

(No Model.)

2 Sheets—Sheet 1.

H. BOLTHOFF.
HOISTING MACHINE.

No. 582,616.

Patented May 18, 1897.

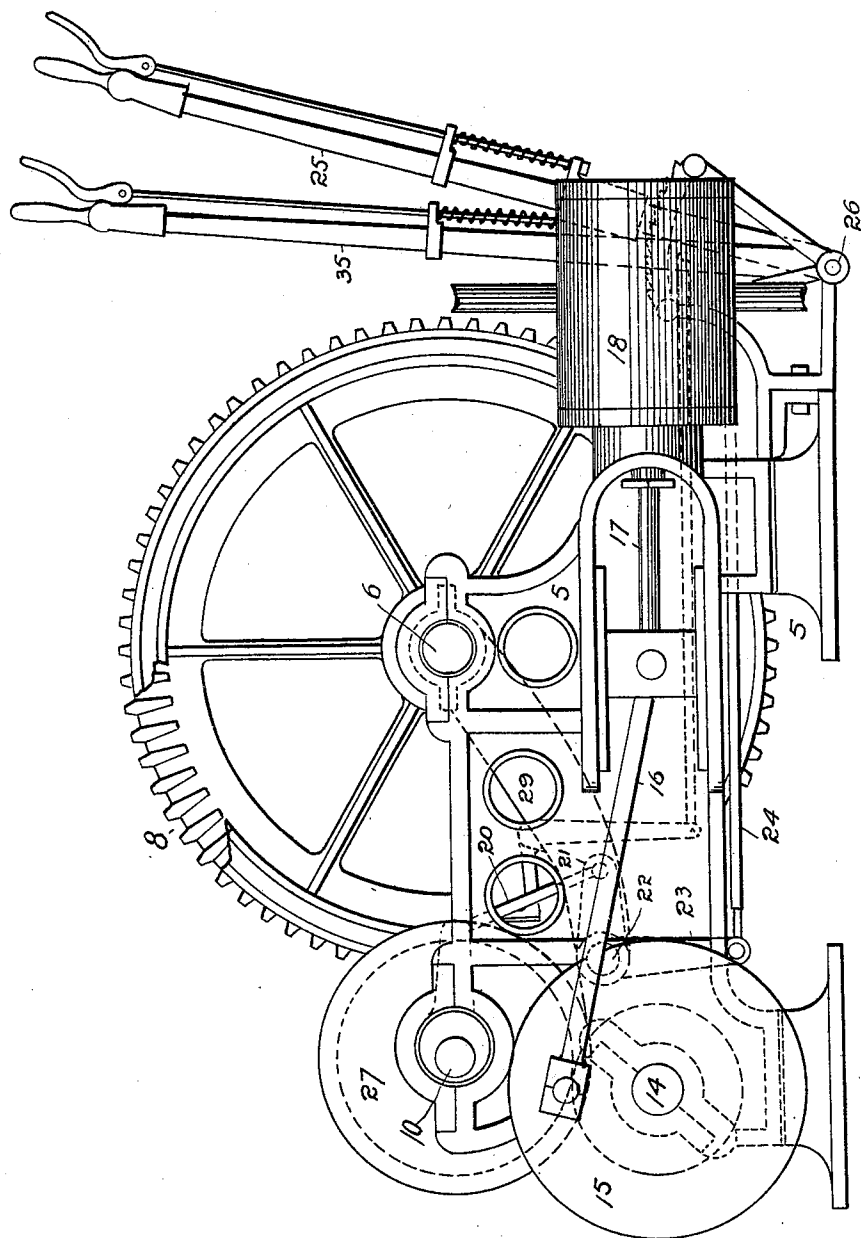


FIG. 1.

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Inventor
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By his Attorney *A. J. B. B. B.*

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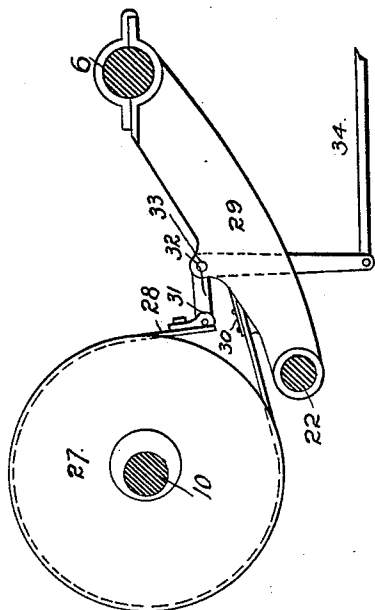


FIG. 3.

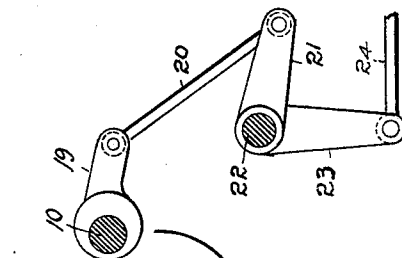


FIG. 4.

