

No. 726,325.

PATENTED APR. 28, 1903.

T. S. MILLER & J. H. DICKINSON.
LOG HAULING AND LOADING MACHINE.

APPLICATION FILED JULY 17, 1901.

NO MODEL.

4 SHEETS—SHEET 1.

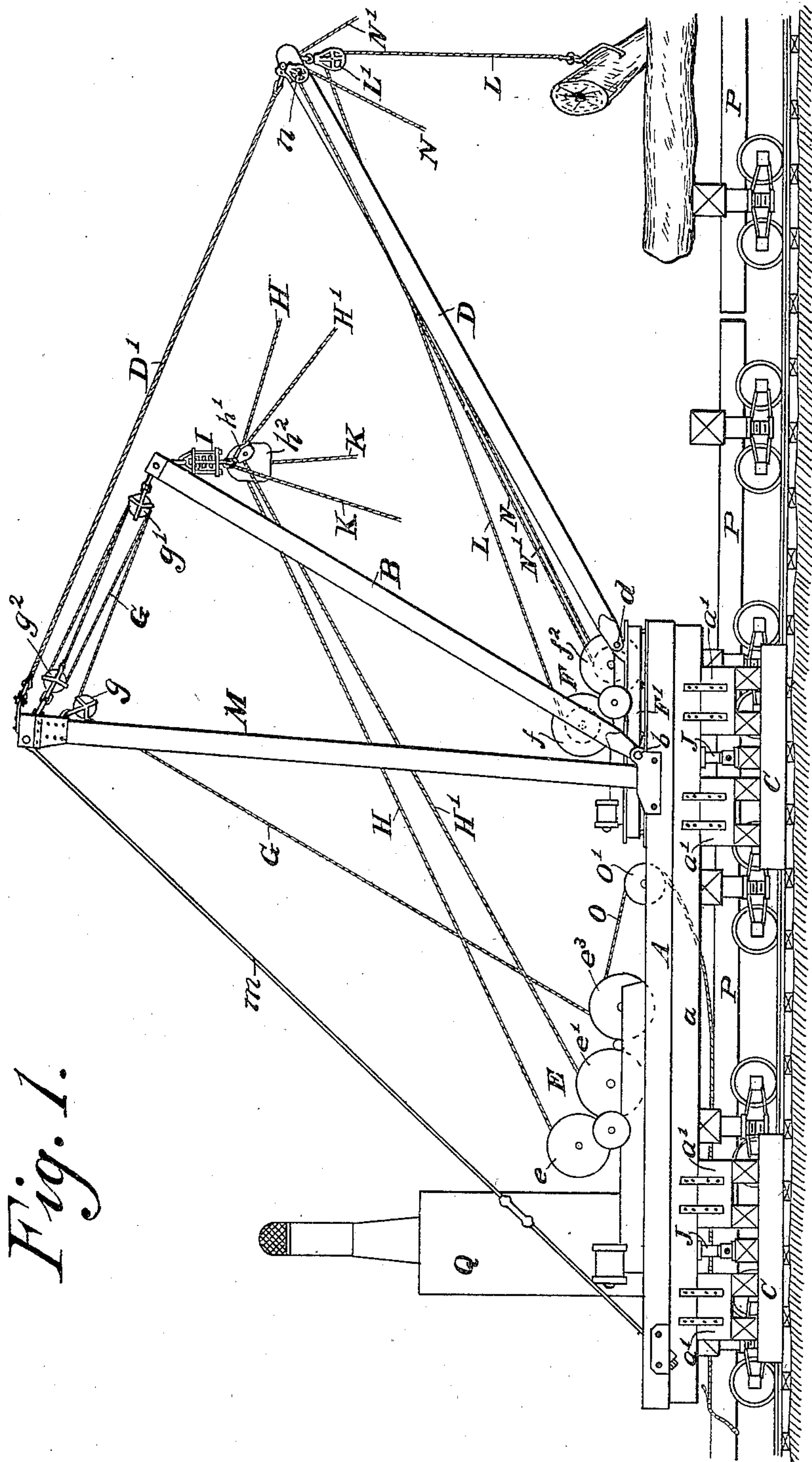


Fig. 1.

Witnesses
Chas. F. Rathjen
W. A. Pauling

Inventors
Thomas Spencer Miller
Joseph H. Dickinson
By their Attorney
Sifford & Bull.

