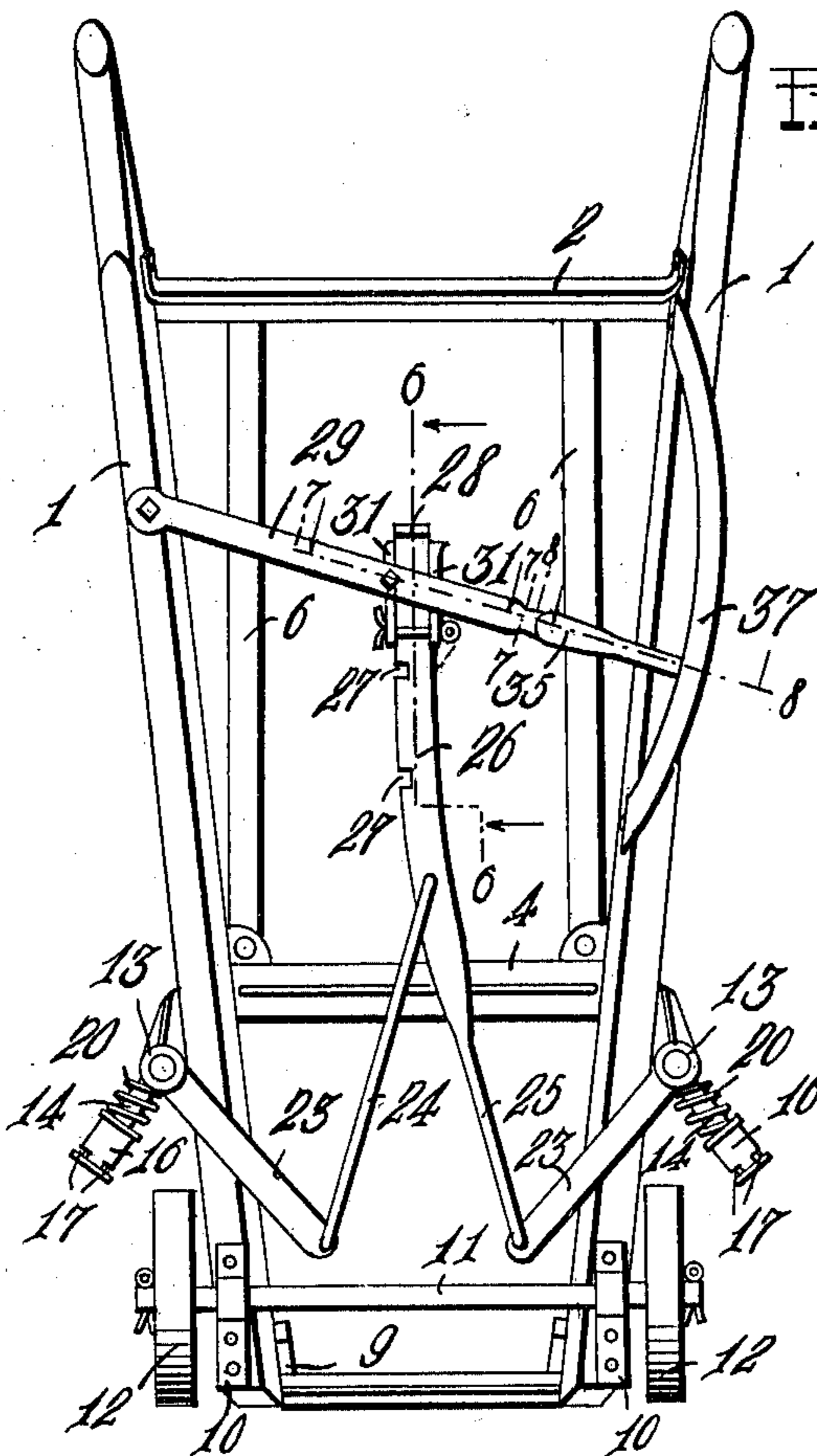


FIG. 3

