Sept. 10, 1940. H. A. STARR 2,214,288

ELEVATOR

Filed Sept. 21, 1938 2 Sheets-Sheet 1.

FIG. 2.

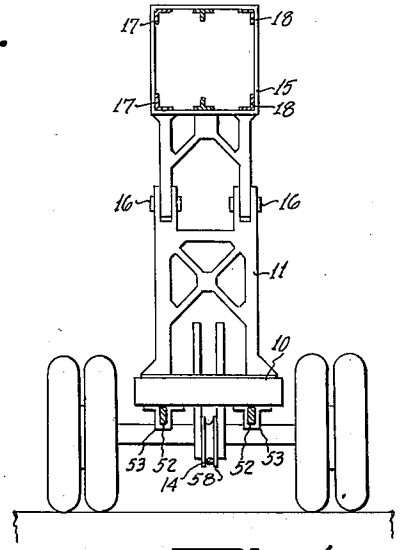


FIG. 1.

FIG. 3.

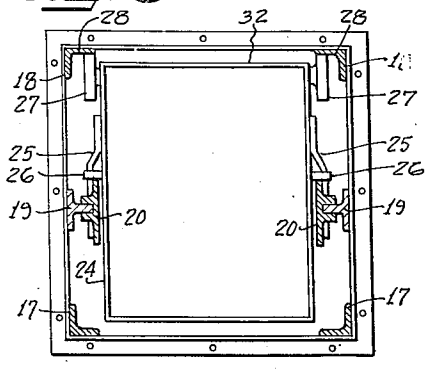
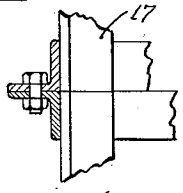


FIG. 4.



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Sept. 10, 1940. H. A. STARR 2,214,288

ELEVATOR

Filed Sept. 21, 1938 2 Sheets-Sheet 2

FIG. 6.

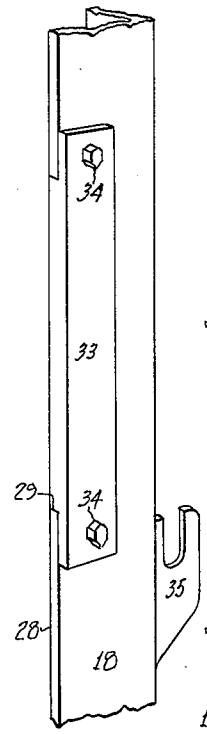


FIG. 5.

