No. 757,952. PATENTED APR. 19, 1904.

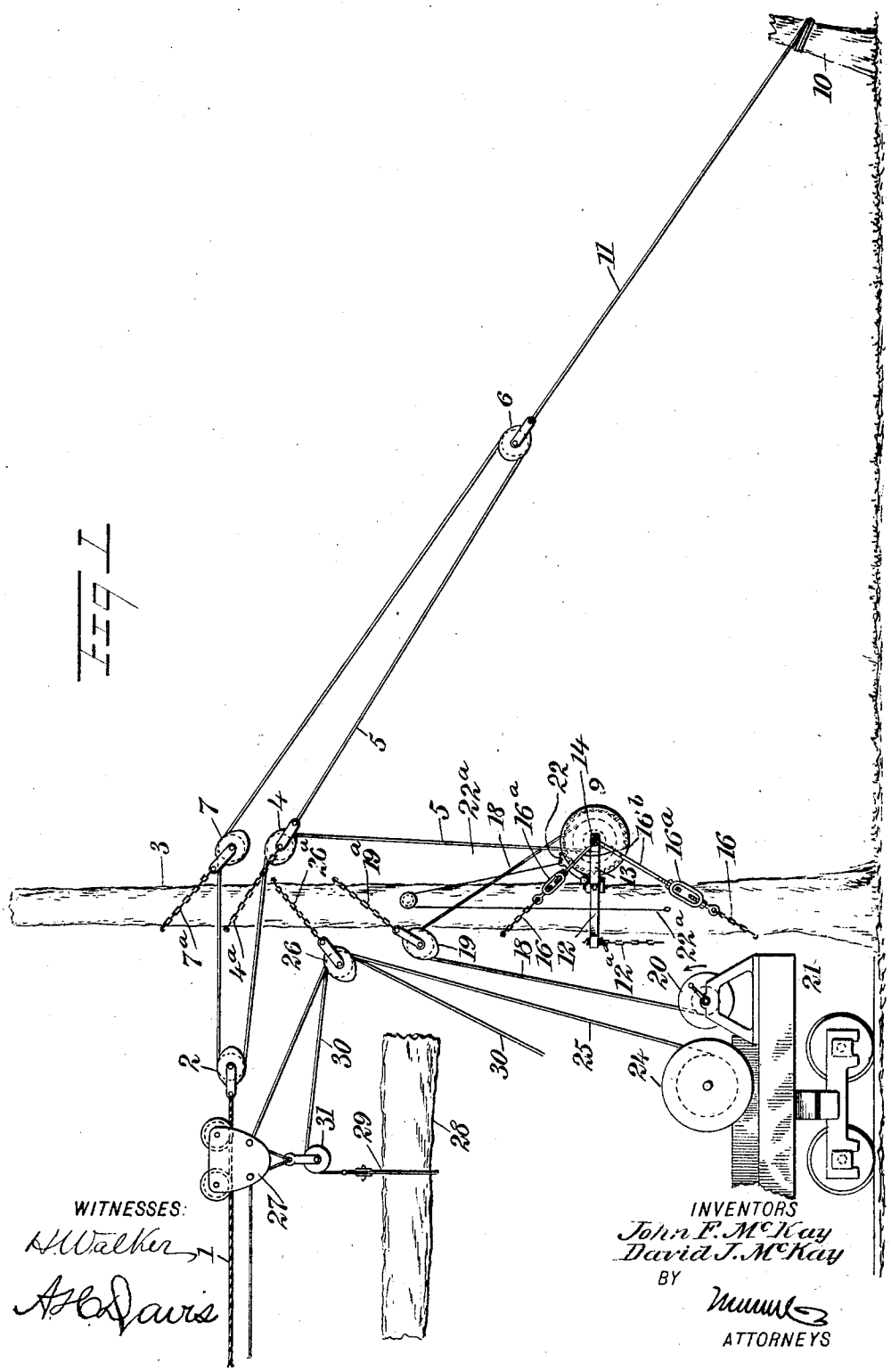
J. F. & D. J. McKAY.

