

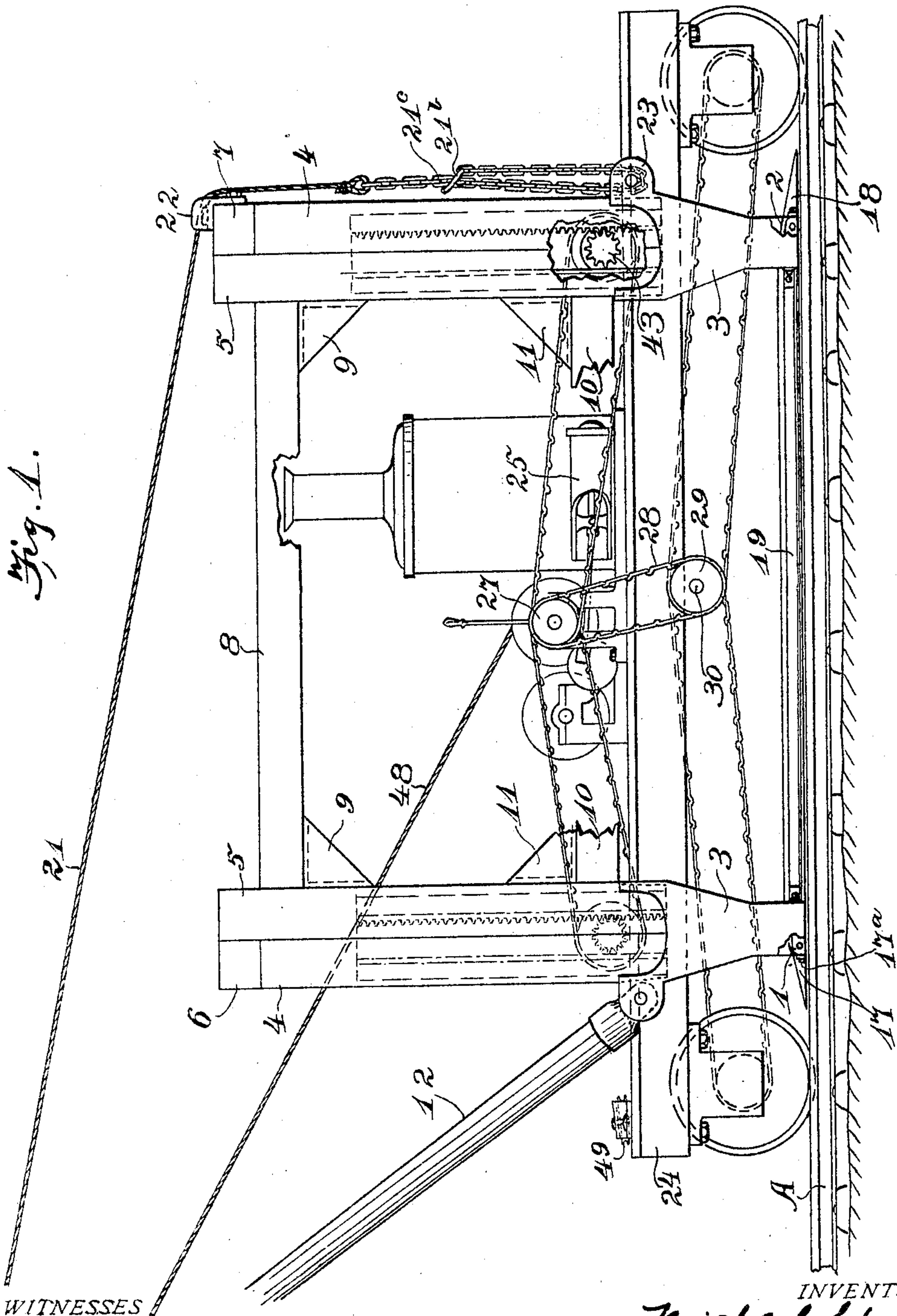
No. 798,456.

PATENTED AUG. 29, 1905.

M. SCHMALTZ.
LOG LOADING AND SKIDDING MACHINE.

APPLICATION FILED AUG. 19, 1904.

4 SHEETS—SHEET 1.



WITNESSES

Frederickton, N. J. Blewett.
Paul Martin

INVENTOR.

Michael Schmaltz
BY *James T. Watson*
His ATTORNEY.

