No. 719,012. PATENTED JAN. 27, 1903.

W. S. KENNEDY.

LOG LOADER.

APPLICATION FILED APR. 21, 1902.

NO MODEL. 5 SHEETS—SHEET 1.

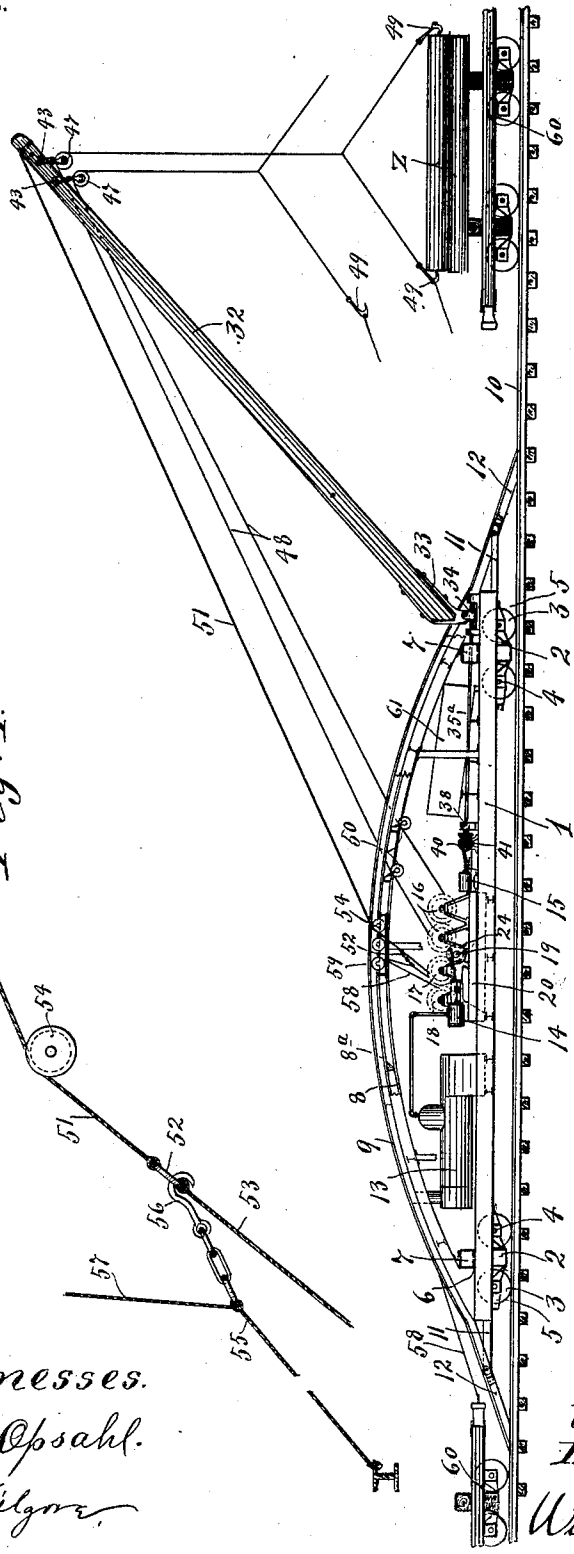


Fig. 1.

Fig. 2.

