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C. O. CONNER.

HOIST.

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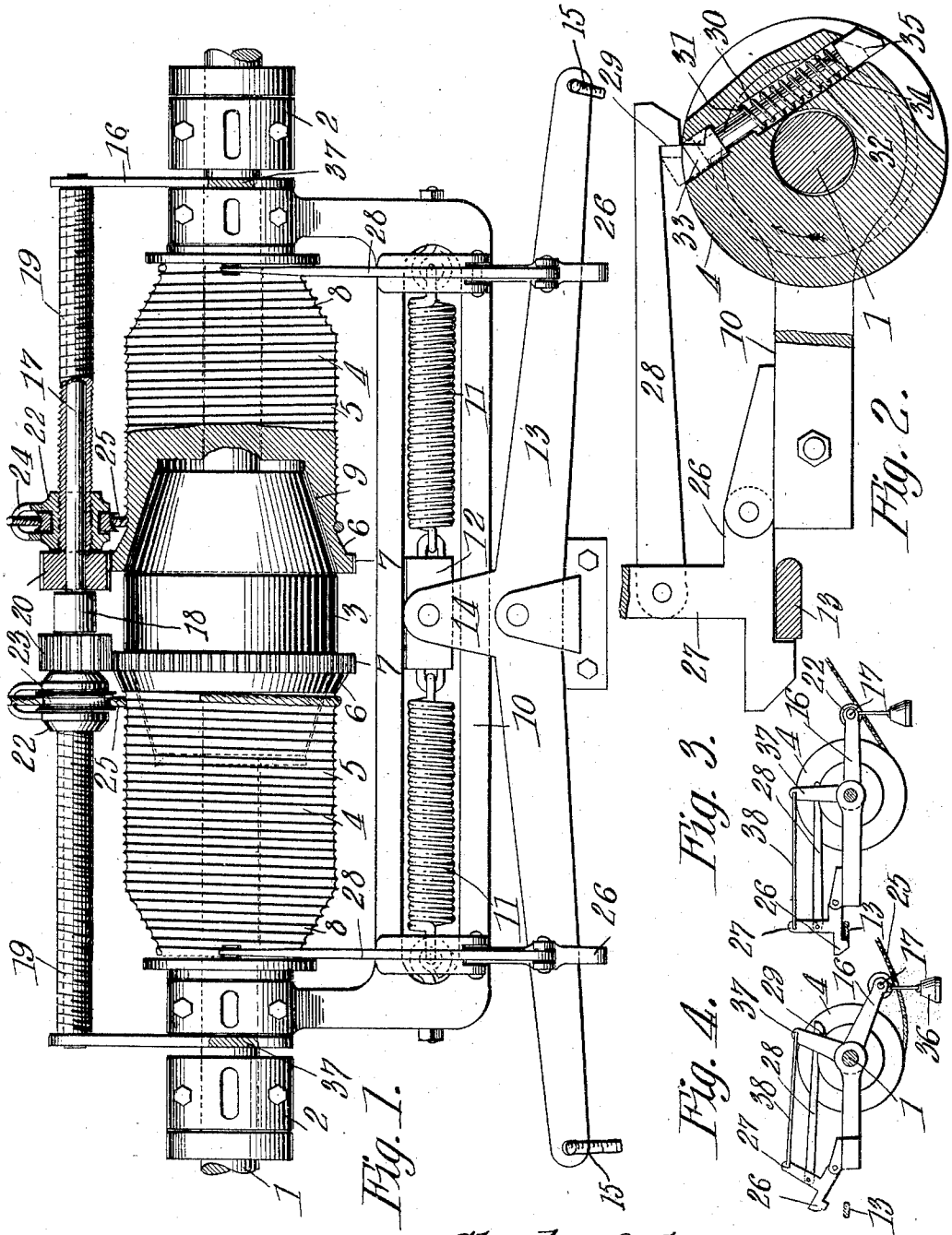

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES:

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CHARLES O. CONNER, OF HEPPNER, OREGON.