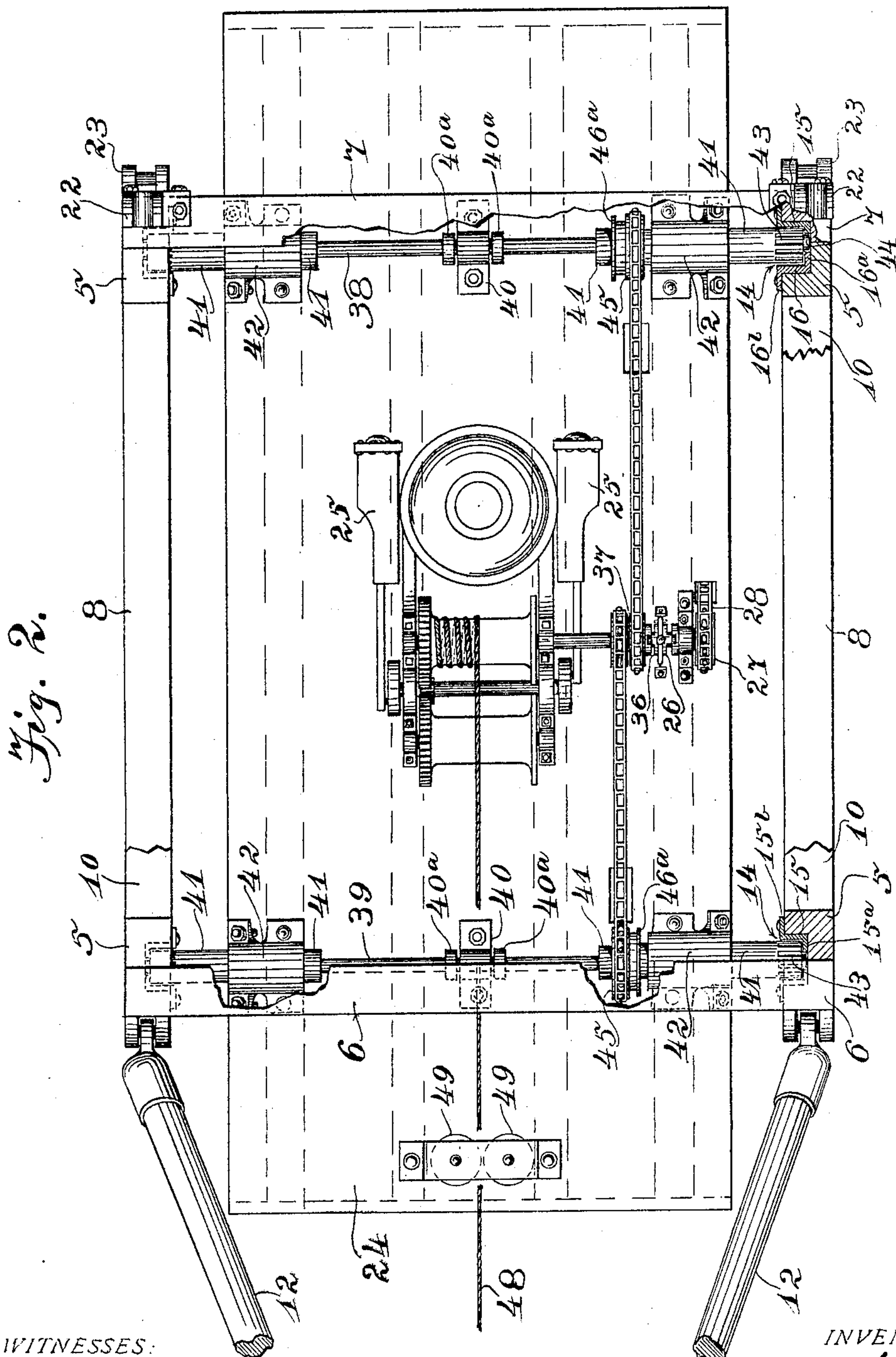
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4 SHEETS—SHEET 2.



WITNESSES:
Wellington W. Brewster
Pearl Martin

INVENTOR.
Michael Schmaltz
BY James T. Watson
his ATTORNEY.

No. 798,456.

