Feb. 7, 1939. S. CARLO 2,146,622

SWEEP OPERATED WINDLASS

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Fig. 1.

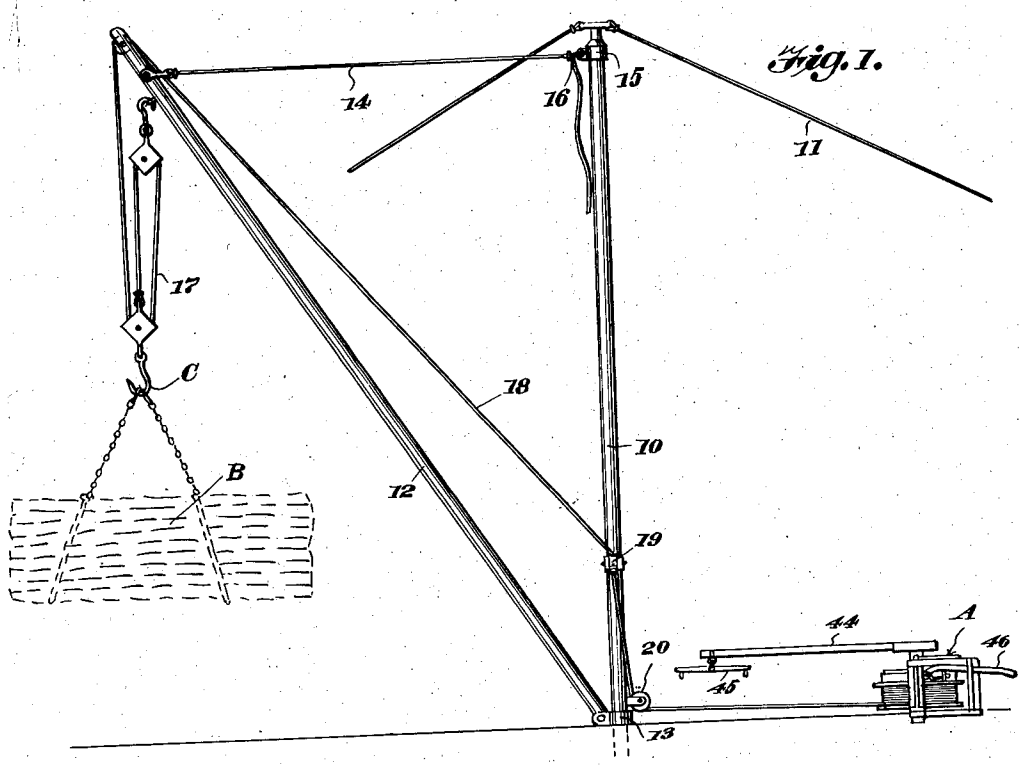


Fig. 2.

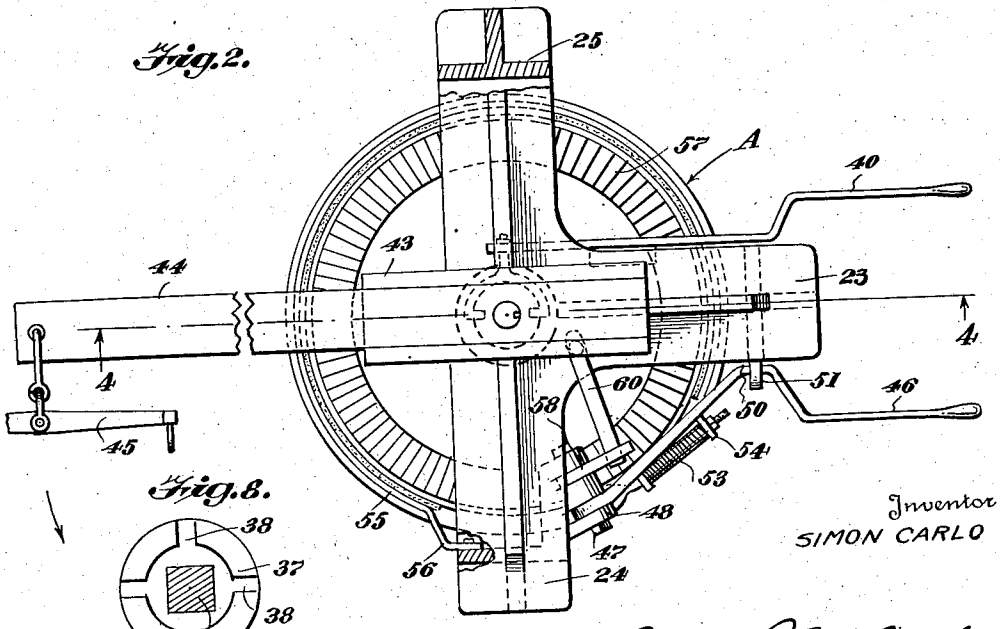


Fig. 3.