HOIST.

No. 868,844. Specification of Letters Patent. Patented Oct. 22, 1907.

Application filed March 5, 1907. Serial No. 360,630.

To all whom it may concern:

Be it known that I, CHARLES O. CONNER, a citizen of the United States, residing at Heppner, in the county of Morrow and State of Oregon, have invented a new and useful Hoist, of which the following is a specification.

This invention has relation to hoists and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a hoist especially adapted to be used upon threshing machines for the purpose of elevating headed grain upon the grain table. The hoist, however, may be used to advantage upon other appliances and in other capacities.

The hoist consists primarily of a frame which is attached to the frame of the thresher and a continuously rotating shaft is journaled in bearings provided upon said frame. A cone is fixed upon said shaft and rotates with the same. Said cone constitutes a clutch element or member. Drums are journaled upon the shaft at opposite ends of the cone and are provided with conical recesses which are adapted to receive the ends of the cone. The said drums have their peripheries spirally grooved and upon which tackle may be wound. The said drums also constitute clutch members which coöperate with the said cone and means is provided for shifting the said drums longitudinally upon the shaft whereby one of the drums may be forced into frictional contact with the cone and caused to rotate with the same, while at the same time, the other drum is free to revolve upon the shaft. A means is provided for shifting the drum whereby either one of them may be forced into engagement with the cone and a catch mechanism is also provided for confining the said drum shifting means until the tackle has been wound upon the drum to a predetermined point when the said tackle comes in contact with and operates a latch releasing means which permits the drum shifting means to assume its normal position whereby the drum is rendered free of the cone and will cease rotating therewith. Means is provided for traveling along the face of the drum and for guiding the tackle thereon. Means is also provided whereby should the tackle become slack when winding upon the drum that the drum will automatically be released from the cone and cease rotating therewith.

In the accompanying drawing: Figure 1 is a top plan view of the hoist. Fig. 2 is an end elevation of the same with parts removed and parts in section. Fig. 3 is an end elevation of the same showing the tackle taut, and Fig. 4 is an end elevation of the same showing the tackle slack.

The hoist consists of the shaft 1 which is journaled for continuous rotation in the bearings 2, 2. The cone 3 is fixed to the shaft 1 and rotates with the same. The drums 4 are journaled upon the shaft 1 and are located one on each side of the cone 3. The peripheries of the said drums are provided with the spiral grooves 5, and the inner ends of the drums are provided with flanges 6. Each said flange 6 is provided with the gear teeth 7. The outer ends of the drums 4 are reduced in diameter as at 8. The inner ends of the drums 4 are provided with the conical recesses 9 which receive the ends of the cone 3. The frame 10 is mounted upon the shaft 1 and is arranged to slide longitudinally thereof. The ends of the said frame are located beyond the outer ends of the cone 4. The coil springs 11, 11 are connected at their outer ends to the frame 10 and the inner ends of said coil springs are connected together by the block 12. The lever 13 is fulcrumed to the frame of the thresher or similar apparatus and is provided over its fulcrum point with the upstanding lug 14 which in turn is pivoted to the block 12. The cords 15 depend from the ends of the lever 13. The arms 16 are also mounted upon the shaft 1. Said arms are connected together by a rod 17 which is provided at its middle with an annular enlargement 18. The sleeves 19 are journaled upon the rod 17 and are provided at their inner ends with the pinions 20 which mesh with the gears 7 of the drums 4. The pinions 20 are preferably of greater breadth that the gears 7 so that the said gears will remain in mesh with the pinions when the drums 4 are moved longitudinally upon the shaft 1. The sleeves 19 are externally threaded as at 21 and the collars 22 are internally threaded and are mounted upon the said sleeves 19. Each collar 22 is provided with a journaled pulley 23 and a bail 24 which passes around the edge of the pulley. A tackle 25 is attached at its end to each of the drums 4 at the inner end thereof and passes around the pulley 23 and through the bail 24. A load lifting fork or receptacle may be attached to the other end of each tackle. The frame 10 is provided at each side of its middle with a pivoted catch 26 the ends of which normally lie adjacent the side of the lever 13 or above the upper edge thereof. Each catch 26 is provided with a laterally extending lug 27 and a bar 28 is pivoted at one end to each of the lugs 27. At their opposite ends the said bars 28 are provided with hooks 29 which lie adjacent the outer ends of the drums 4. Each of the said drums 4 is provided at its outer end with a perforation 30 having in its interior a shoulder 31. The bolt 32 is located in the perforation 30 and is adapted to slide longitudinally therein. One end of said bolt is provided with an enlarged head 33 the edge of which normally engages one edge of the shoulder 31. The coil spring 34 is interposed between the opposite edge of the shoulder 31 and the edge of the enlarged end 35 of the said bolt 32. The tension of the spring 34 is such as to have a tendency to maintain the head 33 in