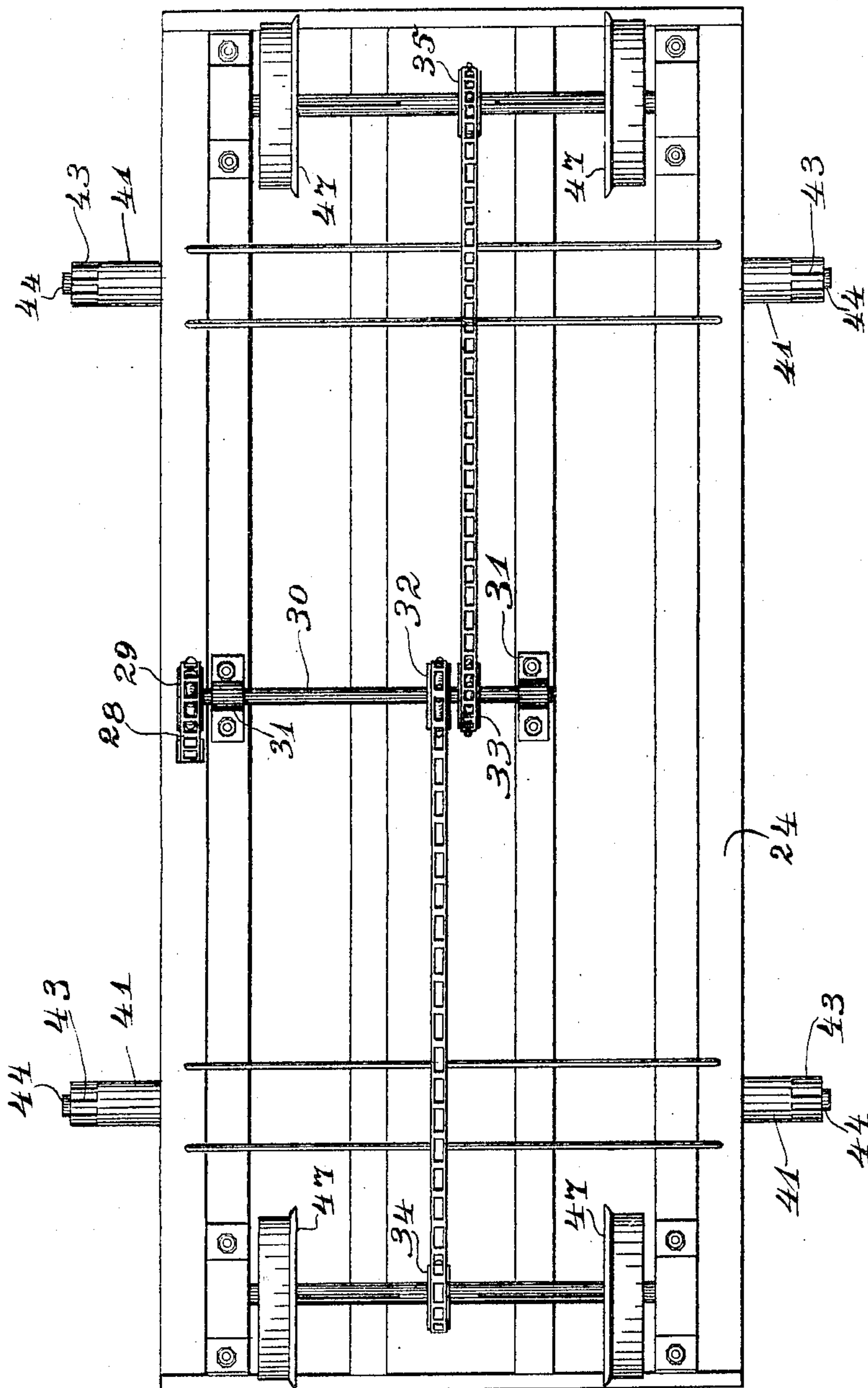
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4 SHEETS—SHEET 3.

Fig. 3.



