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J. E. KNIGHT.

UNLOADING APPARATUS.

APPLICATION FILED SEPT. 27, 1905.

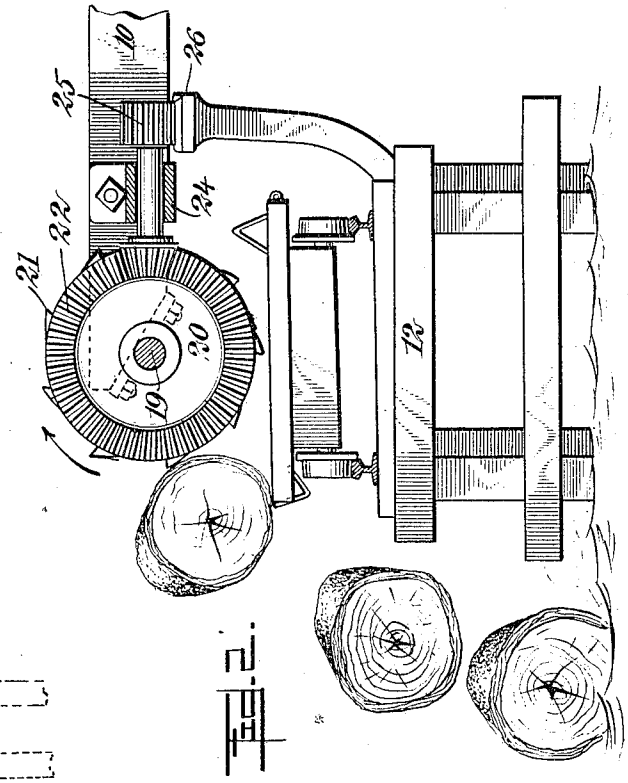


FIG. 2.

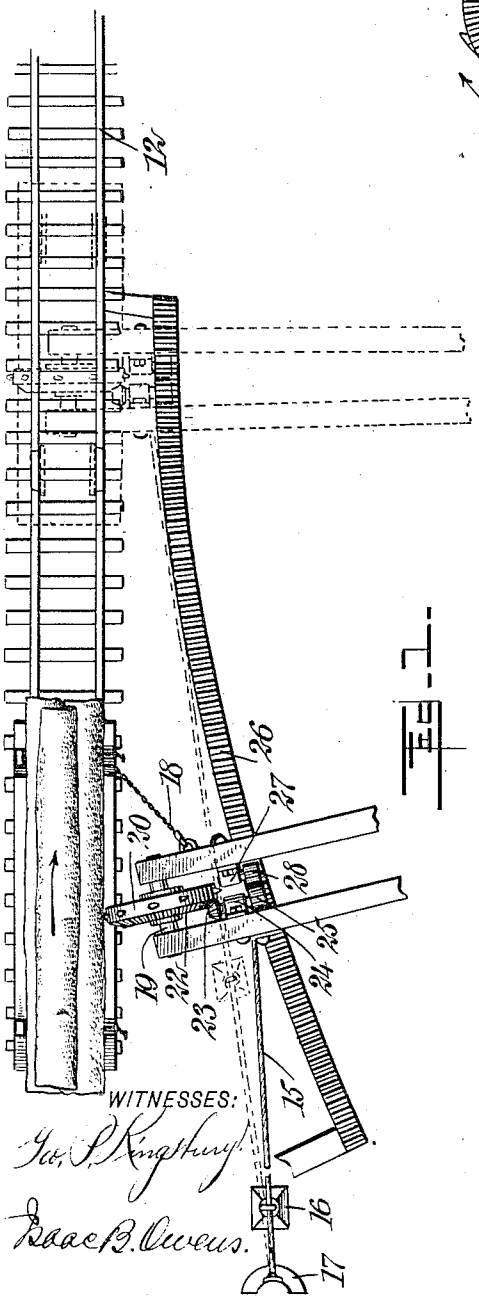
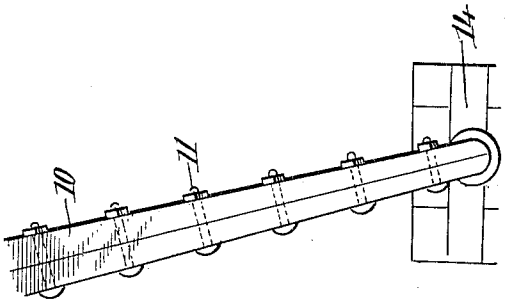


FIG. 1.



