

No. 733,007.

PATENTED JULY 7, 1903.

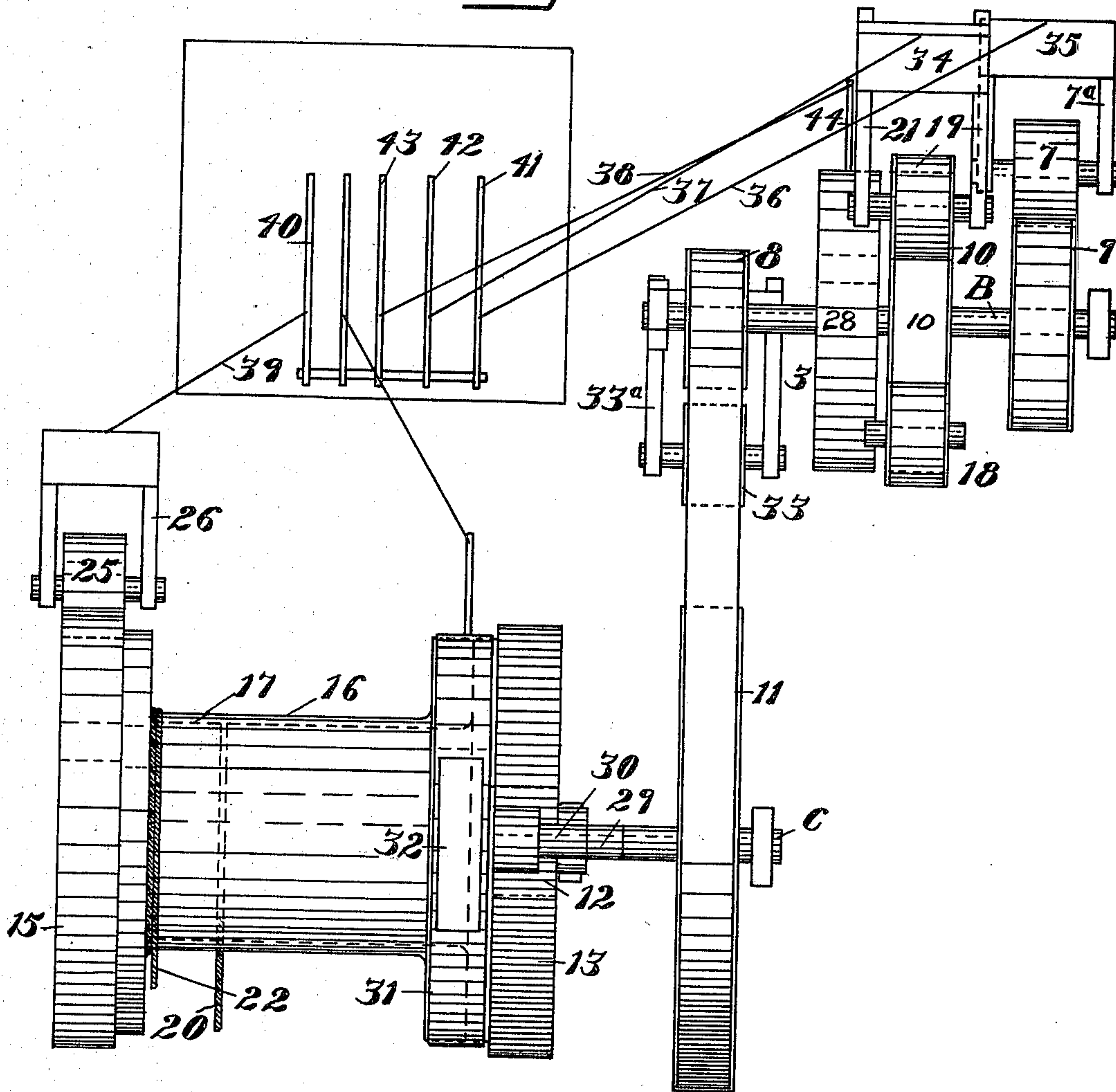
S. H. CHASE.
LOG OR LUMBER HAULING ATTACHMENT.

