

2 Sheets—Sheet 1.

No. 606,063.

Patented June 21, 1898.



Everance.
Roger M. Tenwick

INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

W. B. LANTZ.
ROPE HAULING MACHINE.

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Fig. 2.

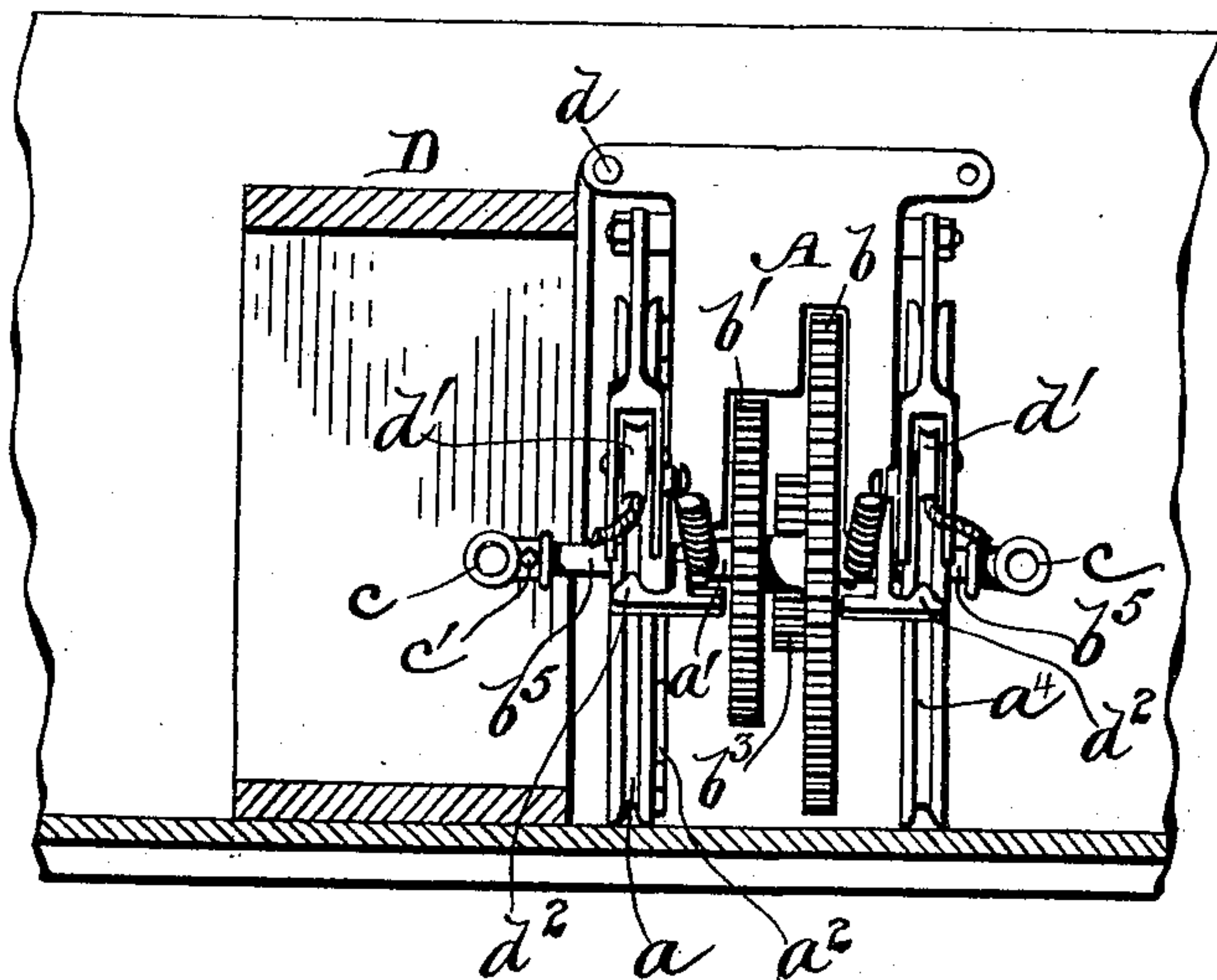


Fig. 4.