engagement with the shoulder 31 while the end 35 of the bolt 32 normally lies at the end of the groove 5. The hook 29 of the bar 28 lies in the path of the perforation 30. The weights 36 depend from the arms 16 or in lieu of said weight coil springs may be employed as in this capacity one is equivalent of the other and the said arms are provided with the extensions 37 which are connected by means of the rods 38 with the lugs 27 of the catches 26.

The operation of the device is as follows:—When it is desired to wind the tackle 25 upon one of the drums 4 the cord 15 at the opposite end of the lever 13 from the drum upon which the tackle is to be wound is drawn. Consequently, the lever 13 is swung upon its fulcrum and the lug 14 is moved to one side. The block 12 follows the lug 14 and through the coil springs 11 the frame 10 is moved longitudinally of the shaft 1 and one of the said drums 4 is forced into frictional contact with the cone 3. Thus, the said drum is made to rotate with the shaft and through the gear 7 the pinion 20 in mesh therewith also rotates which in turn rotates the sleeve 21 to which it is attached and by reason of the threaded engagement between the block 22 and the said sleeve, the said block moves longitudinally of the sleeve across the face of the drum and guides the tackle thereon. When the tackle reaches the outer end of the drum it comes in contact with the end 35 of the bolt 32 and moves the said bolt longitudinally against the tension of spring 34. Thus the enlarged head 33 is moved beyond the end of the perforation 30. When the lever 13 is swung upon its pivot the catch 26 falls over the edge thereof and holds the said lever in such position against the tension of the springs 11. Consequently as the drum 4 rotates and the projected end 33 of the pin 32 strikes the hook 29 of the bar 28 the said catch 26 is swung upon its pivot away from and releases the lever 13 which immediately moves to its normal position, actuated to do so by the tension of the spring 11. At the same time the frame 10 shifts longitudinally of the shaft 1 and the said drum is released from frictional contact with the cone 3. Thus the tackle 25 is wound upon the drum and the rotation of the drum is automatically stopped when the tackle is sufficiently wound thereon. During the course of its winding upon the drum the tackle has elevated the load carried at its other end. The tackle is of such predetermined length as to lift the load exactly to the grain table when it has completely covered the surface of the drum. When the drum is released from frictional contact with the cone the tackle may be readily unwound manually.

If at any time the tackle, during the course of winding upon the drum, should loose its load and become slack the weight 36 will come into play and will fall by reason of the fact that the tackle will not be taut enough to support the same and consequently the arms 16 will turn upon the shaft 1 and through the extensions 37 the rods 38 will move longitudinally which will lift the catch 26 above the lever 13 and permit the same to move as above described and release the drum from frictional contact with the cone. Thus the said drum is automatically released from the cone should it loose its load.

