S. R. ALVEY.

PORTABLE ELEVATOR.

APPLICATION FILED JAN. 13, 1917.

1,236,648.

Patented Aug. 14, 1917.

2 SHEETS—SHEET 1.

Fig. 1

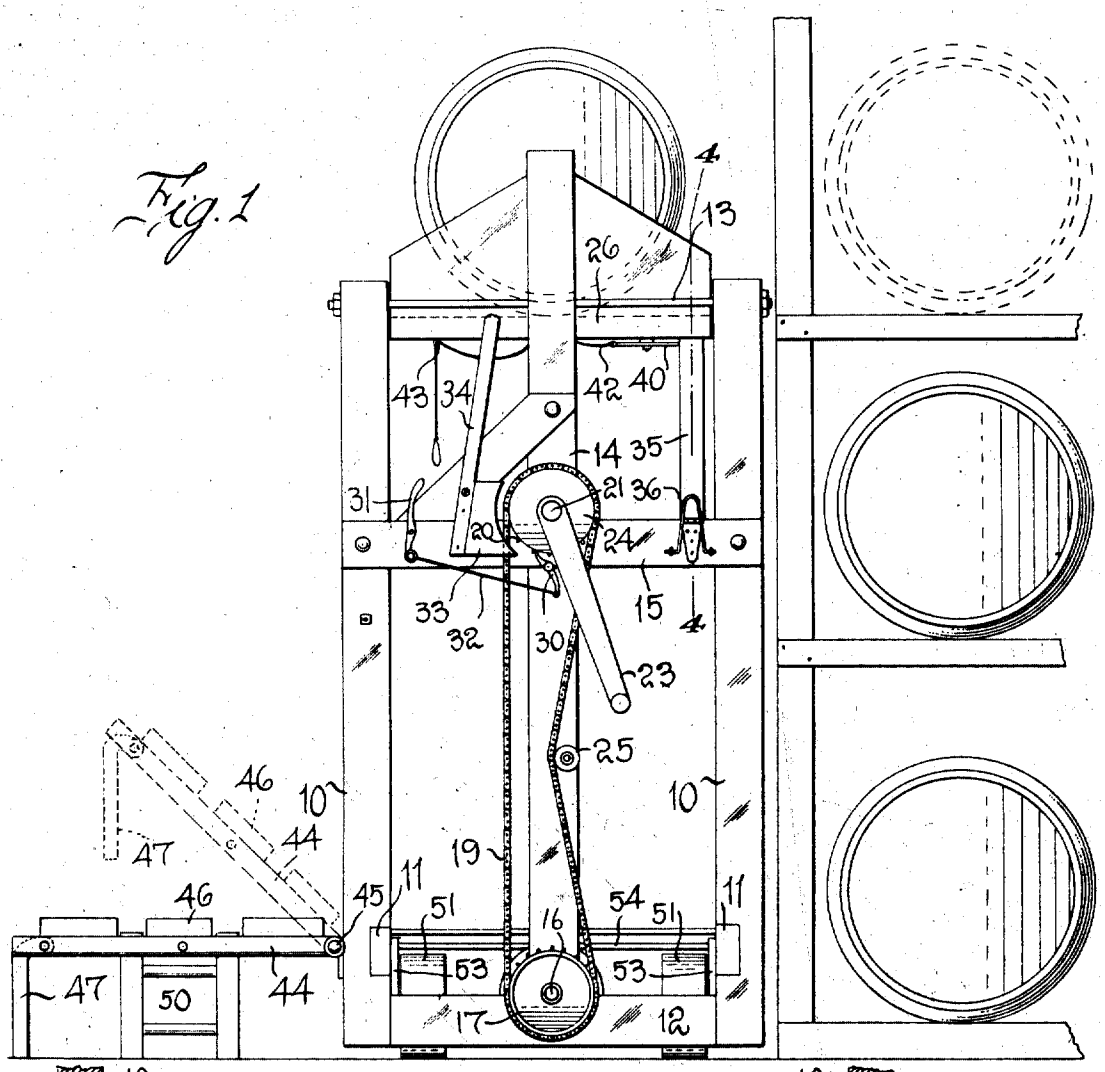
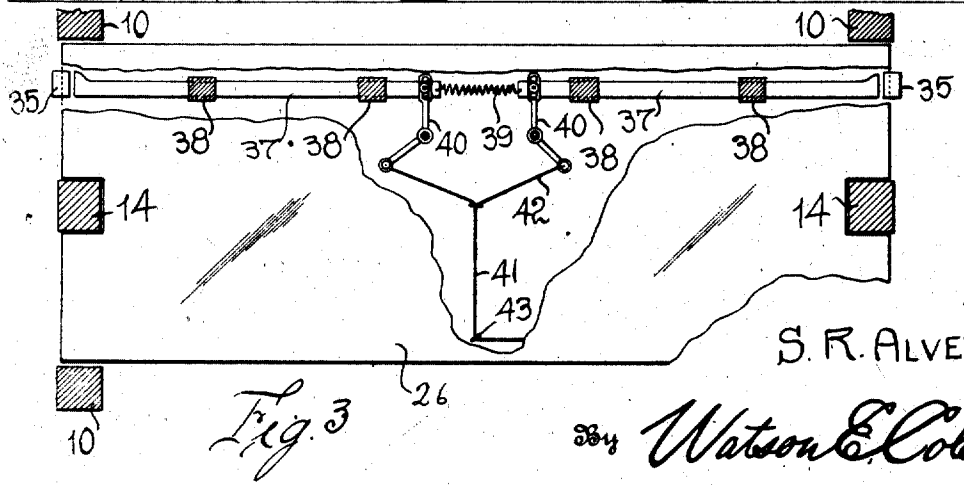