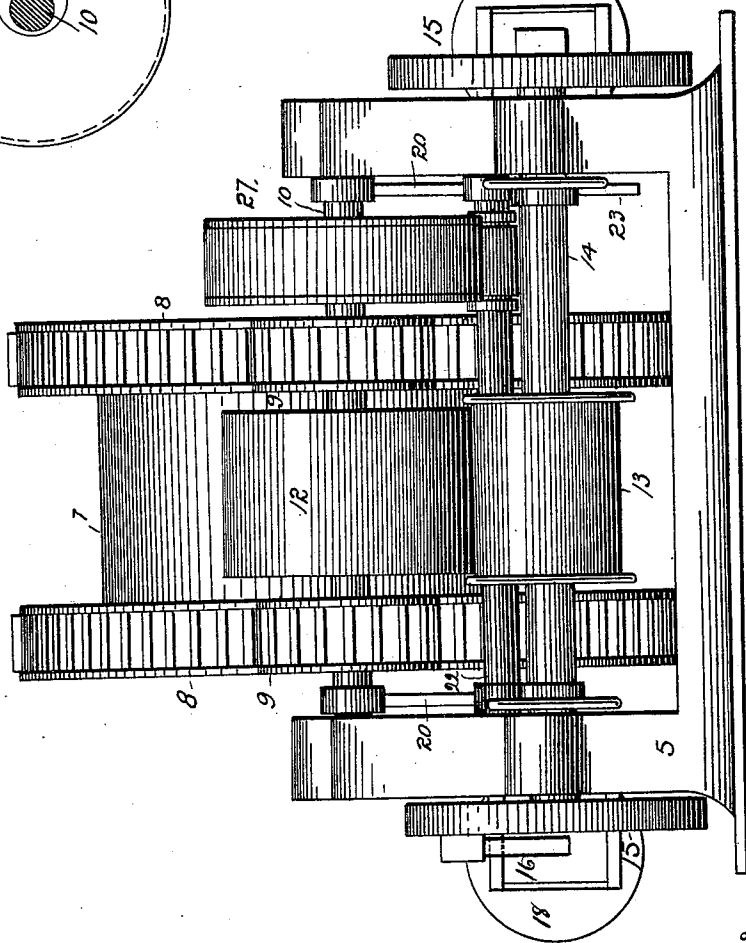


FIG. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

HENRY BOLTHOFF, OF DENVER, COLORADO.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 582,616, dated May 18, 1897.

Application filed November 14, 1896. Serial No. 612,074. (No model.)

To all whom it may concern:

Be it known that I, HENRY BOLTHOFF, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Hoisting-Machines; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in hoisting-machines; and it consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a rear view of the same, being taken from a position at the left of Fig. 1. Figs. 3 and 4 show details of construction.

Similar reference-characters indicating corresponding parts in these views, let the numeral 5 designate the framework of the machine, in which is journaled the shaft 6, carrying the drum 7 and the two large gears 8, one on each side of the drum. The gears 8 mesh with smaller gears 9, fast on a shaft 10, eccentrically journaled in the framework 5 and carrying a friction-pulley 12, engaging a smaller pulley 13, fast on a shaft 14. On the last-named shaft is made fast a crank-wheel 15, to which leads the pitman 16, connected with the stem 17 of the piston located within the steam-cylinder 18.

The shaft 10 is located to the rear of the shaft 6 and in about the same horizontal plane. The shaft 14 is located nearly directly below the shaft 10.

For the purpose of throwing the machine in or out of gear the shaft 10 is turned sufficiently to raise or lower the pulley 12, whereby the latter is made to disengage or engage the pulley 13. The mechanism for actuating the eccentrically-mounted shaft 10 for the purpose stated will now be described. To this shaft is made fast a crank-arm 19, connected by means of a link 20 with a crank 21, fast

on a shaft 22, journaled in the frame 5. A crank-arm 23, also fast on the shaft 22, is connected with a rod 24, which leads to a lever 25, fulcrumed on the framework, as shown at 26. The rod 24 is connected with this lever above its fulcrum. Hence as the lever is moved backward or toward the left (see Fig. 1) the shaft 10 will be raised and the pulley 12 disengaged from the friction-pulley 13, while as the lever is given the reverse movement the said shaft will be lowered and the two friction-pulleys brought in contact.

The brake mechanism will now be described. The brake-pulley 27 is fast on the shaft 10 and surrounded by the brake-strap 28. One extremity of this brake-strap is fast on a bar 29, as shown at 30. This bar 29 is supported by the shafts 6 and 22, which turn freely in the bar extremities. The other extremity of the brake-strap is connected, as shown at 31, with one arm of a bell-crank lever 32, fulcrumed on the bar 29, as shown at 33. The other arm of this lever is connected with a rod 34, leading to a hand-lever 35, which is employed in operating the brake mechanism.

