

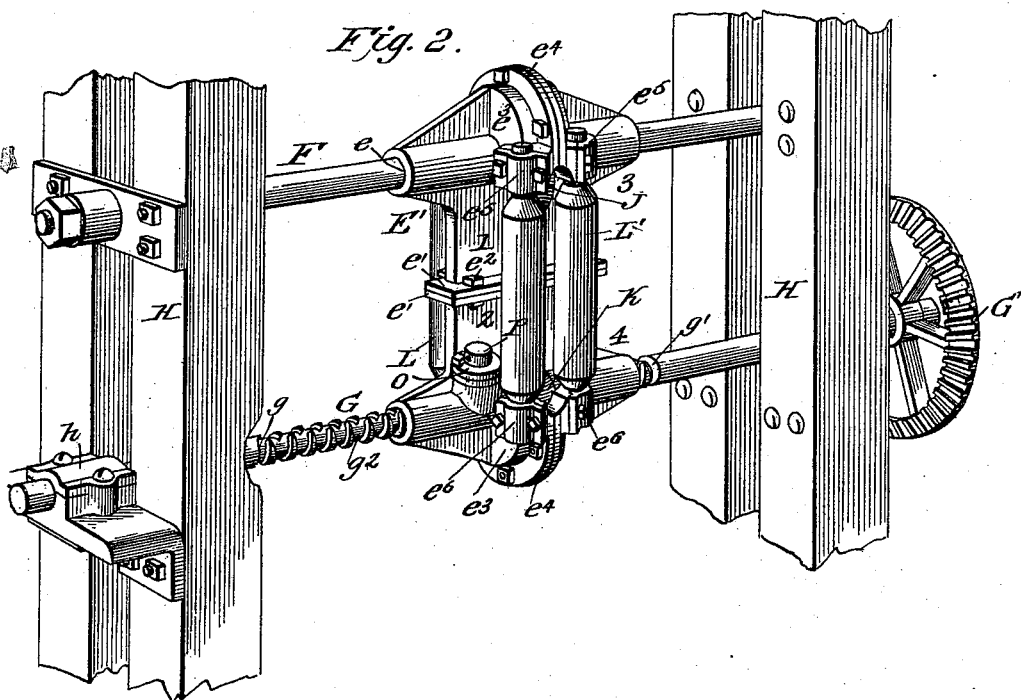
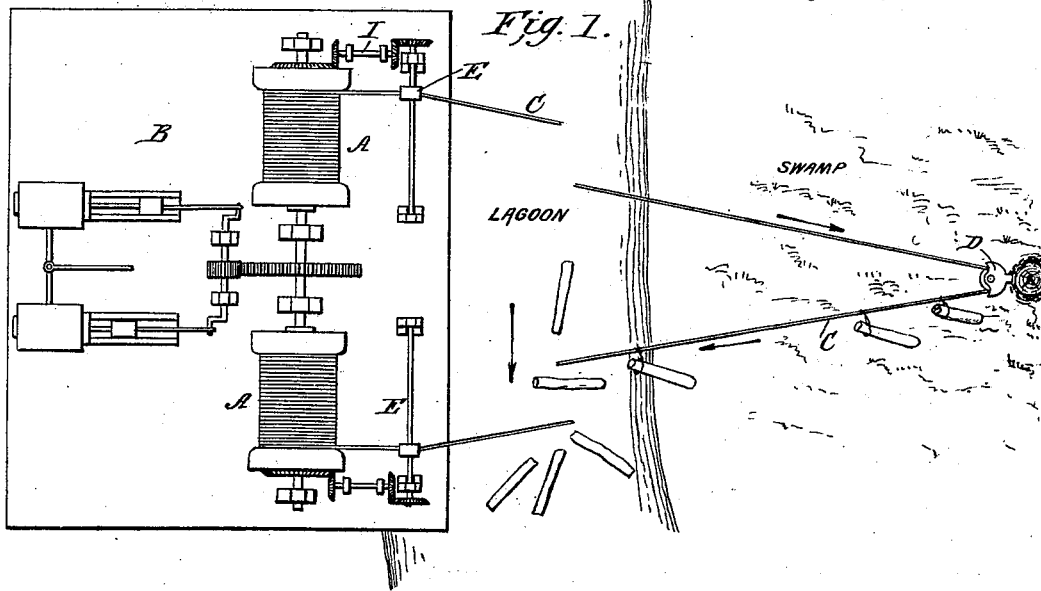
(No Model.)