Witnesses.
a. H. Opsahl.
H. D. Kilgore

Inventor.
Walter S. Kennedy
By his Attorneys
Williamson & Merchant

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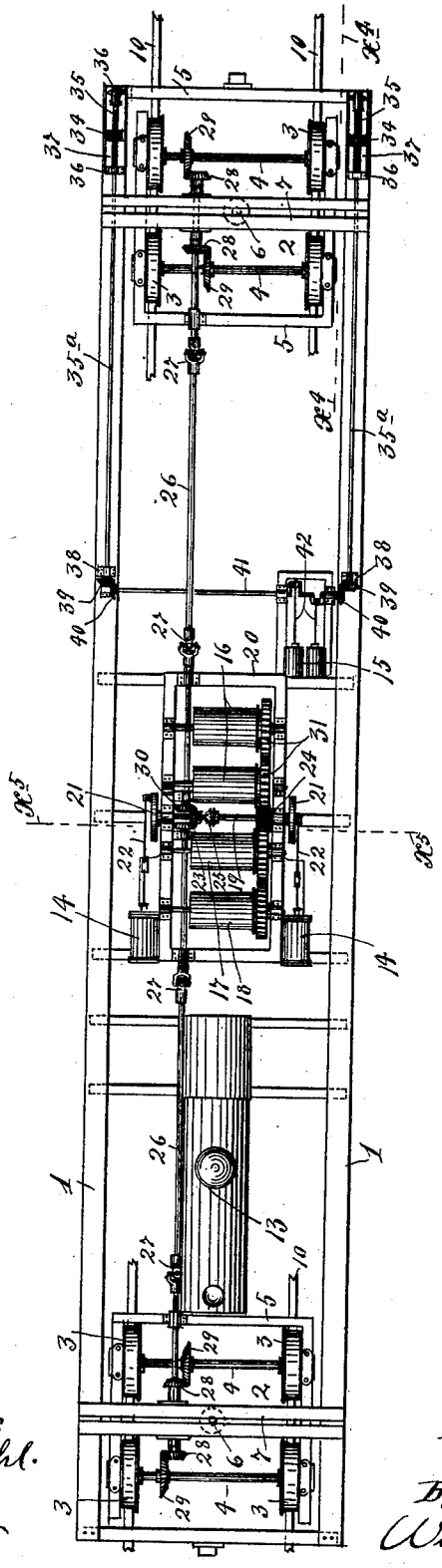
LOG LOADER.

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NO MODEL.

5 SHEETS—SHEET 2.

Fig. 3.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 5 SHEETS—SHEET 3.

