W. O. GARBETH.

RAISING DEVICE.

APPLICATION FILED FEB. 4, 1920.

1,365,097.

Patented Jan. 11, 1921.

2 SHEETS—SHEET 1.

Fig. 1

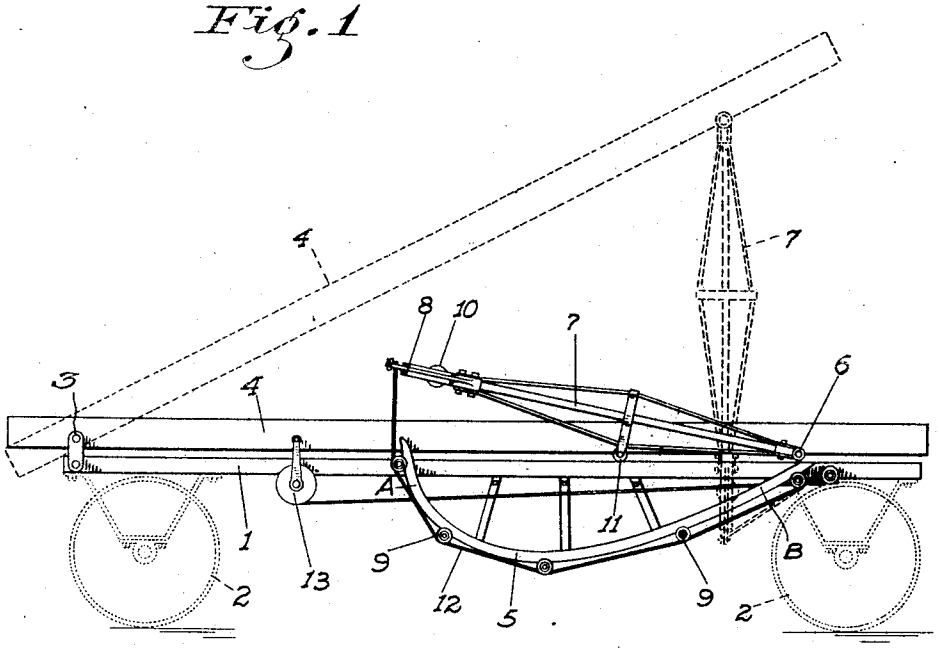
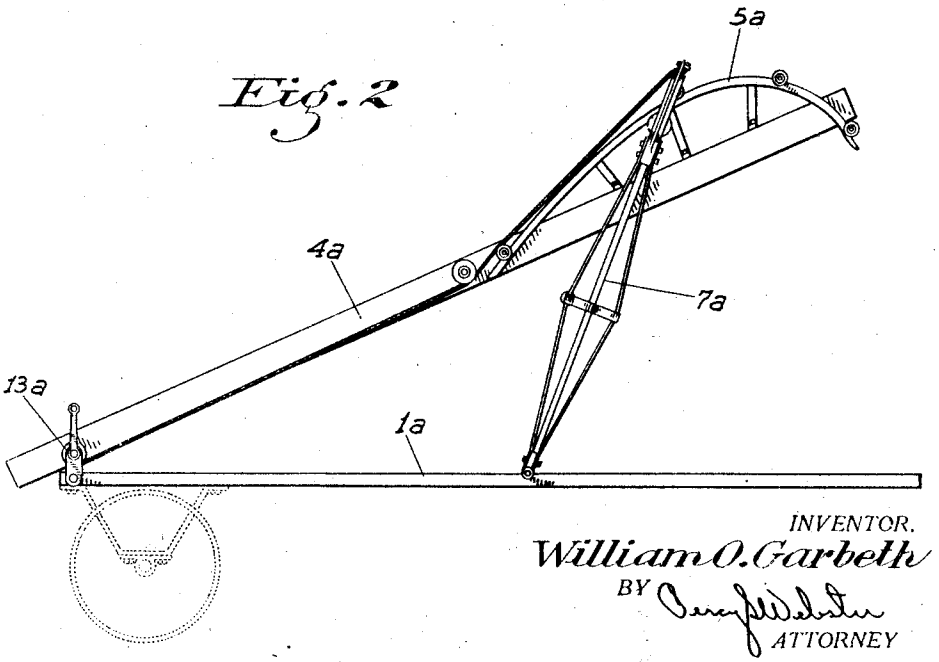