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 2

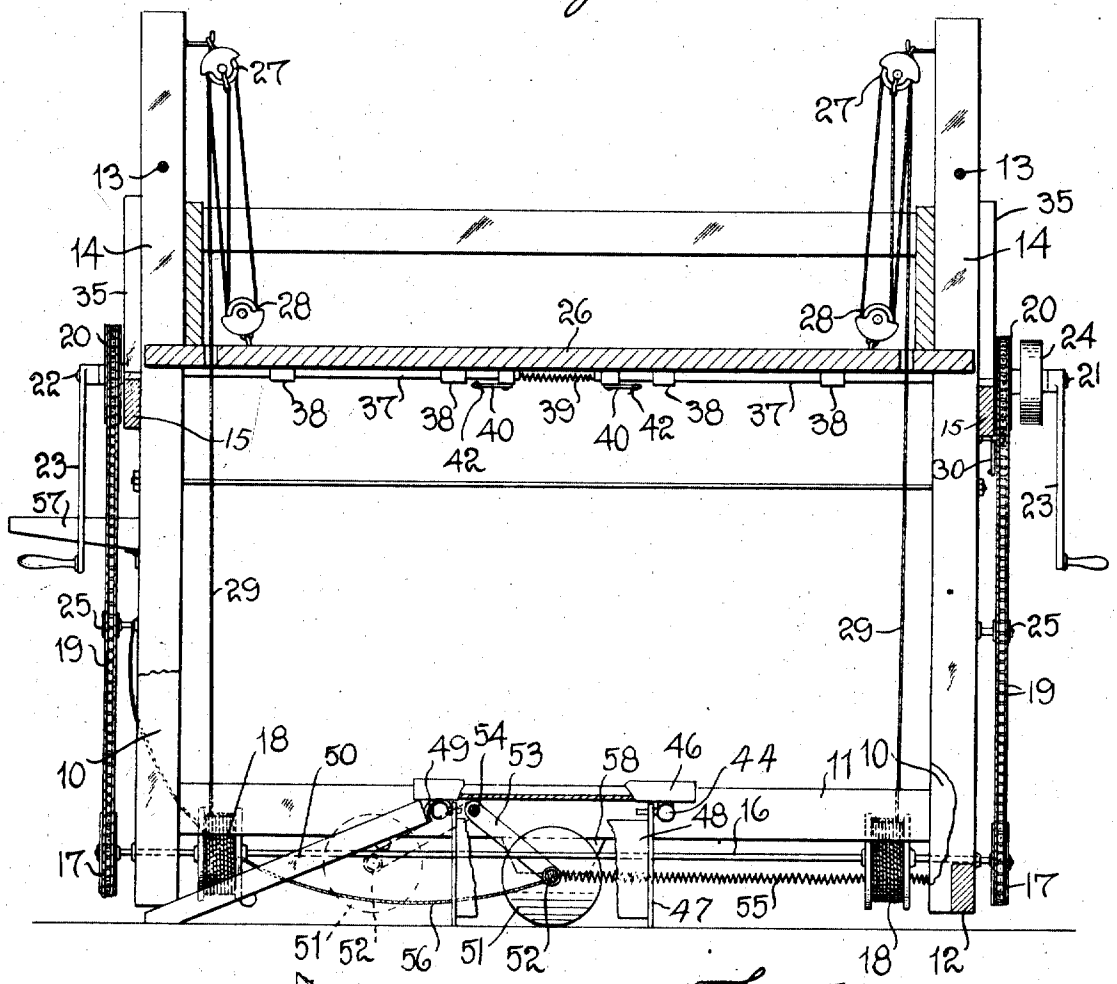


Fig. 4

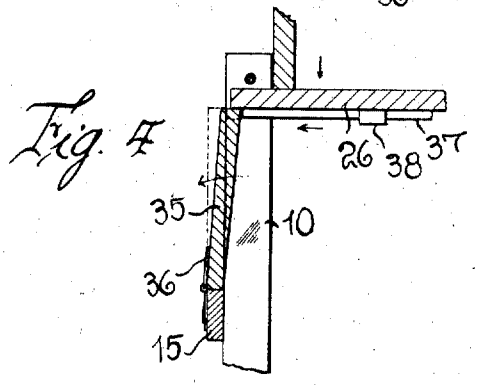
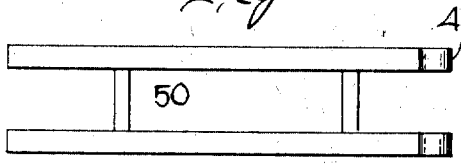


Fig. 5



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UNITED STATES PATENT OFFICE.

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PORTABLE ELEVATOR.

1,236,648. Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed January 13, 1917. Serial No. 142,819.

To all whom it may concern:

Be it known that SYRIOUS R. ALVEY, a citizen of the United States, residing at Loretto, in the county of Marion and State of Kentucky, has invented certain new and useful Improvements in Portable Elevators, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to elevators and particularly to portable elevators designed for lifting and lowering barrels, crates, and other like containers.

The general object of my invention is the provision of a very effective, simple and easily operated elevator of this type particularly designed for raising or lowering barrels containing liquor and which is so constructed that it may be readily operated by one man and the elevator platform held in any desired position.

A further object of the invention is to provide an extremely compact device of this character so constructed that when the elevator platform is raised to its full height it will automatically be supported at this height without muscular effort on the part of the operator, the means for so supporting the platform, however, being readily thrown out of operation by suitable manually operable devices.

A further object of the invention is to provide a construction of this character wherein the elevator has free movement to its full extent and wherein the sides of the elevator are not obstructed, thus permitting barrels or casks to be readily rolled upon or rolled off of the elevator platform.

A further object of the invention is the provision of means whereby the supporting wheels of the elevator may be readily placed in operative position to support the elevator frame upon the wheels and permit its ready transportation, or whereby said wheels may be thrown out of operative position so that the elevator frame will rest solidly upon the floor of the warehouse.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein

Figure 1 is an end elevation of my improved elevator;

Fig. 2 is a vertical sectional view, the section extending longitudinally of the elevator frame;

Fig. 3 is a plan view of the elevator platform, the frame being shown in section, the platform being broken away to show the means for releasing the platform latches;

Fig. 4 is a fragmentary section on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of the skid whereby the barrels may be rolled upon the auxiliary platform of the elevator.