3 Sheets—Sheet 1.

E. M. IVENS.
ROPE LAYING DEVICE.

No. 523,577.

Patented July 24, 1894.



WITNESSES:
Fred G. Dieterich
M. D. Blondel

INVENTOR
Edmund M. Ivens.
BY *Munn & Co.*
ATTORNEYS.

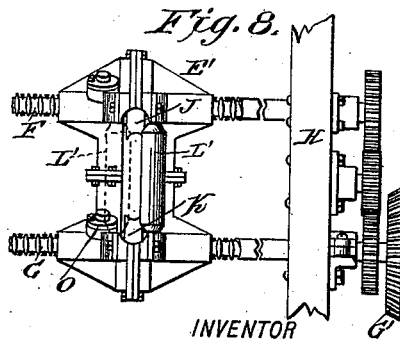
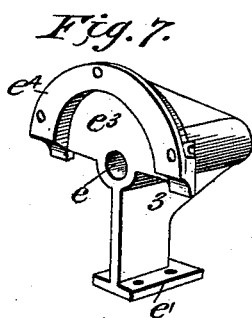
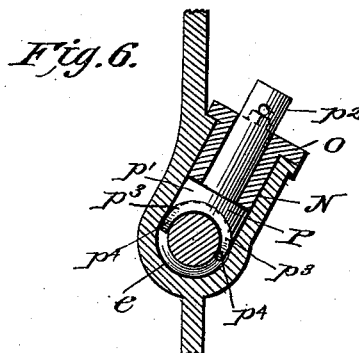
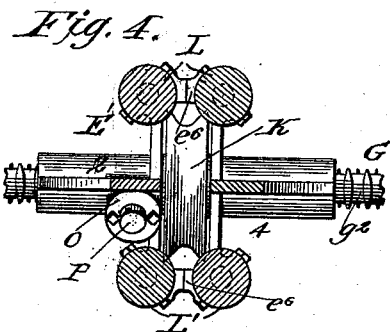
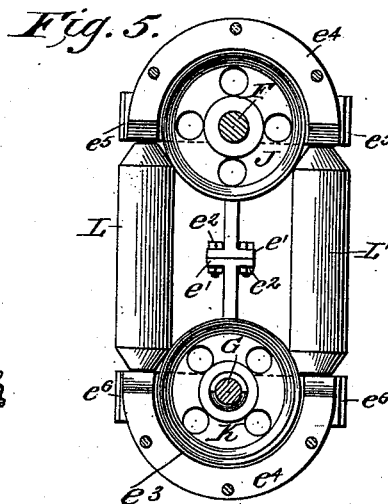
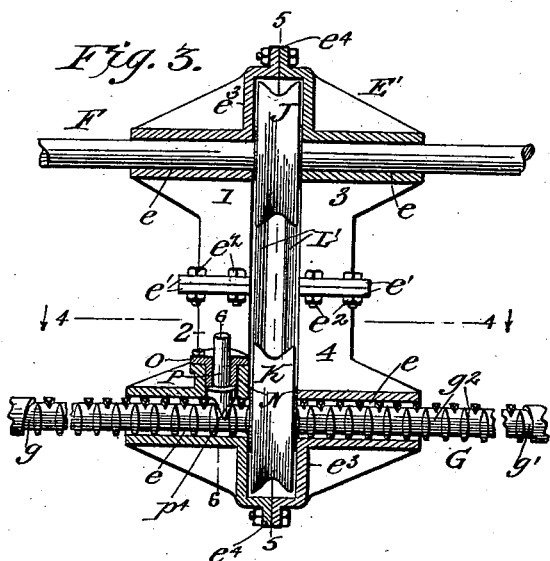
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3 Sheets—Sheet 2.