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Fig. 3.

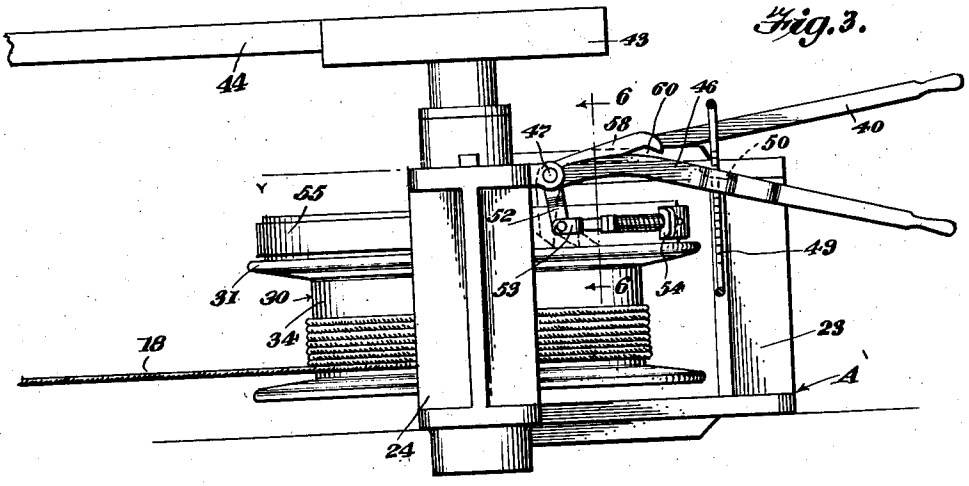


Fig. 4.

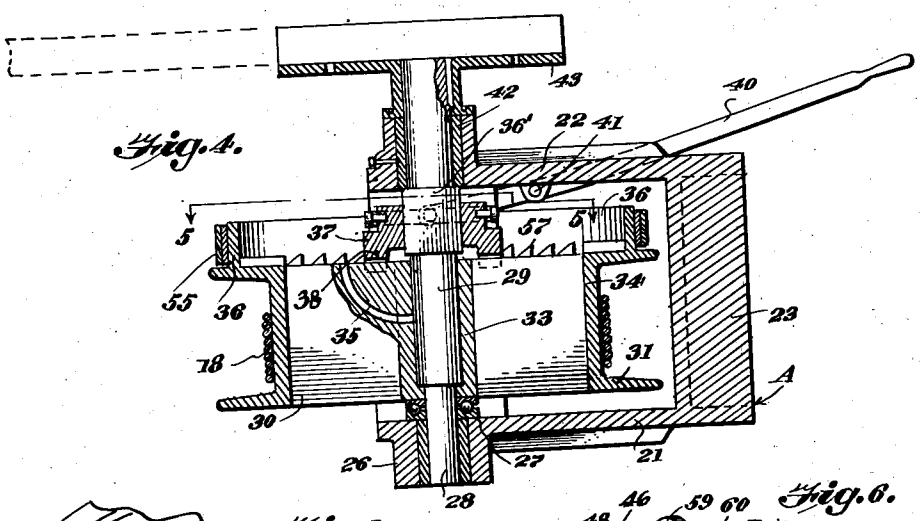


Fig. 5.

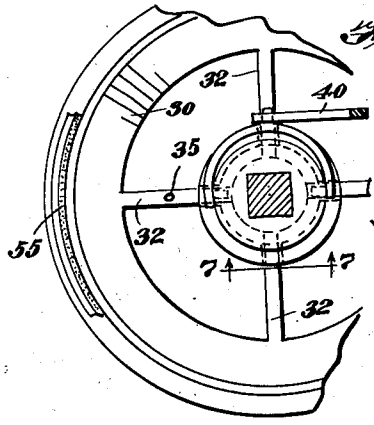


Fig. 7.

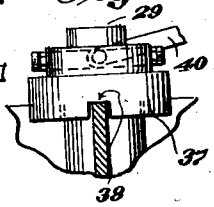
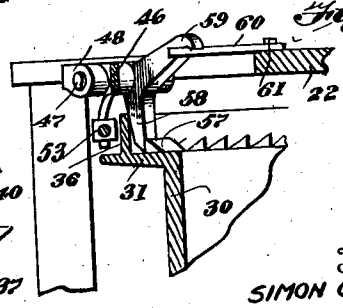


Fig. 6.



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Patented Feb. 7, 1939

2,146,622

UNITED STATES PATENT OFFICE

2,146,622

SWEEP OPERATED WINDLASS

Simon Carlo, Mayaguez, P. R.