WITNESSES:

Wellington W. Blewett
Pearl Martin

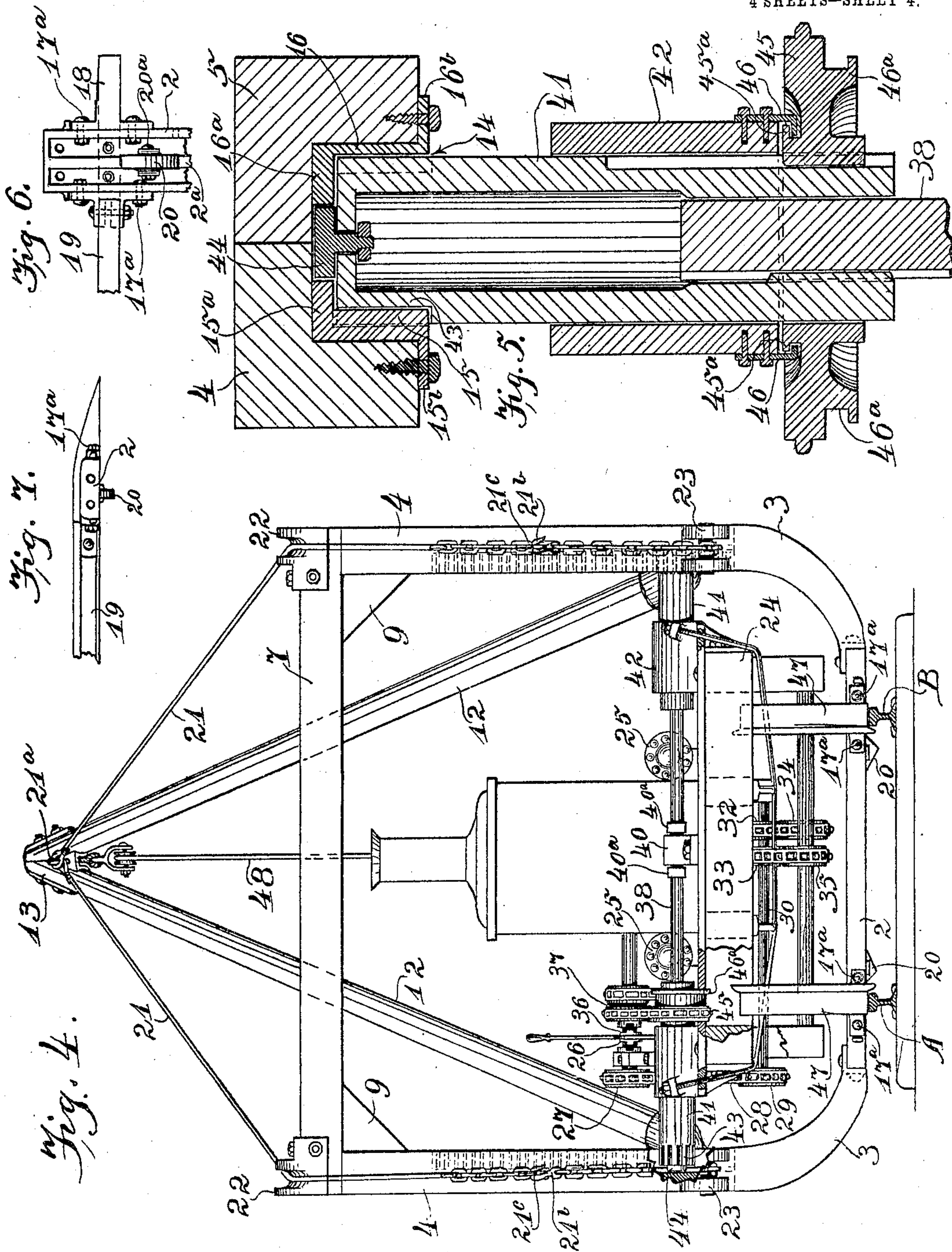
INVENTOR.

Michael Schmaltz
BY James T. Watson
His ATTORNEY.

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4 SHEETS—SHEET 4.



WITNESSES:

Wellington M. Blewett
Pearl Martin

INVENTOR.

Michael Schmaltz
BY James T. Watson
his ATTORNEY.

UNITED STATES PATENT OFFICE.

MICHAEL SCHMALTZ, OF DULUTH, MINNESOTA.

LOG LOADING AND SKIDDING MACHINE.

No. 798,456.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed August 19, 1904. Serial No. 221,317.

To all whom it may concern:

Be it known that I, MICHAEL SCHMALTZ, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Log Loading and Skidding Machines; 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 relates to log loading and skidding machines.

It consists of an engine-bearing car, which I will call the "locomotive" or "engine" car, and of an exterior or partly-inclosing derrick and car-supporting frame adapted to rest on the same track as the engine-car and when desired to support said engine-car above said track.