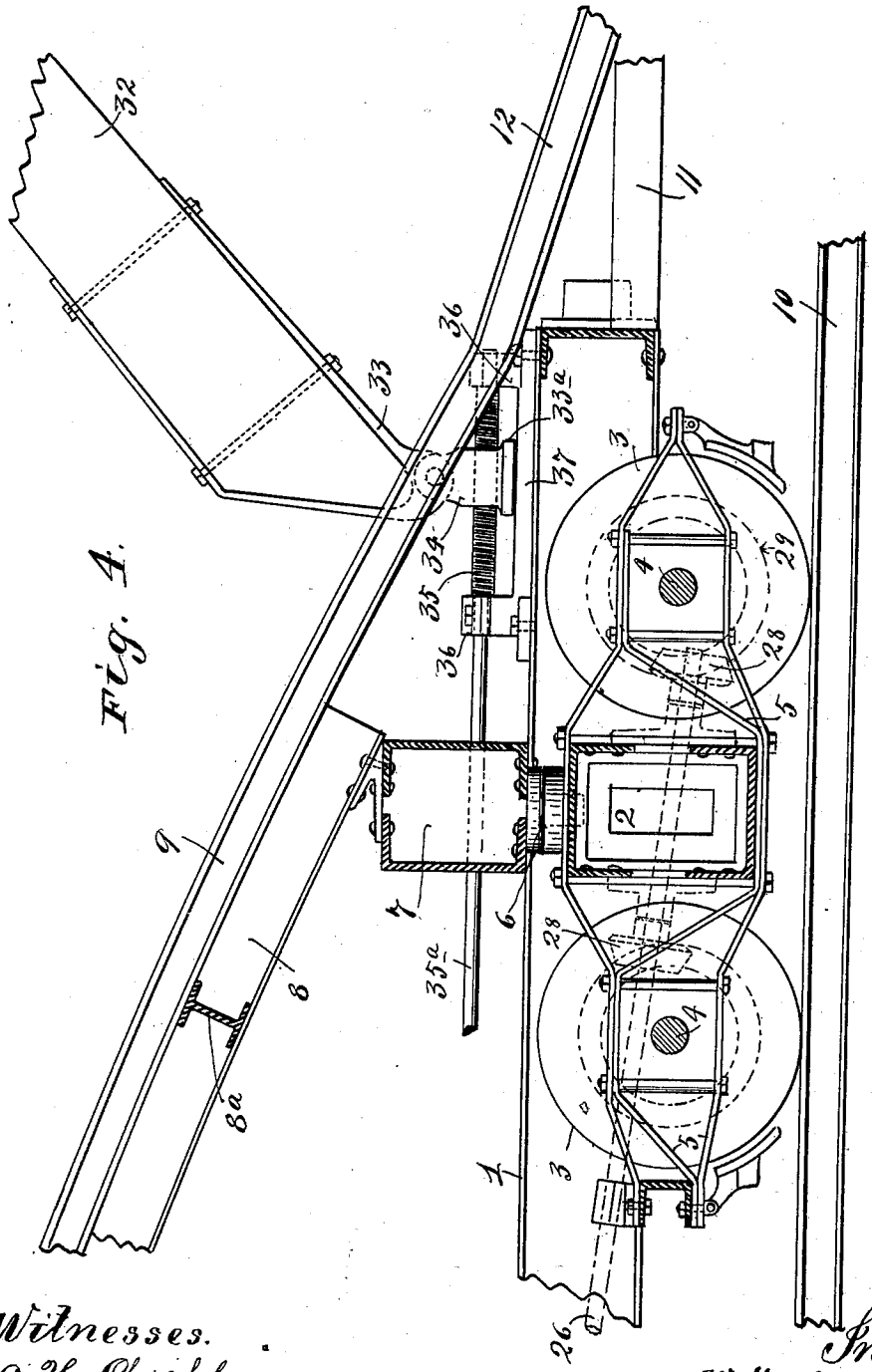


Fig. 4.

Witnesses.
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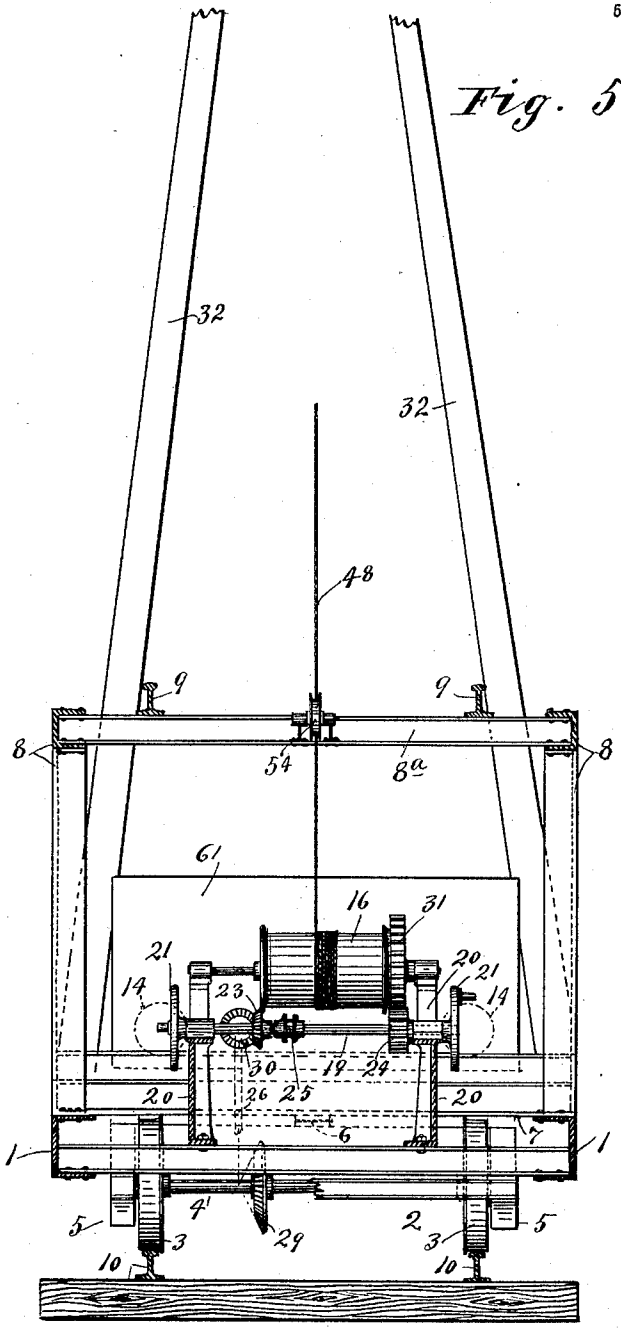
W. S. KENNEDY.

