W. CRILLY.

UNLOADING APPARATUS.

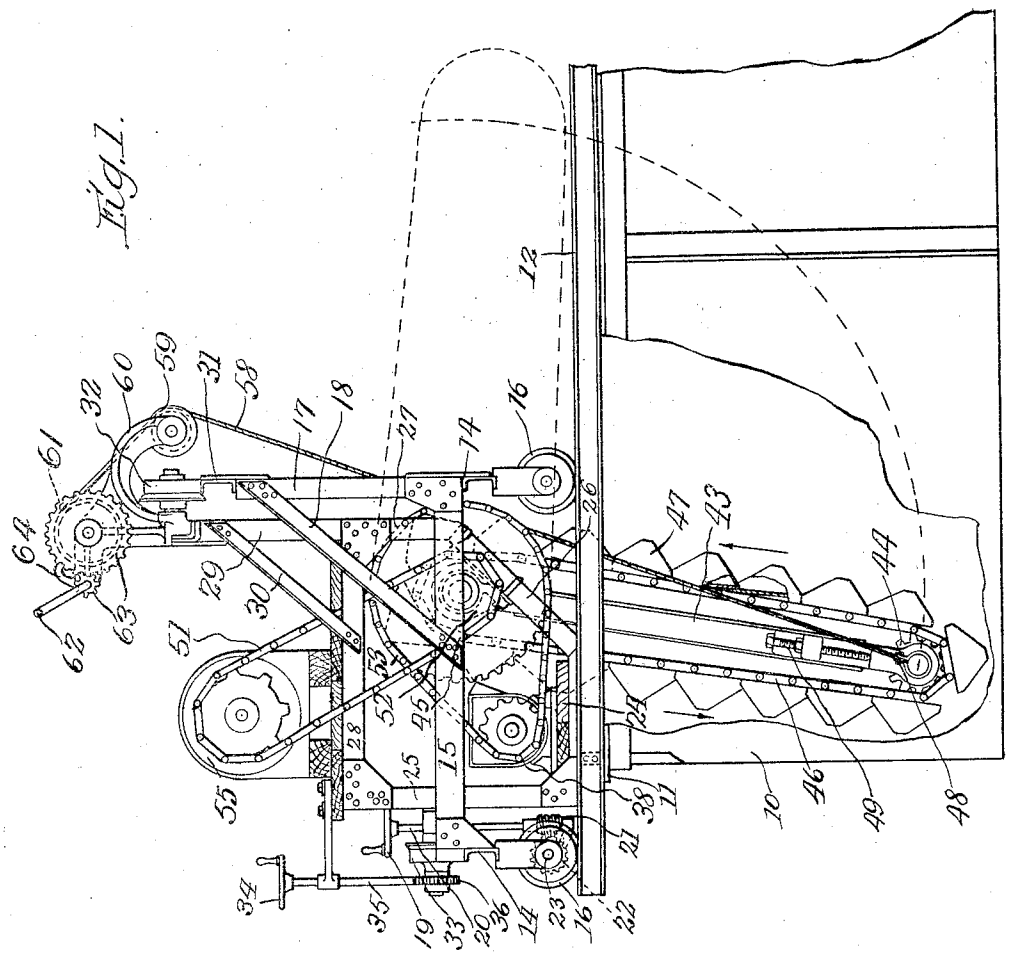
APPLICATION FILED JULY 5, 1919.

1,361,832.

Patented Dec. 14, 1920.

2 SHEETS—SHEET 1.

Fig. 1.



