No. 788,542. PATENTED MAY 2, 1905.

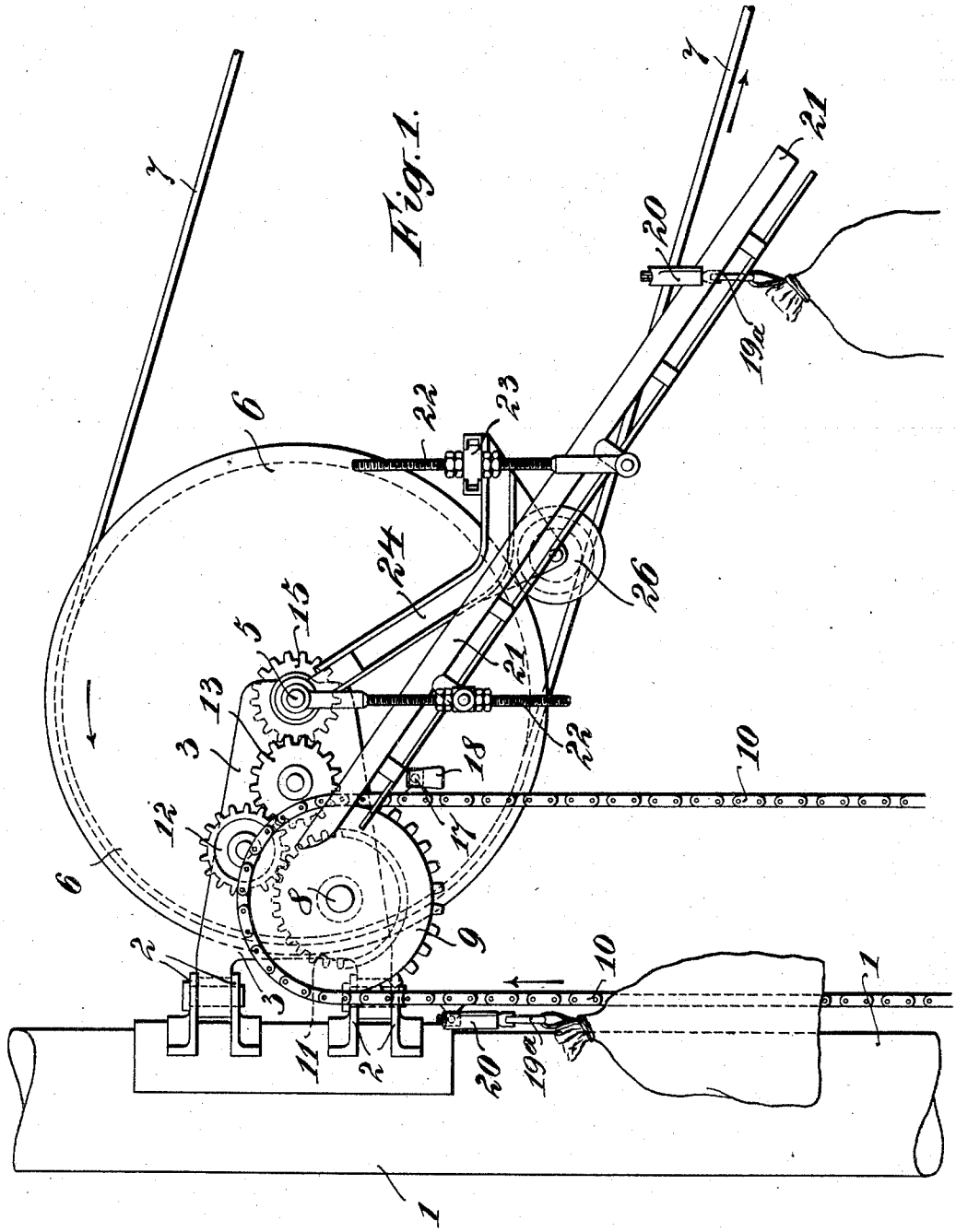
G. LEUE.

ENDLESS ROPE TRANSPORT APPLIANCE.

APPLICATION FILED SEPT. 29, 1904.

2 SHEETS—SHEET 1.

Fig. 1.




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2 SHEETS—SHEET 2.

Fig. 2.