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JESSE EARNEST KNIGHT, OF BLUE CANYON, WASHINGTON.

UNLOADING APPARATUS.

No. 830,331. Specification of Letters Patent. Patented Sept. 4, 1906.

Application filed September 27, 1905. Serial No. 280,332.

To all whom it may concern:

Be it known that I, JESSE EARNEST KNIGHT, a citizen of the United States, and a resident of Blue Canyon, in the county of Whatcom and State of Washington, have invented a new and Improved Unloading Apparatus, of which the following is a full, clear, and exact description.

The invention relates particularly to an apparatus for unloading logs from flat-cars, although it is useful in various other connections.

The object of the invention is to provide a convenient and inexpensive means for unloading logs, utilizing therefor the power of the locomotive of the train on which said logs may be loaded. In attaining this end I provide a boom which is mounted to swing alongside of the track, so that its free end swings in an arc intersecting or converging toward the line of the track, whereby upon moving the boom to a position at an acute angle to the track-line and engaging it with the load of logs upon advancing the car the boom will be caused to swing to or toward a position at right angles to the track-line, and in doing so its free end will move over the flat-car and throw off the logs. Preferably, though not necessarily, the end of the boom is provided with a peculiarly-arranged device for assisting in this unloading action, such device comprising a wheel or rotary member to which rotary movement is imparted upon the swinging of the boom by the action of a rack and pinion, said wheel or rotary member engaging the logs to assist in unloading them.

The invention resides in certain novel features of construction and combination of parts, which will be fully set forth hereinafter and pointed out in the claims.

Reference is had to the accompanying drawings, which illustrate as an example the preferred embodiment of my invention, in which—

Figure 1 is a plan view showing the invention in operation; and Fig. 2 is a sectional view, also showing the operation of the invention.

10 indicates the boom, which is shown as made up of two members bolted together at one end, as shown at 11, and diverging from each other at the other end. The end of the boom removed from the track 12 is mounted, by any suitable means 14, so that the boom may swing in an arc, as indicated by the full and broken lines in Fig. 1. Connected with the free end of the boom is a line or cable 15, to which a weight 16 is attached. This line passes up to the top of a mast 17. (Shown in Fig. 1.) The height of the mast 17, to which the cable 15 is attached, is such that the weight on the line or cable will return the boom to the position shown by full lines in Fig. 1 after the boom and its connections have been disengaged from the load on the flat-car and preparatory to unloading a second car.

18 indicates a line or cable or connection of any sort for temporarily joining the free end of the boom to the car.

Now it will be seen that upon adjusting the boom with respect to the loaded car as shown by full lines in Fig. 1, and by moving the car in the direction of the arrow applied to said view until the parts assume the position shown by broken lines in Fig. 1 the boom will be caused to swing in an arc, and its free end will sweep over the car and quickly throw off the logs. The car may be advanced in this manner by the engine which is employed to move the train, and after one operation has been performed the cable 18 may be disconnected, whereupon the boom will under the action of the weight 16 and cable 15 automatically return to the position shown by full lines, whereupon the boom is ready for a second operation. This may be kept up, the train moving intermittently after each unloading operation, until the entire train is unloaded. It will be seen that this operation is effected by the mere movement of the train and that the load of a single car is instantly discharged, not only saving in labor, but also materially saving in the time required to unload the train.