Referring to these figures, it will be seen that my improved elevator consists of a frame with an elevator platform and means for raising or lowering the platform. The frame comprises the four vertically disposed corner standards 10. These corner standards are connected at their lower ends by longitudinally extending members 11 and also by transversely extending braces 12. The upper ends of the end corner pieces 10 are connected by transversely extending brace rods 13. These brace rods 13 extend through the upper ends of the medially disposed uprights or standards 14, the lower ends of which are operatively supported upon the braces 12, as illustrated most clearly in Fig. 1. Transverse braces or supporting beams 15 are disposed across the ends of the frame, as illustrated in Fig. 1.

Rotatably supported in the lower ends of the vertical standards 14 and upon the upper edges of the transverse beams 12 is a shaft 16 carrying at its ends the sprocket wheels 17 and inward of the members 14 the winding drums 18. The sprocket wheels 17 are operatively connected by means of the sprocket chains 19 with sprocket wheels 20 mounted upon stub shafts 21 and 22, which shafts are operatively supported upon the frame, each of said stub shafts being provided with a crank handle 23. Mounted upon the stub shaft 21 is a friction wheel 24 whose purpose will be later stated. Idler sprocket wheels 25 are mounted upon the standards 14, as illustrated best in Fig. 1, and these engage the sprocket chains 19 and take up the slack in these chains so that there will be no lost motion.

Guided by the vertical frame beams 10 and cut away to receive the beams 14 is a platform 26. Mounted upon the upper ends of the standards 14 are the pulleys 27 which are preferably in the form of blocks provided with a plurality of pulleys. Mounted upon the platform 26 at opposite ends thereof are the pulley blocks 28 and attached to each of the pulley blocks 27 and extending

around the pulleys of the blocks 28 and 27 a plurality of times is a flexible connection 29 which extends down through an opening in the corresponding end of the platform 26 and extends to and is wound upon the corresponding drum 18. It will be obvious now that when power is applied to one of the power shafts 23, the shafts will be rotated and thus through the flexible connections 27 and the pulleys heretofore described will raise or lower the platform 26.

In order to support the platform 26 at any desired height without the exertion of muscular force, I provide in connection with one of the sprocket wheels, as for instance the sprocket wheel adjacent the friction wheel 24, a pawl 30 which engages with the sprockets on the wheel 20, this pawl being thrown into or out of operative position by means of a lever 31 pivoted upon the side of the frame and connected by a link 32 with the pawl. I also provide a brake coacting with the friction brake wheel 24 comprising a brake block 33 supported upon a pivoted handle 34, as illustrated in Fig. 1. When this brake block is thrown over it will frictionally engage with the friction wheel 24 and will impede the downward movement of the platform. In actual practice it has been found that this brake has sufficient power to permit the platform to lower under the weight of a cask without the necessity of reversely rotating the shaft 21 by means of the handle 23 and at the same time without danger of the elevator platform coming down too rapidly.

For the purpose of holding the platform 26 at its highest position, that is the position shown in Fig. 1, I hinge or pivotally mount upon the cross beams 15 the laterally disposed latches 35, these latches being disposed at opposite ends of the frame. Each of these latches is urged into the path of movement of the platform, as illustrated in Fig. 4, by means of a spring 36, the springs yielding, however, to permit the platform to move upward past the latches. When the platform has reached its highest position the springs 36 will cause the latches 35 to spring inward beneath the platform, as illustrated in Fig. 4. Thus the platform will be supported in its highest position. For the purpose of detaching these latches from their engagement with the platform, I provide the construction illustrated best in Fig. 3. On the under side of the platform I mount the sliding bars 37 which are disposed in alinement with the latches 35. These bars are slidingly mounted in guides 38 and are drawn toward each other and out of operative position by a spring 39. Mounted in connection with these sliding bars 37 are the bell cranks 40, one end of each bell crank being operatively connected to the corresponding sliding bar 37, the other ends of the bell cranks being connected to a pull cord 41 by branch cords 42. This pull cord 41 passes through an eye 43, or other suitable support, and then extends laterally to any suitable point and is provided with a loop or other means, as illustrated in Fig. 1, so that this pull cord may be pulled to cause the bell cranks to shift the sliding bars 37 laterally outward. The ends of the sliding bars will engage with the loops and force these latches outward and as soon as the latches become disengaged the elevator platform may descend, the springs then forcing the latches into their normal position.