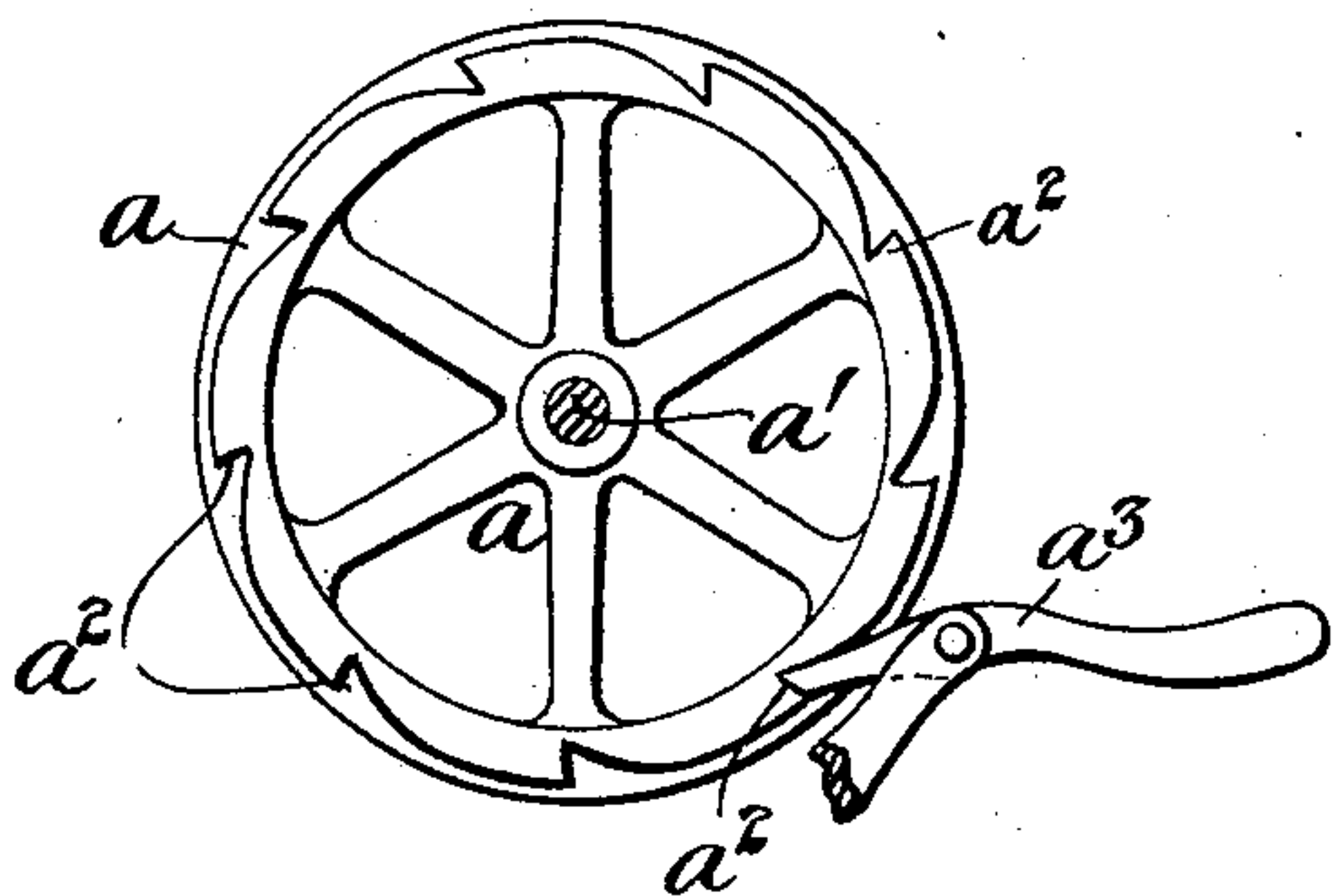


Fig. 5.

