

No. 698,896.

Patented Apr. 29, 1902.

C. BEIERSTORF.
LIFTING JACK OR ELEVATOR.

(Application filed Nov. 16, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

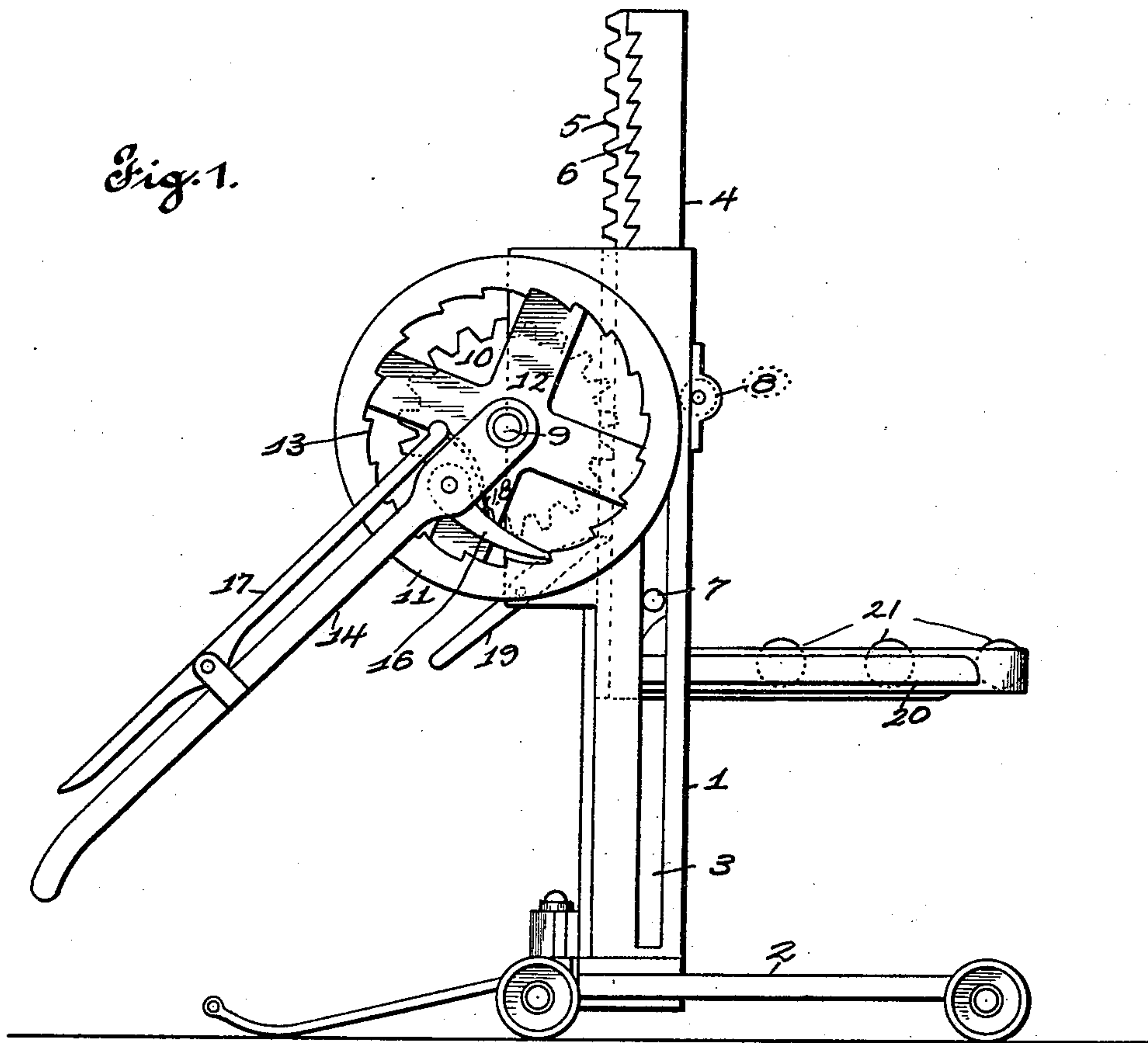
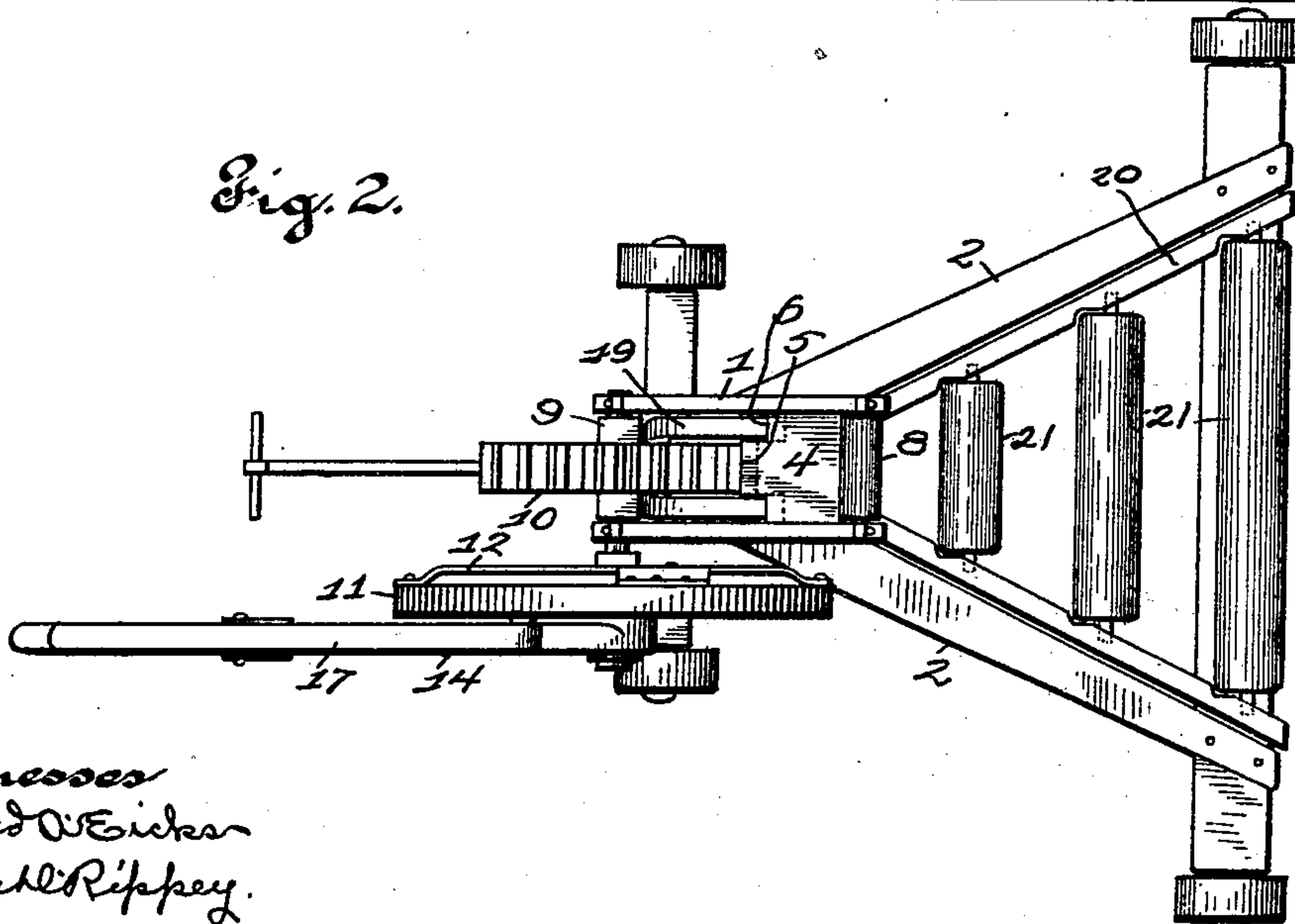


