Dec. 27, 1927. 1,654,402

G. F. BINNS

MECHANICAL LOADER

Filed Dec. 9. 1926 3 Sheets-Sheet 1

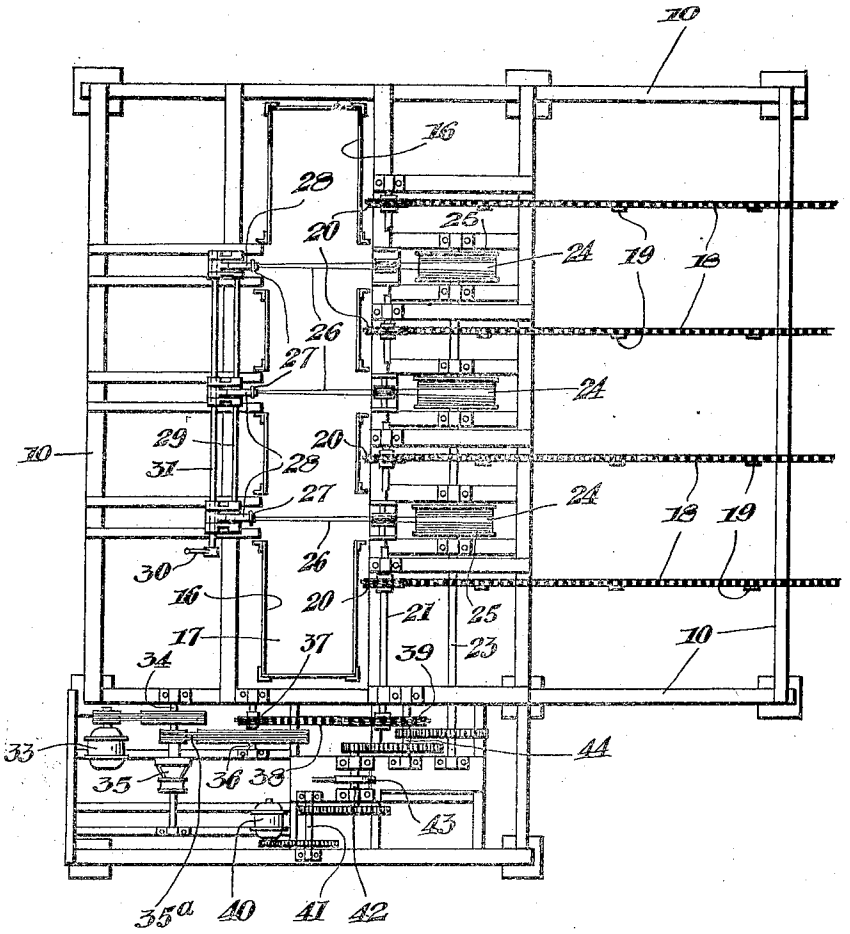


FIG. 1.

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MECHANICAL LOADER

Filed Dec. 9, 1926 3 Sheets-Sheet 2

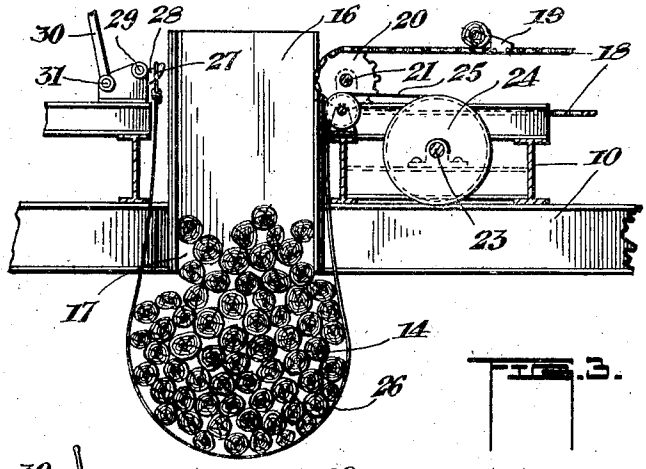


FIG. 3.