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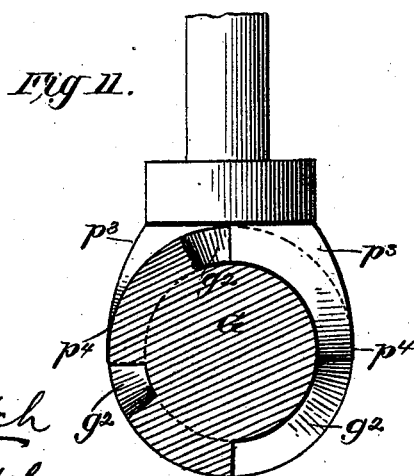
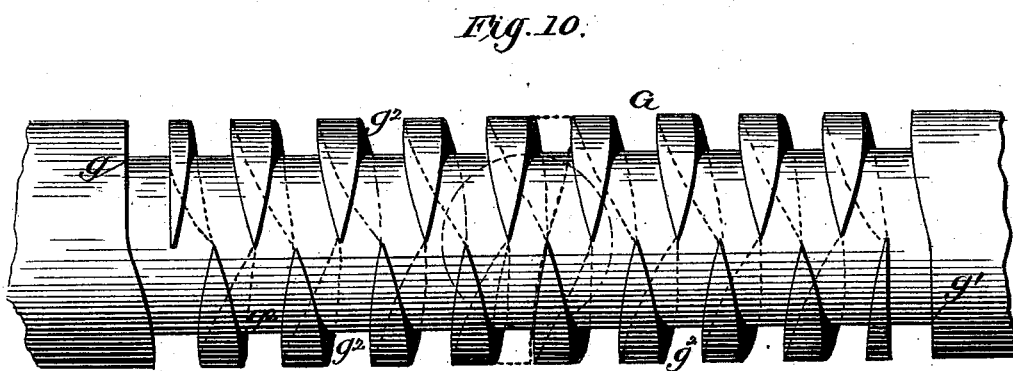
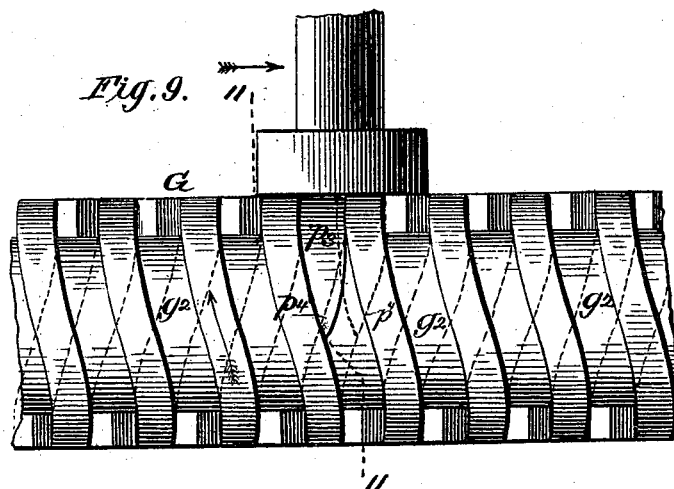
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UNITED STATES PATENT OFFICE.

EDMUND MASTERS IVENS, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO
EMILY L. IVENS, OF SAME PLACE.

ROPE-LAYING DEVICE.

SPECIFICATION forming part of Letters Patent No. 523,577, dated July 24, 1894.

Application filed April 14, 1893. Renewed July 5, 1894. Serial No. 516,519. (No model.)

To all whom it may concern:

Be it known that I, EDMUND MASTERS IVENS, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Rope-Laying Devices, of which the following is a specification.

My invention relates particularly to an improved rope layer or leading mechanism, especially adapted for use in connection with a log pulling apparatus, which forms the subject matter for a separate application, filed by me June 16, 1892, Serial No. 437,006.

In the practical construction and use of the apparatus referred to, a main platform is employed, upon which is mounted a pair of independently operated drums, which are operated by independently arranged clutch brakes, which are operated by a single drive shaft; and to such drums the opposite ends of a pull rope are attached, which rope extends out into the swamp and has its loop portion passed over an anchor sheave.

It should be stated that the log pulling apparatus referred to, is especially adapted for pulling heavy cypress logs from swamp lands or brush, into lagoons or bayous, from whence they can be the more readily and economically transported to a place for shipment. In some places such as for instance in Louisiana swamps, the winding drums are of such a size as to receive a mile of wire cable of an inch or one and one quarter inches diameter, to which rope is also connected about six thousand feet of messenger or loop section of cable, which extends through the brush and swamp and passes over the anchor sheave before referred to. Hence when a pull is started to wind up on an empty drum nearly three miles of wire is put into play, the full reel is unwound and an additional strain also encountered, caused by the log or logs attached to the messenger wire, which logs vary in weight from thirty to forty thousand pounds. During the pulling operation the logs sometimes becomes foul among the stumps or brush, which contingency requires an immediate reversal of the drums and a pull in a reverse direction to clear the log from the stump.