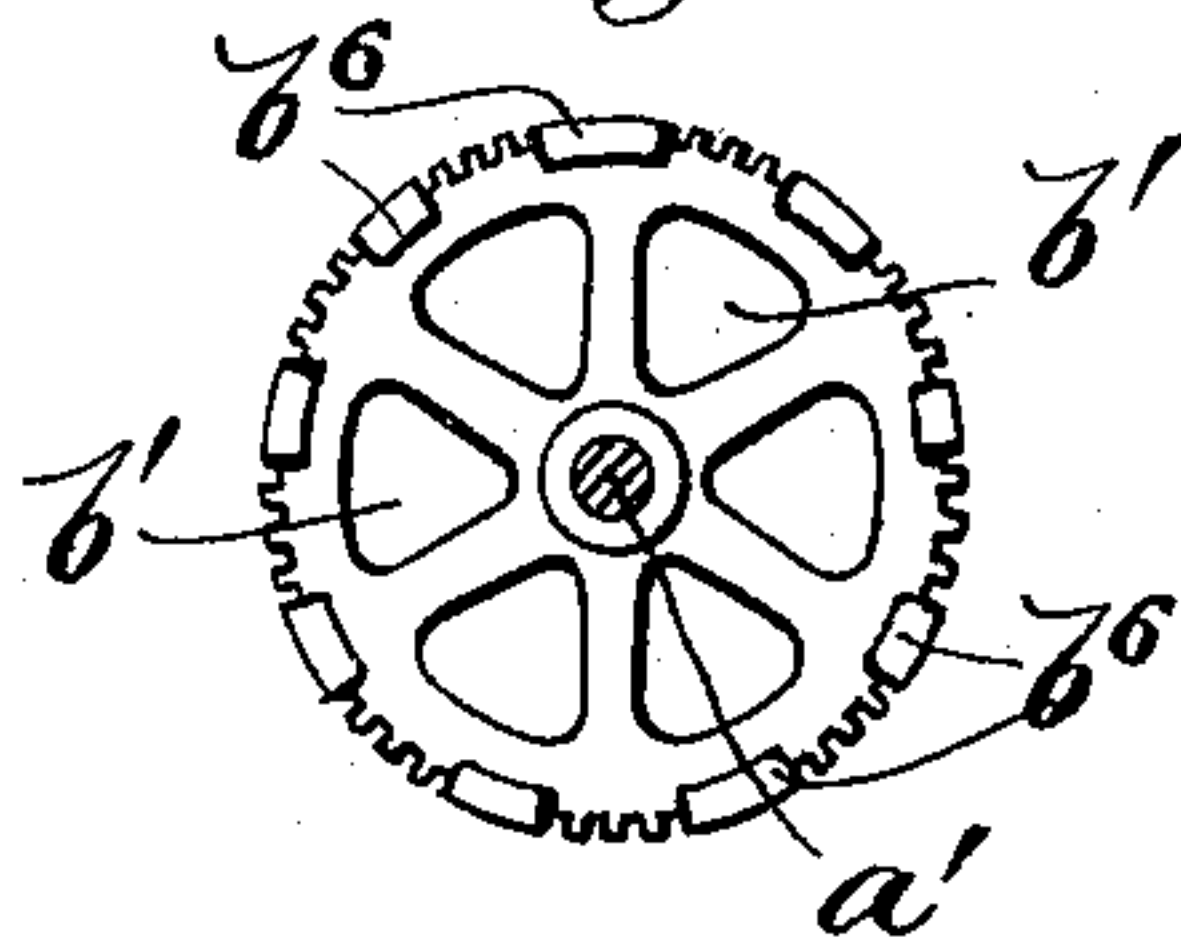


Fig. 6.