The platform 26 is designed to be lowered into a position approximately level with the longitudinal beams 11 and, therefore, this platform will be above the floor of the warehouse. In order to provide for raising the barrels to the level of this platform when it is lowered, and rolling the barrels onto the platform, I provide the auxiliary platform 44, which is illustrated in Fig. 1. This platform comprises a pair of members spaced from each other and hinged at 45 to the frame of the machine and these hinged members are connected by transverse slats 46. To the free ends of the members 44 are hinged the legs 47, these legs being preferably metal and connected by an integral web 48. Preferably the members 44 are tubular and are adapted to be engaged by the hooks 49 on the ends of the skid 50. This skid 50 is of any ordinary or usual construction and of course forms no part of my invention.

With this device it is an easy matter to roll the barrels onto the auxiliary platform and then roll the barrels from the auxiliary platform onto the elevator platform or roll the barrels from the elevator platform onto the auxiliary platform and so to the floor. When it is desired to shift the elevator from one position to another, the auxiliary platform may be turned up to a vertical position, Fig. 1 showing in dotted lines the auxiliary platform moving to this position.

It is of course desirable that when the elevator is used it shall rest solidly upon the floor of the warehouse but it is equally desirable that it shall have wheels permitting it to be rolled to any desired location. I have, therefore, provided a pair of wheels 51 mounted upon a common shaft 52, this shaft being supported by arms 53 hingedly or pivotally mounted upon a transversely extending bolt or rod 54. The length of each of the arms 53 is such that when the wheels are turned to the full line position shown in Fig. 1, the peripheries of the wheels will be below the lowest portion of the frame of the machine but that when the wheels are turned to the dotted line position they will be above the lowest ends of the frame and the frame

will rest solidly on the floor. A spring 55 is operatively engaged with the transverse shaft 52 and urges the arms 53 to the full line position in Fig. 2, while a flexible connection 56 is attached to the shaft 52 and extends to one end of the elevator frame. When this flexible connection is pulled it will draw the wheel into the dotted line position and will hold the wheels in this position. When the connection 56 is released, however, and the elevator frame as a whole is lifted by the means to be now described, the wheels 51 will be shifted to the full line position. For the purpose of lifting the elevator frame so as to permit the wheels 51 to shift from the dotted line to the full line position in Fig. 2, I provide upon one end of the elevator frame the outwardly projecting handle or handles 57. Assuming that the supporting wheels 51 are in the dotted line position, then the elevator frame will rest solidly upon the floor. If now the handles 57 be elevated the frame will be tipped up upon the rear cross bar 12 as upon a fulcrum and as soon as the frame has been sufficiently elevated the spring 55 will act to draw the wheels over to the full line position. When the wheels have shifted to this position the shaft 52 will bear against bearing blocks 58 attached to the longitudinal beams 11. Under these circumstances the elevator may be readily pushed over the floor and rolled to any position.

The elevator construction which I have now described is of such compact form that it may be readily rolled upon ordinary freight elevators, readily shifted between the racks of casks, and is easily handled. The construction permits barrels or casks to be racked, as illustrated in Fig. 1, and permits the barrel or cask to be elevated to any desired height and readily rolled off onto the rick or rack. It also permits the barrel to be moved from a rack onto the elevator platform and this operation is rendered particularly easy by the fact that there is no obstruction between the ends of the elevator which will prevent the operator from leaning over with his body partly through the elevator frame and with his hands drawing the barrel onto the platform.

While I have illustrated an embodiment of my invention which I have found extremely effective in practice, I wish it understood that many changes may be made without departing from the spirit of the invention.