Inventor
William Crilly.
By: J. F. Jochum & Co.
Attys

W. CRILLY.

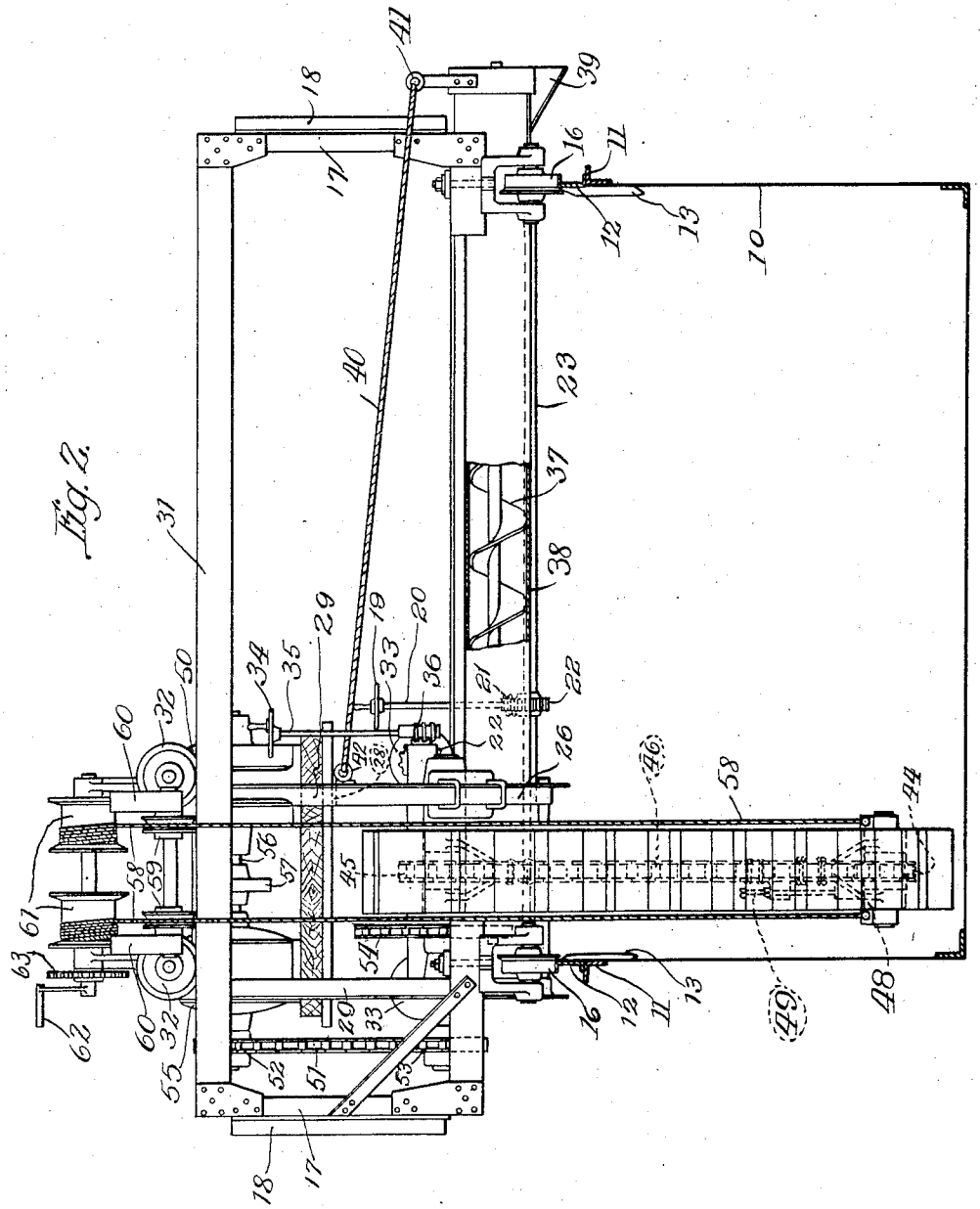
UNLOADING APPARATUS.

APPLICATION FILED JULY 5, 1919.

1,361,832. **Patented Dec. 14, 1920.**

2 SHEETS—SHEET 2.

Fig. 2.



Inventor
William Crilly
By J. F. Jochum Jr.
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM CRILLY, OF CHICAGO, ILLINOIS.

UNLOADING APPARATUS.

1,361,832. Specification of Letters Patent. **Patented Dec. 14, 1920.**

Application filed July 5, 1919. Serial No. 308,699.

To all whom it may concern:

Be it known that I, WILLIAM CRILLY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Unloading Apparatus, of which the following is a specification.