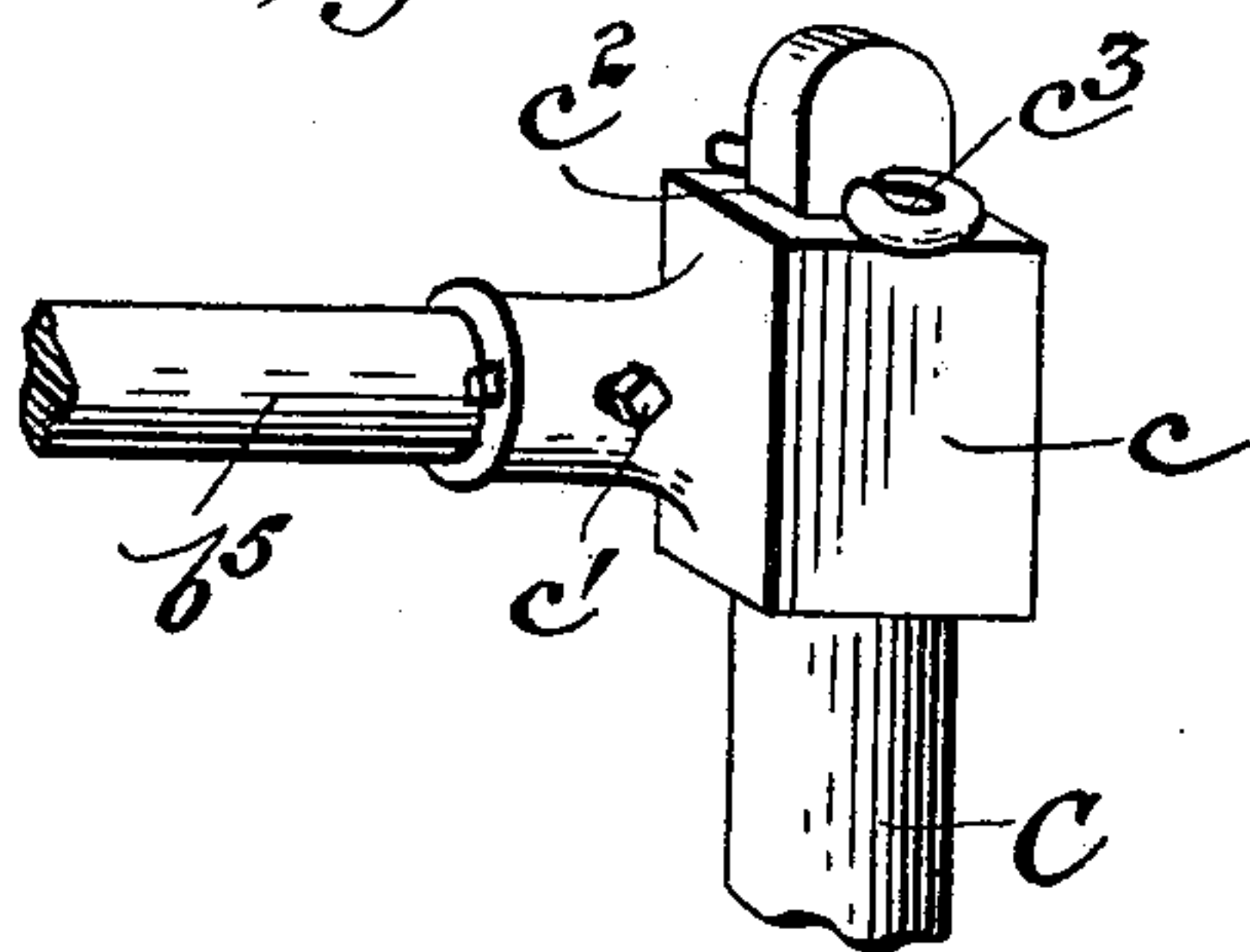
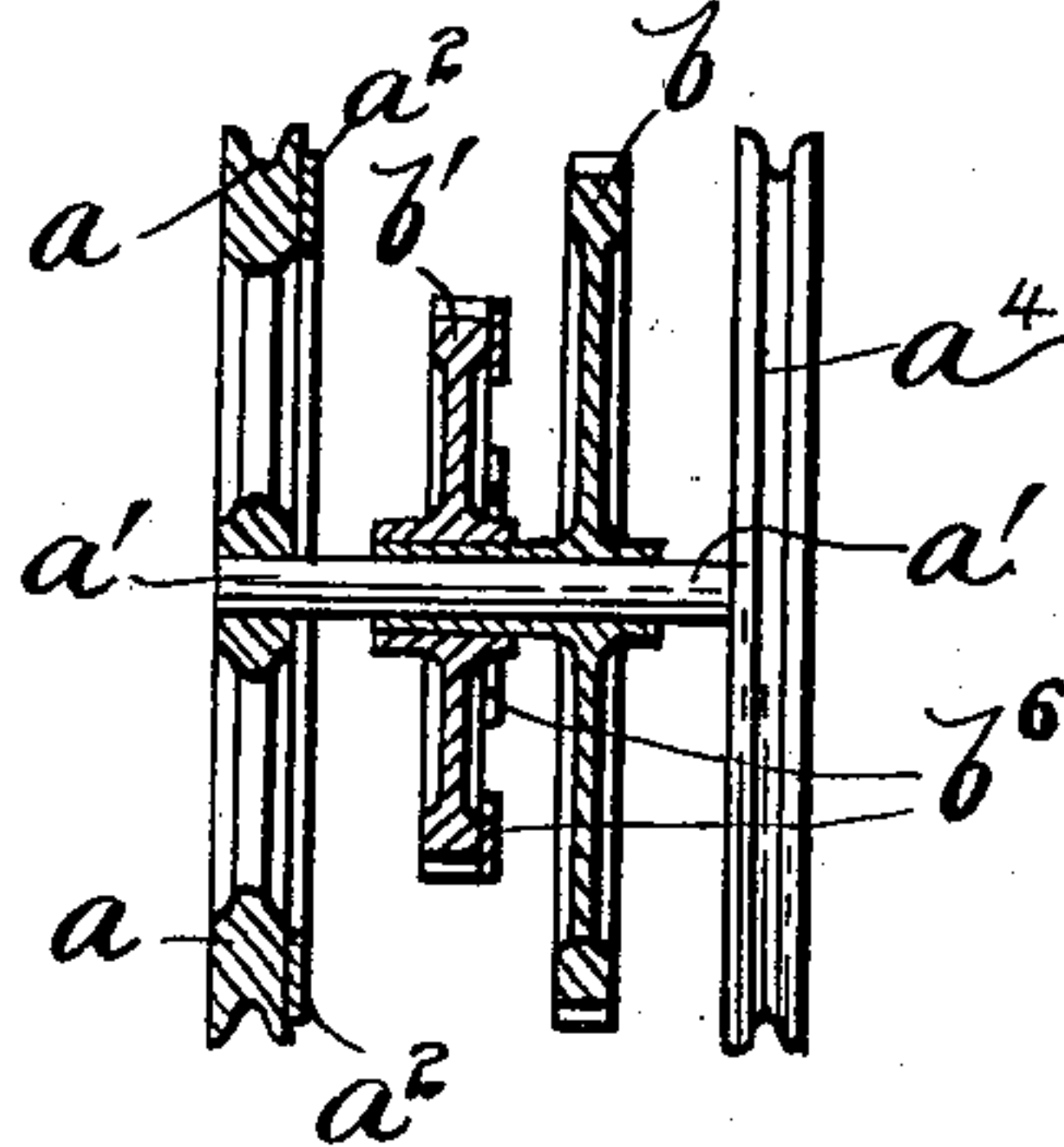


