L. THORTVEDT.

LOADER.

APPLICATION FILED FEB. 13, 1911.

1,039,847.

Patented Oct. 1, 1912.

2 SHEETS—SHEET 1.

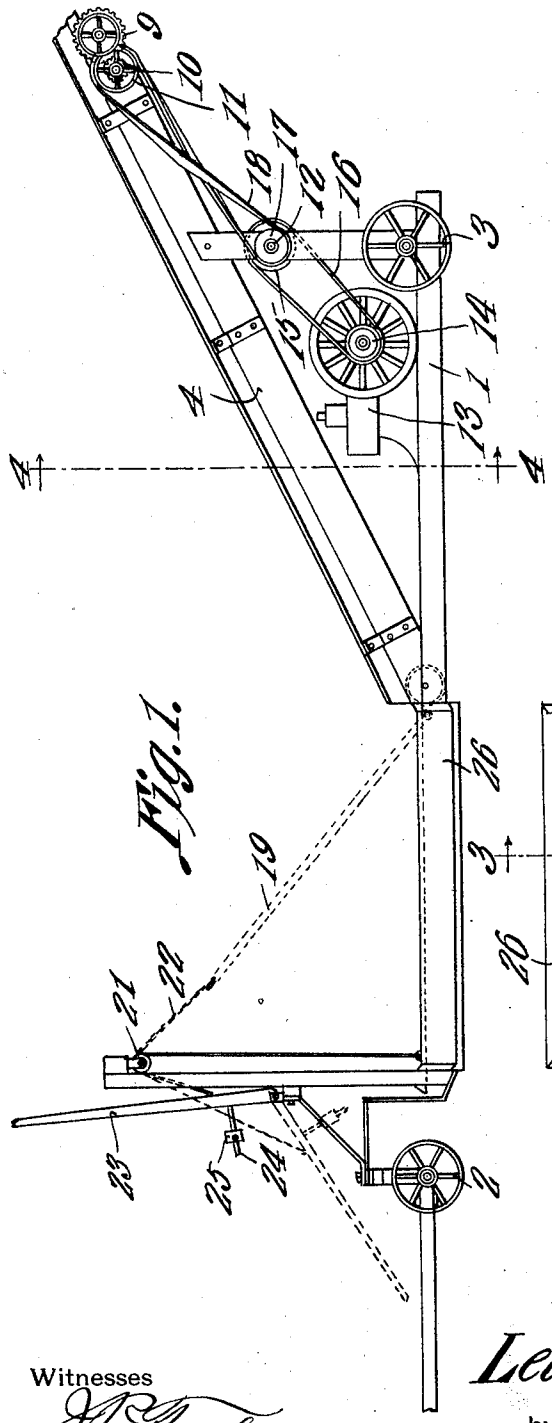

Fig. 1.