Application June 21, 1937, Serial No. 149,526

2 Claims. (Cl. 254—182)

This invention relates to a crane hoist and has for its object the production of a simple and efficient crane hoist and means for actuating the same which will facilitate the lifting of sugar cane and other heavy material or objects from one place to another in loading and unloading vehicles and the like.

Another object of this invention is the production of a simple and efficient hoist which may be conveniently used for lifting sugar cane from a cart and loading the cane upon railroad cars and the like, or in unloading the same.

A still further object of this invention is the production of a simple and efficient operating drum mechanism which is constructed for operation by animal power, such as through the medium of a horse, mule, or other draft animal, the mechanism being so constructed as to facilitate the control of the drum by a single operator.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawings:—

Figure 1 is a side elevation of the hoist and actuating drum associated therewith;

Figure 2 is a top plan view of the controlling drum;

Figure 3 is a side elevation of the drum;

Figure 4 is a sectional view taken on line 4—4 of Figure 2;

Figure 5 is a horizontal fragmentary sectional view taken on line 5—5 of Figure 4;

Figure 6 is a vertical sectional view taken on line 6—6 of Figure 3;

Figure 7 is a transverse sectional view taken on line 7—7 of Figure 5;

Figure 8 is a bottom plan view of the clutch, the squared shank of the shaft which supports the clutch being shown in transverse section.

By referring to the drawings it will be seen that 10 designates a standard which is braced suitably by means of guy wires or cables 11 secured to the top thereof, the standard 10 being mounted in the ground in a conventional manner and rotatably supporting a lifting beam 12 which lifting beam 12 is pivotally connected to a rotating supporting collar 13 of the conventional type. The upper end of the lifting beam 12 is braced by means of an adjustable cable 14 whereby the distance of the outer end of the beam 12 with respect to the top end of the standard 10 may be regulated, this cable 14 being adjustably connected to a collar 15 at the upper end of the standard 10, as at 16. A block and tackle structure 17 of the conventional type is associated with the beam 12, as shown in Figure 1, and carries an operating cable 18 which passes over a pulley 19 carried by the standard 10, and also a pulley 20 located near the bottom of the standard 10, the cable 18 being then wound around the actuating drum mechanism indicated in general by the letter A, shown in Figure 1. The article or bundle to be lifted, indicated by the letter B, may be secured in the conventional manner to the hook C of the block and tackle structure 17, as shown in Figure 1.

The drum structure A comprises a base 21 and a top 22 which are suitably connected and held in spaced relation by means of uprights or standards 23, 24 and 25, which may be cast integral therewith, preferably three standards being employed. The base 21 and top 22 are preferably of a T-shape formation, the standards 23, 24 and 25 being located between the ends of the substantially T-shape base 21 and top 22, these standards 23, 24 and 25 being preferably T-shape in cross section, as shown in Figure 2.

The base 21 is provided with a journal 26 arranged centrally thereof, which supports a suitable bearing 27 in which is journaled the lower end 28 of the shaft 29, the shaft 29 carrying a drum reel 30 by which the cable 18, previously described, is wound. This drum reel 30 is provided with annular flanges 31 to facilitate the holding of the cable 18 upon the drum reel. This drum reel 30 is provided with radiating fins or spokes 32 extending from the hub portion 33 to the rim portion 34, and a curved oil feeding passage 35 is formed in one of the fins or spokes 32, as shown in Figures 4 and 5 to facilitate the feeding of oil to the bearing face of the shaft 29 within the hub 33. This drum reel 30 carries an upstanding annular flange 36 upon its upper end around which is fitted a brake band 55, hereinafter described. The shaft 29 is provided with a squared shank 36' located above the hub portion 33 of the reel 30 upon which squared portion 36' is mounted for vertical sliding movement a clutch 37 having notches in which notches 38 are adapted to fit the upper edges of the fins or spokes 32 of the drum reel 30. When the clutch 37 is in engagement with the fins or spokes 32 the drum reel 30 will be locked for rotation with the shaft 29. An operating lever 40 is pivotally mounted, as at 41, upon the top 22, as shown in Figure 4, and is provided with a suitable conventional means for engaging the clutch 37 whereby the clutch 37 may be lowered and raised to and from an engaging position as the operating lever 40 is lowered and raised by the operator. The upper end of the shaft 29 is journaled as at 42,

in a suitable bearing carried by the top 22 and a draft beam supporting socket plate 43 is keyed to the upper end of the shaft 29, the plate 43 providing a channel structure in which the draft beam 44 fits and is securely fastened in any suitable or desired manner. A suitable whiffle tree 45 is connected to the outer end of the draft beam 44 to which a draft animal may be secured for swinging the draft bar 44 in a circular direction around the drum mechanism A as the draft animal or animals travel in a circular path thereabout.