LOG LOADER.

APPLICATION FILED APR. 21, 1902.

NO MODEL. 5 SHEETS—SHEET 4.

Fig. 5.



Witnesses.
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LOG LOADER.

APPLICATION FILED APR. 21, 1902.

NO MODEL. 5 SHEETS—SHEET 5.

Fig. 8.

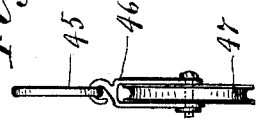


Fig. 7.

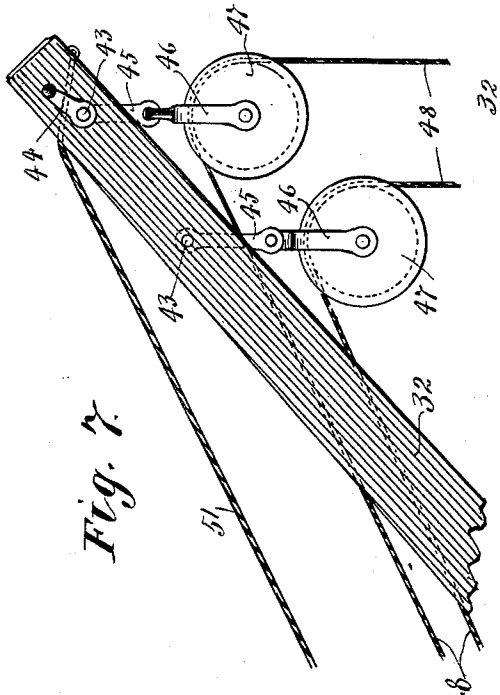


Fig. 6.

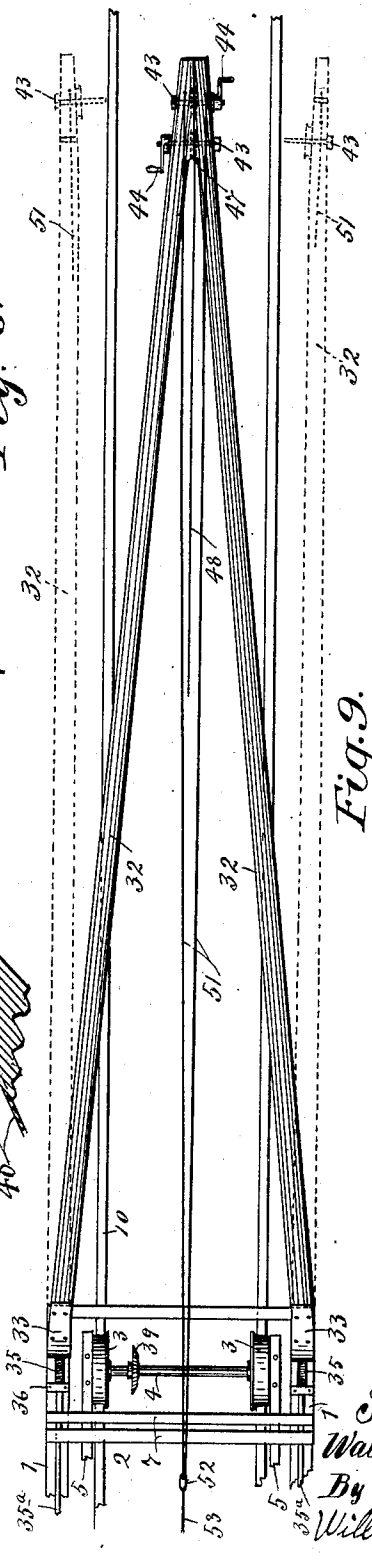
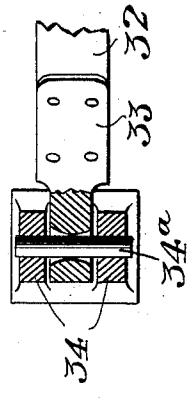


Fig. 9.