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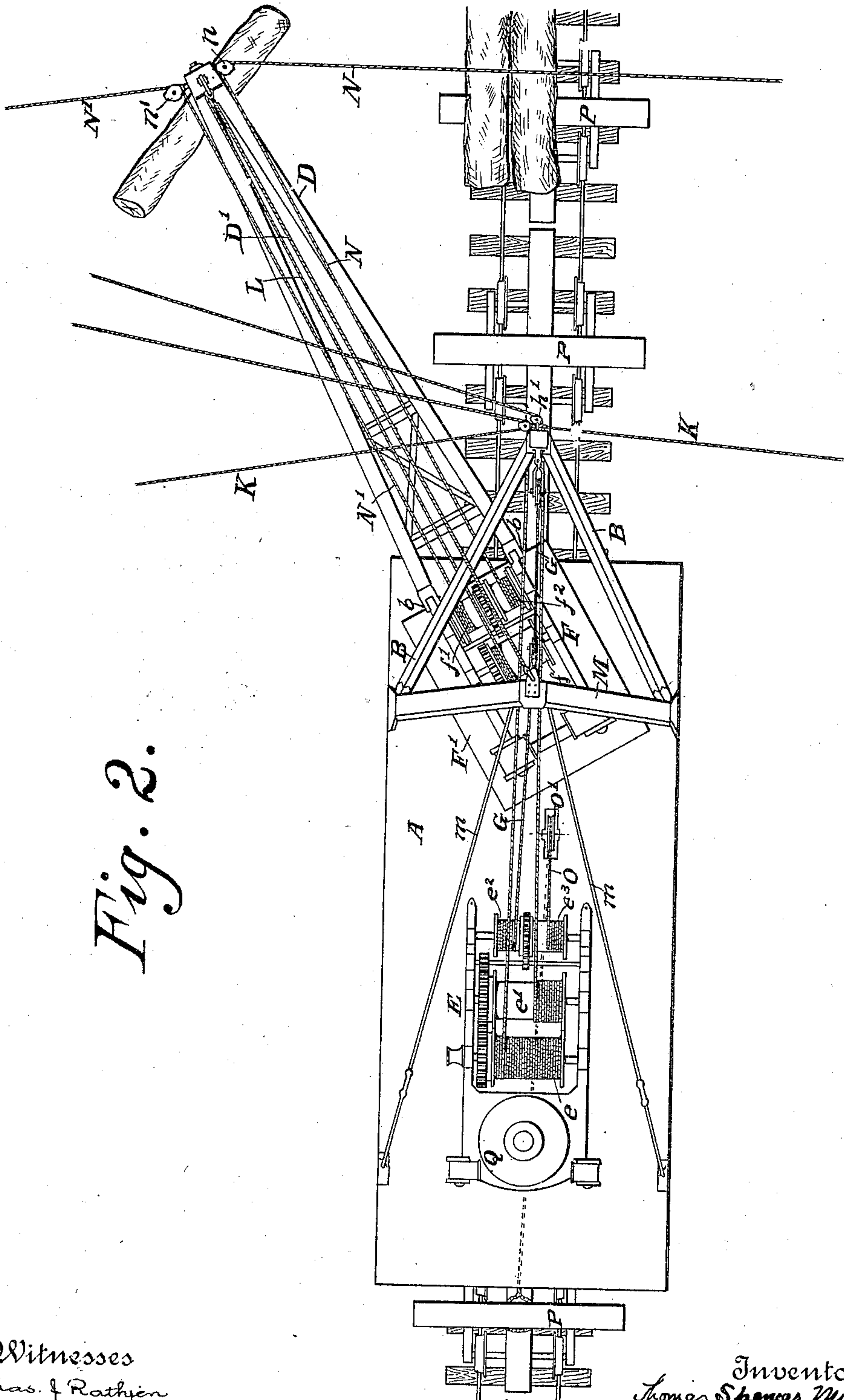
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4 SHEETS—SHEET 2.



Witnesses
Chas. F. Rathjen
W. A. Pauling

Inventors
Thomas Spencer Miller
Joseph H. Dickinson
By their Attorney, Clifford D. Bull.