To accomplish the results desired in a sat-

isfactory and profitable manner, I have found from practical experience the necessity of providing in connection with the independently operated winding drums, suitably arranged rope laying or leading devices, one for each rope section, which will serve to reciprocate the ropes laterally proportionately to the speed of the drum, and which are adapted to be instantly reversed as the drums are reversed. I have also found that in the use of such rope laying devices, a perfect adjustment and operation of the parts is required, as the pulling strain on the rope is of such a nature that unless the rope sections are uniformly wound and unwound from the drums, the apparatus will fail for its desired purpose. As the rope sections are operated they have owing to their extreme length a vertical or sagging motion, which causes frequent jerks and shocks on the guide sheaves. Furthermore, as the efficiency of the apparatus depends on the uniform manner in which the rope is laid and unwound on the drums, it is necessary that the coil of a new layer have a half turn upon the preceding last coil before it begins to move laterally.

My invention has therefore for its object to provide rope laying attachments for an apparatus of the character hereinbefore referred to, which is adapted to be reciprocated longitudinally in front of the drum and stopped temporarily at each end of each longitudinal movement as the rope is making the first half of the coil of the new layer.

It has also for its object to provide a rope laying device in which the driver or stud that engages the feed screw embraces it in such a manner that it cannot take a wrong direction when it reaches the end of each lateral movement or when it is desired to reverse the moving carriage at any point on the screw.

With other objects in view all of which will hereinafter be referred to the invention consists in the peculiar arrangement and novel combination of parts presently described and particularly pointed out in the claims, reference being had to the accompanying drawings in which—

Figure 1 is a diagrammatic view of a log pulling apparatus, with my improved rope laying devices applied. Fig. 2 is a perspective

view of the rope laying devices. Fig. 3 is a vertical longitudinal section of the same. Fig. 4 is a horizontal section taken on line 4, 4, Fig. 3. Fig. 5 is a transverse section on the line 5, 5, Fig. 3. Fig. 6 is a detail vertical section on the line 6, 6 Fig. 3. Fig. 7 is a detail perspective view of one of the quarter sections detached. Fig. 8 is a view of a modified arrangement of the carriage shafts. Fig. 9 is a detail view on an enlarged scale of a portion of the screw shaft and the driver. Fig. 10 is an enlarged view of a portion of the screw shaft, and Fig. 11 is an enlarged cross section taken on the line 11, Fig. 9.

My improved log pulling apparatus before referred to is arranged substantially as shown in Fig. 1 and comprises a platform B, the drums A A, the rope C, the anchor sheave D, and the rope layers E. In the present invention these rope laying devices consist each of a carriage E' held on guide shafts F and G, one of which is formed with a right and left bisecting threadway, the special construction of which will be presently referred to. The upper guide F is fixedly held in the side beams H, while the lower shaft G is held to rotate in bearings h on said beams and one end of such shaft is extended and provided with a gear G', which gear meshes with a gear on a drive shaft I geared with and operated by the drum A as shown.

Each carriage E' is formed of four sections 1, 2, 3 and 4, and each of such sections is apertured as at e, whereby they can be quickly slid onto the guide shafts. It will be noticed by reference to Fig. 2 that the several sections are arranged in pairs, one above the other, and such sections have flanges e' at their meeting edges to receive the fastening bolts e². By this construction the carriage can be formed into half sections as shown in Fig. 5. The upper ends of sections 2 and 4 and the lower ends of sections 1 and 3 have hood like portions e³, which terminate in flanges e⁴, by means of which the two sections are secured together, such hood portions forming chambers in which turn the guide sheaves J and K, which are loosely journaled on the shafts F and G to be moved longitudinally thereon as the carriage is reciprocated.

At the front and rear of carriage E' are arranged a pair of vertical guide rollers L L', which are journaled at their ends in boxes e⁶, e⁶, formed at the base of the hood portions e³, and such rollers extend at their upper and lower ends beyond the bearing faces of the sheaves J and K. By arranging the horizontal and vertical rollers in the manner stated, it is manifest that a long vertical guide bearing is provided for the rope as it piles on the drum. Furthermore the rope is left free to surge when at work, it being held from jumping in either direction by the sheaves J and K.

Referring now more particularly to Figs. 9, 10 and 11 it will be noticed that the screw shaft G has right and left threadways which bisect each other, and which terminate at op-

posite ends in straight portions g g' which extend each half way around the shaft in opposite directions and the threadways g² in practice are arranged at such an angle that one revolution of the shaft G will serve to move the carriage E' on such shaft a distance equal to the thickness of the rope and necessary clearance between the layers of the same on the drum. Upon the upper face of section 2 of the carriage is formed a socket N, in which is located the driver P formed of a base portion p' and a shank p² which projects upward and through a gland O, the lower end of which bears against the base p' of the driver, as shown most clearly in Fig. 6. It will be noticed by reference to such figure and Fig. 10, that the lower end of the driver terminates in a semi-circular end, the arms p³ p³ of which lap over the screw shaft and extend to a point below its center, and such arms have tapered or sharpened ends p⁴ p⁴. By forming the ends of the arms into sharpened or tapered portions as stated such arms will have always two bearing points on the threadway, the opposite prongs having opposite side bearings on the thread way as shown in Fig. 9, and such prongs extend below the center until they touch the thread on each side as indicated.

