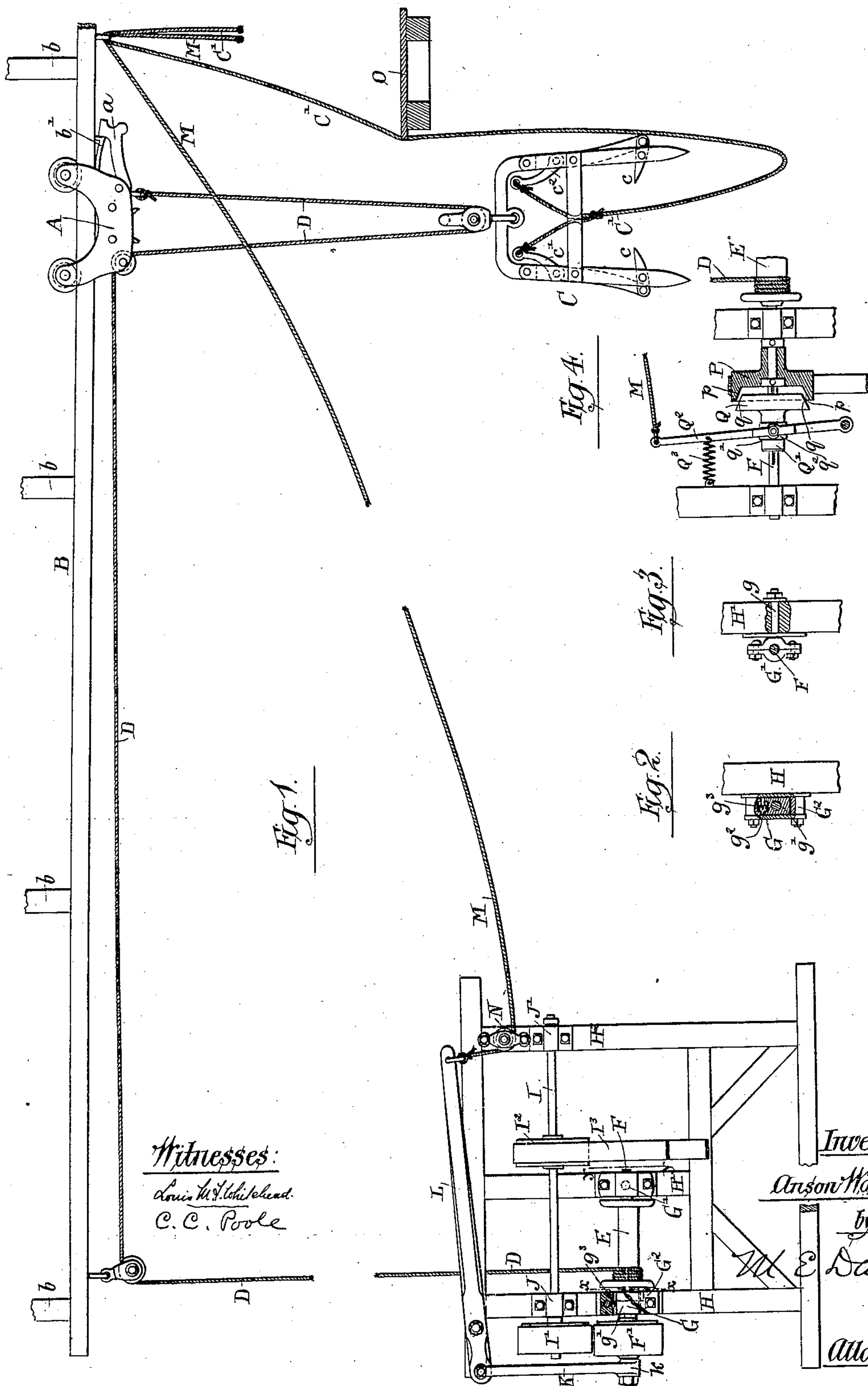


A. WOLCOTT.
CONVEYING APPARATUS.

No. 333,987.

Patented Jan. 5, 1886.



N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ANSON WOLCOTT, OF WOLCOTT, INDIANA.

CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 333,987, dated January 5, 1886.

Application filed November 27, 1885. Serial No. 184,015. (No model.)