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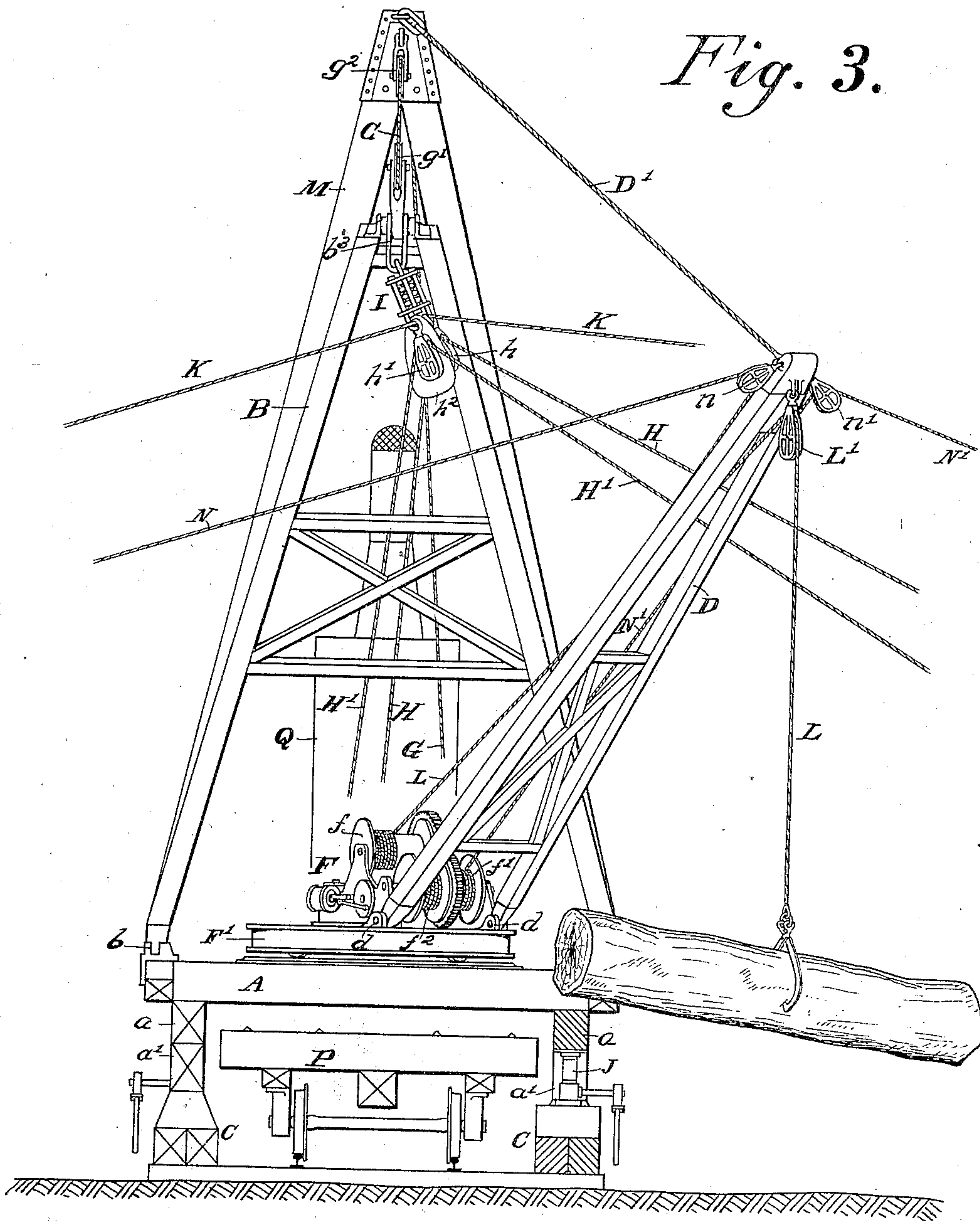
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses
Chas. F. Rathjen
W. C. Pauling

Inventors
Thomas Spencer Miller
Joseph H. Dickinson
By their Attorneys Gifford & Bull.

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4 SHEETS—SHEET 4.

Fig. 5.

