W. F. WEBB.

UNLOADING MACHINE FOR RAILROAD CARS AND THE LIKE.

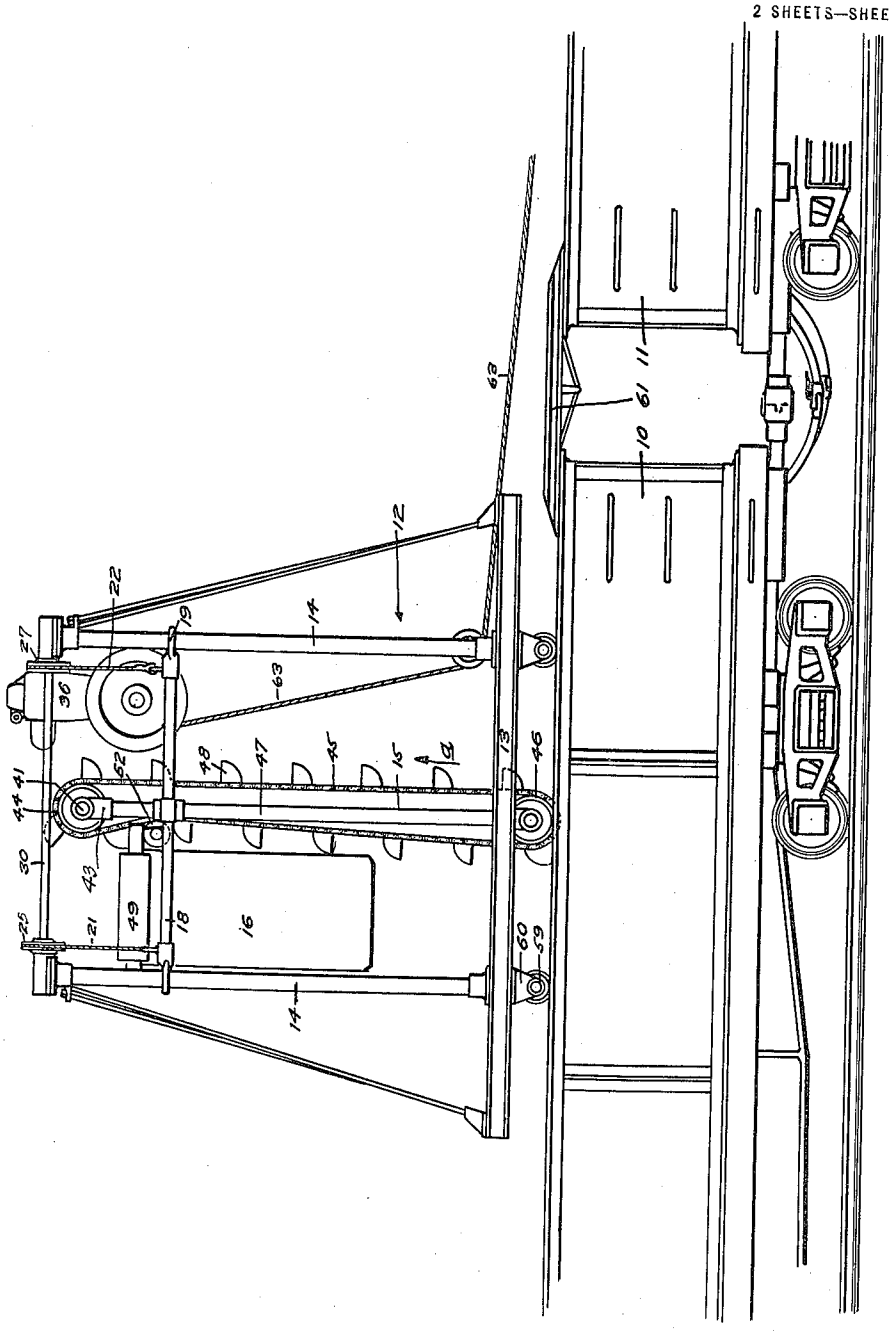
APPLICATION FILED SEPT. 18, 1917.

1,263,170.

Patented Apr. 16, 1918.

2 SHEETS—SHEET 1.

FIG. 1.