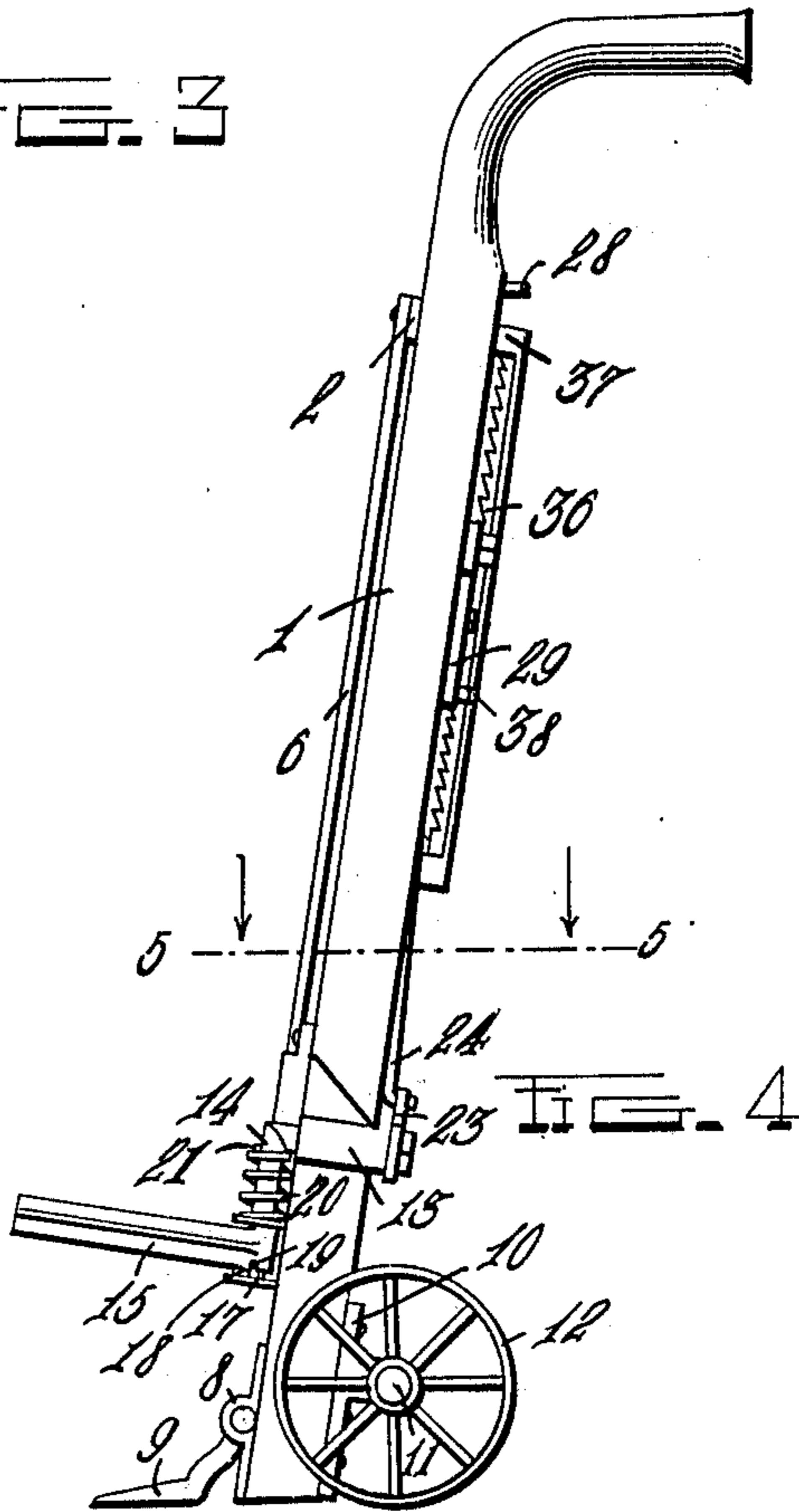


