Jan. 16, 1940. W. E. LAMBERT 2,187,657

CONVEYING EQUIPMENT

Filed April 14, 1937

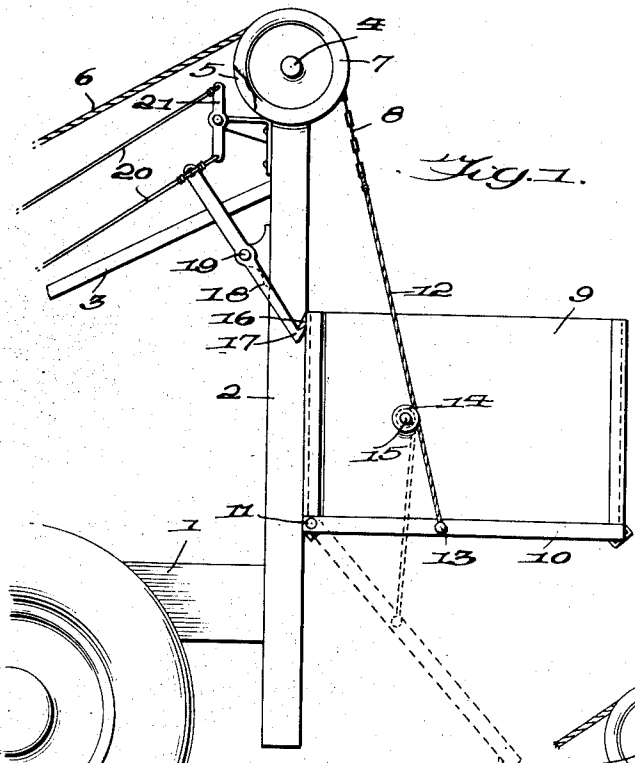


Fig. 1.

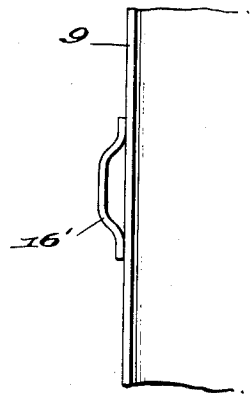


Fig. 3.

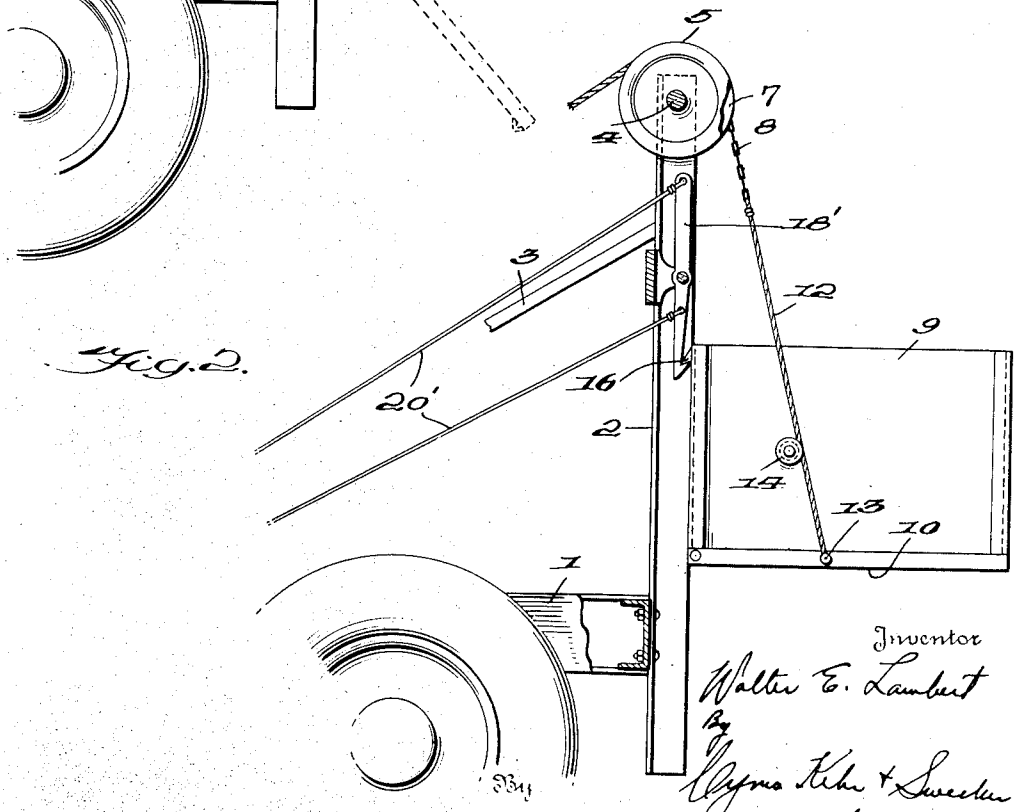


Fig. 2.