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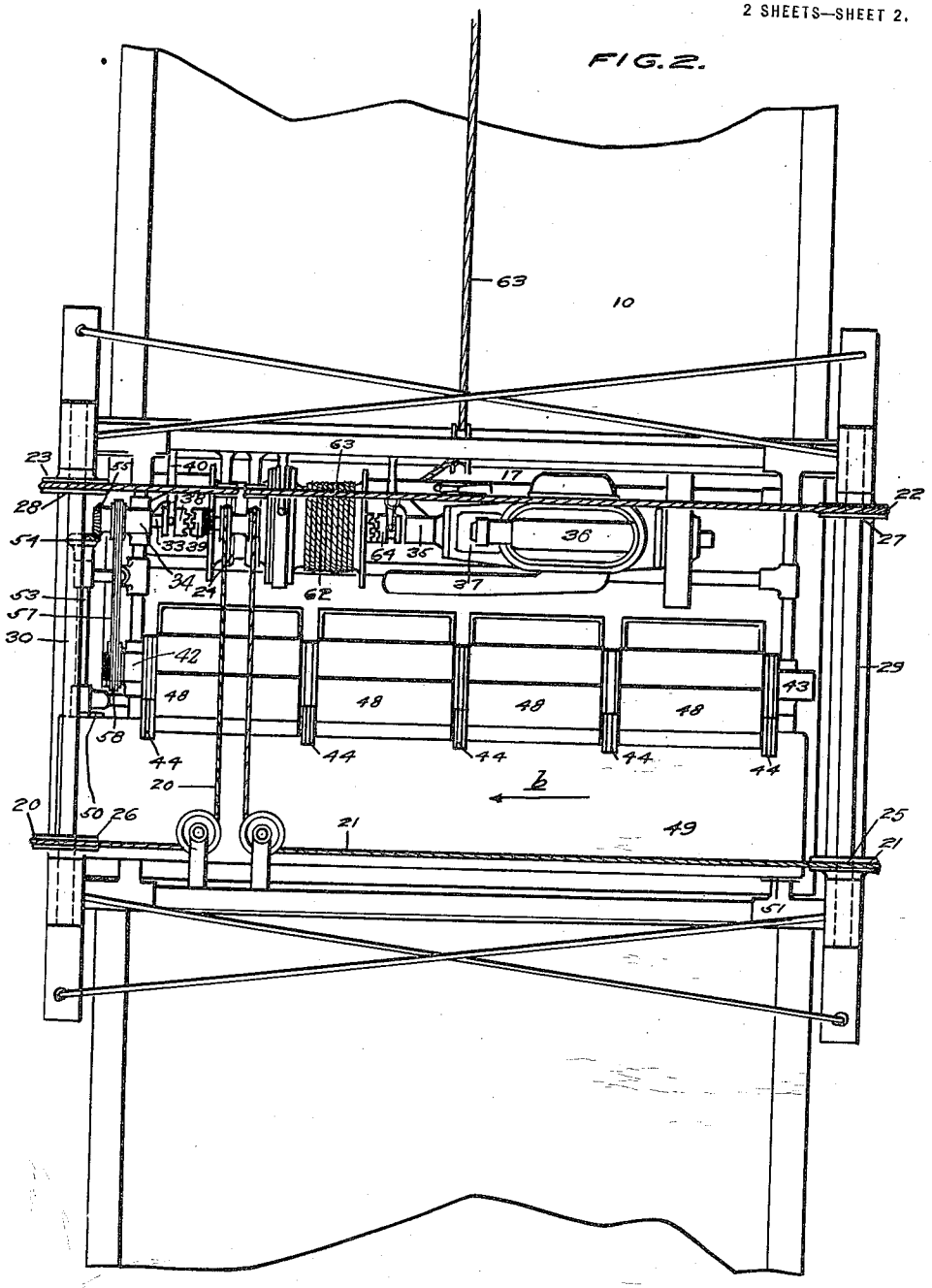
2 SHEETS—SHEET 2.

FIG. 2.



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UNITED STATES PATENT OFFICE.

WADE F. WEBB, OF LOS ANGELES, CALIFORNIA.

UNLOADING-MACHINE FOR RAILROAD-CARS AND THE LIKE.

1,263,170. Specification of Letters Patent. Patented Apr. 16, 1918.

Application filed September 18, 1917. Serial No. 192,025.

To all whom it may concern:

Be it known that I, WADE F. WEBB, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Unloading-Machines for Railroad-Cars and the like, of which the following is a specification.

This invention relates to an unloading machine for railway cars and the like.

The principal object of this invention is to provide a machine which will elevate loose material from railway cars and thereafter convey it from the car and deposit it along the side thereof.

Another object of this invention is to provide a device of the above class which is provided with a unitary power plant by which it may be operated, as well as moved from place to place as desired.

Another object of this invention is to provide an unloading machine which is simple in its construction and portable and may be thus readily manipulated in connection with railway cars.

Other objects will appear hereinafter.

The invention is illustrated, by way of example, in the accompanying drawings in which:

Figure 1 is a view in side elevation illustrating fragmentary portions of railway cars upon one of which is mounted the unloading machine.

Fig. 2 is an enlarged view in plan illustrating the unloading machine and particularly disclosing the arrangement of its power plant, elevating, and conveyer mechanisms.