It also consists of certain other constructions, combinations, and arrangements of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation, partly broken away, of a machine embodying my said invention. Fig. 2 is a top plan view of the same, partly broken away, omitting backstays. Fig. 3 is a bottom plan view of the engine-car forming part thereof. Fig. 4 is a rear end view of said invention, partly broken away. Fig. 5 is an enlarged detail central horizontal sectional view of one of the bolt-pinions forming part of my said invention. Fig. 6 is an enlarged detail bottom plan view of a fragment of the sill or base forming part of my said invention, and Fig. 7 is a side elevation of said enlarged fragment.

Referring to the drawings, the derrick-frame consists substantially of a frame comprising transverse sills 1 and 2, brackets 3, mounted thereon, posts 4 and 5, erected upon each of said brackets, transverse overhead beams 6 and 7 at opposite ends of said frame and secured in any suitable manner at their ends to the contiguous said posts 4, longitudinal upper beams 8 at each side of said frame extending from the post 5 at one end of said frame to the post 5 at the opposite end thereof and secured thereto by any suitable means, as by brackets 9, longitudinal lower beams 10 at each side of said frame extending from the post 5 at one end of said frame to the post 5 at the opposite end thereof and secured thereto by any suitable means, as by brackets 11, and derrick-poles 12, pivotally connected at their

lower ends to the opposite sides of said frame at one end thereof and converging and secured together in any suitable manner at their upper ends, as by a cap 13. Formed in the opposing faces of each pair of said posts 4 and 5 is a vertical channel 14, to one side wall of each of which channels is secured a rack 15, provided with a flange 15^a, extending partly across the rear wall of such channel, and further provided with a flange 15^b, overlapping the inner face of the post against which such rack is positioned. A facing comprising a web 16 is secured against the opposite wall of each of said channels and is provided with a flange 16^a, extending partly across the rear wall of the corresponding channel, and with a flange 16^b, overlapping the inner face of the post against which such web is positioned. Said sills are adapted to extend across and rest upon the rails A and B of a railway-track. The sill 1 is provided near each of its ends with forwardly-extending inclined ways 17, adjustably secured to said sill in any suitable manner, as by bolts 17^a, and respectively adapted to register with the track-rail underlying the corresponding side of said machine. Said sills are provided with suitable bolt-holes to receive said bolts, according to the distance of the respective inclines from the center of said sill. Thus the inclines may readily be adjusted to register with either a standard-gage track or a broad-gage track or a narrow-gage track, as may be desired. Rearwardly-extending inclined ways 18 are similarly mounted on the sill 2. Extending from the forward inclined ways to the rearward inclined ways and mounted thereon in any suitable manner are corresponding bridge-rails 19, the treads or bulbs of which are flush with the upper ends of the corresponding inclined ways. A track is thus formed extending from the rails A and B over said sills and down again to said rails A and B. Adjustable depending spacing-lugs 20 are secured to said sills near each end thereof in any suitable manner, as by bolts 20^a, extending through a stiffening-rib 1^a or 2^a, as the case may be, formed on the under side of the corresponding sill, additional bolt-holes being provided through said ribs to receive said bolts, according to the temporary distance of said lugs from the center of said sills. Thus said lugs may be adapted to project downwardly between the rails of a broad, standard, or a narrow gage track and in operation to prevent side slipping of said sills or frame. Adjustable backstays 21 are secured in any

suitable manner to the apex of said derrick, as at 21^a, and extend divergently backward through guides 22, mounted on the upper part of the rear end of said frame, and thence
 5 downwardly to and around suitable clevises 23, secured to the lower part of said frame, and are provided at their free ends with hooks 21^b, which are engaged with suitable rings or links 21^c, attached to said stays interme-
 10 mediate of their ends or forming part of such stays. Said stays may thus be easily and quickly lengthened or shortened to change the angle of said derrick. It is obvious, how-
 15 ever, that the construction of said frame and derrick may be modified, strengthened, or altered in many details without departing from the spirit or scope of my invention. Said frame is in some respects similar to the der-
 20 rick-car described in Letters Patent of the United States dated April 12, 1904, No. 757,235, issued to me for derrick-car.