Fig. 2.



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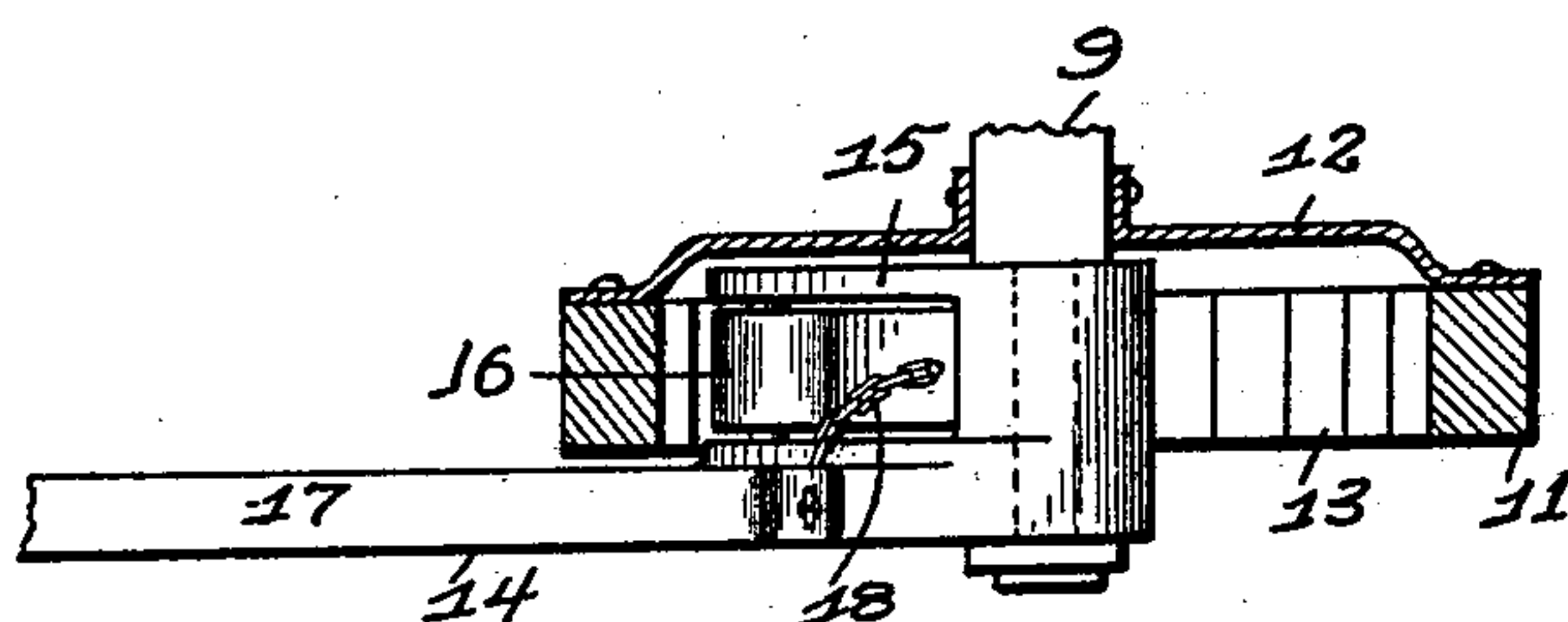
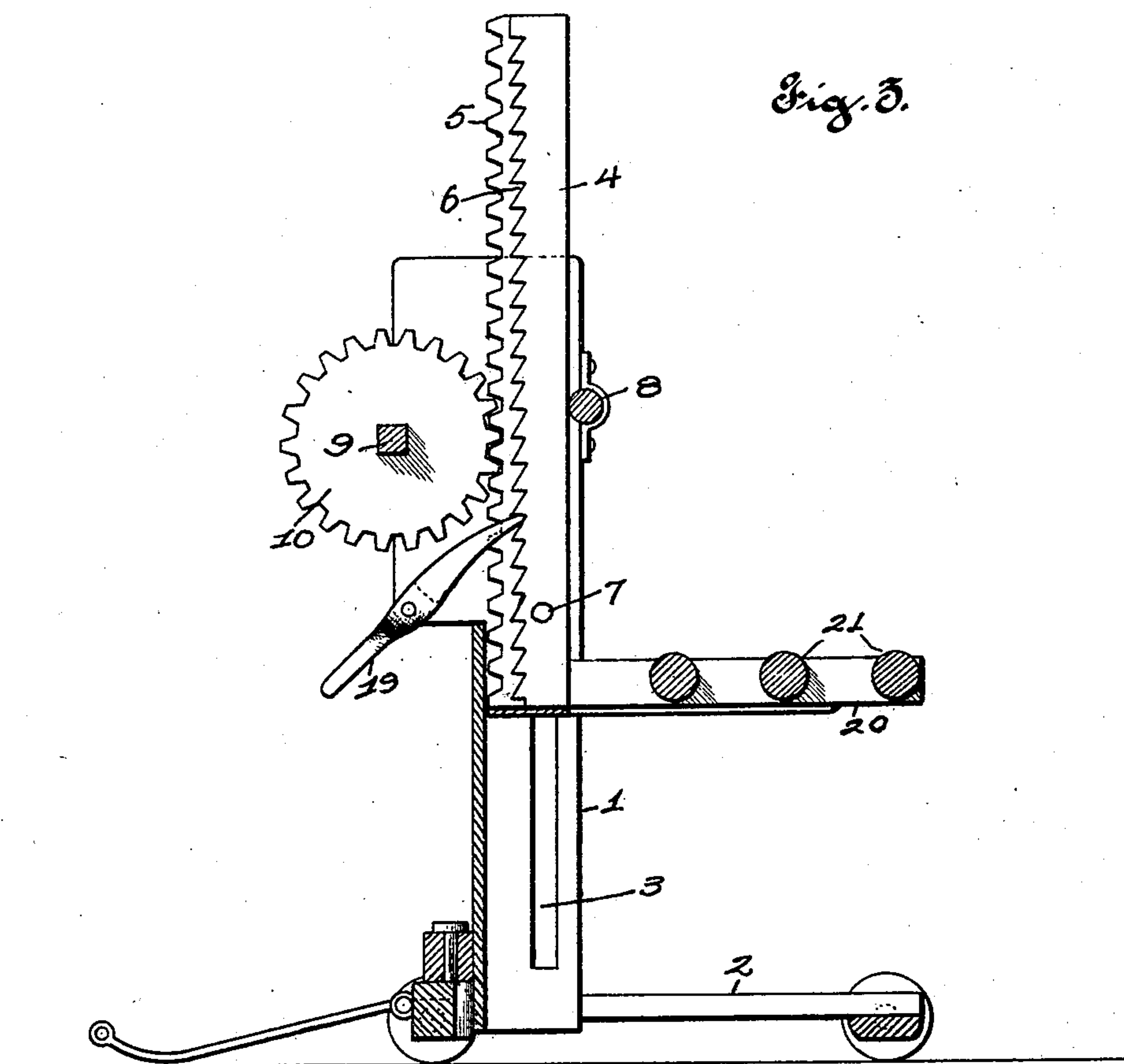
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UNITED STATES PATENT OFFICE.