Referring more particularly to the drawings, 10 and 11 indicate railway cars of the gondola type which are coupled together and upon one of which is mounted the unloading device 12 with which the present invention is concerned. This device has a sub-frame formed of horizontal beams 13 upon which are mounted guide-posts 14. The posts are arranged at the corners of a rectangular field which extends crosswise of the car and within the boundaries of which are positioned an elevating mechanism 15, a conveyer mechanism 16, and a power plant and transmission therefor 17.

These elements are mounted upon a horizontally disposed auxiliary frame 18 which is fitted with bearing brackets 19 at its corners. These brackets are slidably positioned upon the posts 14 and act to hold the auxiliary frame in a fixed vertical path of travel. The auxiliary frame 18 is rectangular in shape and is adjustably supported at its corners by cables 20, 21, 22 and 23. These cables are fastened at their one end to the auxiliary frame and at their opposite end to an elevating drum 24 around which they may be wound by driving mechanism which will be hereinafter described. The cables are led over vertically rotating idler pulleys 25, 26, 27 and 28 secured upon horizontal shafts 29 and 30 rotatably mounted within bearings positioned on top of each of the posts 14. Other idler pulleys 31 and 32 guide the cables as they are led to the drum.

The drum 24 is mounted to freely rotate upon a transmission shaft 33 which is supported within bearings 34 and 35 fixed to one of the side frame members of the auxiliary frame 18. One end of this shaft is operatively connected with an internal combustion engine 36 through the medium of a power transmission mechanism 37. This shaft is thus power driven and may be connected to the drum 24 by means of a sliding clutch 38 splined to the shaft and brought to mesh with a clutch member 39 fixed to the hub of the drum. The sliding clutch member is moved by a shifting yoke 40 and when in engagement will cause the auxiliary frame to be raised or lowered as determined by the power transmission.

Reference being had to Fig. 2, it will be seen that the power plant and the drive shaft 33 are disposed along one side of the auxiliary frame and transversely of the car upon which the apparatus is mounted. Positioned parallel to the shaft 33 and substantially mid-way the width of the auxiliary frame is an upper conveyer shaft 41 which is mounted at its opposite ends within bearings 42 and 43 secured to the end frame members of the auxiliary frame and provided as a support for elevating chain sprockets 44 around which elevating chains 45 are led. Sprockets 46 are mounted at the lower ends of distance rods 47 which are held rigidly upon the auxiliary frame 18 and extend downwardly. Mounted upon the chains 45 which are led around the sprockets 44 and 46 are conveyer buckets 48 which gather loose material from the car and elevate it to a conveyer belt 49.

The conveyer belt is mounted upon pulleys 50 and 51 which are disposed at opposite ends of the auxiliary frame and sup-

port the conveyer belt 49 in a horizontal position beneath the elevator buckets as they pass over the sprockets 44 upon the shaft 41. It will be noted that idler rollers 52 are mounted upon the auxiliary frame and bear against the sprocket chains 45 in a manner to swing the chains and their buckets away from the conveyer belt as they pass downwardly and alongside the belt. This will insure that the material from the buckets will fall upon the belt after which it may be carried to either side of the apparatus as desired. The belt is driven by a shaft 53 upon which the belt pulley 50 is secured. This shaft is fitted with a bevel gear 54 in mesh with a complementary bevel gear 55 which is secured upon the end of the drive shaft 33. The conveyer belt and the elevator buckets will be operated simultaneously as a driving sprocket 56 is secured upon the shaft 33 adjacent the bevel gear 55 and is provided with a sprocket chain 57 led around a driven sprocket 58 secured to the end of the elevating sprocket shaft 41.

The entire structure is mounted upon flanged wheels 59 which are rotatably secured to the sub-frame beams 13 by brackets 60. These wheels are of sufficient length between flanges to accommodate car bodies of varying widths. The wheels are adapted to ride along the upper faces of the car sides and permit the apparatus to be moved from one car to another as a bridge 61 may be placed across the gap between the ends of the cars to provide a track-way, as particularly shown in Fig. 1 of the drawings. A drum 62 is freely mounted upon the shaft 33 and is fitted with a cable 63 by which the structure may be drawn, as previously described. This action will take place when its sliding clutch member 64 is in mesh with clutch teeth on the end of the hub of the drum 62, thus securing the drum to rotate with the shaft 33.

