A. J. FULTON AND T. H. EVANS.

LOADING APPARATUS.

APPLICATION FILED DEC. 22, 1919.

1,362,566.

Patented Dec. 14, 1920.

3 SHEETS—SHEET 1.

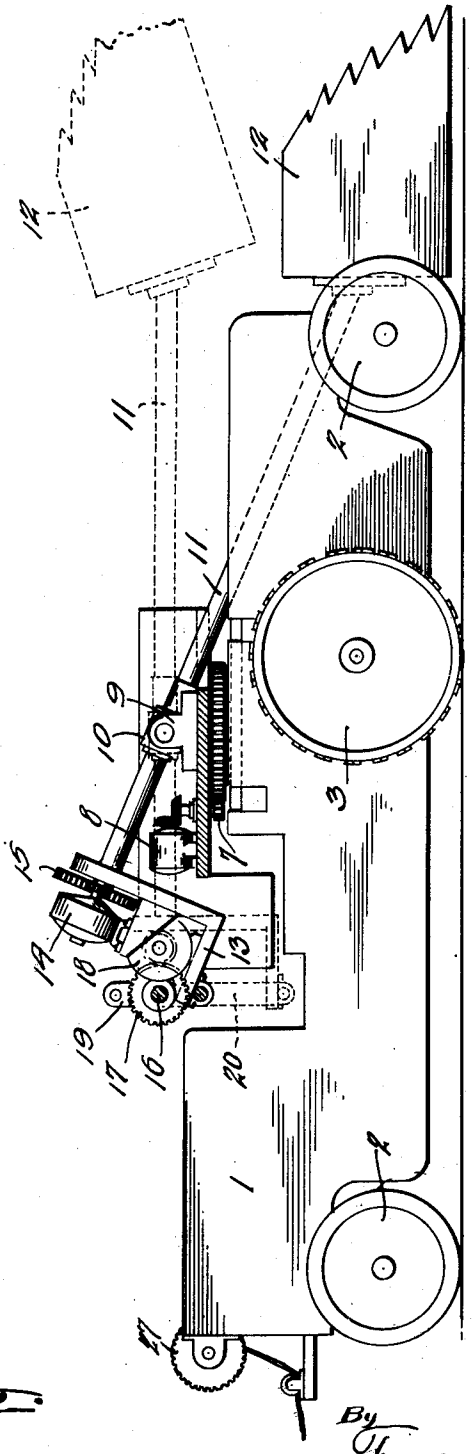


Fig. 1.