Witnesses.

A. H. Opsahl.

N. D. Kilgore

Inventor

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By his Attorneys'

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UNITED STATES PATENT OFFICE.

WALTER S. KENNEDY, OF MINNEAPOLIS, MINNESOTA.

LOG-LOADER.

SPECIFICATION forming part of Letters Patent No. 719,012, dated January 27, 1903.

Application filed April 21, 1902. Serial No. 103,839. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. KENNEDY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Log-Loaders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved log-loader adapted for use to rapidly load logs on cars.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, showing a section of track, several log-cars, and my improved log-loader, some parts being broken away. Fig. 2 is a detail illustrating means for securing the derrick-lifting windlass connection. Fig. 3 is a plan view of the log-loader, some parts being broken away. Fig. 4 is a vertical section taken approximately on the line x^4 x^4 of Fig. 3. Fig. 5 is a transverse vertical section taken approximately on the line x^5 x^5 of Fig. 3. Fig. 6 is a plan view of the derrick and of that end of the bridge to which said derrick is attached. Fig. 7 is a side elevation showing the free end of the derrick on an enlarged scale. Fig. 8 is a detail in front elevation of one of the guide-sheaves and its supporting-yoke, which parts are carried at the free end of the derrick; and Fig. 9 is a detail, partly in horizontal section, but with some parts shown in plan and others broken away, illustrating the construction whereby the derrick is pivotally connected to its adjusting-blocks.

In accordance with my invention I provide what I term a "traveling bridge"—to wit, a trussed and upwardly-bowed track-section carried by a long and heavy truck or flat-car which is mounted to move over the rails of an ordinary track. At one end of the traveling bridge is a derrick of novel construction. On the car-body of the traveling bridge is a motor or motors having connections for operating the derrick, for imparting traveling movements to the said bridge, and for causing the empty log-cars to pass over the bridge, all as hereinafter more fully described.

The numeral 1 indicates the body of a long car, the same being supported in the usual way or, as is usual in flat-car construction, by means of trucks 2. The trucks 2, as is ordinary, involve wheels 3 on axles 4. The frames 5 of said trucks are pivotally connected at 6 to heavy transverse bolsters 7 of the long car-body 1. The bridge is carried by the car-body 1 and formed of a strong upwardly-bowed metal truss or bridge work 8, the ends of which are firmly attached to the bolsters 7. Parallel upwardly-bowed track-rails 9 are rigidly secured to the transverse beams 8^a of the bridgework 8, as best shown in Figs. 4 and 5. The rails 9 are spaced to correspond to the rails 10 of the road-bed, and at their ends they are supported above the said rails 10 by means of braces 11, projected from the car-body 1, as shown in Figs. 1 and 4. To the ends of the said rails 9 are pivotally connected drop-rail sections 12, which when turned downwardly, as shown in Fig. 1, afford inclined track connections between the said rails 9 and 10.

The traveling bridge above described is adapted to be used as a locomotive not only to move itself from place to place, but to push about either loaded or unloaded log-cars. It may be driven by any suitable power, but, as shown, is a steam-propelled device and carries a boiler 13, a primary engine 14, a secondary engine 15, and a plurality of windlass-drums 16, 17, and 18.

The numeral 19 indicates a counter-shaft journaled in a suitable frame 20 on the car-body 1 and provided with crank-disks 21, connected by suitable rods 22 to the pistons of the laterally-spaced members of the primary engine 14. The shaft 19 is provided with a bevel-pinion 23 and a spur-pinion 24, the former of which is loose and the latter of which is fixed thereon. The loose pinion 23 is adapted to be connected for rotation with the shaft 19 at will by means of a sliding half-clutch 25, which operates in the ordinary and well-known way.