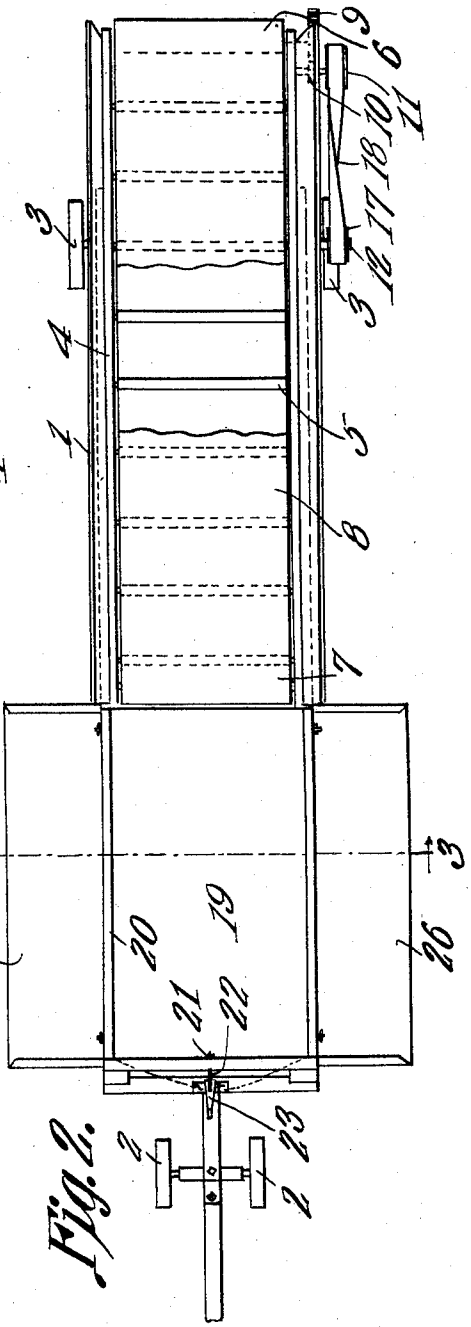

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

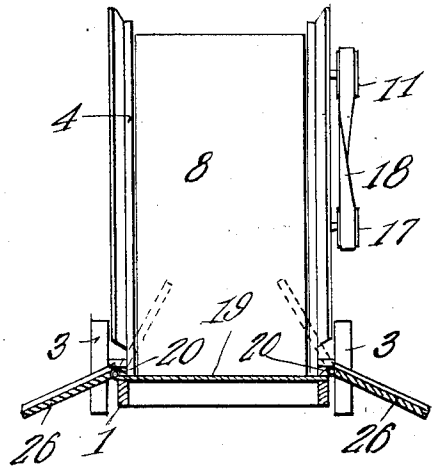


Fig. 4.

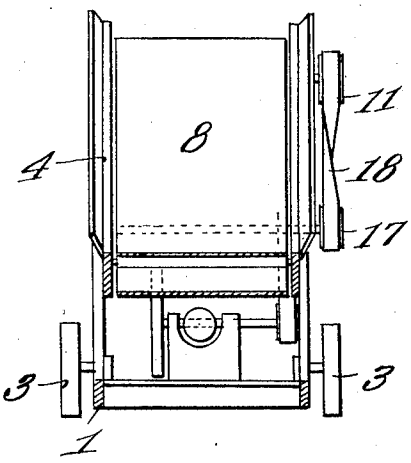
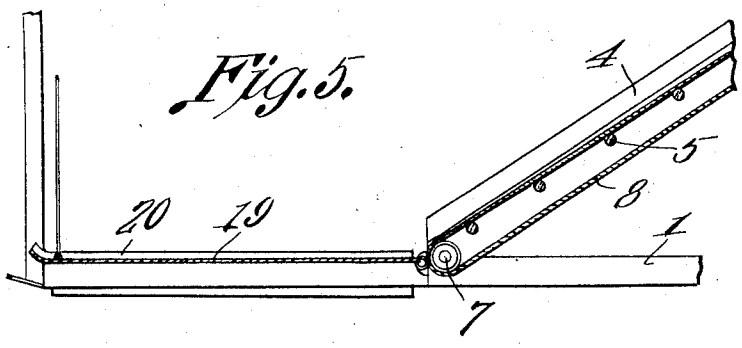


Fig. 5.



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UNITED STATES PATENT OFFICE.

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LOADER.

1,039,847. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed February 13, 1911. Serial No. 608,306.

To all whom it may concern:

Be it known that I, LEVI THORTVEDT, a citizen of the United States, residing at Glyndon, in the county of Clay and State of Minnesota, have invented a new and useful Loader, of which the following is a specification.

This invention has relation to loaders and it consists in the novel construction and arrangement of its parts as hereinafter described and claimed.

The object of the invention is to provide a loading apparatus of simple structure especially designed to be used for loading material such for instance as manure, earth, soil, gravel and the like upon cars or wagons and with this object in view the apparatus includes a wheel mounted frame upon which is located an engine preferably of the hydrocarbon type. An inclined trunk is mounted upon the platform and an elevator is mounted for movement along the said trunk and is operated from the said engine. A platform is hingedly mounted upon the frame with its delivery end adjacent the receiving end of the said conveyer and a lever mechanism is provided for swinging the said platform in order that it may dump material which has been deposited upon it upon the receiving end of the said conveyer. Skid boards are hingedly attached to the sides of the frame adjacent the said platform and when the apparatus is in use the said boards are swung down so that their free edge portions rest upon the surface of the ground.

In the accompanying drawings,—Figure 1 is a side elevation of the loading apparatus. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse sectional view of the same cut on the line 3—3 of Fig. 2. Fig. 4 is a transverse sectional view of the same cut on the line 4—4 of Fig. 1. Fig. 5 is a longitudinal sectional view of a portion of the same.

The loading apparatus comprises a frame 1 which is mounted at its forward end upon supporting wheels 2 and at its rear end upon supporting wheels 3. A trunk 4 is supported in inclined position upon the frame 1 and is provided in its bottom with loosely journaled rollers 5. A roller 6 is journaled for rotation at the upper end of the trunk 4 and a roller 7 is journaled for rotation at the lower end of the said trunk. An endless conveyer 8 in the form of a belt of rubber, canvas or suitable material is trained around the rollers 6 and 7 and is so arranged that its upper run will travel upon the upper portion of the rollers 5 journaled in the bottom of the trunk 4. A gear wheel 9 is fixed to one end of the shaft of the roller 6 and meshes with a gear wheel 10 which is journaled at the side of the trunk 4. A belt wheel 11 is journaled for rotation in unison with the gear wheel 10 and a shaft 12 is journaled upon the frame 1 along the intermediate portion of the trunk 4.