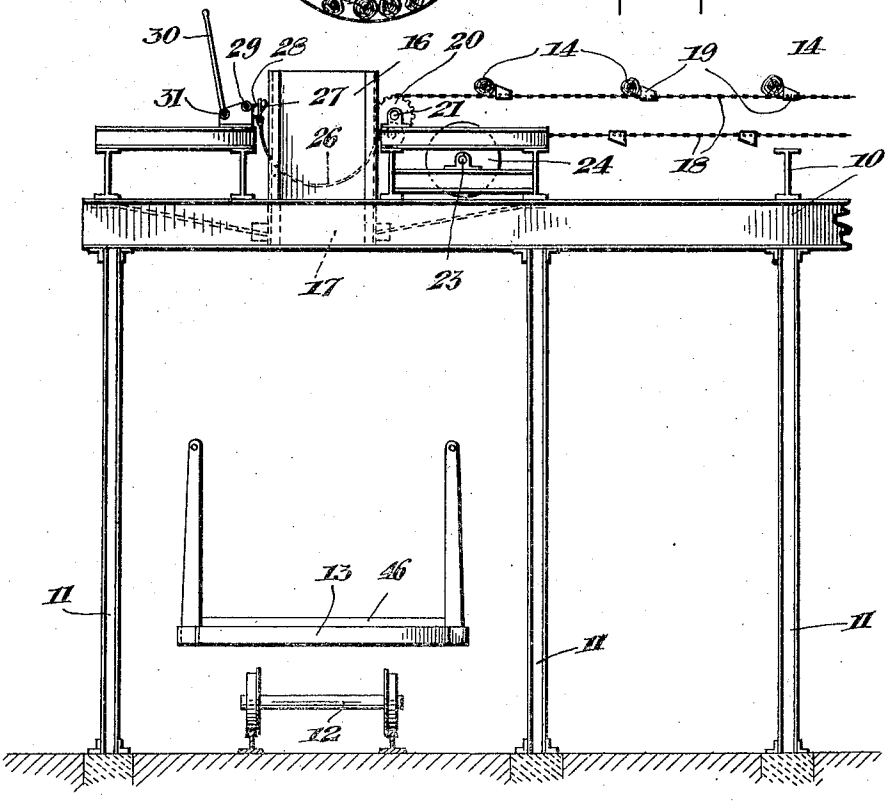


FIG. 2.

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MECHANICAL LOADER

Filed Dec. 9. 1926 3 Sheets-Sheet 3

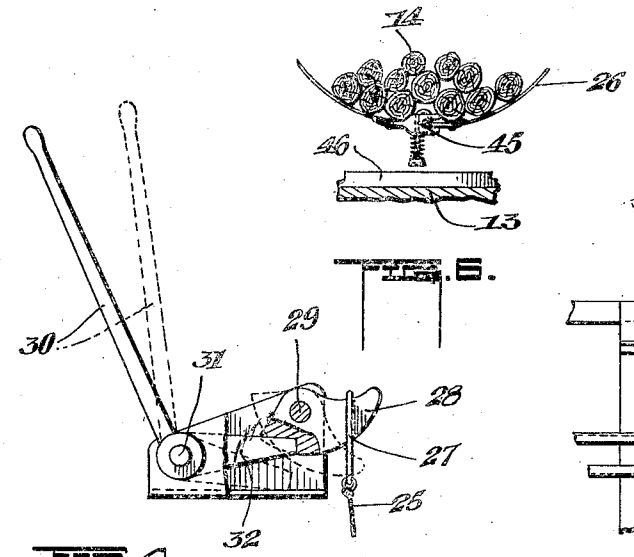


FIG. 6.

FIG. 4.

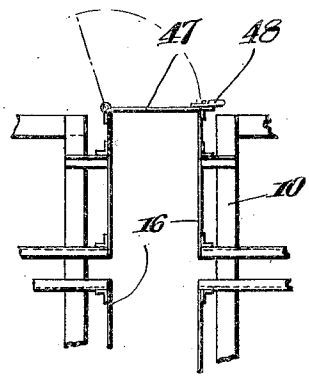


FIG. 7.