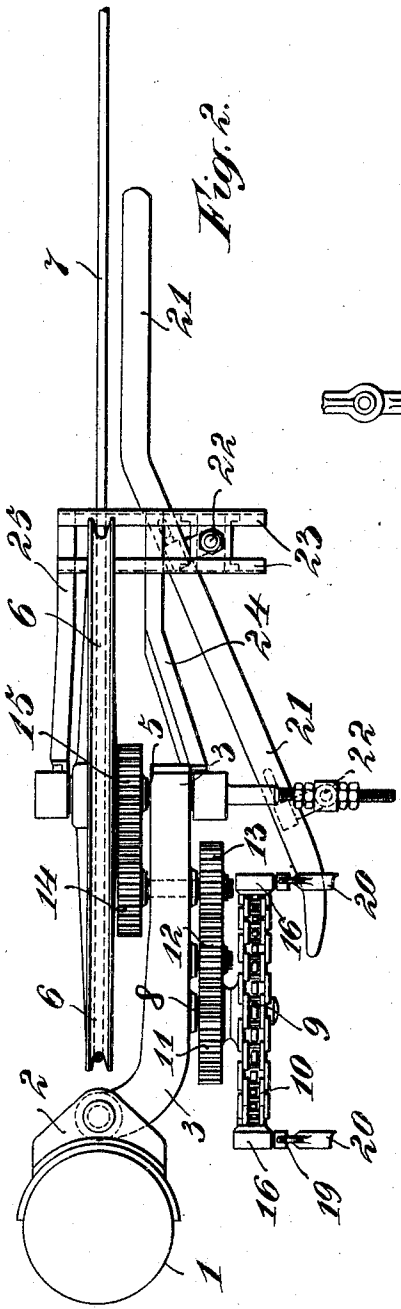



Fig. 3.

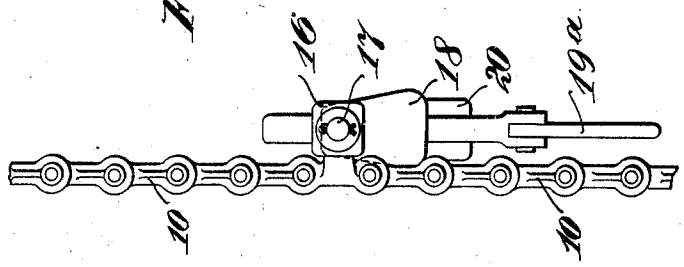
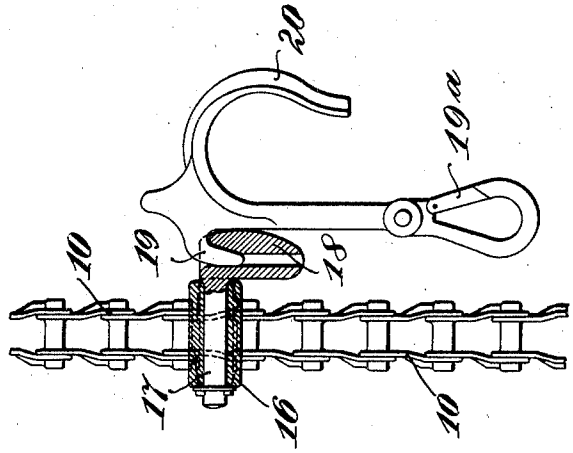



Fig. 4.




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# UNITED STATES PATENT OFFICE.

GEORG LEUE, OF BERLIN, GERMANY.

## ENDLESS-ROPE TRANSPORT APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 788,542, dated May 2, 1905.

Application filed September 29, 1904. Serial No. 226,590.

*To all whom it may concern:*

Be it known that I, GEORG LEUE, a citizen of the Empire of Germany, and a resident of Berlin, Germany, (whose post-office address is Kurfürstendamm 24,) have invented certain new and useful Improvements in Endless-Rope Transport Appliances, of which the following is a specification.

The subject of my invention is an improvement in endless-rope transport appliances, and is more particularly adapted for such appliances as serve to transport coal and the like between two ships at sea. With such marine transport appliances, as also with similar apparatus on land, it is of importance without special driving power to automatically raise the goods to be transported up to the end of the traveling rope located high above the loading-station and to automatically hang them upon the said rope. In the case of coaling apparatus for ships the appliances for elevating and hanging the goods must be in so far independent of the endless transport-rope that slipping of the latter from its pulley—such as is necessary, for example, on breaking of the cable connecting the two ships—is not prevented nor the elevating and hanging appliance itself injured on such unslipping of the rope occurring.

The accompanying drawings show one form of construction of an apparatus meeting the above requirements, it being assumed that the motor driving the transport appliance and the apparatus for stretching the endless rope are located on the ship being coaled.