An engine 13 preferably of the hydrocarbon type is mounted upon the frame 1 below the intermediate portion of the trunk 4 and is provided upon its shaft with a belt pulley 14. A belt pulley 15 is mounted upon the shaft 12 and a belt 16 is trained around the pulleys 14 and 15 and is adapted to transmit rotary movement from the shaft of the engine 13 to the shaft 12. A belt pulley 17 is also fixed to the shaft 12 and a cross belt 18 is trained around the belt pulleys 11 and 17 and is adapted to transmit rotary movement from the shaft 12 to the pulley 11 and the gear wheel 10. From the gear wheel 10 rotary movement is transmitted through the intermeshing gear wheel 9 through the shaft of the roller 6 and thus the endless conveyer belt 8 in the trunk 4 is operated.

The platform 19 is hingedly located at one end in the vicinity of the lower end of the trunk 4 and is provided along its side edges with slightly elevated strips or portions 20. A pulley block 21 is attached to the upper forward portion of the frame 1 and a cable 22 is trained over the pulley of the said block. One end of the said cable is attached to the free end portion of the platform 19 and the other end of the said cable is attached to the intermediate portion of a lever 23 which is fulcrumed at the forward end of the frame 1, as illustrated in Fig. 1 of the drawings. A rod 24 is fixed to the forward side of the lever 13 and a weight 25 is adjustably secured upon the said rod 24. Skid boards 26 are hingedly connected at their inner end portions to the sides of the frame 1 and are located adjacent the side edges of the platform 19. When the said skid boards 26 are swung outwardly their outer edge portions are adapted to rest upon the surface of the ground and thus the said boards form in-

clines up which scoops may pass when material is being carried upon the apparatus to be dumped upon the platform 19.

In operation the engine 13 is started and through the transmitting part moves the conveyer 8 continuously. The material to be loaded is gathered in scoops or similar devices which are drawn by draft animals and the animals are driven transversely across the platform 9 while the same is in its lowermost position. The scoops are then turned up side down so that the material contained therein is deposited upon the upper surface of the said platform 19. The draft animals and scoops are then passed from off of the frame 1 and the platform 19. When a sufficient quantity of material has been accumulated upon the platform 19 an operator grasps the upper free end portion of the lever 23 and swings the same down so that the cable 22 is moved longitudinally over the pulley of the block 21. This movement of the cable 22 swings the free end of the platform 19 in an upward direction, as indicated in dotted lines in Fig. 1 of the drawing. Thus the material which has been deposited upon the upper surface of the platform 19 will slide or roll down the said platform and will pass upon the lower portion of the upper run of the conveyer belt 8. The said belt carries the material up the trunk 4 and casts the same off at the upper delivery end of the said trunk. Previous to this however a wagon, manure spreader or car body has been positioned under the delivery end of the trunk 4 to receive the elevated material. By reason of the fact that the platform 19 is provided at its side edges with slightly elevated strips or portions 21, the material deposited upon the said platform will not roll off of the same at the side edges thereof but is directed toward the lower portion of the upper run of the conveyer 8.

When the apparatus is in operation as indicated the wheels 2 and 3 may be let down into the surface of the ground so that the lower members of the frame 1 will rest directly upon the surface of the ground. Or if it is discovered to be unnecessary to let both sets of wheels down, one set only may be let into the surface of the ground.

When it is desired to transport the apparatus from one point to another, the platform 19 is lowered and the skid boards are swung up so that their free end portions are over the intermediate portions of the said platform 19. By providing the lever 23 with an adjustable weight 25 means is provided for substantially counterbalancing the platform 19 and the load that it carries so that the said platform and boards may be readily elevated by a single operator. The weight 25 may be adjusted along the rod 24 so that the said weight will compensate for a comparatively heavy or a comparatively light load of material resting upon the upper surface of the platform 19.

The skid boards in being swingable to an upright position provides for certain novel features wherein any material accidentally or otherwise accumulating on the skid boards may be thrown on the platform by swinging the skid boards upwardly, or the skid boards may be swung upward when it is desired to shovel or dump material on the platform thus forming sides to hold the material on the platform. It will also be noted that the conveyer and the raising mechanism for the free end of the platform are located at opposite ends of the frame with the platform intermediate the said conveyer and raising mechanism to permit the unobstructed passage of scoops and the like over the frame between the raising mechanism and the conveyer.

Having described the invention what I claim as new and desire to secure by Letters Patent is:—

In a loading apparatus, a frame, an elevator mounted at one end thereof, a platform hingedly mounted upon the frame with the delivery end adjacent the receiving end of the elevator and adapted for the passage of scoops laterally thereover to dump material thereon, a raising mechanism at the other end of the frame connected with the free end of the said platform, and skid boards hingedly attached to the sides of the frame at the edges of the said platform to swing against the ground.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LEVI THORTVEDT.

Witnesses:

NORMAN H. STADUM,

C. PAULSON.