This invention relates to improvements in unloading apparatus, particularly adapted, though not necessarily limited in its use, for unloading open cars, and one of the objects of the invention is to provide an improved, simple, compact, portable and self-contained apparatus of this character which is adapted to be placed upon the car and moved lengthwise and crosswise thereof to any position with respect to the car so as to remove all of the contents of the car and deliver the same outside of the car.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating this invention and in which;

Figure 1 is a side elevation of the apparatus showing the same in position upon a car.

Fig. 2 is an end elevation of the apparatus.

Referring more particularly to the drawings, the numeral 10 designates the ordinary car body particularly adapted for carrying coal and similar materials. The apparatus is adapted to be placed upon the top of the side walls of the car and to travel upon the angle irons 11 usually provided in cars of this character. If, however, it is found that the upper edges of the walls are irregular, then the rails 12 may be employed for supporting the apparatus and as tracks for the apparatus to run upon. These tracks may be held in position in any suitable manner such as by means of posts 13 adapted to extend downwardly on the inside of the car.

The apparatus consists primarily of a main supporting frame having side bars 14 and end bars 15 and which frame is supported by means of suitable wheels 16 adapted to engage and run upon the tracks 12 when the tracks are employed or upon the angle irons 11 of the car. Projecting upwardly from one side of the main supporting frame and adjacent each end thereof, are uprights 17 and braces 18 may be provided for the uprights. The frame thus constructed is adapted to be propelled across the car in any suitable manner preferably by means of a hand wheel 19 connected with a shaft 20 having a worm gear 21 thereon, which worm gear meshes with a worm wheel 22 connected preferably with the axle 23 of one of the wheels 16 so that when the handle or wheel 18 is rotated, motion will be imparted to the wheel 16 and the main supporting frame will thereby be moved across the car.

A supplemental frame is provided to move with the main supporting frame and with respect thereto and in a direction transverse to the direction of movement of the main supporting frame. This supplemental frame may be of any desired configuration, but preferably comprises a bottom 24 having uprights 25 at one edge and an inclined upwardly projecting portion 26 at the other edge of the bottom and projecting above the upper edge of the inclined portion 26 are uprights 27 and which uprights 27 are connected with the uprights 25 by means of cross bars 28. The uprights 27 preferably project for a short distance above the cross bars 28 as at 29 and this upwardly projecting portion is reinforced by means of braces 30. Mounted upon the upright 17 of the main frame, is a bar or track 31 preferably of channel iron construction. When the two frames are assembled, the uprights 17—29 will stand adjacent each other so that wheels 32 which are connected with the supplemental frame preferably by means of the uprights 29, will engage and run upon the bars or channel irons 31 which serve as a track for the wheels. Additional wheels 33 are connected with the supplemental frame on the opposite side thereof and adjacent one of the cross bars 14 which latter forms a track upon which the wheels 33 rest and travel.

It will thus be seen that as the main frame is moved in one direction across the car, the supplemental frame will be carried thereby and this supplemental frame, inasmuch as the tracks or supporting rails 14—31 are arranged transverse to the tracks or rails 12, will be adapted for a movement across the car in a direction transverse to the movement of the main supporting frame thereacross. This independent movement of the supplemental frame may be accomplished in any suitable manner such for instance as by

means of a hand wheel 34 connected with the shaft 35, having a worm 36 thereon which meshes with a worm gear carried by the axle of one of the wheels 33.

Mounted upon the supplemental frame, preferably upon the bottom 24, is a conveyer of any suitable style but preferably a screw conveyer 37 which operates within a trough 38 and the trough is of a length to extend entirely across the car in a direction transverse to the direction of movement of the main supporting frame. This conveyer may be of any desired length but preferably is of a length to extend beyond the side of the car and is provided with a delivery chute 39 for delivering the material therefrom. The free end of the conveyer is supported in any suitable manner such as by means of a cable 40 connected at one end as at 41 to the free end of the conveyer and is connected by means of an anchor 42 to a fixed support on the supplemental frame.