Witness

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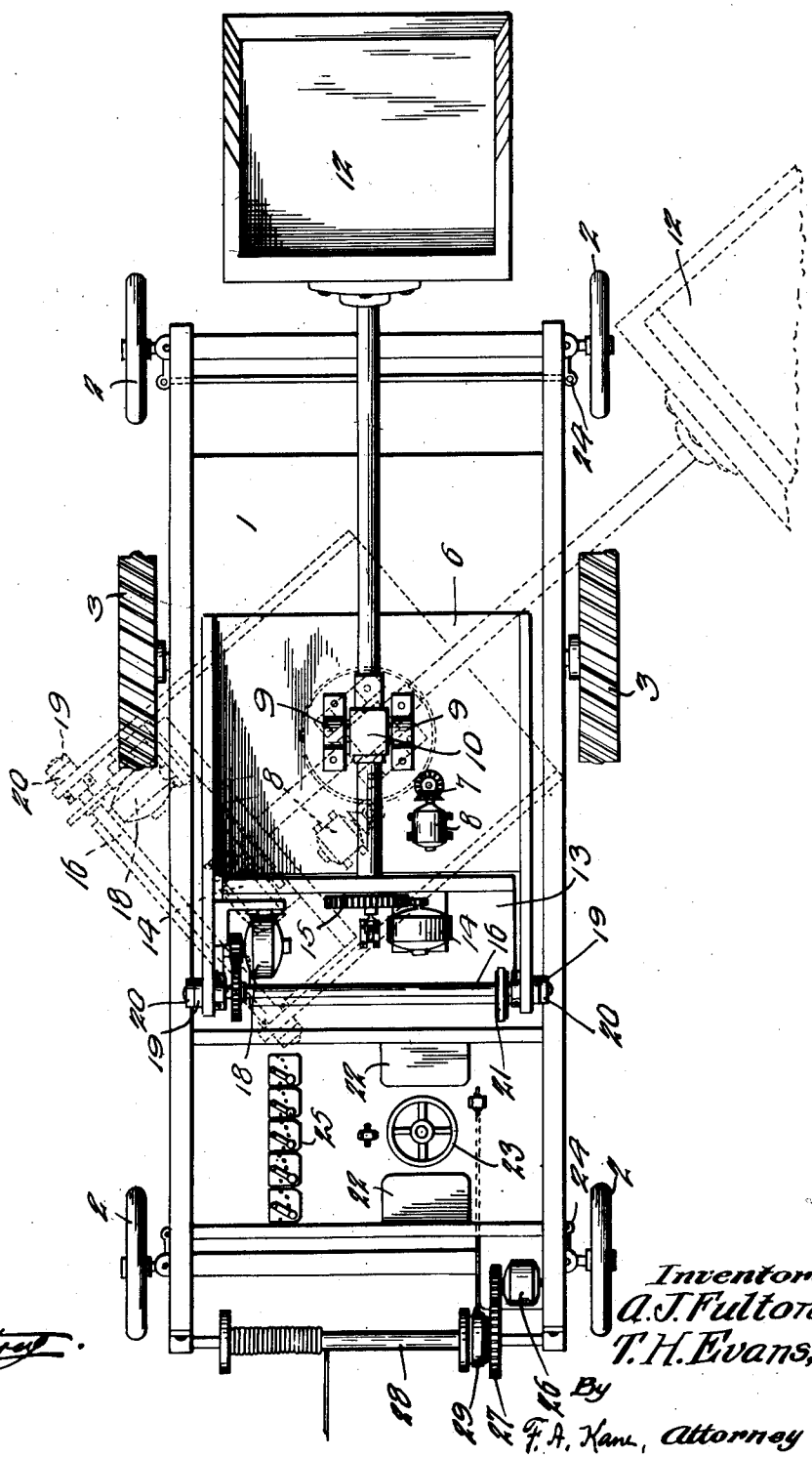
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3 SHEETS—SHEET 2.

Fig. 2.



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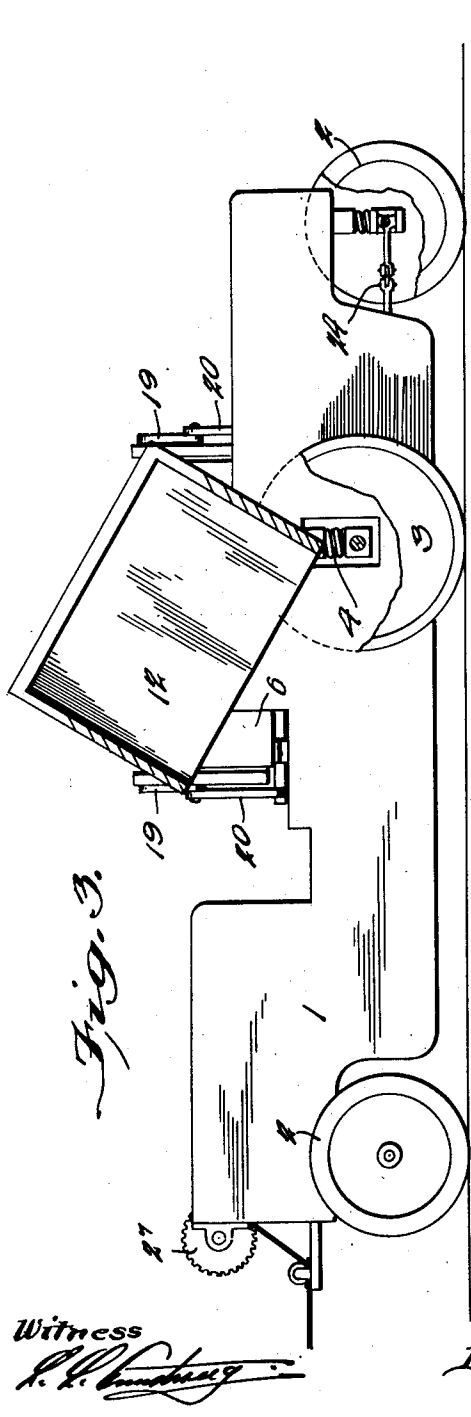


Fig. 3.