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM B. LANTZ, OF GLOUCESTER, MASSACHUSETTS.

ROPE-HAULING MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,063, dated June 21, 1898.

Application filed May 12, 1897. Renewed May 12, 1898. Serial No. 680,521. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. LANTZ, a citizen of the United States, residing at Gloucester, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Rope-Hauling 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 improvements in rope-hauling machines, and has more particularly to do with that class of machines that are employed for hauling the purse-lines of seines and for that purpose are mounted in a boat or like floating body.

The invention consists in mounting in a suitable framework grooved wheels for engaging the rope and operating gearing mounted in the said frame between the grooved wheels, the said gearing comprising gear-wheels of different diameters secured to the shaft of the grooved wheels and actuating gear-wheels of different diameters adapted to engage the gear-wheels upon the shaft of the grooved wheels and adapted to slip back and forth in the frame for engaging one or the other of said gear-wheels for changing the power and speed of the apparatus at will, means being used upon said gear-wheels to limit said slip movement to certain predetermined points upon the gear-wheels.

It also consists in certain other constructions, combinations, and arrangements of parts, as will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved rope-hauling machine as mounted upon the seat of a boat, the boat being shown in cross-section. Fig. 2 is a detail sectional view of the boat, taken transversely through the seat thereof, the machine being turned down from the top of the seat out of the way of the rowers. Fig. 3 is a top plan view of the rope-hauling machine, showing the arrangement of the gearing for operating the same. Fig. 4 is a side elevation of one of the rope-hauling grooved wheels, showing a ratchet formed on the side thereof. Fig. 5 is a side elevation of one of the gear-wheels, showing some of the teeth thereof

closed at the side to prevent the slip movement of the gearing except at certain intervals. Fig. 6 is a detail view showing the manner of connecting the handles to a power-shaft of the device; and Fig. 7 is a detail sectional view through the shaft of the rope-hauling wheels, showing the construction of the gear-wheels secured thereon.

A in the drawings represents the improved rope-hauling machine. B represents the gearing thereof, C the operating-handles, and D the seat of a boat.