FIG. 4

FIG. 5

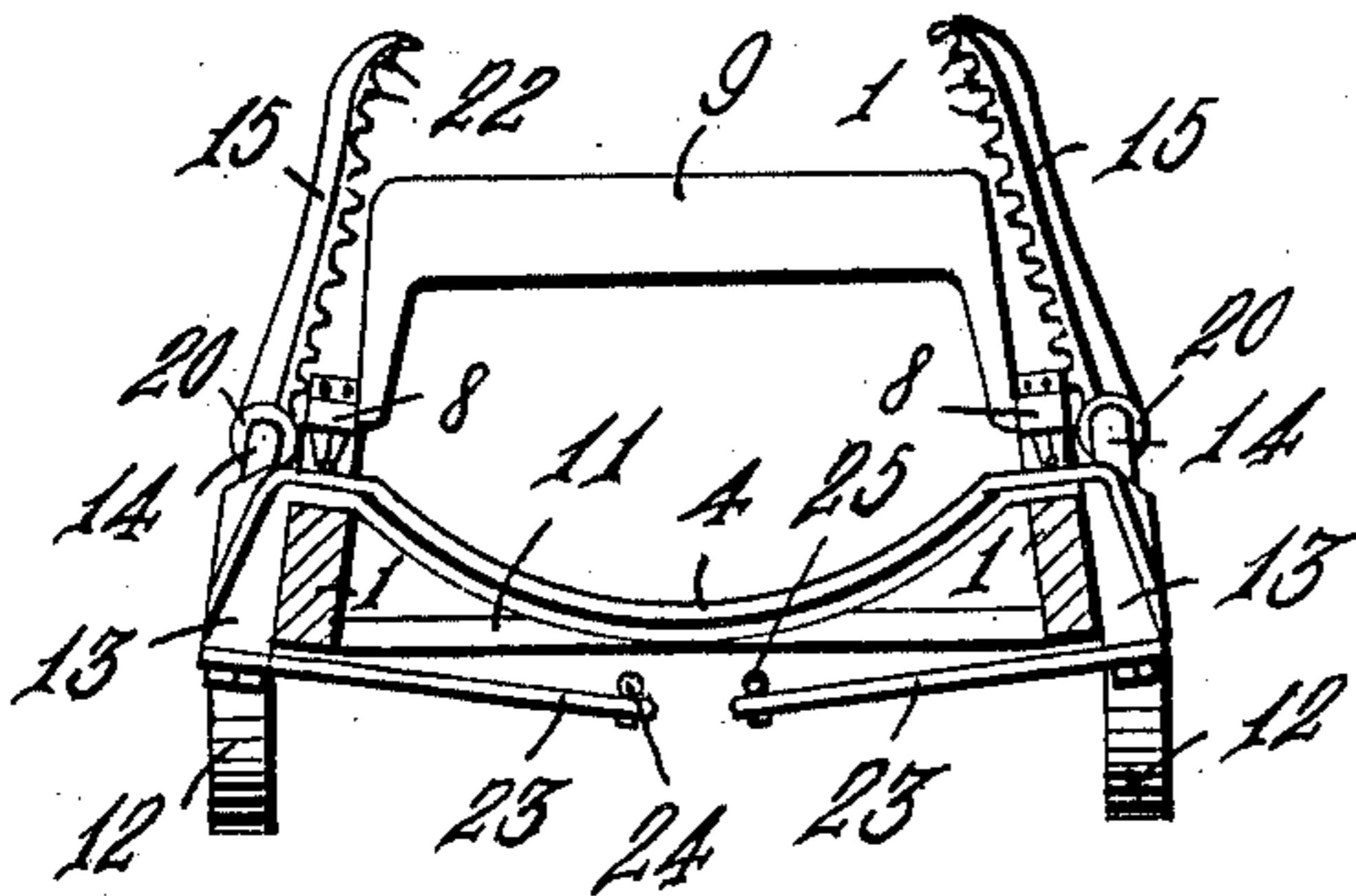