It is obvious that as far as the broad principle of my invention is concerned a mere boom may be employed. I prefer, however, to attach to the boom a peculiarly-rotating member or wheel which assists in the unloading operation. As before described, the boom is preferably formed of two sections bolted together and diverging at the free end of the boom. Extending between these sections of the boom is a stout shaft 19, on which a wheel 20 is mounted, the shaft extending horizontally and the wheel vertically, as shown. Said wheel has spurs 21 in its periphery and is provided with a bevel-gear 22. The gear 22 is in mesh with a gear 23, carried on a short shaft in a box 24, attached

to one section of the boom. Said short shaft also carries a pinion 25, which is in mesh with a stationary arc-shaped rack 26, over which rack the boom swings. The other or second section of the boom has a short shaft carried in a box 27, and to this shaft a pinion 28 is attached, the pinion 28 meshing with the rack 26, the same as the pinion 25. The pinion 25 serves the double function of assisting in supporting the boom and allowing it to roll easily over the rack and in rotating the wheel 20. The pinion 28 serves to assist in supporting the boom and facilitates its rolling movement over the rack. With this device upon the movement of the boom a rotating motion is imparted to the wheel in the direction of the arrow shown in Fig. 2. The spurs 21 on the wheel 20 engage the logs and impart a rolling movement to them, greatly assisting in the unloading action, since the logs are piled up on the car, and when one log is given a rolling motion this motion is imparted to the other logs, so that the entire load rapidly takes up a rolling movement and is almost instantly discharged.

Having thus described the preferred form of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end adjacent to the way and adapted to move in an arc converging toward said way, for the purpose specified, a line in connection with said boom, an elevated part to which the line is joined, and a weight attached to the line intermediate its ends.

2. In an unloading apparatus, the combination of a way adapted to have a vehicle moved along the same, a swinging boom having its free end juxtaposed to said way, the boom being adapted to have its free end moved through an arc converging toward and intersecting said way, a line in connection with said boom, an elevated part with which the line is connected, and a weight attached to the line intermediate its ends, for the purpose specified.

3. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end arranged to move in an arc converging toward the way, a rotary member carried by the free portion of the boom, and means for rotating the said member during the swinging of the boom, said rotating member having spurs in its periphery adapted to engage the material unloaded.

4. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end arranged to move in an arc converging toward the way, a rotary member carried by the free portion of the boom, and means for rotating the said member during the swinging of the boom, said means for rotating said member comprising a stationary rack, and a pinion carried by the boom and meshed with the rack and having connection with the rotary member.

5. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end arranged to move in an arc converging toward the way, a rotary unloading member carried by the free portion of the boom, and means for rotating said unloading member during the swinging of the boom.

6. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end arranged to move in an arc converging toward the way, a rotary unloading member carried by the free portion of the boom and adapted to engage the load on the vehicle, means for connecting the boom with the vehicle, and means for rotating said unloading member during the swinging of the boom.

7. In an unloading apparatus, the combination with a way adapted to have a vehicle moved along the same, of a swinging boom having its free end arranged to move in an arc converging toward the way, a rotary unloading member carried by the free portion of the boom and adapted to engage the load on the vehicle, means for connecting the boom with the vehicle, means for rotating said unloading member during the swinging of the boom, and means in connection with the boom for automatically returning the same to a position removed from the way.

8. In an unloading apparatus, the combination with a way and a vehicle adapted to move over the same, of a boom, mounted to swing its free end in an arc converging toward the way and to sweep over the floor of the vehicle to engage the load thereof, and throw the same laterally from the vehicle.

9. In an unloading apparatus, the combination with a way and a vehicle adapted to move over the same, of a boom, mounted to swing its free end in an arc converging toward the way and to sweep over the floor of the vehicle to engage the load thereof, and throw the same laterally from the vehicle and means for connecting said free portion of the boom to the vehicle whereby to swing the boom through the medium of the vehicle.

10. In an unloading apparatus, the combination with a way and a vehicle adapted to move over the same, of a boom, mounted to swing its free end in an arc converging toward the way and to sweep over the floor of the vehicle to engage the load thereof and throw the load laterally from the vehicle, and a means for automatically returning the boom to inactive position.

11. In an unloading apparatus, the combi-

nation with a way and a vehicle adapted to move over the same, of a boom, mounted to swing its free end in an arc converging toward the way and to sweep over the floor of the vehicle to engage the load thereof and throw the load laterally from the vehicle, means for connecting said free portion of the boom to the vehicle whereby to swing the boom through the medium of the vehicle, and means for automatically returning the boom to its inactive position upon disconnection from the vehicle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JESSE EARNEST KNIGHT.

Witnesses:
J. N. PHILLIPS,
N. K. STALEY.