The engine-car forming part of my inven- tion comprises a platform-car 24 of any suit-
 25 able construction, having a hoisting, skidding, and driving engine 25 of any suitable con-
 struction mounted thereon, the elements of said engine used for hoisting and those used
 30 for skidding being well known to the art and not necessary to be herein particularly de-
 scribed. The shaft of one of the hoisting-
 drums of said engine is provided with a clutch 26, slidably keyed thereto and adapted in op-
 35 eration to engage a sprocket-wheel 27, loosely journaled on said shaft. Said sprocket-wheel
 is belted by a chain 28 to a sprocket-wheel 29,
 40 keyed to a shaft 30, journaled in bearings 31, depending from the frame of said car beneath
 the platform thereof, which shaft 30 carries
 two other sprocket-wheels 32 and 33, keyed
 45 thereto and belted, respectively, to sprocket-
 wheels 34 and 35, keyed to the axles of the
 forward and rearward trucks of said car, whereby said engine is adapted to drive said
 50 car along the track, the construction of said
 car as thus far described being in many re-
 spects similar to the engine-car described in
 Letters Patent of the United States dated
 April 12, 1904, No. 757,234, issued to me for
 55 a log loading and skidding machine. The
 shaft of one of said drums is provided with a
 clutch 36, preferably integral with said clutch
 26, slidably keyed thereto and adapted in op-
 60 eration to engage a double sprocket-wheel 37,
 loosely journaled on said shaft. Near each
 end of said car are mounted transversely-ex-
 tending shafts 38 and 39, respectively jour-
 naled in suitable corresponding bearings, as
 40, which shafts are prevented from moving
 65 longitudinally in their bearings by collars 40^a,
 secured to said shafts close at each side of said
 bearings 40. Slidably keyed on each end of
 each of said shafts 38 and 39 is a correspond-
 ing sleeve 41, journaled in corresponding
 bearings 42 and having secured to or formed
 on its outer end a pinion 43, adapted in opera-

tion to engage a corresponding one of said
 racks 15, said sleeve being also preferably
 provided at its pinion end with a terminal
 roller 44, adapted to project into the space
 between the opposing edges of the flanges 15^a 70
 and 16^a, and thus keep said pinion from fric-
 tional contact with the wall of said channel
 or its facing opposite such rack. Upon the
 inner end of one or both of the sleeves on each
 of said shafts is slidably keyed a sprocket- 75
 wheel 45, which is preferably retained in po-
 sition near the corresponding bearing 42 by
 fingers 46, secured to the outer wall of said
 bearing and loosely engaging a flange 45^a,
 80 formed upon the contiguous end of the hub
 of said sprocket-wheel. A circumferentially-
 grooved flange 46^a is preferably formed upon
 said sprocket-wheel to receive a brake-strap
 of any suitable construction, (not shown,) 85
 such brake-straps and means for operating
 them being well known to the art of brake
 construction and not thought necessary to be
 herein particularly described. The support-
 90 ing-wheels 47 of said car are adjustably keyed
 to their respective axles and may be readily
 adjusted thereon to engage a railway-track of
 broad, standard, or narrow gage, and when
 so adjusted the removable key is driven in
 tight, but may when desired be withdrawn
 to permit of a different adjustment. It will 95
 readily be understood that sleeves 42, which
 may be called "bolt-pinions" and correspond
 in one of their functions to the bolts 81, de-
 scribed in my said Patent No. 757,234, may be
 retracted on their respective shafts to disen- 100
 gage them from the corresponding racks and
 that when so retracted and when the hoisting-
 cable 48 is detached from the hoisting-drum
 of said engine said car will be at liberty to
 105 pass out from said frame, but that when said
 sleeves are in operative position they operate
 as bolts to secure the car within said frame
 and at the same time may be operated to lift
 the car into suspension on said frame, so an
 empty car to be loaded may pass from said 110
 rails A B over said inclines and rails 19 to
 the rails A B beneath said derrick. After
 the passage of said empty car through said
 frame said engine-car may be lowered and
 stand on the rails A B during the loading op- 115
 eration or may be held in suspension during
 such loading operation, as desired. The dis-
 tance between the trucks of said engine-car
 is preferably such as to enable said engine or
 locomotive car to longitudinally straddle the 120
 base of said derrick-frame; but, if desired,
 said bridge-rails 19 may be omitted and in-
 clines provided extending down to said rails
 A B between said sills, approximately as
 shown in my said Letters Patent No. 757,234, 125
 in which case the supporting-wheels of said
 engine-car may rest upon said rails A B be-
 tween said sills. Secured to said engine-car
 at each end are suitable car-couplers, (not
 shown, but similar to those shown in my said 130