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

1. A hoist comprising a continuously rotating shaft having a clutch member fixed thereto, a drum mounted upon the shaft and adapted to move longitudinally to engage said clutch member, means for moving said drum, a catch mechanism for holding the drum in contact with the clutch, a tackle winding upon the drum and a catch releasing mechanism carried by the drum and operated by the tackle.

2. A hoist comprising a continuously rotating shaft, a clutch member fixed thereto, a drum journaled upon the shaft and adapted to engage said clutch member, means for moving the drum longitudinally, a catch mechanism for holding the drum in engagement with the clutch member, a tackle winding upon the drum, a tackle guide moving longitudinally of the drum and operated by the same, a latch releasing means carried by the drum and adapted to be operated by the tackle.

3. A hoist comprising a continuously rotating shaft, a clutch member fixed thereto, a drum journaled upon the shaft and adapted to move longitudinally thereof, means for moving said drum into engagement with the clutch member, said drum having its periphery provided with a spiral groove, a catch mechanism for holding the drum in contact with the clutch member, means carried by the drum for releasing said catch mechanism, a tackle arranged to wind upon the drum, a tackle guide arranged to move longitudinally of the drum and operated by the same, said tackle operating said catch releasing mechanism.

4. A hoist comprising a continuously rotating shaft, a clutch member located thereon, a drum journaled upon the shaft adapted to move longitudinally thereon, means for moving said drum into engagement with the clutch member, a catch mechanism for holding the drum in engagement with the clutch member, a catch releasing mechanism carried by the drum, a tackle arranged to wind upon the drum and operate the catch releasing mechanism, a sleeve journaled for rotation adjacent the drum and being externally threaded, a collar threaded upon said sleeve, a pulley journaled upon said collar, said tackle passing over said pulley, said sleeve being operatively connected with the drum.

5. A hoist comprising a continuously rotating shaft, a clutch member located thereon, a drum journaled upon the shaft and adapted to move longitudinally thereof, means for moving said drum longitudinally, a catch mechanism for holding said drum in engagement with the clutch member, a catch releasing means carried by the drum, said drum having a flange provided with gear teeth, a rod mounted adjacent the drum, a sleeve journaled upon said rod, a pinion fixed to said sleeve and meshing with the gear teeth of the flange, said sleeve having an external thread, a collar internally threaded and mounted upon said sleeve, a pulley journaled upon the collar and a tackle arranged to wind upon the drum and passing over said pulley and adapted to operate the catch releasing means.

6. A hoist comprising a continuously rotating shaft, a clutch member located thereon, a drum journaled thereon and adapted to move longitudinally thereof, a tackle arranged to wind upon the drum, a frame engaging the shaft at the end of the drum, coil springs attached to said frame, a block connected to the inner ends of said coil springs and a lever for shifting said block.

7. A hoist comprising a continuously rotating shaft, a clutch member located thereon, a drum journaled upon the shaft and adapted to move longitudinally thereof, a tackle arranged to wind upon the drum, a frame attached to the shaft at the end of the drum, coil springs attached to said frame, a block connecting the ends of said springs together, a lever for shifting said block and a catch mechanism adapted to engage the lever.

8. A hoist comprising a continuously rotating shaft, a

clutch member located thereon, a drum journaled thereon and adapted to move longitudinally thereof, a tackle arranged to wind upon the drum, a frame attached to the shaft at the end of the drum, springs connected to said frame, a block connecting the ends of said springs together, a lever for operating the block, a catch mechanism for retaining the lever and a catch releasing means carried by the drum and adapted to be operated by the tackle.

9. A hoist comprising a continuously rotating shaft, a clutch member located thereon, a drum journaled thereon and adapted to move longitudinally thereof, a tackle arranged to wind upon the drum, means for moving the drum laterally, a catch mechanism for retaining the drum, a tackle guide supported by the tackle and being operatively connected with the catch mechanism and adapted to operate the same when the tackle becomes slack.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES O. CONNER.

Witnesses:

E. M. SHUTT,
L. D. MCCALL.