26 indicates flexible shafts, the joints of

which are connected by knuckles 27. The end sections of this shaft are journaled in suitable bearings on the truck-frames 5 and are provided with bevel-pinions 28, which engage with bevel-gears 29 on the axles 4. The inner sections of the shafts 26 are journaled in suitable bearings secured at the central portion of the body 1 of the traveling bridge. The said inner sections of said shaft 26 are provided with bevel-gears 30, which mesh with the loose pinion 23.

It will of course be understood that through the connections just described the so-called "traveling bridge" may be propelled in either direction by power supplied by the primary engines 14. By suitable connections, such as usually employed, the drums 16 may at will be connected for rotation with their respective gears 31. The outer gears 31 mesh with intermediate gears, and the intermediate gears mesh with the spur-pinion 24 of the shaft 19.

The specific construction just described or indicated forms no part of my present invention, and hence further illustration thereof is not deemed necessary for the purposes of this case.

The derrick is formed of a pair of long and heavy arms 32, which are preferably timbers provided at their lower ends with metal brackets 33, pivoted to sliding blocks 34. By reference to Fig. 9 it will be noted that the brackets 33 are directly pivoted to the sliding blocks 34 by pins 34^a, which are tightly driven into prongs of said blocks and loosely fit in reversely-flaring seats formed in the hinged lug portions of said brackets. The sliding blocks 34 work as large nuts on heavy adjusting-screws 35, rotatively mounted in lugs 36 of bearing-plates 37, rigidly secured on the frame 1 of the traveling bridge, at the right-hand end thereof as viewed in Figs. 1, 4, and 6. The adjusting-screws 35 are held against endwise movements by the said lugs 36. The blocks 34 are provided with depending flat faces 33^a, which slide over the faces of the plates 37, and thereby hold the said blocks against rotary movements. The shafts 35^a of the adjusting-screws are extended toward the central portion of the frame 1 and at their ends are mounted in bearings 38 on said frame and are provided with bevel-gears 39, which mesh with bevel-gears 40 of a crank-shaft 41, mounted in suitable bearings on said frame 1. The crank-shaft 41 is driven from the engine 15 through connecting-rods 42, connected to the cranks thereof. As is evident, when the crank-shaft 41 is rotated the two adjusting-screws 35 will be rotated in opposite directions and the nut-blocks 34 will be simultaneously moved the one forward and the other rearward. This movement, as will hereinafter appear, serves to throw the free end of the derrick from one side to the other of the track.

The free ends of the derrick-arms 32 are drawn together and secured, preferably, by a pair of reversely-extended bolts 43, provided at their screw-threaded ends with crank-equipped nuts 44. Loosely pivoted on each bolt 43 is a link 45, from which is suspended the yoke 46 of a guide-sheave 47. When the nuts 44 are removed, the arms of the derrick may be spread apart, as indicated by dotted lines in Fig. 6, or to any desired greater extent, and when thus separated one sheave and its supporting connection will be carried by each arm of the derrick. Ropes or other flexible windlass connections 48 run over each sheave 47 and are provided at their outer ends with log-grapples 49 of ordinary or any suitable construction. At their inner ends the ropes 48 are connected one to each of the drums 16. The link 45, which supports the lower sheave 47, is laterally offset or bent sidewise, so as to clear the lifting-rope 48, which runs over the upper sheave. Both of the lifting connections 48 run over guide-sheaves 50, suitably mounted on the trussed bridgework 8.

The derrick is lifted by flexible lifting connections 51, connected at their outer ends one to the free end of each derrick-arm 32. At their inner ends the connections 51 are united by a metal link 52, which in turn is connected to the windlass-drum 17 by means of a chain or flexible connection 53. The connections 51 and 53 run over a guide-sheave 54, suitably mounted on the bridgework 8.

To positively lock the derrick in an elevated position, I provide a so-called "lock-chain" 55, which is suitably anchored at its lower end to the body-frame 1 and is provided at its upper or free end with a hook 56, which is detachably engageable with the link or ring 52, as best shown in Figs. 1 and 2.

57 indicates a light flexible connection which loosely suspends the free end of the connection 55 from the overhead bridgework 8 when the said chain is out of use.