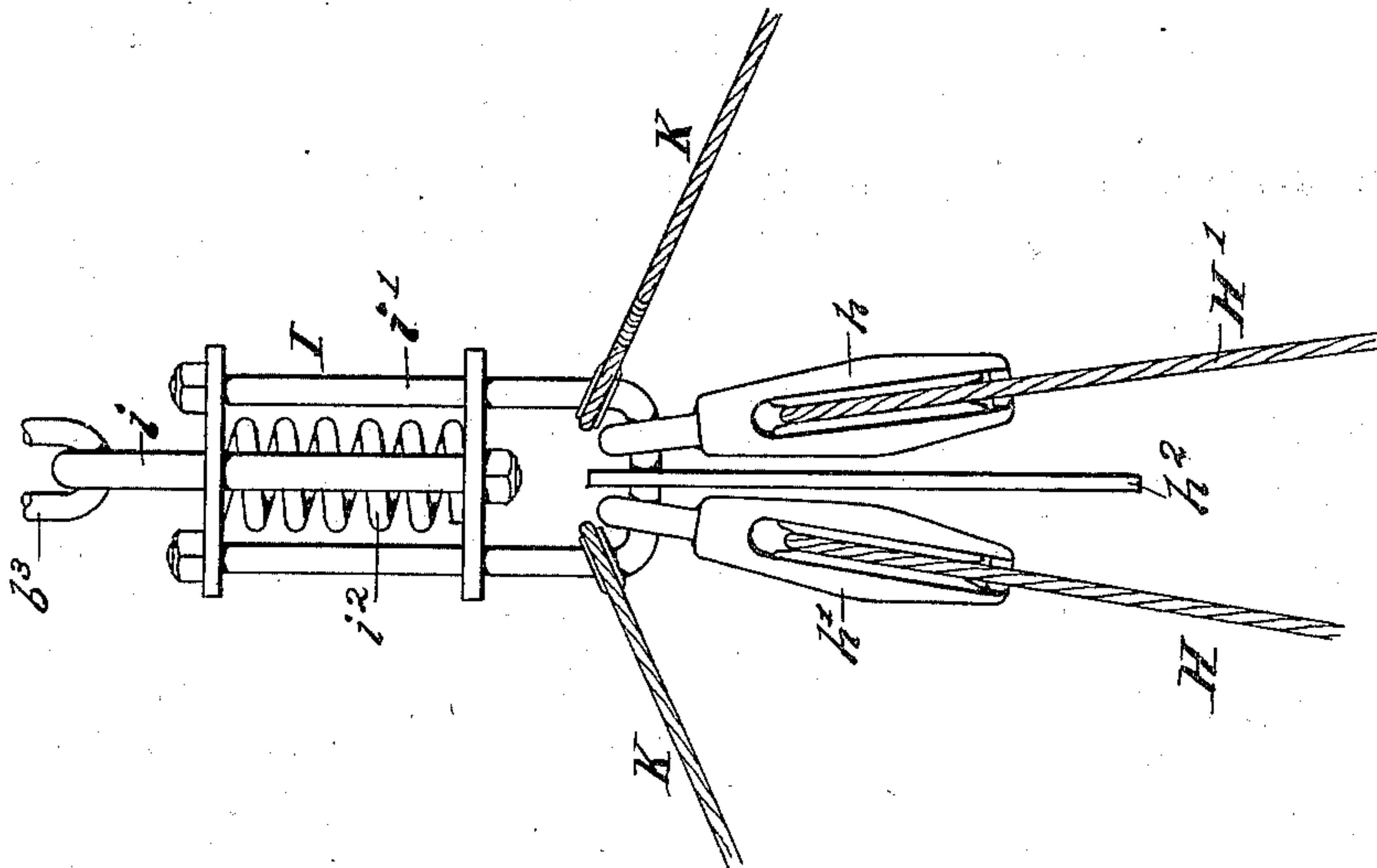
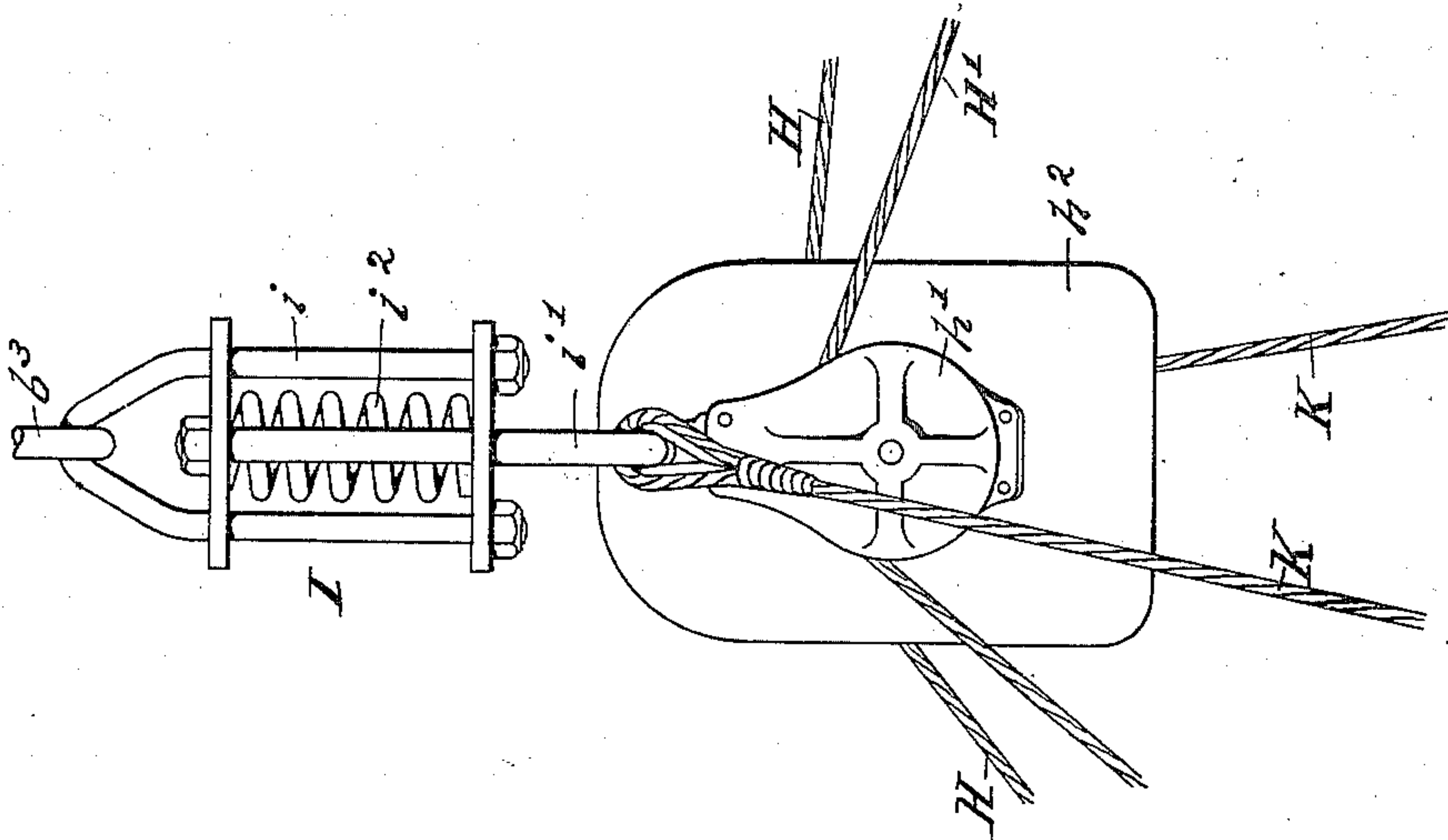