APPLICATION FILED SEPT. 26, 1902.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses,
Dudley Moss.
H. Morse

Inventor,
Stephen H. Chase
By Dewey Strong & Co. atty

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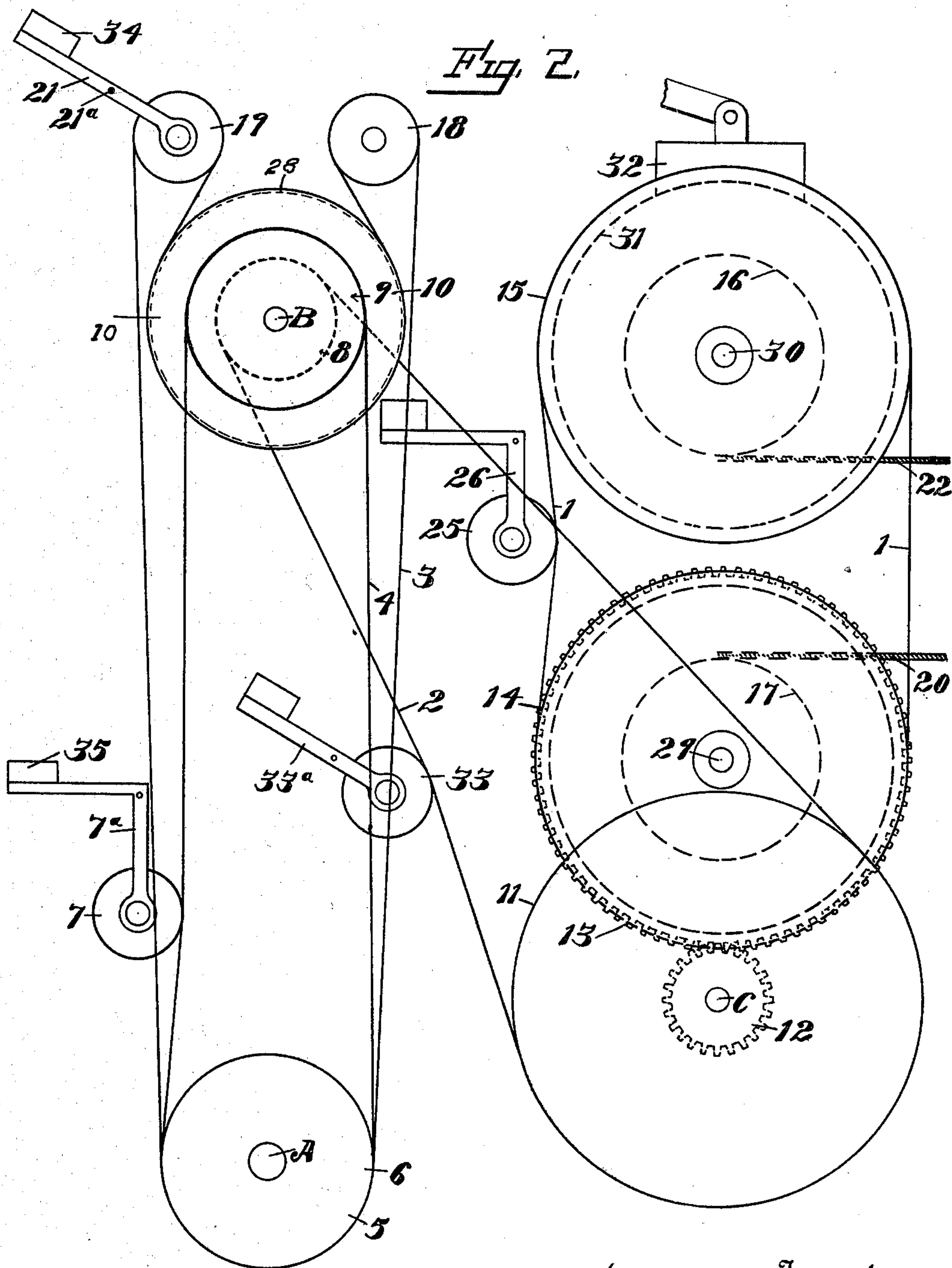
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4 SHEETS—SHEET 2.