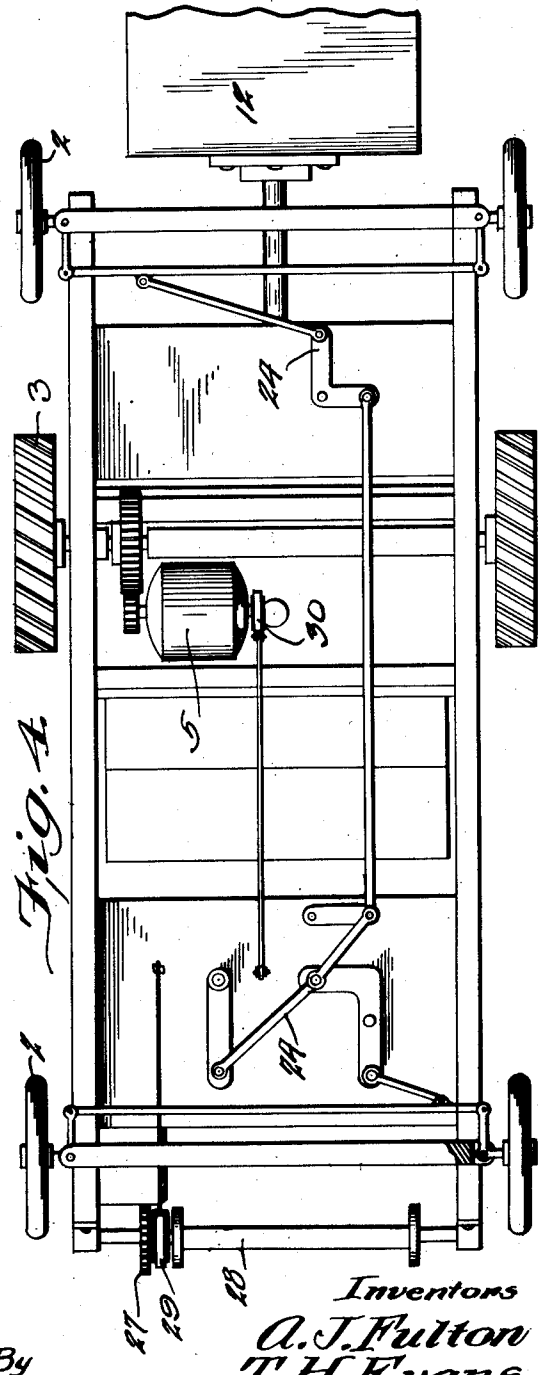


Fig. 4.

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LOADING APPARATUS.

1,362,566. Specification of Letters Patent. Patented Dec. 14, 1920.

Application filed December 22, 1919. Serial No. 346,517.

To all whom it may concern:

Be it known that we, ALFRED J. FULTON and THOMAS H. EVANS, citizens of the United States, residing at Johnstown, Pennsylvania, have invented certain new and useful Improvements in a Loading Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention comprises a loading apparatus. While its application is unrestricted, it is especially applicable for use in the loading and removal of loose material such as coal from a mine.

It is contemplated among the objects of the invention to produce a movable loader carrying motive connections for electrical drive and having a scoop which may be moved into relation to the loose materials, then raised and swung away from the vehicle carrying it to deposit the loose material in a car or the like; wherein provision is made for guiding, steering, moving forward and reversing the vehicle or car carrying the scoop; wherein means are provided for quickly and easily loading and unloading the scoop; wherein each of the movable parts is provided with its own individual motor; and which will, in a word, provide a practical and efficient apparatus for the accomplishment of the objects set forth.

Other objects and advantages will in part be apparent, and in part be brought out more fully in the description which follows.

Drawings illustrating an embodiment of the invention are hereto appended, the following views being shown:—

Figure 1, is a view in side elevation of an embodiment of the invention a portion being shown in section;

Fig. 2, is a view in top plan, certain portions being shown in dotted lines to indicate change of position;

Fig. 3, is a view in side elevation showing the scoop in unloading position; and

Fig. 4, is a view in bottom plan.

In these views 1 designates a vehicle body or car. It is mounted upon carrying and steering wheels 2 and supplied also with traction or motive wheels 3, the latter preferably being supplied with cushioning springs 4 as best seen in Fig. 3. The traction wheels are driven suitably as by gearing 4 and a motor 5. See Fig. 4.