Fig. 4.



Witnesses
Chas. F. Rathjen
W. A. Pauling

Inventors
Thomas Spencer Miller
Joseph H. Dickinson
By their Attorneys
Gifford & Bull.

UNITED STATES PATENT OFFICE.

THOMAS SPENCER MILLER, OF SOUTH ORANGE, NEW JERSEY, AND JOSEPH H. DICKINSON, OF ATLANTA, GEORGIA; SAID DICKINSON ASSIGNOR TO THE LIDGERWOOD MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

LOG HAULING AND LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,325, dated April 28, 1903.

Application filed July 17, 1901. Serial No. 68,594. (No model.)

To all whom it may concern:

Be it known that we, THOMAS SPENCER MILLER, of South Orange, in the county of Essex and State of New Jersey, and JOSEPH H. DICKINSON, of Atlanta, in the county of Fulton and State of Georgia, have invented a new and Improved Log Hauling and Loading Machine, of which the following is a full, clear, and exact description.

Our invention relates to an improved device for hauling and loading logs upon cars, and comprises the features which will be hereinafter described, and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of our device, showing the position of the cars relative thereto while being loaded. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation, which also shows a car. Figs. 4 and 5 are details of the suspender of the sheave-blocks from the hauling-boom.

The device herein shown is designed to be moved from point to point along the track and to both haul the logs to the track from points at considerable distance on either side and to load the logs upon the car after they have been delivered alongside the track.

The form of device as shown is the form now preferred by us, yet we are aware that many of the features thereof may be materially changed in detail without departing from the spirit of our invention. We do not, therefore, wish to be limited to the exact construction herein shown.

The device is mounted upon a platform or frame A of any suitable construction which will give sufficient space and strength to hold the machinery and be carried when in use by supports at each side of the track, sufficiently separated to permit passage of cars between them. Upon this platform is mounted the hoisting or hauling engines necessary to work the required lines and a boiler or boilers to furnish steam for them. Two engines E and

F are herein shown, each engine having plural drums and a single boiler Q to furnish steam for both engines. Near one end of this platform is a mast M, which is herein shown as composed of two inclined members, constituting a shear-leg. This form of mast is preferred because of its rigidity and because it leaves the central portion of the frame free for the reception of parts of the machinery. This mast is suitably braced and provided with guy-rods, as *m*, so as to resist the strains produced by the two booms, which are supported thereby. A boom B is pivotally supported by pivots *b* at its lower end from the platform, so as to swing in a vertical plane, the boom being shown in the form of shear-legs for much the same reason as those given for the mast. The upper end of this boom is supported by a rope G, which is rove through blocks *g'* and *g''*, secured, respectively, to the boom and to the mast, and then through a guide-block *g* to a drum *e''* of the engine E. The ability to raise and lower this boom by power gives us an effective and convenient means for tightening the guys by which the side strains of hauling are taken up. The boom B, which is used for hauling in the logs from a distance, we call a "hauling-boom." Suspended from the upper end of this boom by a spring-link I are two blocks or pulleys *h* and *h'*, through which the hauling-ropes H and H' pass. These ropes extend from the drums *e* and *e'* out in the direction from which the logs are for the time being taken. These ropes are ordinarily taken out to the log by a horse, although an overhauling-rope or other power-operated device may be used for this purpose, if desired.