TENSION REGULATOR FOR OVERHEAD CABLES.

APPLICATION FILED FEB. 16, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1



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

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NO MODEL. 2 SHEETS—SHEET 2.

Fig 2

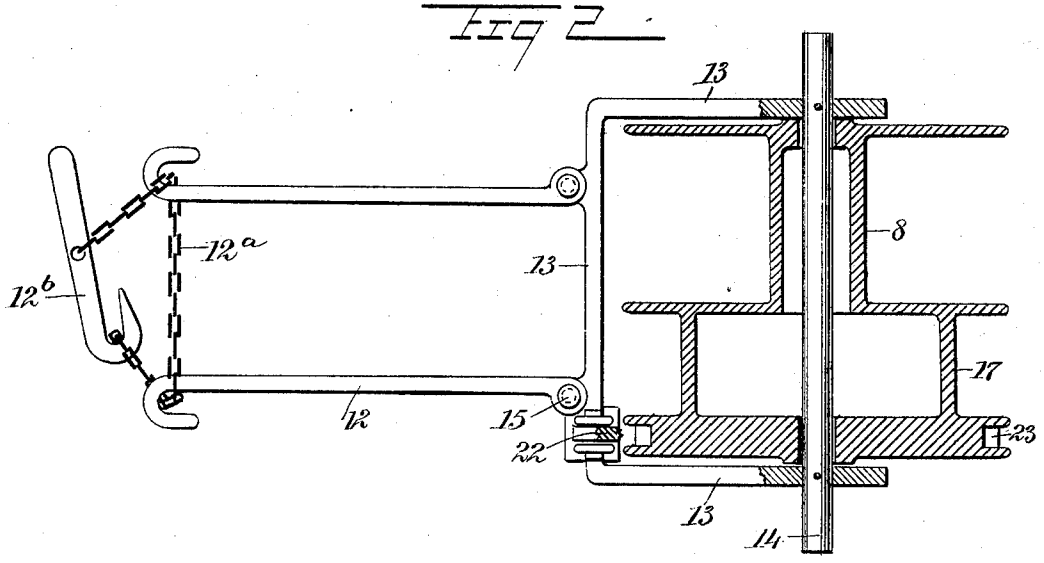
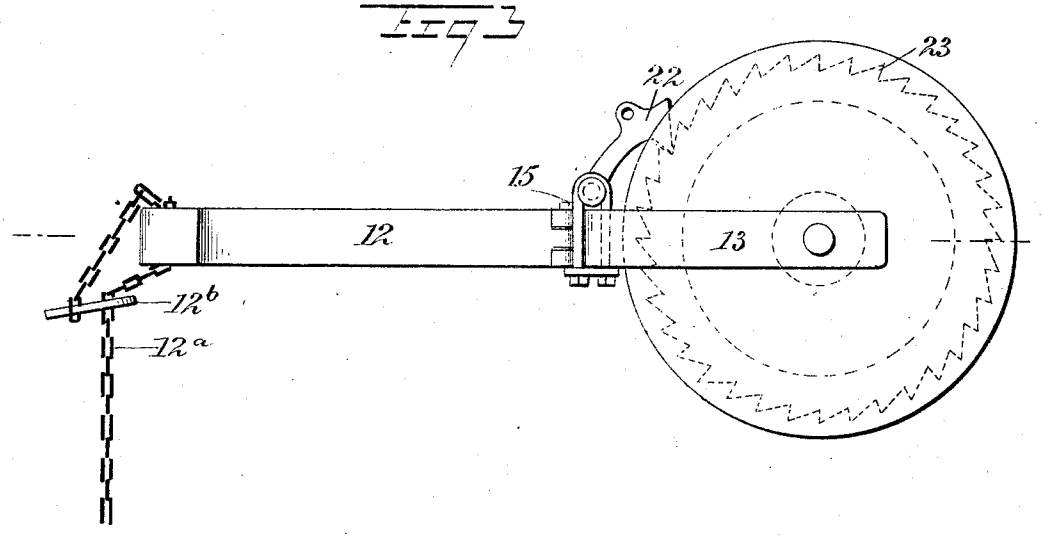


Fig 3



WITNESSES:

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BY

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

No. 757,952. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

JOHN F. McKAY AND DAVID J. McKAY, OF BOWIE, LOUISIANA.