The wheels a^4 , having grooves in their peripheries for engaging the ropes to be hauled, are mounted upon the ends of a cross-shaft a' , carried by the frame of the machine. Mounted upon the shaft a' between the grooved wheels a^4 are gear-wheels $b b'$. The gear-wheel b is preferably provided with an elongated hub, as at b^2 , and the hub of the gear-wheel b' is preferably secured rigidly upon the said hub b^2 , the proper space being allowed between the said gear-wheels $b b'$. The hub b^2 is then securely keyed to the shaft a' . In order to operate the said gear-wheels, a slip-gearing is mounted in the frame, so as to engage the said gear-wheels. This gearing consists of gears $b^3 b^4$, which are mounted upon a second shaft b^5 , carried in suitable bearings upon the frame. These gear-wheels $b^3 b^4$ are preferably made in a single casting, the gears b^3 being formed upon the side of the gear-wheel b^4 . These gear-wheels are keyed to the shaft b^5 , so as to turn therewith. These gear-wheels $b b' b^3 b^4$ may be of any desired size, but they are so proportioned as that when the gear-wheel b^3 is moved opposite the gear-wheel b it will mesh therewith, and also so that when the gear-wheel b^4 is moved opposite the gear-wheel b' it will also mesh with it. The shaft b^5 is free to move longitudinally in its bearings a sufficient distance to permit of this change of gearing. Handles of any desired form may be attached to the ends of the shaft b^5 for rotating the same; but I prefer to use handles attached in an improved manner. Upon the ends of the shaft b^5 are keyed handle-attaching devices or pieces $c c$. The pieces $c c$ are provided with sockets to receive the ends of the said shaft b^5 , to which they are keyed. Set-screws, as c' , are also employed to lock the said pieces upon the

end of the said shaft. Said pieces are further provided with sockets or apertures extending through the same, as at c^2 , which are adapted to receive the ends of operating-handles C C.

5 The sockets c^2 are preferably rectangular in shape and the ends of the handles C C, which extend into the same, are correspondingly shaped, so that the handles cannot turn in the sockets. After the handles C have been
10 inserted in the sockets c^2 c^2 they are secured therein by pins c^3 c^3 , passed through projecting ends of the said handles. Handles made in this manner are easily attached to or detached from the shaft, and there is no danger
15 of them slipping with respect to the shaft or dropping out of engagement therewith during the operation of the machine.

I preferably place the gear-wheels b b' at a distance apart which shall be a little greater
20 than the width of either one of the gear-wheels b^3 b^4 . It will be seen that in using this mechanism as a slip-gear when the gear-wheel b^4 is moved laterally with respect to the gear-wheel b' the teeth of the gear-wheel b^3 will of necessity engage the teeth of the gear-wheel b before the teeth of the gear-wheel b^4 leave the
25 teeth of the gear-wheel b' . Now as the gear-wheels are of different sizes it will be apparent that the openings between the teeth of the wheels b b' will not all coincide and that there will only be certain points upon the peripheries of these wheels where the teeth and their intervening apertures will exactly coincide. The same fact is also true in regard to
30 the wheels b^3 b^4 . By making the gear-wheels of certain sizes with relation to each other and providing them with a certain number of teeth, the teeth being all formed on the same pitch, it can be readily ascertained at what
40 points the teeth of the wheels will be exactly opposite each other. I have provided a means in connection with my device whereby the slip-gearing can only be moved at points where the teeth of the gear-wheel will coincide, and this construction constitutes a very
45 important feature of my invention. Upon the inner surfaces of the grooved wheel a ratchet-teeth, as a^2 , are provided. These ratchet-teeth are made of sufficient width to
50 be engaged upon their peripheries by a pawl or dog a^3 , pivotally mounted upon the frame of the machine. By placing the teeth of this ratchet a^2 only in such places with relation to the gearing that the pawl a^3 will only hold the
55 said gearing at those points where the teeth of the gear-wheels coincide the result will follow that when the machine is held by the said pawl the slip-gearing will always be free to move and can be changed as desired. It will
60 be evident that the ratchet a^2 might be placed on the wheel a^4 or a ratchet might be placed upon both the grooved wheels without departing from the spirit of my invention. In order to prevent the chance of slipping the
65 gearing when the machine is not held by the pawl—as, for instance, when no rope is being hauled at a place where the gearing will not

coincide—I further provide the gear-wheel b' with side flanges, as at b^6 , which close the spaces between some of the teeth of the gear-wheel at one side. These closing-flanges are placed opposite the intervals between the teeth which will not coincide, so that the slip-gearing cannot be moved laterally except at the points where the intervals between the
75 teeth are left open, care being exercised to place these intervals of open teeth at the points where the teeth coincide. By these simple expedients I am enabled to use a slip-gearing for my rope-hauling machines which
80 will not be subject to loss of motion in changing the gearing and which can also be built to occupy a much narrower space in the machine than that occupied by the ordinary slip-gearing used in other machines.
85