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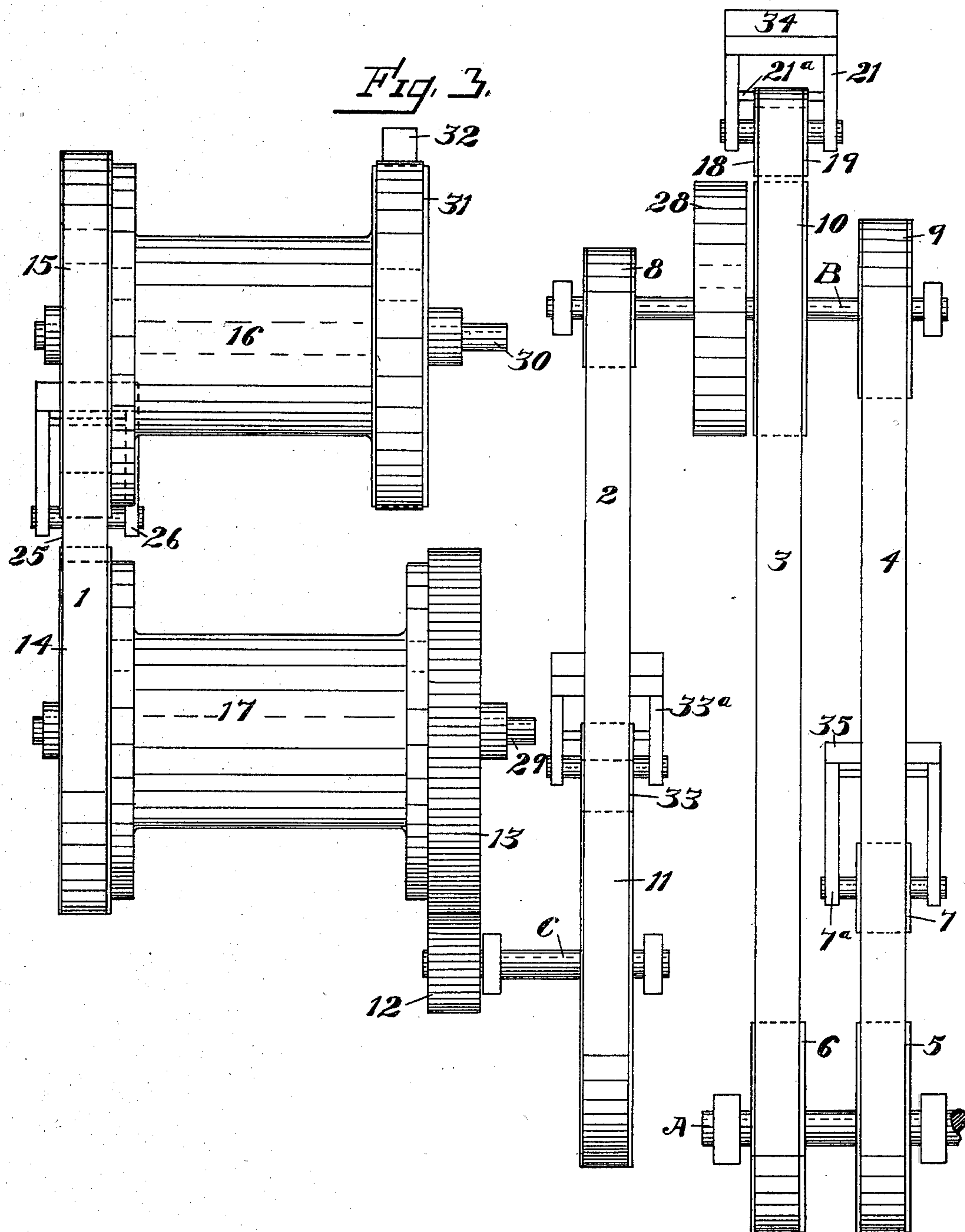
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4 SHEETS—SHEET 3.