Figure 1 shows an elevation of the apparatus in conjunction with one end of the transport appliance secured to the mast of a coaling-ship. Fig. 2 is a plan of Fig. 1. Fig. 3 is a side elevation, and Fig. 4 is a sectional view, both drawn to an enlarged scale, showing the goods-carrying hook attached to the elevating-chain.

1 is the mast of the coaling-ship, to which is secured a bracket presenting bearings 2 for the swing-arm 3. The latter supports a shaft 5, on which is mounted the large grooved pulley 6, round which the endless conveying-rope 7 runs in the direction of the arrow. The lower half of the rope carries the coal-sacks to the ship being coaled and on which the driving-motor is located. The upper half of the rope returns the empty sacks to the coaler.

For the purpose of enabling the coal to be elevated to the transport-rope 7 and attached thereto by the revolutions of the pulley 6 I employ the following arrangement: In the arm 3 there is mounted at 8 a sprocket-wheel 9, on which runs the endless pitch-chain 10. At the back of the sprocket-wheel 9 there is keyed to the shaft of the same a toothed wheel 11, gearing with a toothed wheel 12, also carried by the arm 3. The wheel 12 again meshes with a wheel 13, mounted at one end of a shaft extending through the arm 3, the other end of this shaft carrying a gear-wheel 14, meshing with a gear-wheel 15, secured to the pulley-shaft. In this manner the sprocket-wheel 9 is driven in an opposite direction to the pulley 6 and in the same direction as the lower half of the conveying-rope 7. The chain 10 serves for elevating the goods—in the present case assumed to be coal. For this purpose on each, say, twelfth link of the chain a horizontal lug 16 is provided, through the eye of which a pin 17 is inserted at right angles to the chain. (See Figs. 3 and 4.) The head of the pin 17 is formed as a long pendent eye 18, in which grips the talon or claw 19 of a load-carrying hook $19^a$. In addition to the talon (which for the purpose of subsequent release from the rope may be made to turn back) the load-carrying hook $19^a$ also presents in well-known manner a large slide-hook 20. The coal-sack is suspended by hand on the load-hook $19^a$, the talon 19 of which is then inserted into the lowermost eye 18 (which eyes by reason of their being eccentrically mounted will always hang vertically) of the rising half of the chain 10. The sack of coal hanging in front of the chain will thus be carried up and as soon as it has passed the wheel 9 will come over the sack-hanging device. The latter consists of a laterally-bent and downwardly-inclined rail 21, crossing the chain at the top and the lower half of the endless rope below. The rail 21 is adjustably held by screw-bolts 22, one of which is directly pendent from the shaft 5, while the other is pendent from the cross-

beam 23, which connects two arms 24 25, through the free ends of which the shaft 5 loosely passes and which are located one on each side of the pulley 6. The two arms 24 25 carry between them a roller 26, which rests on the lower half of the rope 7. The arms 24 25 thus follow the oscillations of the rope and at the same time insure that the rail 21 always occupies the same relative position to the said rope.

From Fig. 1 will be seen how the hook 19ª, carrying the coal-sack, after being conducted by the chain over the sprocket-wheel is retained by the rail 21, owing to the large hook 20 gripping over the latter in its descent. The descending eye 18 then releases the talon 19. Hereupon the hook 20 and sack hanging at 19ª will slide down the rail 21 until the talon 19 reaches the rope 7, which it will now engage, whereupon the rope will convey the hook and suspended sack of coals to the opposite ship.

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

1. In a transporting appliance, in combination, an endless rope, a grooved pulley at the loading end of the same, means for driving the rope and pulley, an elevating apparatus located adjacent to the rope, means for transferring the load from the elevating apparatus to the rope, and means for driving the elevating apparatus from the rope-pulley, substantially as described.

2. In a transport appliance, in combination, an endless rope, a grooved pulley at the loading end of the same, means for driving the rope and pulley, a chain-wheel located adjacent to the rope, an endless chain traveling over the chain-wheel, and gear-wheels whereby the rope-pulley is caused to drive the chain-wheel, substantially as described.

3. In a transport appliance, in combination, an endless rope, a grooved pulley at the loading end of the same, means for driving the rope and pulley, an elevating apparatus located adjacent to the rope, a rail running downwardly and inwardly from the vicinity of the elevating apparatus to the endless rope, and a frame secured to the rail, carried by the rope-pulley shaft, and having a roller resting on the endless rope, substantially as described.

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

GEORG LEUE.

Witnesses:
WOLDEMAR HAUPT,
WILLIAM MAYNER.