The connection between the sheaves *h* *h'* and the boom is preferably a yielding one, so that if a log being hauled should catch hard upon anything it would relieve the shock upon the boom. The means adopted for securing this result is shown in detail in Figs. 4 and 5. The connecting member I therein shown constitutes a spring-link consisting of the two clevises *i* and *i'*, which lie in planes at right angles, and the spring *i''*, which lies between

the sides of both clevises and is connected with the ends thereof by suitable plates or bars, so that the spring is put in compression by a strain upon the device. One clevis is
 5 connected with a link or attaching member b^3 , secured to the boom, and the other supports the guide-sheaves $h h'$. To prevent direct striking of the blocks or sheaves h and h' , a pad h^2 is interposed, which softens the
 10 jar and is sufficient to often prevent breakage. This pad may be a simple sheet of leather or may be a pad of more complicated construction.

The engine F, which is used for operating
 15 the hoisting-boom D, is mounted upon a turntable F', and the hoisting-boom D is pivoted at d upon the forward edge of the same turntable. The turn-table pivot is located forward of the shear-legs M, which constitute
 20 the mast, and the hoisting-boom pivot on the forward side of the turn-table, which throws the boom-pivot sufficiently forward of the mast M to enable the hoisting-boom to be swung very far to one side without being inter-
 25 ferred with by the mast. In other words, its arc of operation is thereby increased. The engine has a main hoisting-drum f , which receives the hoisting-line L, said line passing over a sheave L', carried by the outer end of
 30 the boom. The engine F also has two drums f' and f^2 , which carry the boom-swinging ropes N and N', said ropes leading from the drums directly through sheaves n and n' at the outer end of the boom and then laterally
 35 to convenient anchorages, so that by winding in on one rope and paying out the other the boom may be swung and held as desired.

The outer end of the hoisting-boom D is supported by a guy D', which leads to the top
 40 of the mast M. Preferably this is made of a section of wire cable.

The platform A, upon which the entire mechanism is mounted, is moved from place to place along the line upon a car. When it
 45 reaches a point where it is desired to use it, it is raised, so as to clear the car, and its weight transferred to supports at the side of the car, so that its supporting-car may be removed and the logging-cars run through be-
 50 neath the platform.

In previous devices of a similar character legs or equivalent devices of constant length have been used for this purpose; but if the bearings of any of these legs happen to be on
 55 softer ground than others the settlement caused by the weight is unequal and the platform is twisted, and it is often necessary to let the weight back upon the car and build up additionally under some of the legs. Each
 60 adjustment of this sort consumes considerable time, and therefore defeats the object sought to be obtained by such devices as this. To avoid this, we have made our supports in-
 65 dependently adjustable and capable of readjustment at any time after setting without disturbing the working of the device. This has been done by inserting in each support a

jack or equivalent device by which the platform may be raised from the car and by then inserting blocking as needed. As the device
 70 is herein shown, a longitudinal beam a is placed beneath each side of the platform, and to this are secured blocks a' at each end of the platform. The jack J is placed between
 75 the blocks a' and bears upon temporary blocking C, of any convenient character, said blocking C resting either upon the ties or the ground, as most convenient.

The engine E, in addition to the drums for the hauling-ropes and the boom-hoisting rope,
 80 has a drum e^3 , carrying a rope O, which leads over a sheave O' and thence beneath the platform to a connection with one of the cars to be loaded. By this means the cars may be
 85 moved up to their loading position, and the services of a locomotive and the train-crew may be dispensed with while loading.