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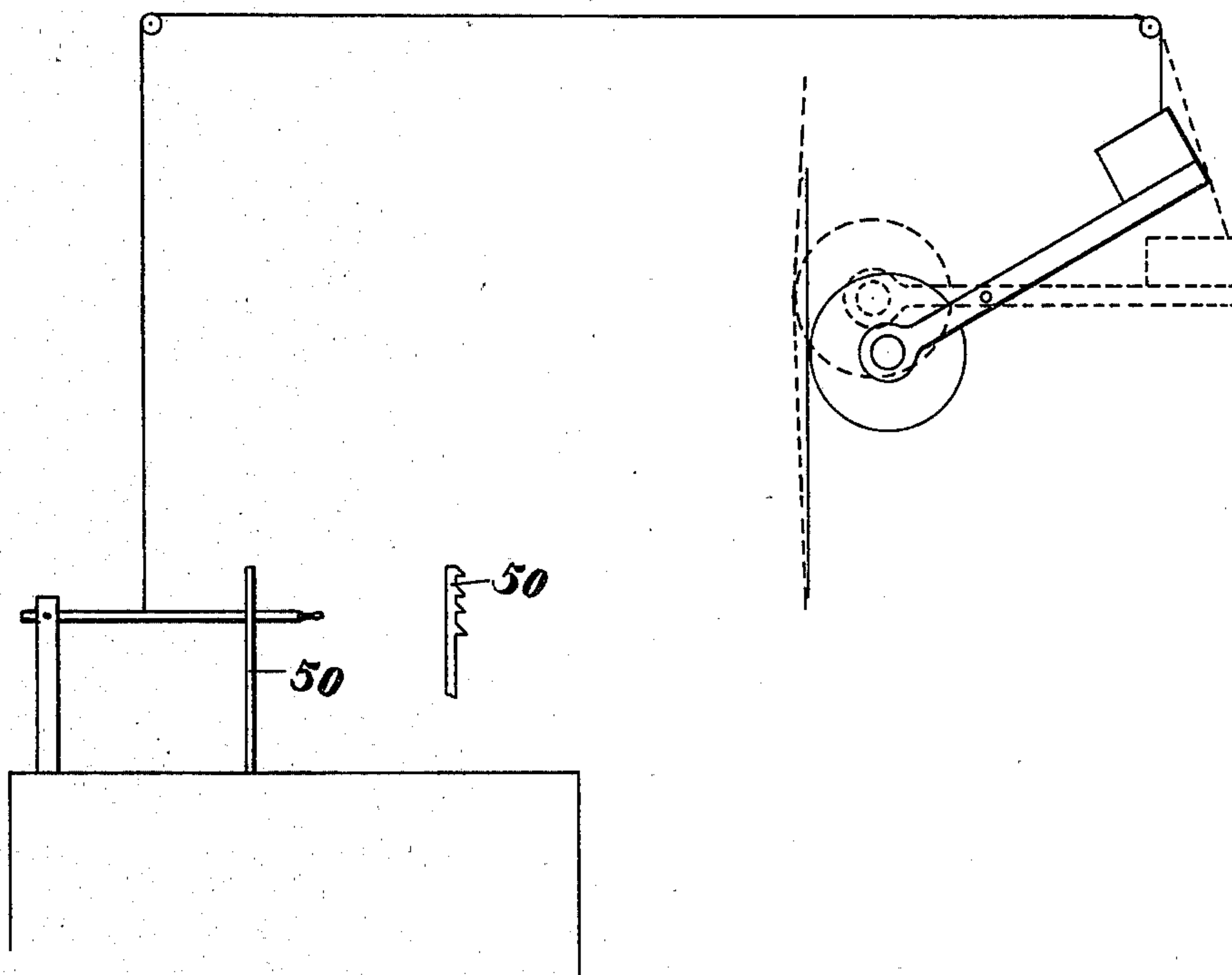
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LOG OR LUMBER HAULING ATTACHMENT.

APPLICATION FILED SEPT. 26, 1902.

NO MODEL.

4 SHEETS—SHEET 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

STEPHEN H. CHASE, OF SAN JOSE, CALIFORNIA.

LOG OR LUMBER HAULING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 733,007, dated July 7, 1903.

Application filed September 26, 1902. Serial No. 124,878. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN H. CHASE, a citizen of the United States, residing at San Jose, county of Santa Clara, State of California, have invented an Improvement in Log or Lumber Hauling Attachments; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in apparatus for hauling logs or lumber either to or from a mill or other point of deposit and returning the hauling-cable outward after its duty is done.

The object of my invention is to provide a mechanism which is driven from a shaft moving continuously in one direction and which mechanism is reversible in all its parts by the use of belts and binder-pulleys with automatically-acting weights and levers and connections by which either of them may be thrown into or out of action. These objects are attained by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my invention. Fig. 2 is an end view of same. Fig. 3 is a front view of same. Fig. 4 is a diagrammatic view of the levers and connecting devices.