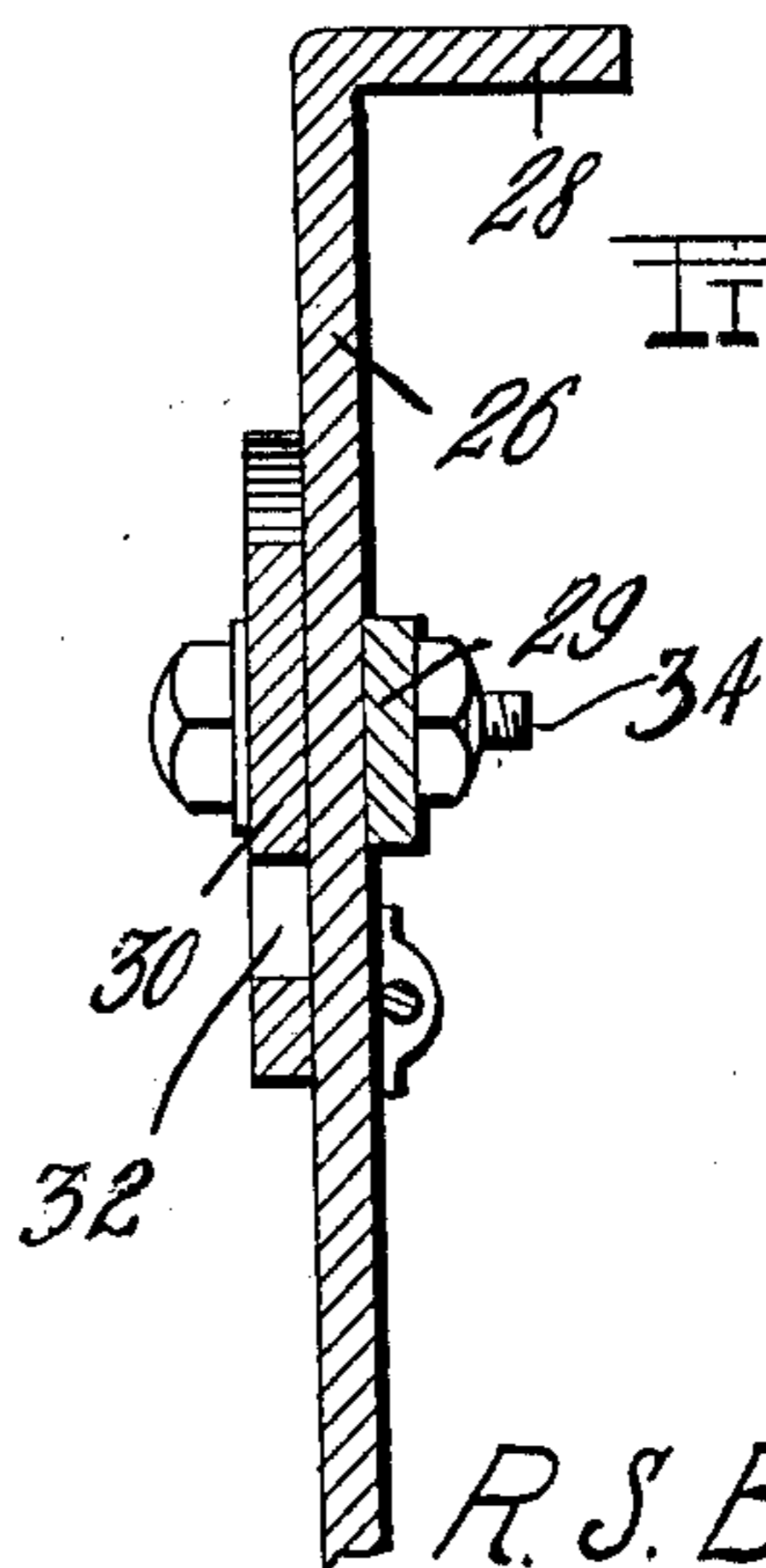