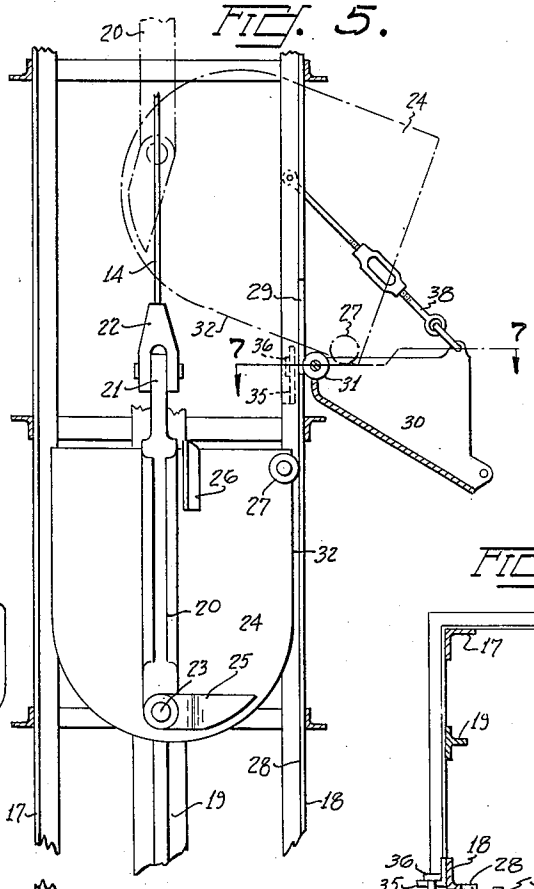
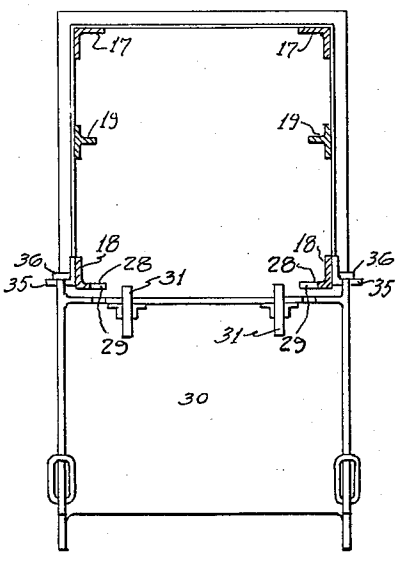
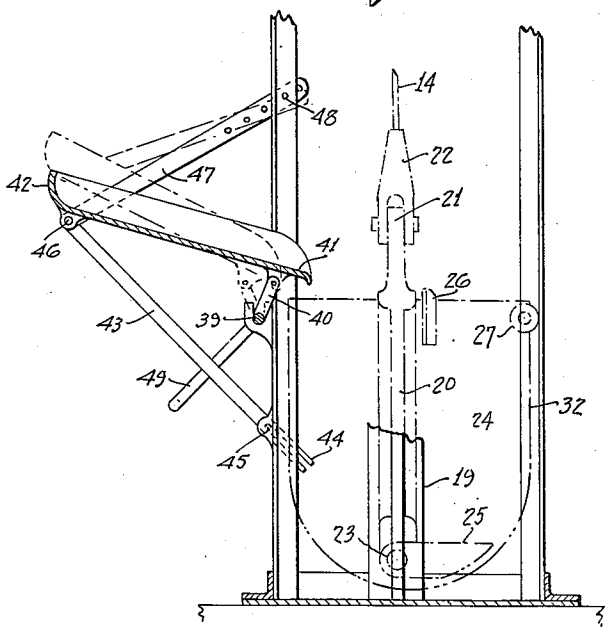


FIG. 7.





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ELEVATOR

Harry A. Starr, Portland, Oreg.

Application September 21, 1938, Serial No. 230,941

1 Claim. (Cl. 214—120)

This invention relates generally to elevators, and particularly to an elevator for concrete.

The main object of this invention is to construct a simple and efficient form of elevator by means of which concrete may be raised to a desired elevation with a minimum amount of effort and with the maximum smoothness of operation.

The second object is to construct an elevator of the class described which will be easily transportable, set up and taken down and which will adapt itself to varying conditions of the ground upon which it is used.

The third object is to so construct the elevator that the unloading point can be changed with very little effort.

I accomplish these and other objects in the manner set forth in the following specification as illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of the device showing the elevator tower lowered in full lines and raised in dotted lines.

Fig. 2 is a vertical section taken along the line 2—2 in Fig. 1.

Fig. 3 is a horizontal section taken along the line 3—3 in Fig. 1.

Fig. 4 is a fragmentary section taken along the line 4—4 in Fig. 1.

Fig. 5 is a shortened section taken along the line 5—5 in Fig. 1.

Fig. 6 is a perspective view of one of the tracks showing the closing gate in position.

Fig. 7 is a section taken along the line 7—7 in Fig. 5.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawings, there is shown a truck 10 upon whose rear end is mounted a standard 11 and on whose forward end is mounted the upright tower support 12. A winch 13 is mounted on the frame of the truck 10 and carries the hoist operating line 14 which is also used to raise and lower the tower 15 which is hingedly attached to the standard 11 on the pins 16. The tower 15 consists of four upright members 17 and 18 and the intermediate tracks 19.

On the tracks 19 are mounted the slotted runners 20, the upper ends of which are joined by the arch 21 and the clevis 22 to the line 14. The lower end of each runner 20 is joined by a pin 23 to the lower end of the bucket 24 to one side of its center line nearer the members 17 than to the members 18. The straps 25 are secured to the bucket 24 for the purpose of reinforcing the pins 23. The bucket 24 has secured on the sides thereof the angular stops 26 which can engage the sides of the runners 20 although normally they are not in contact therewith.