It is customary in hauling logs from points where the trees have been cut to a mill or to a convenient place for transportation to employ wire cables, which are laid over the most practicable courses from the collecting-station to the point of deposit by means of sheaves, so that the logs may be connected with the cable and hauled over long distances from stationary engines. In like manner finished lumber and other products may be transported outward from the mill, which may be otherwise inaccessibly located, to stations from which the lumber can be transported by ordinary conveyances. This invention is designed to provide an apparatus by which the hauling-cable is operated to transport the load, and a return-cable, which is connected with the main hauling-cable, can be actuated to draw the main cable back to the collecting-point after the load has been discharged, both operations and reversely the whole apparatus being effected by means of weighted binder-pulleys, levers, and connections by which the power derived from a shaft run-

ning continuously in one direction may be properly reversed.

I have here shown my invention as connected directly with the saw arbor or mandrel of a sawmill, (shown at A.) Upon this mandrel are fixed two pulleys 5 and 6, and upon a counter-shaft B, suitably placed with relation to these pulleys, are corresponding pulleys 9 and 10. Around the pulleys 6 and 10 a belt 3 passes, and around the pulleys 5 and 9 another belt 4 passes. Both these belts are sufficiently long so that when no pressure is brought upon them they hang slack and power will not be transmitted to either of them from the constantly-running shaft A.

Upon the shaft B, which carries the pulleys 9 and 10, is mounted another pulley 8, and from this pulley a belt 2 passes around a pulley 11, mounted upon a suitably-journaled shaft C. This shaft carries upon it a pinion 12, which may be of cast or other suitable material, and this pinion engages with a gear-wheel 13, carried upon the same shaft with a winding-drum 17. This winding-drum is designed to carry the main hauling-cable 20.

Suitably journaled with relation to the shaft 29 of the drum 17 is another shaft 30, carrying a drum 16, which drum carries the smaller or outhaul cable 22. A pulley 14 is fixed upon the shaft with the drum 17 and a pulley 15 upon the shaft with the drum 16, and the belt 1 extends loosely over these pulleys, so that when tightened power may be transmitted from the pulley 14 to revolve the pulley 15 and drum 16 in unison with the movements of the drum 17 and in such a manner that when one cable is being uncoiled and moving outward the other cable will be correspondingly coiled upon its drum and moved inwardly.

In connection with the drum 16 I have shown a brake-pulley 31 and a brake-lock 32, adapted to press upon it, so as to arrest the motion of the drum 16 when the cable 22 is unwinding and the drum 17 is brought to a sudden stop, so that there will be slacking and piling up of one cable while the other continues moving.

The belt 3 passes over a tightening or binder pulley 19, journaled, as here shown, above and to one side of the pulley 10, thence

it passes around beneath the pulley 10, thence over the pulley 18 above and to the other side of the pulley 10, thence returning to the pulley 6, said belt 3 adapted to reverse the direction of travel of the shaft B. The pulleys 18 and 19 are so located that the belt will encircle approximately three-fourths of the pulley 10, so as to insure sufficient frictional driving power when the belt is tightened.

The pulley 19 is suitably carried at the end of a lever 21, fulcrumed, as shown at 21^a, and upon the outer end of this lever is a weight 34 sufficient to raise the pulley 19 so as to tighten the belt 3, and thus transmit motion from the pulley 6 to the pulley 10. The belt 2, passing from the pulley 8, which is mounted upon the same shaft B with the pulley 10, passes around the pulley 11, mounted upon a shaft C, and when the belt 3 is tightened it will be seen from its direction around the pulley 10 and over pulleys 18 and 19 it will revolve this pulley 10 in a reverse direction from the movement of the pulley 6. This motion transmitted through the belt 2 to 11 revolves the pinion 12, and this communicates motion to the gears 13, which drives the winding-drum 17, and thus acts to wind the cable 20 upon the drum 17, and thus haul the distant load toward the drum. When the load has been brought to the desired point of deposit, the lever-arm 21 is lifted about its fulcrum-point and the pulley 19 is depressed, so that the belt 3 will slip around the driving-pulley 6, and no further motion will be communicated through the pulley 10. This is effected by means of a lever 42, which is located within reach of the operator. This lever is connected by means of a cord 37 with the lever 21, so that by moving the lever 42 motion is communicated to the lever 21 and the belt 3 is slackened, as previously described. When the cable 20 is to be hauled out again, it is effected by means of a smaller cable 22, which, passing around the drum 16, extends outwardly parallel with the line of travel of the cable 20, and at the outer end this cable passes around a sheave or snatch-block, thence returns, so that it may be connected with a hook or other attachment upon the end of the cable 20. It is then desired to transmit motion in the reverse direction—that is, to uncoil the cable 20 and coil up the cable 22. This is effected by means of the belt 4 passing around the pulley 5, thence around the pulley 9 upon the shaft B, so that when this belt is tightened it will transmit motion to the shaft B and the pulley 8 in the opposite direction to that transmitted by the belt 3. This belt 4 also normally runs loose and does not transmit motion until tightened. This belt is tightened by means of a binder-pulley 7, mounted upon a fulcrumed lever-arm 7^a, which carries upon its outer end a weight or weight-carrying box 35. This lever is released and the weight allowed to act to press the pulley 7 against the belt 4 by