FIG. 6



Witnesses

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UNITED STATES PATENT OFFICE.

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WAREHOUSE-TRUCK.

990,187.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed October 18, 1909. Serial No. 523,182.

To all whom it may concern:

Be it known that I, RASMUS S. BERGSATHER, a citizen of the United States, residing at Northwood, in the county of Worth and State of Iowa, have invented certain new and useful Improvements in Warehouse-Trucks; and I do 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.

This invention relates to improvements in warehouse trucks.

One object of the invention is to provide a truck of this character having gripping arms adapted to be engaged with and to hold objects on the truck and which may be folded down to an inoperative position when the truck is to be used in the ordinary manner.

Another object is to provide a truck having a folding nose piece adapted to be swung into and out of operative position.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved truck with the gripping devices and the nose of the truck arranged in inoperative position. Fig. 2 is a similar view with the gripping devices and the nose of the truck in operative position. Fig. 3 is a bottom plan view of the truck. Fig. 4 is a side view with the gripping devices and nose in an operative position. Fig. 5 is a cross sectional view on the line 5—5 of Fig. 4. Fig. 6 is a detail longitudinal section on the line 6—6 of Fig. 3. Fig. 7 is a cross sectional view of the same parts on the line 7—7 of Fig. 3. Fig. 8 is a detail cross section on the line 8—8 of Fig. 3. Fig. 9 is a detail perspective view of one of the gripping arms and its right angular operating shaft, showing these parts separated. Fig. 10 is a similar view of a modified form of the parts shown in Fig. 9, wherein the gripping arm and shaft are formed solid or in one piece.

Referring more particularly to the drawings, 1 denotes the side bars of the truck which are connected together by curved cross bars 2 and 3, and by an intermediate bar 4. The side bars are provided with the

usual handles 5. The cross bars 2 and 4 are connected together by longitudinal brace bars 6, which form part of the bed of the truck. The cross bar 3 is provided on its opposite ends with teeth 7 which serve to aid in holding objects on the truck. On the ends of the cross bar 3 are also formed upwardly projecting bearing plates 8 which are secured to the upper edges of the side bars 1, adjacent to their lower ends and in said bearing plates is pivotally mounted the nose piece 9 of the truck, said nose piece being adapted to be folded inwardly between the bars 1, to an inoperative position or to be swung outwardly into engagement with the lower cross bar and in operative position for use in the usual manner. Journaled in suitable bearings 10, on the under side of the side bars 1, below the plates 8, is an axle 11, on the ends of which are mounted the supporting wheels 12. On the ends of the intermediate cross bar 4, are formed bearings 13, in which are revolubly mounted right angular gripper operating shafts 14, on the free ends of which are loosely mounted gripping arms 15, which, when in an operative position, project at right angles to the free ends of the shafts 14 and parallel to the portion of the shafts which is journaled in the bearings 13. Each of the gripping arms 15, comprises a tubular head 16, which is engaged with the free ends of the shafts 14, and in opposite sides of the heads, adjacent to one end are formed transverse slots 17, having at one end offset notches 18. In the free end of each of the gripper shafts 14, is arranged a stop pin 19, which is adapted to engage the slots 17, and notches 18 to hold the arms 15 in their operative or inoperative positions, as clearly shown in Figs. 1 and 2 of the drawings. When the gripping arms 15 are folded inwardly across the outer side of the truck, as shown in Fig. 1, the stop pins 19, will be in engagement with the slots 17. When said gripping arms are swung outwardly to an operative position, the pins 19 will be engaged by the notches 18 of the slots, thereby holding the arms in an extended or operative position. The arms are held with the pins 19 in engagement with the notches by a coil spring 20 arranged between the inner end of the heads 16, and a pin 21, as shown. By means of the springs 20, the gripping arms will be forced outwardly so that when turned or swung to an

operative position, the notched portion of the slots will be automatically engaged with the stop pins 19, thereby holding the gripping arms in their operative position. The gripping edges of the arms 15 are provided with a double series of teeth 22, whereby said arms are adapted to take a firm grip on the objects with which they are engaged.

Secured to the journaled ends of the gripper shafts are crank arms 23, to the inner ends of which are pivotally connected operating links 24 and 25. The link 25, is extended to form an adjusting bar 26, in one edge of which is formed a series of locking notches 27. The free end of the adjusting bar 26 is bent at right angles to form a handle 28. The adjusting bar 26 is held in sliding engagement with a gripper operating lever 29 by means of a guide plate 30, having on its opposite edges flanges 31, which form a guide passage through which the adjusting bar is adapted to slide. In the plate 30 is formed a vertically disposed slot 32, having an annular offset notch 33, and said slotted and notched portion of the plate is adapted to be loosely engaged with a stop bolt 34, arranged in the operating lever 29, as shown.