In using this machine for hauling purse-lines of seines the frame is provided with a suitable base portion adapted to be secured in place upon a seat D of any suitable boat. The frame is hinged at one edge to the seat,
90 as at d , and is adapted to be secured at the other end in any suitable manner, as by hasp and pin. It is preferably hinged toward the forward end of the boat, so that it may be turned down into the bottom of the boat upon
95 the forward side of the seat and thus be entirely out of the way of the rowers of the boat when the machine is not in use. The wheels a a^4 have their grooves formed V-shaped in cross-section, so as to bite the rope and hold
100 it firmly for pulling it in. The rollers, as d' d' , are pivotally held against the peripheries of the wheels a a^4 at such a point as to keep the rope in contact with the greater portion of the peripheries of the wheels a a^4 . In order to
105 prevent the rope from sticking in the grooves beyond that point, fingers, as d^2 d^2 , secured to the frame, extend into the grooves of the wheels a a^4 in such a manner as to lift the rope out of the grooves.
110

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

1. In a rope-hauling machine, the combination with a suitable frame, of grooved rope-hauling wheels mounted in said frame, gear-wheels connected with said rope-hauling wheels, a slip-gearing mounted in said frame for actuating the said gear-wheels, a ratchet formed upon one of said rope-hauling wheels,
115 a pawl for engaging said ratchet, the teeth of said ratchet being so formed as to hold the said gear-wheels in the proper position to permit of the change of the slip-gearing, substantially as described.
125

2. In a rope-hauling machine, the combination with a suitable frame, of rope-hauling wheels mounted thereon, gear-wheels of different diameters connected with the said hauling-wheels, a slip-gearing adapted to engage
130 said gear-wheels for changing the power and speed of the machine, and means for closing certain of the intervals between the teeth of one of the said gear-wheels at predetermined

points upon one side of the periphery of said gear-wheel to prevent the movement of the said slip-gearing at those points, substantially as described.

5 3. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted therein, rope-hauling wheels on said shaft, gear-wheels mounted upon said shaft and a slip-gearing also mounted in said frame and
10 adapted to engage the said gear-wheels, for changing the speed and power of the machine, the said gear-wheels being placed so close together that teeth of the slip-gears will always be in engagement with one or the other of
15 said gear-wheels and means for preventing the slip-gearing from being changed except at predetermined intervals, substantially as described.

20 4. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted therein, rope-hauling wheels on said shaft, gear-wheels of different diameters secured to said shaft for rotating the same, a slip-gearing for engaging the said gear-wheels to
25 change the speed and power of the machine, the intervals between some of the teeth of one of the gear-wheels being closed at one side so as to leave open teeth at one or more predetermined points upon the periphery of the
30 said gear-wheel, the construction being such that the slip-gearing can only be changed at those intervals, a ratchet secured to the side of one of the rope-hauling wheels, a pawl

mounted on the machine and adapted to engage said ratchet, the teeth of the ratchet being so arranged as to hold the gearing only
35 at the points where the slip-gearing can be changed, substantially as described.

5. In a rope-hauling machine, the combination with a suitable frame, of a shaft mounted
40 in said frame, rope-hauling wheels secured to said shaft, a gear-wheel mounted on said shaft and having an elongated hub, a gear-wheel of different diameter mounted upon said hub and keyed thereto whereby the two
45 gear-wheels are adapted to move as one wheel, a second shaft mounted in the said frame, gear-wheels of different diameters mounted upon said shaft and adapted to mesh with the gear-wheels connected with the rope-hauling
50 wheels, the said second shaft being free to move longitudinally in its bearings whereby the gear-wheels secured thereto may be changed with relation to the gear-wheels connected to the rope-hauling wheels and means
55 upon one of said gear-wheels connected to the rope-hauling wheels for preventing the slip-gears upon the said second shaft being changed except at certain predetermined intervals, substantially as described.
60

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

WILLIAM B. LANTZ.

Witnesses:

A. FOSTER COLLINS,
FRED A. BARKER.