CHARLES BEIERSTORF, OF ST. LOUIS, MISSOURI.

LIFTING-JACK OR ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 698,896, dated April 29, 1902.

Application filed November 16, 1901. Serial No. 82,530. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BEIERSTORF, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Lifting-Jacks or Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to a lifting-jack or elevator; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

The object of this invention is to provide a suitable device for lifting heavy objects, so that they may be readily loaded into wagons and other vehicles.

A further object of my invention is to provide a truck for lifting and moving heavy objects; and my invention consists of a suitable base mounted on wheels, a frame extending upwardly from the base, a platform mounted to move up and down in said frame, a gear-rack carried by said platform, a ratchet-rack carried by said platform, a shaft mounted in said frame, a gear on said shaft for operating said rack, a ratchet and lever for operating said gear, a pawl to engage said ratchet-rack and support the platform, and means of releasing said pawl.

Figure 1 is a side elevation of the complete invention. Fig. 2 is a plan view of same. Fig. 3 is a sectional view showing the arrangement of the different parts. Fig. 4 is an enlarged section of the part of the operating mechanism whereby the objects are lifted.

In constructing the device as shown I provide two side frames 1, mounted vertically upon a wheel-supported frame 2, so that the device may be readily moved from place to place. The side frames 1 are spaced a suitable distance apart, and each is provided with a vertical slot 3. Said frames may be braced or otherwise made rigid in their upright position, so that they cannot easily be overthrown when heavy objects are raised.

Between the side frames 1 is mounted a vertical member 4, which has a gear-rack 5 formed on one side, and on each side of the said rack are formed ratchet-teeth 6. Pins 7 are formed rigid with the lower end of member 4 and operate within the slots 3, and thereby form

guides or retainers for holding the said member 4 in position.

Between the side frames 1 a roller 8 is supported by the upper ends of the frames 1 and bears against the flat surface of the member 4 to prevent it from becoming dislocated from between the side frames.