The bucket 24 is provided with a pair of wheels 27 which ride against the faces 28 of the upright members 18. Since the bucket 24 is slightly out of balance, it follows that the wheels 27 bear against the faces 28 at all times until they reach the openings 29 which are formed in the members 18 permitting the bucket 24 to assume the position shown in dotted lines in Fig. 5.

Attached to the outside of the uprights 18 is a discharge spout 30 at whose upper end are mounted the rollers 31 upon which the side 32 of the bucket 24 rests when in a discharging position. The spout 30 may be connected to any desired chute or may discharge directly into a conveyor or conveyance as desired.

It will be noted that the uprights 18 are provided with a number of openings 29 those of which are not in use are closed by the gates 33 which are held in place by means of the bolts 34. The uprights 18 are provided with slotted brackets 35 which receive the heads 36 of the discharge spout 30 whose outer ends 37 are supported by the rods 38.

At the lower end of the tower 15 is mounted a crank shaft 39 whose arms 40 support the lower end of a bucket filling chute 41 whose upper end 42 is supported by a brace rod 43 whose lower end 44 is slotted to permit it to receive the pin 45 which is fastened to the uprights 17. The upper end of each rod 43 is attached to the chute 41 by means of the pins 46 to which are also secured the perforated braces 47 which are secured to the uprights 17 by means of the bolts 48. A hand lever 49 is secured to crank shaft 39. The purpose of this mechanism is to enable the operator to move the chute 41 away from the path of the bucket 24.

There is provided an anchor 50 on the lower end of the tower 15 to which the line 14 can be attached for raising and lowering the tower 15. A second anchor 51 is attached to the tower 15 and it has attached thereto a perforated tie rod 52 which passes through a perforated bracket 53 on the frame of the truck 10. The purpose of the tie rod 52 is to hold the tower 15 in a desired upright position with relation to the body of the truck 10. A pin 53—A holds the rod 52 in a desired position.

The operation of the device is as follows:

When it is desired to elevate a quantity of con-

crete, it is first necessary to move the bucket 24 to a lowermost position as shown in Fig. 5 and then by operating the lever 49 to move the chute 41 to the position shown therein, that is, with the discharge lip of the chute 41 within the boundaries of the bucket 24. Concrete is then discharged from a truck or mixer into the chute 41 from whence it passes into the bucket 24. When the bucket 24 is sufficiently loaded, the lever 49 is operated and the chute 41 is withdrawn to the position shown in dotted lines in Fig. 5. The winch 13 is then operated and the bucket 24 is raised to a point where the wheels 27 pass through the openings 29 and since the bucket 24 is no longer supported laterally, it will turn on its shaft pins 23 and discharge its contents through the discharge spout into whatever receptacle is provided.

When it is desired to move the apparatus, it is only necessary to attach the line 14 to the anchor 50 and release the guy 54 and the tower 15 may be lowered at a desired speed until it rests upon the support 12.

It will be noted that the line 14 passes around the sheaves 55 at the upper end of the tower 15.

The precise details of this construction are immaterial and may be varied considerably without departing from the spirit of this invention.

It is desirable to construct the tower 15 of sections so that it may be lengthened or shortened as required for a particular set up.

When hoisting concrete, the line 14 passes around the sheaves 56 and 57, but when raising or lowering the tower 15, it passes around the sheaves 56 and 58.

I claim:

A tower for elevating concrete having in combination a pair of upright tracks and a pair of guide rails parallel to said tracks and spaced therefrom, said guide rails having a plurality of openings formed therein, removable closures for said openings, a pair of runners slidably mounted on said tracks having means for operating same in unison, an unbalanced bucket having its lower end hinged to said runners in a manner to cause the upper end of said bucket to be urged toward said guide rails, wheels attached to said bucket near the upper end of its heavier side, adapted to ride against said guide rails and to pass through those openings from which the closure is removed, in a manner that said bucket may tip to a discharging position, a discharge spout supported by said guide rails under the end of said bucket when in a tilted position, together with a pair of stops secured to opposite sides of said bucket near its upper end adapted to engage said runners when said bucket is in an upright position.

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