A turntable 6 is mounted for rotative movement at the forward portion of the car and is rotated by means of gearing 7 and a motor 8 conveniently mounted on the table. Means are provided on the turntable for carrying a scoop, raising and lowering it and unloading it. As here shown there are trunnions 9 mounted on the table and which carry a block 10. The latter carries a shaft or support 11 mounted for rotative movement only in the block. At one extremity of the shaft there is mounted a scoop 12 and at the other extremity there is loosely mounted on the shaft a shelf 13. Upon this shelf, there is a motor 14 connected with the shaft through gearing 15 for the purpose of rotating the shaft to dump the scoop.

For the purpose of raising and lowering the scoop there is mounted for rotation in trunnions on the shelf 13, a shaft 16. This carries gearing 17 and is rotated by a motor 18. Secured to the extremities of the shaft there are crank arms 19 connected by links 20 to the turntable. Rotation of the shaft will raise or lower the power end of the shaft 11, and there is provided a braking drum 21 on the shaft to hold it in various positions. The turntable is utilized to swing the scoop, the shaft 16, links and motor to raise and lower it, and the motor 14 to turn the shaft or support 11 upon which the scoop is carried, for the purpose of dumping and righting the same.

A control station is provided in one end of the car having driving seats 22 and a steering wheel 23. The latter is connected by a system of links and levers designated generally by the numeral 24, with the steering wheels in a manner well known in the art and shown particularly in Fig. 4. Located so as to be convenient to the driver or operator there are a series of motor control devices 25, each connected to the individual motors for driving the car, rotating the turntable, raising the scoop, and another for controlling a motor 26. This latter is connected by gearing 27 with a reel 28 which carries a cable for supplying the motive power to the motors. A braking drum 29 is provided on this reel and a similar drum 30 is associated with the motor which drives the car, each being operated by foot levers carried into the control station.

In operation the device, with the scoop in the position shown in Fig. 1, is driven into a pile of loose material until the scoop is filled. The motor 18 is then actuated to

raise the scoop through cranks 19, links 20 and the shelf connected with supporting shaft 11. When the scoop is elevated to the proper position, drum 21 is used to hold it there and then motor 8 may be energized to rotate the turntable, swinging the scoop into any position desired. When it is desired to dump the scoop, motor 14 is actuated rotating shaft 11, all of these operations being under the control of the driver from the central station.

From the foregoing it will be apparent that the present invention provides a practical, strong, compact device for the purposes set forth and one which has the advantage of being very low, thus making itself available where the veins are of small height. While the invention has been disclosed in the embodiment herein illustrated, it will be understood that we do not wish to be limited to the precise form of disclosure herein made, as many changes in the structure and arrangements of the parts are contemplated as within the scope of the invention as set forth in the claims.

What we claim is:—

1. A loading apparatus comprising a vehicle; a turntable mounted thereon; means for rotating the turntable; a scoop support mounted for pivotal movement on the turntable; a scoop mounted on said support at one end thereof; means mounted at the other end of the scoop support for rotating the support; and means for raising and lowering the scoop.

2. A loading apparatus comprising a vehicle; a turntable mounted thereon; means for rotating the turntable; a scoop support pivotally mounted upon the turntable; a scoop mounted on the scoop support; a shelf carried by the support loosely thereon; means on the shelf for rotating the support; and means for effecting movement of the shelf relatively to the vehicle.

3. A loading apparatus comprising a vehicle; a turntable mounted thereon; means for rotating the turntable; a scoop support fulcrumed on the turntable; a scoop carried at one end of the support; a shelf loosely mounted at the other end of the support; a motor mounted on said shelf; gearing connecting said motor and support to effect rotative movement of the scoop; a connection between said shelf and turntable means associated with said connection for effecting relative movement between the shelf and turntable to raise and lower the scoop; and a control for such means.

4. In a device of the character described, a scoop-carrying shaft; and a scoop-turning motor mounted directly on the shaft.

5. A loading apparatus comprising a vehicle; a scoop-carrying shaft fulcrumed intermediate its ends on the vehicle; a scoop on one end of the shaft; and a scoop-turning motor on the other end of the shaft.

6. A loading apparatus comprising a vehicle; a turntable mounted thereon; a scoop-carrying shaft fulcrumed on the turntable; means for rotating the turntable to swing the scoop; means for moving the scoop up and down on its fulcrum; and means for rotating the scoop-carrying shaft to upset the scoop.

In testimony whereof we hereto affix our signatures.

ALFRED J. FULTON.

THOMAS H. his × mark EVANS.

Witness:
J. J. MARTIN.