The numeral 58 indicates a chain, rope, or other flexible connection which at its inner end is attached to the drum 18 and at its outer end is adapted to be connected to a logging-car. This connection 58 runs between a pair of guide-sheaves 59. (See Fig. 1.)

The numeral 60 indicates as an entirety a logging-car, and the character *z* indicates logs.

61 is a water-tank.

In loading logs by means of a portable log-loader movable on the same track as the log-cars great difficulty has been experienced in handling the logging-cars so that they may be loaded in succession and run out of the way after they are loaded. With my improved log-loader I run the empty cars over the arched track or bridge, load the same at the derrick end of the device, and then push the same rearward to make up a train of loaded log-cars. In order to permit the unloaded log-cars to pass between the arms of the derrick, the said arms are separated at their free ends and spread out far enough to permit the logging-cars to pass between them.

To prevent the lifting connections 48 and 51 from being run over by the wheels of the log-cars, the sections 12 of the arched track 9 are raised, and the said connections are passed thereunder. When a car is to be drawn over the bridge, the connection 58 is connected thereto, preferably to the rear end thereof. Said connection 58 is then wound onto the drum 18, and the log-car is drawn to the crown of the bridge and will of course run down the other side thereof under the action of gravity, under which downward movement the car may of course be held back by the said connection 58 and drum 18.

As already indicated, the free end of the derrick may be thrown from one side to the other of the track by manipulating blocks or nuts 34 in a manner already described. It is also evident that with the construction described both of the grapples 49 may be operated at the same time to load two logs. These grapples and their connections may of course be used to gather up logs which lie a considerable distance from the track. It will also be understood that the so-called "traveling bridge" when the track-sections 12 are turned up may be used to push the train of loaded or unloaded log-cars from place to place and may be used to push the loaded cars successively rearward on the track to make room for the unloaded cars as they are delivered in position for loading.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A log-loader comprising a portable bridge, a derrick and means for operating said derrick, which derrick is formed with sides or arms adapted to be separated at their free ends and spread apart to permit the log-cars to pass between, substantially as described.

2. In a log-loader, the combination with an arched bridge over which the log-cars are adapted to be moved, of a derrick having arms detachably connected at their free ends and pivoted at their lower ends whereby they are adapted to be separated to permit the log-cars to pass between them, and mechanism for operating said derrick mounted on the frame of said bridge below the arched track thereof, substantially as described.

3. In a log-loader, the combination with a portable arched bridge having rails over which the log-cars are adapted to be moved, of a windlass mounted on the frame of said bridge below the rails thereof and provided with a flexible connection, and guides for said connection located at the crown of the bridge and on both sides thereof, whereby said flexible connection is adapted to draw a log-car to the crown of the bridge-rails and then to hold back and prevent the same from running away on the downgrade side of the bridge.

4. The combination with a portable bridge movable on the track and provided with means whereby it may propel itself, of a derrick mounted on said bridge and provided with arms adapted to be spread laterally to permit a log-car to pass between them, substantially as described.

5. The combination with a portable bridge, of track-rails running over said bridge and provided with pivoted end sections for uniting them with the rails of the road-bed, and a derrick mounted on said bridge and provided with arms adapted to be separated laterally to permit a log-car to pass between them substantially as described.

6. In a log-loader, the combination with a traveling bridge of a derrick mounted thereon, sliding blocks to which the lower ends of the arms of said derrick are pivoted, adjusting-screws disposed longitudinally of said bridge and of said derrick for moving said blocks in reverse directions, and means for moving said screws, substantially as described.

7. The combination with a derrick having converging arms, of blocks to which the lower ends of the arms of said derrick are pivoted, and means for moving said blocks in reverse directions longitudinally of said derrick to throw the free end of the derrick from side to side, substantially as described.

8. The combination with a truck or traveling support and derrick-operating mechanism or power devices located on said truck, of a bridge carried by said truck and having its rails extended above the said devices on said truck whereby a car is adapted to be carried over and above all of the said parts, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER S. KENNEDY.

Witnesses:
H. D. KILGORE,
F. D. MERCHANT.