The gears 8 and 9 are provided with cogs having bottomless interdental spaces, whereby the sound-vibrations are interrupted. Hence there is little or no noise from the gears during the operation of the machine.

The term "interdental spaces" is used to indicate that the spaces between the cogs of the gears are open at the bottom to prevent the direct transmission of the sound-vibrations from one cog to another.

From an inspection of the drawings it will be observed that the extremities of the brake-strap are supported in such a position with reference to the eccentrically-mounted shaft 10 that the movement of said shaft for the purpose heretofore described will not interfere with the tension of said strap. This is an important feature and is accomplished through the instrumentality of the arm 29. It will also be observed that the shaft 10 is so located with reference to the shafts 6 and 14 that the shaft 10 may be so adjusted as to cause the friction-pulleys 12 and 13 to engage or separate, as the case may be, without interfering with the meshing of the gears 8 and 9 on the shafts 6 and 10. To accomplish this, the shaft 10 is located above the engine-shaft

14. Hence the shaft 10 may be raised or lowered sufficiently to cause the friction-pulleys 12 and 13 to separate or engage without interfering with the meshing of the gears on the shafts 6 and 10.

It must be remembered that the parts 19, 20, and 21 of the mechanism for operating the shaft 10 are duplicated, since they are the same on both sides of the machine. This shaft also has two eccentric bearings. This duplication of parts, though not clearly shown in the drawings, will be readily understood. The shaft 22 extends entirely across the machine. Hence the duplicated parts are actuated by a single hand-lever 25, connected with a single arm 23 by the rod 24, as heretofore described.

Having thus described my invention, what I claim is—

1. In a hoisting-machine, the combination with the frame, of a shaft 6 journaled in the frame, a drum mounted on said shaft, a gear 8 also fast on the shaft 6, a motor-shaft 14, a friction-pulley fast on the shaft 14, an eccentrically-mounted shaft 10, a friction-pulley fast on the shaft 10 and adapted to engage the pulley on the shaft 14, a gear mounted on the shaft 10 and meshing with the gear on the shaft 6, and suitable means for actuating the shaft 10, the shafts 6 and 10 being located in the same or approximately the same horizontal plane, while the shafts 14 and 10 are located in the same or approximately the same vertical plane, as and for the purpose set forth.

2. In a hoisting-machine, the combination with the frame, of a shaft 6, a drum mounted thereon, a gear 8 fast on said shaft, a motor-shaft 14, a friction-pulley fast on the shaft 14, an eccentrically-mounted shaft 10, a friction-pulley on the shaft 10 and adapted to engage the pulley on the shaft 14, a gear fast on the shaft 10 and meshing with the gear on the shaft 6, and suitable means for actuating the shaft 10, said means comprising a crank-arm fast on the shaft 10, a shaft 22, a crank-arm fast on the shaft 22, a link connecting

the two crank-arms, another crank-arm also fast on the shaft 22, a suitable hand-lever, and a rod connecting the last-named crank-arm with said lever, substantially as described.

3. In a hoisting-machine, the combination with the frame of the shaft 6, a drum fast thereon, a gear 8 also fast on the shaft 6, a motor-shaft 14, a friction-pulley fast thereon, an eccentrically-mounted shaft 10, a friction-pulley fast on the shaft 10, a crank-arm also fast on the shaft 10, a shaft 22, a crank-arm fast on the said shaft, a link connecting the two crank-arms, another crank-arm also fast on the shaft 22, a suitable connection between said last-named arm and a suitable lever, a brake-pulley on the shaft 10, a strap surrounding said pulley, a bar mounted on the shafts 6 and 22, one extremity of the brake-strap being made fast to said bar, a bell-crank lever fulcrumed on said bar, the other extremity of the brake-strap being connected with one arm of said lever, and a suitable connection between the other arm of said lever and a suitable hand-lever, substantially as described.

4. In a hoisting-machine, the combination with a shaft 6, a drum mounted thereon, and an engine-shaft 14, of a shaft 10 eccentrically mounted, meshing gears mounted on the shafts 6 and 10, and friction-pulleys on the shafts 10 and 14, the shafts 6 and 10 being located in the same or approximately the same horizontal plane, while the shafts 14 and 10 are located in the same or approximately the same vertical plane, whereby as the shaft 10 is actuated the friction-pulleys on the shafts 10 and 14 may be made to engage or separate without interfering with the meshing of the gears on the shafts 6 and 10.

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

HENRY BOLTHOFF.

Witnesses:

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ALFRED J. O'BRIEN.