means of the hand-lever 41 acting through the connecting-rope 36 upon the lever 7^a, thus allowing the weight 35 to drop and press the pulley 7 against the belt 4 sufficiently to give the desired frictional contact between this belt and the pulleys 5 and 9. The belt 2 is kept constantly tight upon its pulleys 8 and 11 by means of the automatically-actuated pulley 33, carried upon the weighted lever-arm 33^a, since it is not necessary to allow this belt to slip. The belt 1, which extends from pulley 14 to pulley 15 of the winding-drum shafts, remains slack while the cable 20 is being wound upon the drum 17, and the drum 16 is revolved and its cable uncoiled by the connection between the cable 22 and the inwardly-moving cable 20. The binder or tightener pulley 25 of belt 1 is carried upon a weighted lever 26, and this pulley is kept away from the belt 1 by means of the connecting-rope 39, extending from the lever to a lever 40 at the operator's station. When the cable 20 is to be hauled outward, power to revolve the cable-drum 16 is applied by releasing the lever 40 and allowing the weight on the lever 26 to act and force the binder-pulley 25 against the belt 1, thus transmitting motion from the pulley 14 of the drum 17 to the pulley 15 of the drum 16. The pulleys thus revolve in unison and the pulley 16 hauls in and coils the cable 22, while the cable 20 is correspondingly uncoiled from the drum 17. By this means both movements are effected from the one driving-shaft A without any change in its motion, and when the belts 3 and 4 are both slack no motion is transmitted from this shaft to any part of the apparatus. The tension upon all the belts is such that if any obstruction is met by the incoming load these belts will slip and relieve the strain, so as to prevent the breakage of the hauling-cable or other parts; but the tension is always sufficient to hold the load when no obstructions occur. The tension upon the belt produced by the binder-pulley 25 while sufficient to communicate motion from pulley 14 to pulley 15 is also such that this belt may slip sufficiently to compensate for the varying sizes of the coils upon the drums 16 and 17. Thus when the cable 20 is being coiled upon the drum 17 it constantly increases the diameter of the coil, while the outgoing of the cable 22, moving in unison therewith, as constantly decreases the size of the coil on the drum 16. Therefore in order to cause the cables to move in unison there must be a certain amount of slippage allowed to this belt, which is effected by the means heretofore described.

The brake-block 32, pressing upon the brake-wheel 31 of the drum 16, may be operated by a foot-lever conveniently connected with the operator's station, but not here shown. This brake will arrest the motion of the drum 16 when the cable 22 is uncoiled and the drum 17 is brought to a sudden stop.

The pulley 28, which is fixed to the shaft B by the side of the pulley 10, serves to receive a band-brake, and this brake stops the movement of all the machinery when running in either direction. It is operated from the platform by the lever 43 through the cord 38, connected with the lever 44, which actuates the brake. As plainly shown in Fig. 4, the connections of the cords with the operating-levers, as shown in the main figures of the drawings, are essentially diagrammatic.

Fig. 4 illustrates suitable means of connecting the cords by which the weighted levers are actuated with the hand-levers at the operator's platform, and these hand-levers may be retained in place when the weighted levers have been moved to release the belts by means of rack-bars of any suitable description, as illustrated at 50.