TENSION-REGULATOR FOR OVERHEAD CABLES.

SPECIFICATION forming part of Letters Patent No. 757,952, dated April 19, 1904.

Application filed February 16, 1904. Serial No. 193,781. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. McKAY and DAVID J. McKAY, citizens of the United States, and residents of Bowie, in the parish of Lafourche and State of Louisiana, have invented a new and Improved Tension-Regulator for Overhead Cables, of which the following is a full, clear, and exact description.

Our invention relates to apparatus for regulating the tension on overhead cables, and is especially applicable to those forming a support and track for running carriages or other traveling conveyers used in transporting goods. It is especially designed for use in lumber-camps in transporting logs through the forest from the place of felling to the railroad.

It is frequently necessary to carry the logs a distance of six hundred or eight hundred feet, requiring cables of great size, while the continual shifting of the base of supplies necessitates the frequent change in the position of the transporting-lines.

It is the object of our invention to provide an apparatus capable of manipulating cables of the largest size and greatest length and which will permit of rapid change when it is desired to shift the position of the cable-lines.

Another object is to relieve the strain upon the hoisting-drum after the cable has been placed under the desired tension and been secured in position.

A further object is to enhance the safety of the men engaged in the vicinity of the cable-support by so arranging the guy-chains that each will take the strain of the other in the event of a break in the guy or pulley.

Again, it is frequently necessary to slacken the cable for the purpose of an examination of the conveyer or carriage in case of an accident. By the use of our invention both time and labor are saved, the operation of lowering and readjusting the cable requiring a minimum of time and the services of one man, whereas the systems in general use require considerable time and the services of several men.

Our invention will be better understood by reference to the following description, while its scope will be pointed out in the appended claims.

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

Figure 1 is an elevation showing our improved cable-tension regulator in operative position. Fig. 2 is a vertical sectional view through the winding-drum of the cable-tightener, and Fig. 3 is a side view of the cable-tightener with its securing-strap attached thereto.

Referring first to Fig. 1, the main cable is shown at 1 secured to the strap of the running block 2, which can be adjusted toward or away from the supporting-column, spar, or tree 3 by means which will be presently explained. To the strap of the standing block or guide 4 is fastened the tightening-cable 5, which passes in succession over the sheave of the tail or anchor block 6, standing block or guide 7, running block 2, standing block 4, and barrel 8 of the cable-tightening drum 9, to which it is secured. The tail-block 6 is secured to an anchor stump or post 10 by a rope 11 on the opposite side of the tree 3 from the block 2 and preferably about in line therewith, as indicated.

The tightening-drum 9 is held in position by means of arms 12, passing at the sides of the tree 3, and chains 12^a on the ends of said arms, the chains being connected by a tightening and locking hook 12^b, Fig. 2. The arms 12 are pinned or otherwise secured, as shown at 15, to a U-shaped frame 13, passing over the ends of the shaft 14, and the drum 9 is strongly braced against movement by guy-chains 16, secured to the turnbuckles 16^a on arms 16^b, which engage opposite ends of the shaft 14.

Secured to the barrel 17 of the drum 9 and wound in the opposite direction from that of the cable 5 is a rope or cable 18, which passes over a standing block 19, held by the chain 19^a, and is secured to the drum of the windlass 20 on the car-platform of the skidder 21. The

tightening-drum is free to rotate in a direction to wind the cable 5 thereon, but is prevented from rotation in the opposite direction by the engagement of the dog 22 with the teeth 23 of the ratchet-rim of the barrel 17. The skidder is indicated in a convenient manner by a car-section, and it is understood that it will ordinarily be provided with the usual hoisting or winding engine operatively connected with the windlass 20 and the winding-drum 24. The latter carries the hauling-rope 25, which passes over the standing block 26, made fast to the tree by a chain 26^a, and is secured to the traveling carriage 27.