By means of a driver constructed as stated, it will be impossible for it to take a wrong direction in case the screw shaft is reversed before the driver reaches the end of its lateral movement, as its bearing faces would reverse, the same change also being accomplished when the driver reaches the end or straight portion of thread although the screw runs all the time in one direction. It should be stated that if it were not for the increased length of the bifurcated prongs or arms and the opposite bearing points such driver would not bear in such threadways in a manner to make it absolutely sure it would at all times cross the slots of the other thread without dropping into the same. By pivotally holding the driver in the carriage as shown the same is capable of a partial rotation when crossing the end of the shaft while in operation, and as the lower part of such driver fits the socket, it takes the lateral strain in moving the device during operation.

It will be noticed by mounting the driver shaft in a movable gland as shown a free removal of the driver for repairs or adjustment is provided for. Furthermore a new gland may be readily substituted when necessary on account of the thrust wear of driver against same.

By constructing the carriage in sections as shown the same can be parted in a vertical line, so that each half will carry all its parts with it and slip on the guide shafts without removal. While in the practical construction of the invention but one of the guide shafts is formed with a feed screw way, it is manifest that both of such shafts may be formed with such thread ways. In the latter

case the shafts F and G are geared together in the manner shown in Fig. 8.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A rope laying mechanism for log pulling apparatus, comprising a winding drum, a screw shaft arranged parallel thereto and geared with the drum to rotate in uniform direction therewith, said screw shaft having right and left threadways bisecting each other, the right threadway terminating at one end in a straight portion projected at right angles to the axis of the shaft in one direction, the left threadway terminating at the opposite end in a similar straight portion, projected in an opposite direction, and a rope carrier having a stud engaging such threadways, all arranged substantially in the manner shown, whereby the carrier is reciprocated as the drum rotates and held temporarily from movement at the end of each reciprocal movement as the drum continues to rotate as set forth.

2. A rope layer for winding drums, comprising parallel guide shafts, one of which is formed with a feed screw, guide sheaves loosely journaled on such guide shafts, a rope carrier formed of two sections fitted to incase such sheaves and a driver or stud portion engaging the thread way of the screw shaft; all substantially as and for the purpose described.

3. As an improvement in rope layers, the combination with the supporting frame, a pair of guide shafts held thereon, one of such shafts being a rotary screw shaft, of a rope carrier formed of four sections, each apertured to fit over the guide shafts, said sections joined to form a casing, sheaves loosely journaled on the guide shafts and held in such casing and a driver or stud member on the carriage adapted to engage the thread way on the screw

shaft, all substantially as and for the purpose described.

4. As an improvement in rope layers, in combination, the guide shaft F and the screw shaft G, arranged below the guide shaft, a sheave loosely held on such guide shaft F, and the shaft G, a carriage formed of sections fitted on such shafts, said sections having flanges at their upper and lower ends, whereby an internal chamber is formed to incase the said sheaves, and vertical guide rollers supported on the front and rear faces of the carriage on each side of the rope, and a driver or stud member held on the casing, adapted to engage the thread way on the shaft G, all substantially as and for the purpose described.

5. An improved rope layer for log pulling machines of the kind described, consisting of a supporting frame, a pair of guide shafts, one of such shafts being a rotary screw shaft, a rope carrier casing mounted over such shafts, having a stud engaging the screw shaft, sheaves held in the said casing loosely mounted on the guide shafts, and vertical guide rollers supported on the front and rear faces of the carriage, one at each side of the rope passage, all substantially as shown and described.

6. A rope laying mechanism for log pulling apparatus, comprising a winding drum, a rope layer held to travel in front of and parallel to such drum, mechanism connected with the drum and the carriage, and operated by the drum, for reciprocating such carriage in reverse directions, and means for temporarily holding such carriage from movement, at the end of each reciprocal movement, as the drum continues to revolve, substantially as shown and for the purposes described.

EDMUND MASTERS IVENS.

Witnesses:

HARRY K. IVENS,
CHAS. BRILL.