Patent No. 757,234,) and when desired said engine-car may be readily detached from said derrick-frame and used as a locomotive to draw or push other cars or for various other convenient purposes and is usually so separated from the derrick-frame for use in skidding. When used for skidding, a cable is attached to one of the drums of said engine and led between guide-rollers 49, journaled in suitable bearings on said engine-car, and from thence may be led toward either side of the car to reach logs to be skidded. The hoisting and skidding cables are equipped with the usual log-gripping means. (Not shown, but well known to the art.) When it is desired to move said derrick-frame, said engine-car is engaged therewith by means of the bolt-pinions and the engine reversed to operate said pinions to raise said derrick-frame clear of the track-rails, in which position it may be retained by said strap-brakes or by any other convenient means.

The functions performed by the machine herein described are substantially the same as those performed by the machines described in my former two said patents; but the present machine is regarded as a simpler and more adaptable and economical construction, which is a very important consideration in the art. It is obvious that said construction may be altered or modified in various details without departing from the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a log loading and skidding machine, the combination of a derrick-frame provided with vertical racks, an engine-car removably positioned between the sides of said frame, sliding, rotatable bolt-pinions secured to said car and adapted in operation to engage said racks, and means for rotating said pinions, substantially as described.

2. In a log loading and skidding machine, a derrick-frame provided with sills adapted to extend across a railway-track, inclined ways adjustably mounted on said sills and extending from said sills downwardly to the rails of said track, substantially as described.

3. In a log loading and skidding machine, a derrick-frame provided with sills adapted to extend across a railway-track, and depending lugs adjustably secured to said sills near each end thereof and adapted to extend between the rails of said track, substantially as described.

4. In a log-loading machine, the combination of a frame provided with sills adapted to extend across and rest upon a suitable foundation or roadway, vertically-arranged racks carried by said frame, a transversely expandible or contractible runway extending over said sills and inclined downward at each end, adjustable means adapted to prevent lateral movement of said frame, a vehicle removably

positioned between the sides of said frame and adapted in normal position to rest upon the same foundation that said sills rest upon, bolt-pinions mounted on said vehicle and adapted in operative position to engage said racks, and means mounted on said vehicle for rotating said bolt-pinions.

5. In a log loading and skidding machine, the combination with a derrick-frame provided with vertically-arranged guideways and vertically-arranged racks, of an engine-car removably positioned between the sides of said frame and provided with sliding rotatable bolts adapted to engage the corresponding said guideways and carrying pinions adapted to engage the corresponding said racks, and means carried by said car for rotating said bolts and pinions, substantially as described.

6. In a log loading and skidding machine, the combination of a frame provided with sills adapted to extend across and normally rest upon a railway-track, a transversely extensible or contractible runway extending over said sills and downward at each end to and in alinement with said track-rails, vertically-arranged racks erected on said sills, a derrick mounted on said frame, a car removably positioned between the sides of said frame and provided with transversely extensible or contractible supporting-trucks adapted to rest on said track-rails, a hoisting, skidding and car-driving engine mounted on said car, pinion-bolts secured to said car and in operative position adapted to engage said racks and said derrick-frame and power-transmitting means for communicating power from said engine to said bolts to rotate the same, substantially as described.

7. The combination of a frame provided with transversely-extending sills and vertically-arranged racks, a runway for vehicles extending over said sills, a vehicle removably positioned between the sides of said frame, adjustable means adapted in operative position to secure said vehicle to said frame and in retracted position to loose said vehicle from said frame, pinions carried by said vehicle and adapted in operative position to engage corresponding said racks, and means carried by said vehicle and connected to said pinions and adapted to rotate the same.

8. The combination with a suitable support of a shaft journaled in suitable bearings thereon, a sleeve slidably keyed to said shaft and journaled in suitable bearings and provided at its free end with a pinion, a belt-wheel slidably keyed on said sleeve, and means for loosely attaching said belt-wheel to one of said bearings, substantially as described.

9. The combination of a frame provided with vertically-arranged racks, a vehicle removably positioned between the sides of said frame and provided with adjustable pinions adapted in operative position to engage cor-

responding said racks, operating means carried by said vehicle and connected to said pinions and adapted to rotate the same, and adjustable means adapted in operative position to secure said vehicle to said frame and
5 in retracted position to loose said vehicle from said frame.

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

MICHAEL SCHMALTZ.

Witnesses:

JAMES T. WATSON,

WELLINGTON M. BLEWETT.