The operation of our device is as follows: It is brought to the point on the track where it is to be used loaded upon a car. When the
 90 desired point is reached, the foundation-timbers C are put in place beneath the edges of the platform and outside the car and brought to approximately the height desired. The
 95 jacks J are then put in place upon the foundation-timbers C and beneath the beams a . The platform is then raised by the jacks until it is entirely supported upon the jacks and the car is cleared, so that it may be run
 100 out from beneath the platform. This leaves an opening beneath the platform sufficient to permit the logging-cars being run through. The string of logging-cars is then run through
 105 beneath the platform or to the end opposite the loading-boom. Blocks or wedges as necessary to make a firm bearing may be inserted between the foundation-timbers C and
 110 the blocks a' , if desired. The weight of the device may be entirely or partially carried in this way by slacking back the jacks, if desired. When the device has been securely
 115 set in position, the hauling-ropes H H' are run out laterally from the track and the guys K K' extended laterally and secured to convenient anchorages. The swinging-ropes N
 120 N' are also secured to anchorages. The guys K K' are tightened by raising the boom B, the boom being in a lowered position while the guys are being secured to their anchorages. The device is then ready for opera-
 125 tion. The logs are brought in to the side of the track by the ropes H H' and are then taken by the loading-boom and placed upon the cars, one of which is shown as partly loaded in Fig. 1. When a car has been loaded,
 130 the rope O, which extends from the drum e^3 , over sheave O', to the rear of the platform and is attached to one of the cars, is wound in, thus pushing the cars along until another car is beneath the loading-boom. In this way
 135 the cars are successively moved up and loaded, the services of a locomotive and a train-crew not being needed for this purpose.

The various drums of the engines are op-

erated by friction devices and controlled by brakes after the manner usual in engines of this character.

By means of the drum e^2 and the rope G the hauling-boom may be raised when desired, with the result that the guys K K', which take the side strain of the hauling-ropes H H', may be thus tightened by power. At the same time the sheaves $h h'$, which guide the hauling-ropes, are swung beneath the end of the hauling-boom by a link consisting of the device I, which permits them to swing to one side or the other, according to the strain upon the ropes and their length, thus taking all side strain from the boom and transferring it to the guy-ropes. This feature, which is of considerable importance, enables the boom to be securely fixed to the platform and relieves the platform and boom of all side strain. It thus needs only be strong enough to support the end strain produced by the ropes.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In combination, a portable platform, mechanism adapted for supporting it over a train of cars and the following parts carried by said platform: an engine, a mast, an upper hauling-boom, a lower loading-boom, a sheave near the outer end of said loading-boom and a boom-swinging rope extending from an anchorage through said sheave to said engine.

2. In combination, a portable platform, mechanism adapted for supporting it over a train of cars and the following parts carried by said platform: an engine, a mast, an upper hauling-boom, a lower loading-boom, a suspender near the outer end of said hauling-boom, a sheave-block hanging thereon, a hauling-rope extending through said sheave-block to the engine, guy-ropes connecting said sheave-block with anchorages on opposite sides, a sheave on the mast and a rope extending from said hauling-boom over said mast-sheave to said engine.

3. In combination, a portable platform, mechanism adapted for supporting it over a train of cars and the following parts carried by said platform: an engine, a sheer-leg mast, an upper hauling vertically-movable sheer-leg boom, a lower loading-boom and a horizontally-pivotal connection for said loading-boom.

4. In combination, a portable platform, mechanism adapted for supporting it over a train of cars and the following parts carried by said platform: an engine, a mast, a loading-boom, a hauling-rope sheave-block between said boom and masthead, a suspender for said sheave-block and guys extending from anchorages on opposite sides whereby said suspender is held.

5. In combination, a portable platform, mechanism adapted to support it over a train of cars and the following parts carried by said

platform: an engine, a mast, a loading-boom, a hauling-boom, two boom-swinging rope-drums, two log-hauling rope-drums, a hauling-boom-hoisting rope-drum, a car-hauling rope-drum and a log-hoisting rope-drum.

6. In combination, a portable platform, mechanism for supporting it over a train of cars, an engine, a mast, a horizontally-swinging loading-boom, a rope D' supporting the loading-boom from the masthead and the following parts within the space bounded by said mast loading-boom and rope D': the hauling-boom, a hoisting-rope for the same, a hauling-rope sheave-block and a suspender by which said sheave-block is swung from said hauling-boom.

7. In a log-hauling machine, in combination, a boom, a hauling-rope, a guide for said rope, a connection permitting said guide to move laterally with respect to said boom and guys connected with said guide independently of said boom.

8. In a log-hauling machine, in combination, a boom, a hauling-rope, a guide for said rope, a connection permitting said guide to move laterally with respect to said boom and guys connected with said guide independently of said boom and means for raising and lowering said boom.

9. In a log-hauling loading-machine, in combination, a lower loading-boom adapted to swing in a horizontal plane, an upper hauling-boom adapted to swing in a vertical plane, a hauling-rope, a guide for said rope, a connection between said guide and said hauling-boom admitting of lateral movement between the two, and guys connected with said guide extending to anchorages on opposite sides of said loading-boom.