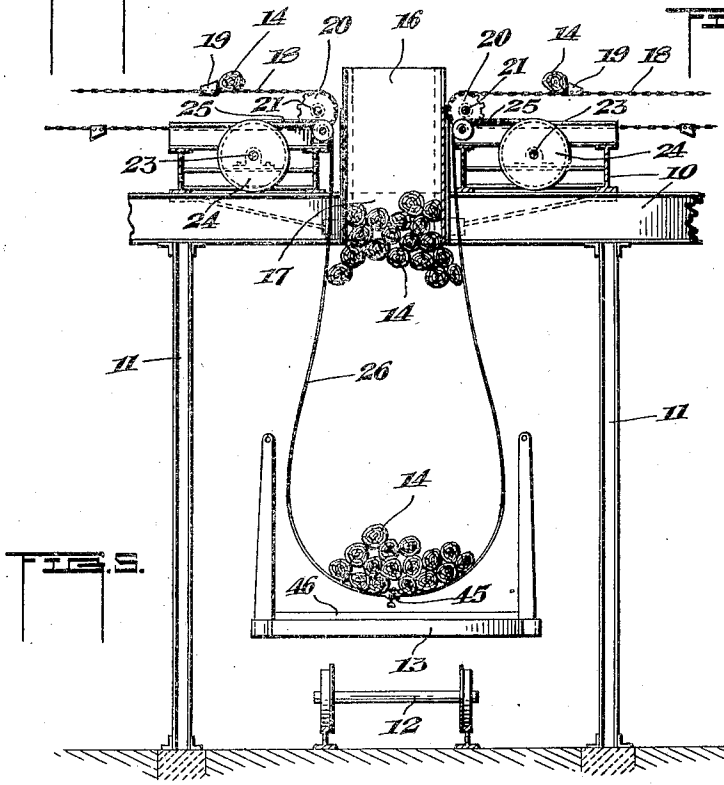


FIG. 5.

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ATTYS

Patented Dec. 27, 1927. 1,654,402

UNITED STATES PATENT OFFICE.

GEORGE FREDERICK BINNS, OF TEMISKAMING, QUEBEC, CANADA.

MECHANICAL LOADER.

Application filed December 9, 1926. Serial No. 153,664.

This invention relates to improvements in mechanical loaders and more particularly to machines for loading logs and the like onto cars or into boats, and the objects of the invention are to provide a mechanical loader adapted to automatically arrange the logs and then load them onto cars or into ships or the like.

Yet another object is to provide a loading machine of durable and efficient construction that can be manufactured and placed on the market at very reasonable cost, and which will materially lessen the cost of loading lumber, logs, etc. while at the same time performing the operation more expeditiously and more satisfactorily.

With these and other objects, hereinafter more fully referred to, in view the invention consists essentially in the combination with a conveyor of means for automatically aligning the material conveyed and then loading it.

Referring now to the drawings in which like characters of reference indicate corresponding parts in each figure:

Figure 1 is a top plan view of the machine as a whole.

Figure 2 is an end view showing the frame and the loading truck therebeneath.

Figure 3 is an enlarged detail of the end of the machine showing the sling cable with the logs therein after being aligned.

Figure 4 is a detail of the releasing hooks or dogs for the slings, and partly in section.

Figure 5 is an end view of a modified form of my invention.

Figure 6 is a detail of a modified form of sling and automatic release.

Figure 7 is a detail of a modified form of loading trough.

Referring more particularly to the drawings, in which a preferred example of my invention is disclosed, 10 designates a frame supported on standards 11, in any well known manner, beneath which is a truck 12 on which is shown a log carrying staked car 13, or the like of the usual construction. The mechanism for conveying, aligning and delivering the logs 14 to this staked car comprises an aligning, straightening or loading trough member 16, designed to receive, straighten and align the logs as they are received from the conveyors, extending transversely of the frame and registering with an opening 17 therein. The material in the form of logs is conveyed to this trough by a plurality of conveyors consisting of endless chains 18 with log carrying members 19 at spaced intervals thereon, these chains in turn being mounted on sprockets 20 in turn operable by a shaft 21 driven by mechanism hereinafter more fully referred to. This shaft 21 is mounted in suitable bearing on the frame. A second transversely extending shaft 23, on which are mounted drums 24 (see Figure 1). On these are wound cables or chains 25 constituting the log carrying slings 26, the loose ends of which are adapted as at 27 to detachably engage with a plurality of dogs 28 fixedly mounted on a transversely extending rotatable shaft 29, operable by means of a lever arm 30 on a counter shaft 31 provided with dogs 28 to detach the slings which are rewound on the drums 24 and the dogs 28 are subsequently replaced by hand. The drum carrying shaft 23 is operated separately from the conveyor operating shaft 21 through mechanism hereinafter more fully referred to.