When it is desired to adjust the gripping arms toward or from the opposite sides of the truck the adjusting bar is operated in one direction or the other, thus causing the links 24 and 25, to operate the crank arms 23, thereby turning the gripper shafts inwardly or outwardly until the gripping arms are in the desired position, at which time one of the notches 27 in the adjusting bar is slipped into engagement with the stop bolt 34, in which position the adjusting bar is locked by the guide plate 30, which at this time has its slotted portion engaging the stop bolt while one of the flanged edges of the plate engages the opposite edge of the adjusting bar, thereby holding said bar into engagement with the bolt. When it is desired to release the adjusting bar, it is necessary to slide the gripping plate upon the bar until the notched portion of the slot is opposite the locking bolt, at which time the guide plate, together with the adjusting bar, may be moved laterally and the adjusting bar thus disengaged from the stop bolt, whereby said bar is permitted to move in either direction to again adjust the gripping arms.

The operating lever 29, is pivotally connected at one end to one of the side bars 1 of the truck and is provided at its opposite end with a fixed pawl 35, which is adapted to be engaged with the ratchet 36, of a segmental rack bar 37, secured to and spaced a suitable distance below the lower edge of the opposite side bar, as shown. Pivotally mounted on the handle end of the lever 29, below the pawl 35, is a small releasing lever 38, the outer end of which is adapted to engage with

the flat portion of the rack bar 37, thereby forcing the pawl out of engagement with the ratchet teeth, thus permitting the operating lever to be swung on its pivotal point to operate the gripping arms in the manner described. By thus constructing the adjusting and operating mechanism of the gripping devices, they may be quickly adjusted to the proper distance apart for engaging the object to be carried by the truck and when it is desired to release or disengage the arms from the object, the operating lever may be quickly released from the rack bar and actuated to swing the gripping arms out of engagement with the object.

While the gripping arms 15 are preferably pivotally mounted on their operating shafts to permit the arms to be folded inwardly, it is obvious that I may, if desired, form said arms and shafts integral as shown in Fig. 10 of the drawings. By pivotally mounting the nose piece of the truck in the manner described, said nose piece may be quickly swung back between the side bars and the truck and into engagement with the axle when said nose piece interferes with the carrying of any object on the truck.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a truck of the character described, a pair of pivotally mounted gripper shafts, spring controlled gripping arms loosely mounted on said shafts adapted to be folded to inoperative or operative positions, means to lock said arms in operative position, crank arms fixed on the ends of said shafts, links connected to said arms, an adjusting bar connected to said links, a pivotally mounted operating lever, means to adjustably secure said gripper adjusting bar to said operating lever, and means to lock said lever when operated to engage the gripping arms with the objects carried by the truck.

2. In a truck of the character described, a pair of pivotally mounted gripper operating shafts, spring controlled gripping arms loosely mounted on said shafts whereby said arms may be folded to operative and inoperative positions, means to lock the arms in an operative position, crank arms rigidly secured to said gripper operating shafts, a pivotally mounted operating lever, a gripper adjusting bar having formed therein a series of locking notches, links to connect said

bar to said crank arms, a locking bolt arranged in said operating lever and adapted to be engaged by the locking notches in said adjusting bar, a guide plate arranged on said locking bolt and engaged with said adjusting bar, whereby the latter may be locked into engagement with the locking bolt in one of the notches of said operating lever.

3. In a warehouse truck, a pair of side bars, a series of cross bars to connect said side bars together, bearings formed on one of said cross bars, gripper operating shafts pivotally mounted in said bearings, gripper arms carried by said shafts, crank arms secured to said shafts, an operating lever pivotally mounted on one of said side bars, means to adjustably connect said crank arms

with said operating lever, whereby said gripping arms are held in adjusted positions, a rack bar secured to the truck, a pawl arranged on the free end of said operating lever and adapted to engage the teeth of said rack bar, whereby the lever is held in position after operating said gripping devices, and a releasing lever carried by said operating lever to disengage said pawl from the teeth of said rack bar.

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

RASMUS S. BERGSATHER.

Witnesses:

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L. G. GILPIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