In operation, the engine is started to drive the shaft 33. The transmission 37 may be manipulated to control the speed of the shaft or to cause it to run in a reverse direction. As the shaft rotates, it will simultaneously drive the sprocket chain 57 and the pulley shaft 53. Movement of the sprocket shaft will cause the elevator chain shaft 41 to rotate and raise the elevator buckets 48 in the direction of the arrow —*a*—. Rotation of the pulley shaft 53 will cause the conveyer belt to move in the direction of the arrow —*b*—. The clutch 38 may be then thrown in mesh with the clutch jaw 39 upon the drum 24, thus causing the elevating cables 20—23 inclusive to be drawn around the drum or unwound therefrom as determined by the direction of rotation of the shaft. This will raise and lower the auxiliary frame and cause the elevator buckets with their distance rods to move downwardly into the car and upwardly therefrom as desired. As the car is unloaded, the material therefrom will be carried upwardly in the buckets 48 and dumped upon the conveyer belt, thereafter to be carried to a point at the side of the car and emptied into a loading trough or other receptacle. When it is desired to move the apparatus, the clutch 64 may be thrown into mesh with the clutch jaw upon the end of the drum 62 to wind the cable 63 around the drum, it being understood that the opposite end of this cable is fastened to a fixed point some distance from the apparatus and in its path of travel.

It will thus be seen that the device here disclosed may be readily positioned upon freight cars, particularly of the gondola type, and will permit the material to be removed from the car the full length thereof and conveyed to suitable receiving receptacles.

While I have shown the preferred construction of my unloading machine for railroad cars and the like as now known to me, it will be understood that various changes in the combination, construction and arrangement of parts may be made by those skilled in the art without departing from the spirit of my invention as claimed.

I claim:

1. An unloading machine comprising a sub-frame, a running gear positioned beneath said sub-frame, a vertically movable auxiliary frame disposed above the sub-frame and supported thereby, a power plant mounted upon the auxiliary frame, a drive shaft operated by said power plant, a hoisting mechanism for the auxiliary frame and operated by the power plant, an elevating mechanism extending vertically from the auxiliary frame and optionally driven by the power plant, a conveying mechanism in communication with the elevating mechanism and driven by the power plant, and a pulling mechanism by which the entire structure may be moved upon its running gear; said mechanism being optionally operated by the power plant.

2. An unloading machine comprising a sub-frame, a running gear positioned beneath said sub-frame, a vertically movable auxiliary frame positioned above the sub-frame and supported thereby, a power plant mounted upon the auxiliary frame, a drive shaft driven by said power plant, an auxiliary frame hoisting mechanism, means whereby said mechanism may be optionally driven by the power plant to raise and lower the auxiliary frame, an elevating mechanism mounted upon the auxiliary frame and extending downwardly therefrom, transmission means for driving said mechanism from the drive shaft, a conveying mechanism ex-

tending across the auxiliary frame and adapted to receive material from the elevating mechanism, and means whereby the conveying mechanism may be simultaneously driven with the elevating mechanism from the drive shaft.

3. An unloading machine comprising a sub-frame, a running gear positioned beneath said sub-frame, a vertically movable auxiliary frame positioned above the sub-frame and supported thereby, a power plant mounted upon the auxiliary frame, a drive shaft driven by said power plant, an auxiliary frame hoisting mechanism, means whereby said mechanism may be optionally driven by the power plant to raise and lower the auxiliary frame, an elevating mechanism mounted upon the auxiliary frame and extending downwardly therefrom, transmission means for driving said mechanism from the drive shaft, a conveying mechanism extending across the auxiliary frame and adapted to receive material from the elevating mechanism, means whereby the conveying mechanism may be simultaneously driven with the elevating mechanism from the drive shaft, and a draw cable adapted to be wound by the drive shaft to draw the unloading machine forwardly along the car.

4. An unloading machine comprising a sub-frame, a running gear disposed therebeneath and adapted to support the sub-frame upon the upper faces of the side walls of a freight car, an auxiliary frame disposed above the sub-frame, guide posts extending vertically from the sub-frame and through bearings at the corners of the auxiliary frame, a power plant mounted upon the auxiliary frame, a drive shaft driven thereby, a loosely mounted elevating drum upon the drive shaft, cables leading from the drum to the corners of the auxiliary frame, a clutch by which the drum may be locked to the drive shaft and the cables drawn in a manner to raise the auxiliary frame, an upper elevating sprocket shaft mounted upon the auxiliary frame and extending parallel to the drive shaft, distance rods extending downwardly from the frame, a lower sprocket shaft rotatably secured at the lower ends of said distance rods and in parallel vertical alinement with the upper shaft, sprockets secured upon both of said shafts, sprocket chains mounted around the sprockets, elevating buckets secured to said chains, guide rollers adapted to draw the chains in at a point along their downward travel and toward the distance rods, a conveyer belt horizontally disposed upon the auxiliary frame and adapted to receive material from the elevating buckets as they pass from their upper sprockets, means whereby the elevating and conveying mechanisms may be simultaneously driven from the drive shaft, a second drum freely mounted upon the drive shaft, a draw cable adapted to be wound upon said drum, and a clutch whereby the drum may be optionally secured to the drive shaft to wind the cable and draw the unloading machine along its path of travel.

In testimony whereof I have signed my name to this specification.

WADE F. WEBB.