Fig. 2

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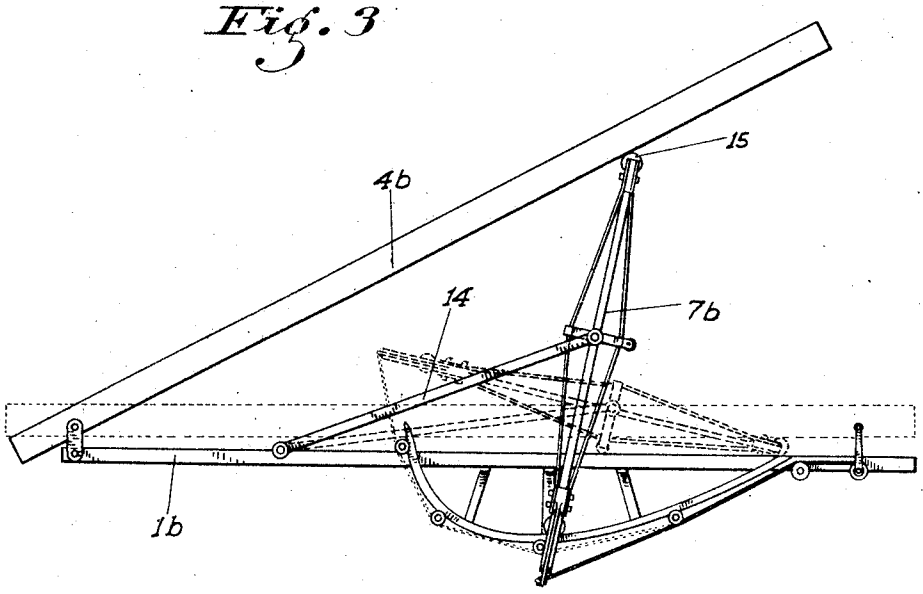
2 SHEETS—SHEET 2

Fig. 3



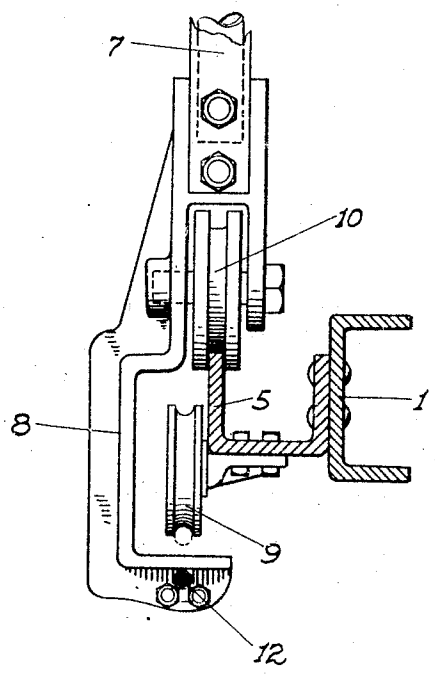




Fig. 4

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# UNITED STATES PATENT OFFICE.

WILLIAM O. GARBETH, OF STOCKTON, CALIFORNIA.

## RAISING DEVICE.

1,365,097. Specification of Letters Patent. Patented Jan. 11, 1921.

Application filed February 4, 1920. Serial No. 356,163.

*To all whom it may concern:*

Be it known that I, WILLIAM O. GARBETH, a citizen of the United States, residing at Stockton, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Raising Devices; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in raising or elevating devices and mechanisms, the principal object of the invention being to provide a mechanism, adapted to be mounted on any suitable conveyance or vehicle, by means of which various devices and objects such as conveyers of all kinds, derricks, piles and poles, structural steel columns and the like, may be quickly and easily raised from a horizontal position to a considerable angle with the horizon, if not actually perpendicular thereto.

It is well known that in raising tall bodies such as poles, columns, etc., the hardest part of the job is in the first 45° of lift, and it is usually necessary to erect special derricks for the purpose. This is obviated with the use of my improved raising device.

Another object of the invention is to so arrange the lifting mechanism that the raising conveyer platform will assume a true horizontal position when at rest, and the lifting mechanism will remain under the platform, especially after the same has been raised a short distance. This means that the entire area of the platform, when in use, will be free and unobstructed, both laterally and relative to the space thereabove.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a side elevation of one form of my invention, showing a raised position in dotted lines.

Fig. 2 is a similar view of a modified form thereof, in which the principle of operation is the same but the mechanism has been reversed in position.

Fig. 3 is a similar view of still another modification of the invention.

Fig. 4 is an enlarged fragmentary end view showing the relative position of the raising mechanism and the stationary frame and track.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 (see Fig. 1) denotes a frame which may be supported on wheels 2, skids or otherwise held from the ground.

Pivoted to one end of the frame longitudinally thereof as at 3 is a platform 4, adapted when at rest to lie parallel to and adjacent the frame.