Pivotally mounted by one end and upon the supplemental frame is an arm or boom 43 which may be of any desired length and carried by the free end of this arm or boom is a sprocket wheel 44, while a similar sprocket wheel 45 is located at the other end of the boom adjacent its pivot. An endless flexible element or belt 46 passes over these sprocket wheels and scoops or buckets 47 are connected with the endless element. With this construction, it will be noted that there is only a single endless element to which the scoops or buckets are secured and this element is located preferably centrally of the buckets so as to be protected by the buckets or scoops. These buckets are provided with closed bottoms and each of the buckets is so constructed that it will overlap the next adjacent bucket thereby forming a continuous support for the material in the scoops or buckets which will prevent the material from dropping through the buckets and interfering with the endless element 46. The sprocket wheel 44 is preferably mounted in an adjustable bearing 48 adapted to be adjusted by means of a suitable adjusting screw 49 so as to take up the slack of the endless element 46. With this construction it will be manifest that the boom like elevator is pivotally supported by its upper end so that its lower end will have a free swinging pivotal movement, thereby adapting the free end of the elevator to be positioned so as to engage the material in the car. When the car is full and the apparatus is first started to be used, the boom like elevator will assume the position shown in dotted lines in Fig. 1, that is with its free end resting on the top of the material. As the elevator is operated, the free end of the elevator, as the material is removed, will gravitate as indicated diagrammatically in dotted lines in Fig. 1 toward the bottom of the car until it assumes the position shown in full lines in Fig. 1. As the material is then removed from the car, with the free end of the elevator depending below the support and into the car, the main supporting frame may be advanced or the supplemental frame advanced with respect to the main supporting frame so as to position the elevator to remove all of the contents of the car.

Motion may be imparted to the elevator to operate the scoops or buckets 47 in any suitable manner such as by means of a motor 50, preferably mounted upon the supplemental frame, and which motor is connected in any suitable manner such as by means of a chain or belt 51 passing over suitable sprocket or pulley wheels 52—52. The conveyer 37 also receives its motion from the motor 50 by means of suitable connections such as a belt or chain 52 passing over a suitable pulley or sprocket connected with the conveyer and also over a suitable sprocket wheel or pulley 54 connected with the sprocket 45.

In order to provide for the proper speed and to reduce the speed of the motor 50 to adapt it for operating the elevator and conveyer, a suitable reducer 55 may be provided which is connected with the shaft 56 of the motor through a suitable coupling 57.

The free end of the elevator may be swung about its pivotal support in any desired or suitable manner, preferably by means of cables 58 connected with the free end thereof, and which cables pass over suitable pulleys 59 mounted in suitable brackets or bearings 60 on the supplemental frame and over drums 61 also mounted upon the supplemental frame. These drums 61 may be rotated in any suitable manner such as by means of a crank 62 through intermediate gear connections 63 and the free end of the elevator may be supported and maintained in its adjusted position by means of a suitable pawl 64.

While the preferred form of the invention has been herein shown and described, it is to be understood that many changes may be made in the details of construction and in the combination and arrangement of the several parts without departing from the spirit of this invention, and for this reason it is therefore desired to be understood that the drawings submitted herewith are to be considered as being merely diagrammatic.

What is claimed as new is:—

1. A self contained portable unloading apparatus of the character described adapted to rest and travel upon the top of the walls of a car, said apparatus embodying a conveyer for receiving and delivering the contents of the car outside thereof, an elevator for delivering the material to the conveyer, means for moving the elevator and conveyer lengthwise of the car, means for

moving them crosswise of the car, means pivotally mounting the said elevator at one end, and means for swinging the other end of the elevator about the said pivot.

2. A self contained portable unloading apparatus of the character described adapted to be supported by and to travel upon the top of the walls of a car, said apparatus embodying a main supporting frame movable in one direction back and forth across the car, a supplemental frame mounted upon the main frame for movement therewith and with respect thereto across the car in a direction transverse to the direction of movement of the main frame, an elevator pivotally supported at one end by the supplemental frame whereby its free end will have a free swinging movement about the pivot, and a conveyer positioned adjacent the pivoted end of the elevator to receive the material from the elevator at any point of adjustment of the elevator and deliver the material outside of the car.