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CONVEYING EQUIPMENT

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Application April 14, 1937, Serial No. 136,950

7 Claims. (Cl. 214—117)

This invention relates to an improvement in conveying skips of the type used primarily for transporting stone, dirt and other materials in the making of excavations or in the working of stone quarries.

This application is a continuation in part of my former application on Conveying skips, Ser. No. 8380, filed February 26, 1935, now Patent No. 2,085,029.

In my application on conveying equipment above mentioned, a conveying and dumping skip was set forth provided with a side door adapted to be latched for transporting material in the skip and also adapted to be released for dumping the skip.

The object of the present invention is to provide for bottom dumping of the skip without the necessity for tilting the entire or the major portion of the skip relative to the rig frame against which the skip is transported in order to dump the contents of the skip.

In my present construction, a skip is provided with a drop bottom door and the hoisting cables are connected with said door, so as to support the skip by supporting the door and provision is made for latching or supporting the body portion of the skip in its elevated position, while the door is dropped for dumping. This simplifies the dumping of the skip and the construction thereof, and yet is capable of satisfactory operation.

An embodiment of this invention together with modifications thereof, is set forth in the accompanying drawing, in which:

Fig. 1 is a side elevation of a portion of a rig with one form of drop bottom skip applied thereto;

Fig. 2 is a similar view partly in section showing a slight modification; and

Fig. 3 is a top plan view of a portion of the skip.

In my Patent No. 2,085,029, I have set forth a rig designed for supporting a skip for transportation and for dumping, which rig is similar in general to that set forth in my prior patent, No. 2,062,227, granted November 24, 1936. Such a rig comprises a motor vehicle chassis frame which is designated generally by the numeral 1 in the drawing, on which is supported an upright skid frame 2, having a pair of side bars spaced apart transversely at opposite sides of the chassis frame 1, and extending substantially vertically or slightly inclined out of the vertical, and which bars are preferably braced near their upper ends by brace bars 3, extending downwardly to the chassis frame 1.

The upper ends of the skid frame bars 2, support bearings in which a shaft 4 is journaled. A sheave 5 is fixed to the shaft 4, intermediate the ends thereof, and a cable 6 extends around the sheave 5 with one end of the cable fixed to the sheave, and the other end extending to a suitable hoist device or winch of usual construction and which is ordinarily mounted on the chassis frame 1, for convenient operation either from the engine of the motor vehicle or from a separate source of power and suitably controlled by the operator.

The opposite ends of the shaft 4 have pulleys 7, fixed thereon and wound around the pulleys 7 are chains 8, or other flexible cable devices, each of which chains 8 has one end fixed to a pulley 7, while the other end extends downwardly free of said pulley for connection with an end of a skip for supporting the same.

The skip shown in the drawing is of the bottom dumping type. The body portion of the skip is designated generally by the numeral 9, and has all four sides permanently closed in the construction illustrated, while the top is open. The bottom of the skip is in the form of a drop door 10, hinged at 11, at its rear edge to the body portion 9 of the skip. The door and the skip are supported on cables 12, one at each end thereof, which cables are attached to the door at 13, and extend upwardly therefrom to pulleys 14, around each of which the corresponding cable makes one complete turn and extends thence to the lower end of the corresponding chain or flexible device 8 at the adjacent side of the rig.

The pulley 14 is journaled on a pin 15, extending laterally from each end wall of the body portion 9 of the skip for free rotation. The rear side of the skip 9 has a projecting lug 16, a modification of which is shown at 16' in Fig. 3, in position to be engaged by the hook end 17, of a latch 18 pivoted at 19 on a skid frame 2, in position to engage the lug 16 to hold the body portion of the skip in elevated position relative to the rig. Parallel cables 20 are connected with the latch 18 and with a link 21 also pivoted on the skid frame 2 for latching and unlatching the latch 18, as desired, which cables extend to within convenient reach of the operator. A latch 18 is shown in Fig. 1, as provided at each side of the skid frame 2, although, if desired, a single latch 18' may be pivoted to the skid frame 2, intermediate the width thereof, as shown in Fig. 2, and in this form, cables 20' are connected directly with the latch on opposite sides of the pivot thereof.