This platform may be in itself a conveyer or loader of some sort, such as is used to raise hay bales and the like, or it may merely be a framework and provided with cradles or other means to carry poles, etc., thereon for raising.

Mounted to the frame 1 forward of the pivotal connection 3 of the platform 4 is a downwardly curved track 5 depending from said frame in a vertical plane.

This track may be a channel or similar shaped member, and is preferably formed with a relatively sharp curve "A" at its end nearest the connection 3, terminating in a flatter curve B at its other end, both ends terminating about on a level with the frame 1.

Pivoted to the under side of the member 4 at a point about in line with the end "B" of the track 5 as at 6, is a lever member 7 substantially of the cantaliver form, and constructed in any desired manner to give a light yet substantial and rigid structure.

The free end of the member 7 is preferably a casting 8, which clears and overlaps the track 5, and is adapted to project a certain distance thereunder, so that pulleys 9 may be mounted outside and to the track 5 at spaced intervals without interference.

In the member 8 is pivoted a roller 10, adapted to ride on the outer edge of the track 5, while centrally of the length of the member 7 at the widest point thereof and on the lower side is another roller 11, offset from the roller 10 and adapted to ride on the upper side of the frame.

To the lower end of the member 8, in a vertical plane with the pulleys 9, is secured

one end of a cable 12, adapted to pass over said pulleys to the end "B" of the track, and extend thence to a winding drum 13 mounted to the frame 1 at any suitable point thereon out of the plane of movement of the member 7.

I have only described one such track and lever member but of course it will be understood that in practice two of each would be provided, one on each side of the frame, both being actuated from a common winding drum shaft, which may be either power or hand turned.

In operation, when it is desired to raise the platform, the cable is of course wound on the drum 13. For some distance the member 7 acts as a first class lever, the roller 11 being the fulcrum, and the pivotal connection 6 the point of load.

Shortly after the roller 10 engages the track 5 however, the roller 11 leaves the frame and the weight of the platform is taken off this pulley and the frame and transferred to the roller 10 and the track, the platform being lifted all the time about its pivotal connection 3. With the track and lifting member 7 as shown in Fig. 1, an angle of about 45° may be attained by the platform when the member 7 is substantially vertical, this raising being accomplished with but comparatively little effort on the part of the operator on account of the lever movement of the arm 7 during the first and hardest part of the raising, and the gentle upward curvature of the track during the latter portion of the raising movement.

It will also be seen that the closer the track and coacting members are placed to the pivotal connection of the platform, the greater will be the possible angle of raise of the same.

In the form of the invention shown in Fig. 2, conditions have merely been reversed, the member $7^a$ being pivoted to the frame $1^a$, and the track $5^a$ mounted to the platform $4^a$.

In this case, the winding drum $13^a$ would preferably be positioned at the point of pivotal connection of the frame with the platform, so that the drum would always remain at the same level, and without any binding of the cable.

In the form shown in Fig. 3, the same principles of operation are had, but the cantaliver $7^b$, instead of being pivoted to either the frame $1^b$ or platform $4^b$, is connected to the frame by a relatively long connecting rod 14 pivoted to both, the member $7^b$ having a roller 15 at its upper end constantly riding on the under side of the platform $4^b$.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfils the object of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A raising mechanism comprising in combination with a pair of frames pivoted together at one end and adapted to lie parallel and adjacent each other, a curved track secured to one frame and extending away from the other, a cantaliver member adapted to ride, on the track and having flexible connection with the other frame, the cantaliver being normally horizontal, and means for raising the cantaliver whereby the frames will be separated.

2. A raising mechanism comprising in combination with a pair of frames pivoted together at one end and adapted to lie parallel and adjacent each other, a curved track secured to one frame and extending away from the other, an arm pivoted to the other frame and adapted to lie horizontally when the frames are adjacent, and to then fulcrum on the first named frame, a roller on the other end of the arm adapted to engage the track when said arm is moved on its fulcrum, and means for raising the arm to a vertical position.

3. A raising mechanism comprising in combination with a pair of frames pivoted together at one end and adapted to lie parallel and adjacent each other, a curved track secured to one frame and extending away from the other, an arm pivoted to the other frame and adapted to lie horizontally when the frames are adjacent, and to then fulcrum on the first named frame, a roller on the other end of the arm adapted to engage the track, pulleys secured to the outside of the track at spaced intervals, a cable attached to the arm below the roller and passing over all the pulleys when said arm is horizontally disposed, and a winding drum beyond the track connected to the cable whereby the arm may be raised to a vertical position.

In testimony whereof I affix my signature.

WILLIAM O. GARBETH.