Signals are transmitted to the operator at the platform by means of an electric bell of any suitable description (not here shown) located close to the operator, the wires from the bell and battery extending along the line of the hauling-ropeway to the distant station, so that by completing contact between these wires a signal may be transmitted at any time to the operator to instruct him what should be done with the apparatus under his control.

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

1. The combination in a hauling apparatus of a main driving-shaft with pulleys fixed thereon, a counter-shaft with corresponding pulleys, belts passing loosely around said pulleys intermediate pulleys over which one of the said belts passes and by which the belt is carried in a reverse direction around the main pulley, counterweighted levers and binder-pulleys carried thereby whereby either belt may be a driver and the other released.

2. The combination in a hauling apparatus of a main driving-shaft with pulleys fixed thereto, a counter-shaft with corresponding pulleys, belts passing from the main-shaft pulleys around the counter-shaft pulleys, counterbalanced levers and binder-pulleys carried thereby and adapted to press upon either of the belts whereby either may be made the driver, mechanism by which one of the belts is carried reversely around its pulley, a drum-shaft and connections intermediate between said shaft and the reversing counter-shaft whereby motion will be transmitted to drive the drum in either direction.

3. The combination in a hauling apparatus of a main driving-shaft and pulleys mounted thereon, a counter-shaft with corresponding pulleys, loose belts extending between the driver and counter-shaft pulleys to reverse the direction of the counter-shaft, binder-pulleys, counterweighted levers upon which they are mounted and by which either one

may press into frictional driving contact with its pulleys, an operator's station, levers mounted thereon and connections between said levers and counterweighted levers.

4. The combination in a hauling apparatus of a main driving-shaft having pulleys mounted thereon, a counter-shaft with corresponding pulleys, belts passing loosely around said pulleys, one of said belts acting to reverse the motion of the counter-shaft, binder-pulleys mounted upon counterweighted levers, connections between said levers and levers at the operator's station, and racks engaging the operating-levers by which either or both counterweighted levers may be moved to release the belts from driving contact.

5. The combination in a hauling mechanism of a main driving-shaft having pulleys, a counter-shaft having corresponding pulleys and loose belts passing around said pulleys, one of said belts acting to reverse the motion of the counter-shaft, counterweighted binder-pulleys and mechanism by which either of said pulleys may be made to press its belt into frictional contact with the pulleys over which it passes, a main hauling-cable drum, belt connections between the counter-shaft, whereby motion is transmitted to said drum, a second return-cable drum, pulleys mounted in line upon the drum-shafts and a loose belt connecting said pulleys, a fulcrumed counterweighted lever, a binder-pulley mounted thereon adapted to press said belt into frictional contact with the pulleys whereby motion is transmitted from one drum to the other.

6. The combination in a hauling apparatus of a main driving counter-shaft with corresponding forward and reverse driving pulleys and belts, said belts being normally loose with relation to the pulleys, counterweighted levers with binder-pulleys adapted to press the belts into frictional contact with the pulleys over which they pass and to allow said belts to slip and relieve the parts from undue strain.

7. The combination in a hauling apparatus of a main driving and counter shaft with pulleys, belts, reversing mechanism and binder-pulleys, inhaul and outhaul drums and intermediate mechanism whereby motion in either direction is transmitted to the main drum-shaft, pulleys upon both drum-shafts and a belt passing loosely around said pulleys whereby motion is transmitted, a counterweighted lever, a binder-pulley carried thereby and pressing upon the belt to produce driving frictional contact between it and the pulleys, and to allow said belt to slip to compensate for the varying diameters of the rope-coils upon the drums.

8. The combination in a hauling apparatus of a main driving and counter shaft with pulleys, loose forward and reverse driving-belts and counterweighted levers carrying binder-

4
5 pulleys for the respective belts, winding-
drums and outhaul and inhaul cables con-
nected therewith, means for transmitting mo-
tion from the counter-shaft to one of the
5 drum-shafts and from said drum-shaft to the
other, an operator's platform, levers and
holding-racks, connections between said le-
vers and the binder-pulley levers and brake-

levers and connections whereby the move-
ment of the apparatus may be arrested. 10

In witness whereof I have hereunto set my
hand.

STEPHEN H. CHASE.

Witnesses:

S. HAL CHASE,

ALBERT G. CLARK.