9 indicates a shaft, which is supported in bearings near the upper ends of the side frames 1, and rigidly mounted upon the said shaft is a gear-wheel, which is in constant mesh with the rack 5, and may be clearly seen in Fig. 3.

11 indicates a ring, which is supported near one end of the shaft 9 by means of a series of arms 12, and on the inner side of the said ring 11 is formed a number of ratchet-teeth 13. A lever 14, provided on its inner end with a bracket 15, is pivotally supported on the end of the shaft 9 adjacent to the ring 11, and the said bracket 15 is within the said ring 11, as shown in Fig. 4. A gravity-pawl 16 is carried by the bracket 15, and the end of the said pawl operates upon the ratchet-teeth 13 and affords means for rotating the ring 11 and the shaft 9, together with the gear-wheel 10, whenever the lever 14 is operated.

It will be seen that when the gear-wheel 10 is rotated the rack 5 will be raised between the side frames 1, and any object carried by the said rack will also be raised. 17 indicates a latchet-rod which is supported by lever 14, and the inner end thereof moves adjacent to the pawl 16 and is connected thereto by means of the connection 18, so that the pawl may be raised out of engagement with the ratchet-teeth 13 to permit the shaft 9 to turn, which will allow the rack 5, which had been raised, to lower to a normal position. 19 indicates a bifurcated lever, which is supported by the said frames 1 adjacent to the ratchet-teeth 6, so that the inner ends of the said lever may ride upon the said teeth 6, and thereby uphold these parts after they have been raised by the operation of the lever 14. The said lever 19 may be moved out of engagement with the ratchet-teeth by lowering its outer end, which will raise the inner end away from the said ratchet-teeth 6, and thereby permit the elevated parts to sink to their normal position.

A frame 20 is rigidly connected to the lower end of the member 4 and is adapted to support the object which is to be elevated or raised. A series of rollers 21 is carried by the said frame 20, so that any object may be readily placed thereon.

In operation the object which is to be raised is placed upon the frame 20 and the rollers 21 while they are in their normal position. The lever 14 is then operated, the pawl 16 being in an engagement with the ratchet-teeth 13, as above described. This will rotate the shaft 9 and the gear-wheel 10, and the gear-wheel being in constant mesh with the rack 5 the latter will be raised, together with the frame 20 and the rollers 21 connected thereto, carrying the object along with them. The inner ends of the forks of the lever 19 normally rest upon the ratchet-teeth 6, so that the lever 14 may be operated a number of times to raise movable parts to their required height, the said lever 19 holding the parts elevated until the said lever 14 can be brought back for another operation. After the object has been raised, as described, and has been moved from the frame 20 and the rollers 21 these parts may be restored to their normal position by raising the lever 19 from the teeth 6 and raising the pawl 16 out of engagement with the ratchet-teeth 13, which will permit the parts to be drawn back by gravity to their normal position.

Suitable bases or other known devices may be made use of, if found necessary, to strengthen and support the frame 20 in its horizontal position.

I claim—

1. A lifting-truck comprising a suitable base mounted on wheels; a frame extending

upwardly from the base; a platform mounted to move up and down in said frame; a gear-rack carried by said platform for moving the same; a ratchet-rack carried by said platform for supporting the same; a shaft mounted in said frame; a gear on said shaft and operating said rack; a ratchet and lever for operating said gear; and a pawl to engage said ratchet-rack and hold it from sliding downwardly, substantially as specified.

2. A lifting-truck comprising a suitable base; a frame extending upwardly from the base; a platform to move up and down in said frame; rollers forming the floor of said platform; a gear-rack carried by said platform; a ratchet-rack carried by said platform; a shaft mounted in said frame; a gear on said shaft for operating said rack; a ratchet and lever for operating said gear; and a pawl engaging said ratchet-rack to hold it from sliding downwardly, substantially as specified.

3. A lifting-truck comprising a suitable base; a frame extending upwardly from the base; a platform mounted to move up and down in said frame; a gear-rack carried by said platform; a ratchet-rack carried by said platform; a shaft mounted in said frame; a gear on said shaft for operating said rack; a ratchet and lever for operating said gear; a pawl to engage said ratchet-rack and hold the rack from sliding downwardly; and means of releasing said pawl as required to lower the platform, substantially as specified.

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

CHARLES BEIERSTORF.

Witnesses:

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JOHN D. RIPPEY.