The manner of suspending a log for transportation is clearly indicated in Fig. 1. The log 28 is held by tongs 29, suspended from a hauling-rope 30, which passes over the sheaves of the block 31, attached to the carriage, and the block 26, secured to the tree, to a suitable winding-drum on the skidder, which we have not illustrated, as it is similar to that shown at 24.

The operation of our device will be evident from the foregoing description. The log is hauled by drawing upon the ropes 25 and 30, connected, respectively, to the carriage and tongs, which may be done in the usual manner by winding said ropes on the winding-drums of the skidder.

The manner of tightening the cable, which constitutes the special feature of our invention, is as follows: Power is applied to the windlass in the direction of the arrow and is transmitted to the tightening-drum through the rope 18, thereby winding the tightening-cable 5 upon the barrel 8 of the tightening-drum 9 and drawing the block 2, attached to the main cable, toward the tree 3. In this operation we have the leverage due to the difference in the radii of the barrels 8 and 17 of the differential drum 9 and that due to the ratio between the distance traversed by the pulley 2 and that traversed by the tightening-cable, said distances being as one to two. The cable may be quickly slackened by lifting the dog 22 from the ratchet-rim of the tightening-drum, whereby the strain of the cable is thrown upon the hoisting mechanism of the skidder which is under the control of a single attendant. The dog 22 is released by means of a rope 22^a, that can can be reached by the operator on the skidder 21.

An important feature resides in the manner of securing the blocks and cables to the tree, whereby the probability of an accident due to the falling of any portion of the overhead structure is almost entirely avoided. From an inspection of Fig. 1 it is apparent that the block 7 will be held fast by its guy-chain 7^a if the block 4 or its guy-chain 4^a should break, and, vice versa, the blocks 4 and 7 will hold if either the block 6 or the block 2 should break. In this manner we are enabled to prevent most of the accidents and much of the danger incident to work in the vicinity of the overhead structure.

While we have set forth and illustrated a particular arrangement of mechanism to accomplish the purposes of our invention, we do not wish to be restricted thereby, but aim to cover all modifications thereof which may be regarded as equivalents of the structure described.

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

1. In a tension-regulating device for overhead cables, the combination with a main cable, of an end guide therefor, fixed guides provided with means for attachment to a tree or other support, an anchoring device having a guide secured thereto, a tensioning device and an auxiliary cable connecting said tensioning device with said guides.

2. In a tension-regulating apparatus for overhead cables, the combination with a main cable, of a movable guide therefor, fixed guides provided with means for attachment to a tree or other support, an anchoring-guide provided with means for attachment to a post or other support, a tensioning device and an auxiliary cable connecting said device with said guides.

3. In a tension-regulating apparatus for overhead cables, the combination with a main cable, of fixed guides having means for attachment to a tree or other support, a movable guide secured to the cable on one side of the tree, an anchoring-guide on the opposite side of the tree, a tensioning device and a cable connecting said device with said guides.

4. In a tension-regulating apparatus for overhead cables, the combination with a main cable, of fixed supports therefor provided with means for attachment to a tree or other stationary member, a movable guide provided with means for attachment to said cable, a tensioning device and means for connecting said device with said supports and guide.

5. In a tension-regulating apparatus for overhead cables, the combination of a movable guide provided with means for attachment to a main cable, an anchoring-guide having means for attachment to a post or other support, fixed guides located between said movable and anchoring guides, provided with means for attachment to a tree or other support, a tensioning and securing device and means for connecting said device in operative relation with said guides.

6. In a tension-regulating apparatus for overhead cables, the combination of a main cable having a movable block attached thereto, an anchoring-block provided with means for attachment to a post or other stationary member, standing blocks provided with guys

for attachment to a tree or other support located between said movable and anchoring blocks, a tensioning and securing device having a revoluble winding-drum and provided with means for attachment to said tree or support, an auxiliary cable connecting said blocks and secured to said drum and means for applying power to said tensioning device.