Normally, the skip may be filled while in a lowered position resting on the ground or adja-

cent thereto, and then upon drawing outwardly on the cable 6, the shaft 4 is rotated to pull up on the flexible devices 8, wound on the pulleys 7, which thereby lifts the skip, sliding the same upwardly along the skid frame to the positions shown in Figs. 1 and 2, in which positions, the skip is supported by the flexible devices for transportation to the point of dumping.

When this point is reached, it is only necessary to slacken the cable 6, and to insure that the latch 18 is engaged with the lug 16 or 16', and the door 10 will then drop to the dotted line position in Fig. 1, or below, dumping the contents of the skip. The latch or latches 18 support the body portion of the skip during dumping, but the weight of the material is not applied on the latches. After dumping, the cable 6 is wound up again or drawn outward to close the door 10, where it is held by the flexible devices 8—12 for return of the rig to the point of loading. The latch 18 may be released by the cables 20 or 20' to permit lowering of the skip to the ground for reloading when the truck returns to the quarry or other point of supply of material.

I claim:

1. A skip comprising a body portion having end projections and having a bottom door hinged to said body portion, and means for supporting the skip in loaded and unloaded condition including cables having end portions connected directly with the bottom door and intermediate portions having a complete turn about the end projections of the body portion.

2. A skip comprising a body portion having a bottom door hinged to said body portion, said body portion having end projections, and means for supporting the skip in loaded and unloaded condition including flexible supporting means having ends connected directly with the bottom door and having an intermediate portion with a complete turn about each end projection for a stabilizing connection therewith.

3. A skip comprising a body portion having a bottom door hinged to said body portion, a sheave journaled to each end of the body portion, and a flexible supporting device at each end of the skip, said flexible device having a complete turn about the sheave with an end thereof connected directly with the bottom door.

4. The combination of a wheeled motor vehicle chassis having a rig thereon including an upright skid frame, a skip of greater length than the width of the skid frame and having a back wall bearing laterally against the skid frame, said skip having a bottom door hinged thereto and opening downwardly, flexible supporting means for the skip connected with said door and holding the door closed when said supporting means is raised, a catch on the vehicle in position to engage and hold the skip in an elevated position independent of the door whereby the door may swing open to discharge the contents of the skip when the skip is held in an elevated position, guide means carried by the chassis forwardly of the skip and to which guide means the flexible supporting means passes from the skip to hold said skip normally pressing against the skid frame, and means for operating said guide means to draw upwardly on the flexible means to move the skip upwardly on the skid frame.

5. The combination of a wheeled motor vehicle having a rig thereon including an upright skid frame, a skip of greater length than the width of the skid frame and having a back wall bearing laterally against the skid frame, said skip having a bottom door hinged thereto and opening downwardly, cable guide means on the skid frame forwardly of the skip, flexible supporting means for the skip extending over said guide means and rearwardly therefrom to an intermediate portion of the skip at each end thereof for supporting the skip, and means for holding said door closed and permitting the door to swing open to discharge the contents of the skip when said skip is held in an elevated position.

6. The combination of a wheeled motor vehicle having a rig thereon including an upright skid frame, a skip of greater length than the width of the skid frame and having a back wall bearing laterally against the skid frame, said skip having a bottom door hinged thereto and opening downwardly, flexible supporting means for the skip connected with said door and holding the door closed when said supporting means is raised, a catch on the vehicle in position to engage and hold the skip in an elevated position independent of the door whereby the door may swing open to discharge the contents of the skip when the skip is held in an elevated position, and cable guide means on the skid frame forwardly of the skip and over which guide means the flexible supporting means passes from the skip to hold said skip normally pressing against the skid frame.

7. The combination of a wheeled motor vehicle chassis having an upright skid frame on the rear portion thereof, a skip of greater length than the width of the said frame and having a back wall adapted to bear laterally against the skid frame, said skip having a bottom door hinged thereto adjacent the back wall of the skip and extending forwardly therefrom approximately to the front edge of the skip in position to swing downward, a flexible device connected with each opposite end of the door for supporting the skip and for holding the door closed when said flexible devices are raised to draw up the skip against the skid frame, a catch on the vehicle in position to engage and hold the skip in an elevated position independently of the door, whereby the door may swing open to discharge the contents of the skip when the skip is held in an elevated position, guide means carried by the chassis and located thereon normally above the skip and forwardly thereof relative to the vehicle and to which guide means the flexible devices pass directly from the opposite ends of the skip normally tending to hold the skip pressing against the skid frame when the skip is drawn up thereon, and means for operating said guide means to draw upwardly on the flexible devices to move the skip upwardly on the skid frame.

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