A brake band controlling lever 46 is pivotally connected, as at 47, upon the top 22 through the medium of the journals 48 which are formed as an integral part of the top 22 such as is shown in Figure 6. The lever 46 engages a vertically extending rack 49 carried by the standard 23, which rack is engaged by a suitable tooth 50 carried by one face of the lever 46, the rack 49 having a shield 51 to hold the lever 46 against accidental lateral displacement but allowing the lever to be swug laterally for a sufficient distance to move the tooth 50 into and out of engagement with the rack 49. The brake lever 46 is provided with a depending arm 52 which is connected to a yieldable connecting link 53 of the conventional type which is secured to one end of the brake band 54 as shown in Figure 3. The brake band 55 is anchored, as at 56, to the standard 24 in the manner shown in Figure 2. In order that the drum reel 30 may be locked in a set position, a plurality of ratchet teeth 57 are formed upon the top of the reel 30, as shown in Figure 6, which ratchet teeth are detachably engaged by means of a dog 58 pivotally mounted upon the top 22. The dog 58 is provided with an extending arm 59 under which is adapted to be swung a pivoted supporting arm 60 which is pivotally secured, as at 61, to the top 22. When it is desired to release the dog 58 the arm 60 may be swung from under the arm 59 permitting the dog 58 to freely swing out of engagement with the ratchet teeth 57 and allow the drum reel 30 to rotate for unwinding the cable 18 therefrom, when desired.

The operation of the device is as follows:

The draft animal is attached to the whiffle tree 45 carried by the beam 44 and travels in the direction of the arrow shown in Figure 2. This will cause the cable 18 to be wound upon the drum reel 30 when the clutch 37 is in straddling engagement with the fins or spokes 32 of the reel 30. When the cable has been wound to the sufficient amount to elevate the load B to a desired heighth, the arm 60 may be swung under the arm 59 of the dog 58 to hold the dog in engagement with the ratchet teeth 57 on the upper face of the drum reel 30, in this way locking the drum reel 30 in position. When it is desired to allow the cable 18 to unreel, the dog 58 is released from the ratchet teeth 57 by swinging the arm 60 to a disengaging position and the speed at which the cable 18 unreels may be regulated by the amount of pressure applied to the brake band 55 by a downward swinging movement of the brake lever 46. The rotation of the drum may be stopped at any point by applying the brake band 55, as will be obvious. When it is desired to release the drum reel 34, the clutch operating lever 40 is swung downwardly, thereby raising the clutch 37 out of clutching engagement with the spokes or fins 32.

From the foregoing description, it will be seen that a very simple and efficient means has been provided for controlling the operation of the drum reel whereby the lifting mechanism and beam 12 may be regulated without the necessity of employing an expert attendant, the drum reel being at all times controllable through the operating levers 40 and 46, the power being devised through the medium of a draft animal.

The present device has been found particularly advantageous in lifting sugar cane from a cart to a railroad car or in unloading a car or other transporting vehicle wherein mechanical power such as steam, electricity, or other motive power is not available, the present device providing a very economical as well as efficient hoisting means.

It should be understood that certain detail changes in the mechanical construction may be employed without departing from the spirit of the invention, so long as such changes fall within the scope of the appended claims.

Having described the invention, what I claim as new is:

1. A drum mechanism of the class described comprising a frame embodying top and bottom spaced members, a shaft vertically mounted through said top and bottom members, a drum reel rotatably mounted upon said shaft, a clutch fixed against rotating movement upon said shaft and mounted for vertical sliding movement thereon, said drum reel having radiating fins, said clutch having notches into which said fins are adapted to fit for locking said drum reel in engagement with said clutch and shaft, an operating lever for moving said clutch into and out of clutching egagement with said drum reel, means carried by said shaft for rotating said shaft, said drum reel having ratchet teeth formed upon its upper face, a dog, a pin pivoting said dog upon said frame in a position to engage said ratchet teeth, said dog having an angularly extending arm, a pivoted locking arm carried by said frame and adapted to be swung under said last mentioned arm for holding said dog in a locked position, a brake band for said drum, and an operating lever for said brake band pivoted upon the pin carrying said dog.

2. A drum structure of the class described comprising a frame having substantially T-shaped top and bottom members and vertical uprights holding said members in spaced relation to each other, an upstanding shaft carried by said frame at the intersection of arms of said members, a drum rotatably mounted upon said shaft, a clutch carried by said shaft and mounted for sliding engagement with said drum for locking said drum upon said shaft, an operating beam carried by said shaft to which a draft animal may be attached for facilitating the rotation of the shaft, an annular ratchet carried by said drum, a dog pivoted to one arm of the top member and engaging said ratchet, a brake band for said drum, an operating lever for said brake band pivoted to the said arm and extending towards another arm, and a rack for said lever carried by the last mentioned arm and its cooperating upright.

SIMON CARLO.