3. A self contained portable unloading apparatus of the character described adapted to be supported by and to travel upon the top of the walls of a car, said apparatus embodying a main supporting frame movable in one direction back and forth across the car, a supplemental frame mounted upon the main frame for movement therewith and with respect thereto across the car in a direction transverse to the direction of movement of the main frame, an elevator pivotally supported at one end by the supplemental frame whereby its free end will have a free swinging movement about the pivot, a conveyer positioned adjacent the pivoted end of the elevator to receive the material from the elevator at any point of adjustment of the elevator and deliver the material outside the car, means common to the elevator and conveyer for actuating them, and means for swinging the elevator about its pivot and at will.

4. A self contained portable unloading apparatus of the character described adapted to rest and travel upon the top of the walls of a car, said apparatus embodying a main supporting frame movable back and forth in one direction across the car, a supplemental frame mounted to travel with the main supporting frame and also with respect thereto back and forth across the car and in a direction transverse to the direction of travel of the main supporting frame, a conveyer connected with the supplemental frame for movement therewith, and adapted to deliver the material outside of the car, and an elevator also connected with the supplemental frame for movement therewith and shiftable with respect thereto and operating to deliver the contents of the car to the conveyer, said elevator embodying a single endless flexible band or belt and individual buckets or scoops connected therewith.

5. A self contained portable unloading apparatus of the character described adapted to rest and travel upon the top of the walls of a car, said apparatus embodying a main supporting frame movable back and forth in one direction across the car, a supplemental frame mounted to travel with the main supporting frame and also with respect thereto back and forth across the car and in a direction transverse to the direction of travel of the main supporting frame, a conveyer connected therewith and adapted to deliver the material outside of the car, and an elevator also connected with the supplemental frame for movement therewith and shiftable with respect thereto and operating to deliver the contents of the car to the conveyer, said elevator embodying a single endless flexible band or belt and individual buckets or scoops connected therewith, each of the said buckets or scoops overlapping the next adjacent bucket or scoop.

6. A self contained portable unloading apparatus of the character described adapted to be supported by the walls of a car, said apparatus embodying a pivotally mounted boom like elevator embodying a series of traveling buckets or scoops for removing the contents of the car, means for imparting a bodily movement to the elevator longitudinally and transversely of the car, a conveyer for receiving the material from the elevator in any position to which the elevator has been moved about its pivot, and actuating means for the elevator and conveyer.

7. A self contained portable unloading apparatus of the character described adapted to be supported by the walls of a car, said apparatus embodying a pivotally mounted boom like elevator embodying a series of traveling buckets or scoops for removing the contents of the car, means for imparting a bodily movement to the elevator longitudinally and transversely of the car, a conveyer for receiving the material from the elevator in any position to which the elevator has been moved about its pivot, actuating means for the elevator and conveyer, and means for adjusting the free end of the elevator and maintaining it in its adjusted position.

8. A self contained portable unloading apparatus of the character described embodying a boom like elevator pivotally mounted by one end and supported for bodily movement in a plurality of directions across a car, a motor for actuating the elevator, said elevator embodying an endless flexible element, scoops or buckets connected with the element, said elevator adapted to operate entirely within the confines of the walls of the car, and a conveyer adjacent the eleva-

tor for receiving the material therefrom and delivering the same outside of the car.

9. A self contained portable unloading apparatus of the character described embodying a boom like elevator pivotally mounted by one end and supported for bodily movement in a plurality of directions across a car, a motor for actuating the elevator, said elevator embodying an endless flexible element, scoops or buckets connected with the element, said elevator adapted to operate entirely within the confines of the walls of the car, a conveyer adjacent the elevator for receiving the material therefrom and delivering the same outside of the car, the free end of the elevator depending below the supporting structure, and means upon the supporting structure and operatively connected with the free end of the elevator for swinging the elevator about its pivotal support.

In testimony whereof I have signed my name to this specification on this 2nd day of July, A. D. 1919.

WILLIAM CRILLY.