Referring now to the means for driving these shafts, 33 is a motor, belt connected to a pulley on a shaft 34 adapted to be thrown in and out of gear by a clutch 35. A second belt 35^a is connected to a pulley on a shaft 36 on which is a sprocket 37 chain connected by a chain 38 to a sprocket 39 on the shaft 21, whereby the latter is operated to in turn operate the log conveyors.

For drving the drum carrying shaft I provide a prime mover 40 suitably gear connected to a shaft 41 in turn gear connected to a shaft 42 provided with a brake 43. This shaft 42 is also gear connected to a shaft 44 in turn gear connected to the shaft 23 whereby the drums are rotated to slacken the sling forming cables 25 hitched to the dogs 28. As the logs fall into the slings the drums by means of the brake 43 are regulated to permit enlargement of the slings. Then, when a sufficient number of logs have been collected in the slings and the operating lever 30 is moved forwardly to permit the dogs 28 to drop, thus disengaging the ends of the slings therefrom, permitting the logs to drop onto the staked car 13. On the floor of the car are installed cross beams 46 designed when the logs are released thereon to provide a space for the convenient withdrawal of the slings.

In a modified form of my machine, as illustrated in Figures 5, 6 and 7, the winding drums are arranged on both sides of the

trough, providing double capacity for the machine, and instead of the loose ends of the cables forming the slings, being hitched onto the dogs 28, they are joined together by a spring actuated catch 45, of any known construction, as illustrated in Figure 6 and adapted on contact with the car floor 13 to be automatically released, permitting the aligned logs, as illustrated in Figure 5, to drop onto the car floor 13. In Figure 7 instead of the logs being dropped they can be taken out of the end of the trough by a crane or other suitable conveying medium through a door 47 provided with a catch 48 to retain it in closed position.

From the foregoing it will be seen that my mechanical loader is adapted for loading logs, timber, railway ties and the like, under varying conditions and onto various conveyors, such as staked cars, railway cars, ships, barges or other vessels, the essential feature being that the material handled is evenly loaded, that the slings, consisting of chains, cables or other material, support the material being loaded, and that the size of the slings is conveniently controlled by means of a suitable brake, regulating the rotation and consequent slackening or tensioning of the drums on which the slings are wound. The release catch 45 is a feature of my modified form.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:

1. A mechanical loader for logs, comprising a platform supported above the ground and having an opening therein, and an aligning hopper associated with said opening, a series of winding drums on one side of the opening and a system of levers on the opposite side of the opening, slings of flexible material wound on said drums, a plurality of rotatable engaging members, operable by said levers and adapted to detachably engage with the loose ends of said slings.

2. A mechanical loader for logs, in combination a platform having an opening therein, an aligning trough associated with said opening, conveyor mechanism for delivering material to the trough, slings of flexible material suspended within the opening and adapted to receive the aligning material from the trough, a series of winding drums for the slings and means opposite the winding drums for detachably suspending the slings, and lever operable means for rotating the suspending means to release the slings and the material therein.

3. A mechanical loader, in combination a platform having an opening therein, an aligning trough associated with said opening, conveyor mechanism for delivering material to the trough, slings of flexible material suspended within the opening and adapted to receive the aligned material from the trough, a series of winding drums for the slings and means opposite the winding drums for detachably suspending the slings, and having means for operating the suspending means to release the slings and the material therein, and means including a shaft for the winding drums and rotatable shafts for the sling engaging members, and prime mover means for operating said shafts.

4. A mechanical loader, in combination a platform, an aligning hopper associated with said platform, spring actuated means for engaging with and suspending slings below the hopper, a series of winding drums, means co-ordinating with the drums for detachably suspending the slings, and means for rotating the suspending means to release the slings, and means including a shaft for the winding drums and rotatable shafts for the sling engaging members, and prime mover means for operating said shafts.

In witness whereof I have hereunto set my hand.

GEORGE FREDERICK BINNS.