10. A log-hauling machine having an elevated support, a hauling-rope, a guide for said rope, and a yielding or spring link connecting said guide with the elevated support.

11. A log-hauling machine having an elevated support, a hauling-rope, a guide for said rope, a yielding or spring link connecting the guide with said support, and guys connected with said guide.

12. A log-hauling machine having an elevated support, means for raising and lowering said support, a hauling-rope, a guide for said rope, and a yielding or spring link connecting said guide with the elevated support.

13. A log-hauling machine having an elevated support, means for raising and lowering said support, a hauling-rope, a guide for said rope, a yielding or spring link connecting the guide with said support, and guys connected with said guide.

14. In a hauling device the combination with a support and a rope-guide, of a link connecting said support and guide and containing a spring member adapted to permit the guide to yield under strain.

15. In a hauling device the combination with a support and a rope-guide, of a link

connecting said support and guide and consisting of two clevises and a spring within and connected with both clevises whereby the guide may yield under strain.

5 16. In a log hauling and loading machine, the combination with a fixed mast, and a hauling-boom supported from said mast, of a loading-boom mounted to swing upon both horizontal and vertical pivots, and a supporting
10 connection between the outer end of the loading-boom and the mast.

17. In a log hauling and loading machine the combination with a mast, a hauling-boom and supporting connections between said
15 hauling-boom and the mast, of a loading-boom pivotally supported forward of the mast, and a supporting connection between the loading-boom and the mast.

18. In a log hauling and loading machine, the combination with a mast, a hauling-boom, and supporting connections between said
20 boom and mast, of a loading-boom, a universal pivot for said loading-boom forward of the mast, and a supporting connection between the loading-boom and the mast.
25

19. In a log hauling and loading machine, the combination with a mast, a hauling-boom, and supporting connections between said boom and mast, of a turn-table having its
30 pivot forward of the mast, a loading-boom pivoted upon the turn-table, and a supporting connection between the loading-boom and the mast.

20. In a log hauling and loading machine, the combination with a mast, a hauling-boom pivoted to swing vertically, and an adjustable supporting connection between the said boom and the mast, of a loading-boom having a universally-pivoted support forward of the
40 mast, and a supporting connection between the loading-boom and the mast.

21. In a log hauling and loading machine, the combination with a mast, a hauling-boom pivoted to swing vertically, and an adjustable supporting connection between the said boom and the mast, a turn-table pivoted forward of the mast, a loading-boom pivoted to the turn-table, and a supporting connection between the loading-boom and the mast.
45

50 22. In a log hauling and loading machine, the combination with a mast, of a hauling-boom and a loading-boom both upon the same side of the mast and having independent supporting connection therewith, the loading-

boom being pivoted to swing about the mast 55 and with its support being located outside of the hauling-boom and its support.

23. In a log hauling and loading machine the combination with a mast, of a hauling-boom and a loading-boom both upon the same
60 side of the mast and independent supporting connections from both booms to the mast, the loading-boom being pivoted forward of the mast to swing horizontally and with its support being outside of the hauling-boom and
65 its support.

24. In a log hauling and loading machine, a platform, a mast and hauling-boom supported thereby upon said platform, and winding-drums upon said platform adapted to operate the hauling-boom, of a turn-table upon the platform, a loading-boom carried by the turn-table, a supporting connection from the loading-boom to the mast, and winding-drums upon the turn-table adapted to operate the
75 loading-boom.

25. The combination with two blocks or pulleys supported side by side, of a protecting-pad between said blocks.

26. In combination, a swinging boom, guides 80 carried thereby, a boom-swinging rope extending from an anchorage to the free end of said boom and thence along said boom, a rope-drum whereby said rope is operated, a hoisting-rope drum and a hoisting-rope extending
85 therefrom along said boom and pendent from the free end of said boom.

27. In combination, a turn-table, a boom mounted thereon, a rope-drum also mounted thereon, rope-guides carried by said boom and
90 a boom-swinging rope extending from an anchorage to the free end of said boom and thence along said boom to said rope-drum.

28. In combination, a swinging boom, a hauling-boom, guides carried by said booms, a
95 boom-swinging rope extending from an anchorage to the free end of said swinging boom and thence along said swinging boom, a rope-drum whereby said rope is operated, a hauling-rope pendent from the free end of said
100 hauling-boom and a rope-drum whereby said hauling-rope is operated.

THOMAS SPENCER MILLER.
JOSEPH H. DICKINSON.

Witnesses:

W. S. TAYLOR,
H. L. REYNOLDS.