Having described my invention, what I claim is:

1. A portable elevator of the character described including a supporting frame having vertical standards, a platform vertically movable between said standards, means supported on the frame for vertically shifting said platform, means for supporting said platform in a raised position comprising a pair of pivoted latches vertically disposed upon the frame, springs urging said latches inward into the path of movement of the platform, manually operable means for forcing said latches out of said path of movement, said means comprising a pair of bars slidingly mounted upon the under side of the platform in alinement with the latches, a spring urging said bars toward each other and out of projected position, and means for projecting the bars into engagement with the latches comprising a pair of bell crank levers one for each bar and a pull cord operatively connected to the bell crank levers to cause their simultaneous actuation.

2. In a portable elevator, a supporting frame, a vertically movable platform, a wheel mounted between the ends of the frame and beneath the platform and mounted for movement from an operative to an inoperative position and held from movement into either of said positions by contact with the floor, means for shifting the wheel from its operative to its inoperative position and vice versa, and means whereby the frame may be tilted to space the lower end of the frame from the floor and allow a movement of said supporting wheel.

3. In a portable elevator, a supporting frame, a vertically movable platform, a wheel mounted between the ends of the frame and on the bottom of the platform and mounted for swinging movement from an operative to an inoperative position and held from movement from an inoperative to an operative position by contact with the floor, means normally urging the wheel from its inoperative to its operative position, manually operable means for shifting the wheel from its operative to its inoperative position, and means whereby the frame may be tilted to space the lower end thereof from the floor and allow a movement of the supporting wheel.

4. In a portable elevator of the character described, a supporting frame, a vertically movable platform, a pair of wheels mounted between the ends of the frame and beneath the platform and mounted for movement from an operative to an inoperative position, a bearing for the wheels and against which they are operatively supported when the wheels are in an operative position, said wheels being held from movement from an inoperative to an operative position by contact with the floor, means urging the wheels to an operative position, manually operable means for shifting the wheels from an operative to an inoperative position and means whereby the frame may be tilted to space its lower end from the floor and thereby permit a movement of the wheels.

5. In a portable elevator, a supporting frame, a vertically movable platform, arms

extending downward from the lower end of the frame, a shaft carried upon the free ends of the arms, wheels mounted upon the shaft, the arms being movable in a vertical plane to carry the wheels from an operative to an inoperative position and vice versa, a bearing block mounted upon the under side of said frame with which said shaft is operated to engage when the shaft and wheels are in an operative position, means for shifting the arms to shift the wheels, the arms being held in an inoperative position by the contact of the wheels with the floor, and means for tilting the frame to space the lower end of it from the floor to thereby permit the shifting of the arms and wheels.

6. A portable elevator including a frame having standards and cross braces, a platform vertically movable between said standards, manually operable means for shifting the platform vertically, a pair of arms hinged to said cross braces for rotative movement in a vertical plane, a pair of wheels mounted upon said arms and shiftable therewith, bearing blocks supported upon the cross braces and with which the wheels are adapted to be placed in operative engagement, said bearing blocks supporting the wheels in a position below the lower end of the frame, a spring urging the arms and wheels into this last named position, and manually operable means for shifting said arms and wheels out of such position and into a position where the wheels are above the lower end of the frame.

7. A portable elevator including a frame having standards and cross braces, a platform vertically movable between said standards, manually operable means for shifting the platform vertically, a pair of arms hinged to said cross braces for rotative movement in a vertical plane, a pair of wheels mounted upon said arms and shiftable therewith, bearing blocks supported upon the cross braces and with which the wheels are adapted to be placed in operative engagement, said bearing blocks supporting the wheels in a position below the lower end of the frame, a spring urging the arms and wheels into this last named position, manually operable means for shifting said arms and wheels out of such position and into a position where the wheels are above the lower end of the frame, and handles projecting from the frame whereby it may be tilted to permit the wheels to be shifted from an inoperative to an operative position.

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

SYRIOUS R. ALVEY.

Witnesses:
WALLACE THOMPSON,
MYRTLE THOMPSON.