7. In a tension-regulating apparatus for overhead cables, the combination with a main cable, of an auxiliary tensioning-cable provided with means for supporting the same from a tree or mast, a tensioning device also provided with means for attachment to said tree, means for applying power to said tensioning device, means for securing the tensioning device under any desired tension, and means connected to said tensioning-cable for anchoring the same.

8. In a tensioning apparatus for overhead cables, the combination with a main cable having a running block secured thereto, a tail-block having means for attachment to a stationary structure, a tensioning device, an auxiliary cable connecting said device with said blocks, and stationary blocks provided with guys for attachment to a tree or other support and positioned intermediate said running and tail blocks, whereby upon the failure of either block the remaining blocks and auxiliary cable will be held from falling.

9. A tension-regulating apparatus, comprising running and tail blocks, intermediate supporting and guiding blocks, a tensioning device and a cable coöperating with said device and blocks.

10. A tension-regulating apparatus, comprising a tensioning-cable provided with separate means for attachment to a main cable and to an anchor, a plurality of intermediate guiding and supporting means, and a tensioning device in coöperative relation therewith.

11. A tension-regulating apparatus, comprising means for attachment to a main cable and to an anchor respectively, intermediate means for attachment to a support, means for applying tension, and a cable connecting said means in coöperative relation.

12. A tension-regulating apparatus, comprising means for attachment to a main cable and to an anchor respectively, intermediate means for attachment to a support, means for applying tension, a cable connecting said means in coöperative relation, and means for securing the parts in any desired position.

13. A tension-regulating apparatus, comprising main cable and anchor blocks, intermediate guiding and supporting blocks having means for attachment to a support, a tensioning-drum provided with differential winding-faces, pawl-and-ratchet mechanism, and means for attachment to said support, a cable secured to one of said faces and passing about said blocks, and a winding-cable connecting said other face with a source of power.

14. A tensioning device for cables, comprising a drum provided with a plurality of winding-barrels of different radii and a ratchet-rim, an axle therefor, a dog coöperating with said ratchet-rim, and a supporting-frame carrying means for attaching to a spar or other support.

15. A tensioning device for cables, comprising a drum provided with a plurality of winding-barrels of different radii and a ratchet-rim, an axle therefor, a dog coöperating with said ratchet-rim, a supporting-frame carrying means for attaching to a spar or other support, and means for bracing said drum against lateral thrust.

16. The combination with a main cable, of a tensioning-cable, a drum for acting on the tensioning-cable, and means for actuating the said drum, said means comprising a second drum and a cable in connection with the two drums.

17. The combination with a main cable, of a tensioning-cable in connection therewith, and a winding-drum for the tensioning-cable, said drum having means for embracing a tree or like standing support for securing the drum in place.

18. The combination with a main cable, of a tensioning-cable in connection therewith, a winding-drum for the tensioning-cable, said drum having means for embracing a tree or like standing support for securing the drum in place, a second drum having means of support separate from the first drum, and a driving connection between the two drums.

19. The combination with a main cable, of a tensioning-cable, means for exerting tension on said tensioning-cable, said means including a driving device having connection with a suitable source of power, and a driven device having connection with said driving device and with the tensioning-cable, and means in connection with said driven device and independent of the driving device for holding the same against the strain of the tensioning and main cables.

20. A tensioning device for cables, comprising a drum provided with a plurality of winding-barrels of different radii and a ratchet-rim, an axle therefor, a dog coöperating with said ratchet-rim, a supporting-frame carrying means for attaching to a spar or other support, and means for bracing said drum against lateral thrust, said means including guy-chains and turnbuckle-links.

21. The combination with a main cable, of a tensioning mechanism comprising a cable and a winding-drum, the said drum having securing means extending at one side thereof and adapted to embrace a tree, or like standing support, and means for driving said drum.

22. The combination with a main cable, of a tensioning mechanism comprising a cable and a winding-drum, the said drum having securing means extending at one side thereof and adapted to embrace a tree, or like standing support, and means separate from the drum for driving said drum, said driving means including a winch and a cable connecting the winch and drum.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN F. McKAY.
DAVID J. McKAY.

Witnesses:
VALLEY E. LANDRY,
C. W. LIVELY.