To all whom it may concern:

Be it known that I, ANSON WOLCOTT, of Wolcott, in the county of White and State of Indiana, have invented certain new and useful Improvements in Conveying Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of apparatus for conveying bulky articles, comprising a traveling carrier and devices for actuating the carrier, such as are employed in barns for unloading hay and depositing it at a desired place.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

The apparatus herein illustrated as embodying my invention comprises a combined hoisting and elevating device adapted for unloading hay, and consisting of a traveling carrier of familiar construction adapted to travel upon an elevated track or way, and a hay-fork operated by a rope adapted both to elevate the fork with the hay and to move the carrier upon the track to the place of deposit. The power device for actuating the fork and carrier embraces a winding-drum for the rope operating said fork and carrier, said drum being actuated from an adjacent driven shaft by a device comprising pulleys upon the said driving-shaft and upon the shaft of the drum adapted for frictional engagement, means being provided for bringing said pulleys together at desired times, as will hereinafter more fully appear.

In the accompanying drawings, illustrating my invention, Figure 1 is a view in side elevation of a hay carrier and track or way therefor of familiar form and devices for operating the hay-carrier embodying my invention. Fig. 2 is a sectional view of one of the bearings of the drum shown in Fig. 1, taken upon line *x x* of said figure. Fig. 3 is a similar sectional view taken upon line *y y* of said figure. Fig. 4 illustrates another form of the device for connecting the drum-shaft with the source of power.

In the said drawings, A indicates a hay-carrier; B, an elevated track therefor; C, a hay-fork, and D the rope connected with the hay-fork and engaged with the carrier for actuating said fork and carrier.

In the particular construction of the parts illustrated, the track B is sustained by rods *b*, which may be attached to the rafters of a barn or to other supports, and the carrier A is provided with a detent, *a*, adapted to engage a stop, *b'*, upon the track, said detent being actuated automatically by means of a projection upon the hay-fork in a manner common in this class of devices. The hay-fork C is herein shown as made in a familiar manner, with pivoted barbs *c*, levers *c'* and *c''*, for actuating the barbs, and a trip-rope, *C'*, for releasing the hay from the fork.

E is a winding-drum, about which the rope D, for actuating the hay fork and carrier, is wound, said drum being secured upon a horizontal shaft, F, herein shown as mounted in bearings G G' upon suitably-located uprights or frame-pieces H H'.

I is a horizontal shaft mounted in bearings J J' upon the frame-piece H and a third frame-piece, H², and above and parallel with the axis of the drum E. Said shaft I is provided with a driving-pulley, I², around which is trained a driving-belt, I³, by which motion is transmitted to the said shaft from the driving-pulley of a steam-engine, horse-power, or other suitable motor.

The shaft F of the drum is provided, preferably at a point outside of the bearing G, with a pulley, F', and the shaft I is provided with a pulley, I', arranged opposite the said pulley F', said pulleys being adapted for frictional engagement, so as to transmit motion from the driven shaft I to the drum-shaft F. The surfaces of said pulleys are preferably made smooth, and may be formed of iron, wood, leather, or other material found suitable for the purpose. One of the shafts F and I is made laterally movable to a slight extent relatively to the other one, so that the pulleys may be separated and brought together, so as to disconnect and connect the drum with the driving-power in operating the machine, and means engaged with the movable shaft are

provided for moving the latter, so as to enable the motion of the drum to be conveniently controlled. For this purpose, as herein shown, the drum-shaft F is made movable vertically in its bearing G adjacent to the pulley F', and the movable end of the shaft is engaged with the lower end of a vertical connecting-bar, K, the upper end of which is connected with the short arm of a horizontally-arranged lever, L, pivoted between its ends to a suitable stationary support. To the opposite long arm of the lever L is attached a rope or cord, M, leading downwardly over a pulley, N, herein shown as mounted upon the frame-piece H² below the end of the lever, said rope being extended from the pulley to a point where it may conveniently be reached by the person operating the apparatus.

In the operation of the device, the pulleys are brought together, so as to cause the rotation of the drum, by drawing upon the rope M in an obvious manner. The drum is revolved to elevate the hay-fork and move the carrier laterally during the time that there is a tension upon the rope M, and is stopped or allowed to run backward, so as to allow the unwinding of the rope D and the return of the carrier and fork for a new load when the said rope M is slack.

The shaft F may be made movable in its bearings to the slight extent necessary to enable the pulleys E' and I' to be freed from operative engagement in any well-known or preferred manner. A simple construction of the bearings G and G' for this purpose is herein shown, in which the bearing G' is pivoted to rotate in a vertical plane by means of a pivot-pin, *g*, fixed in the bearing and engaged with a suitable aperture in the frame-piece H', and the bearing G is provided with a vertically-sliding block, *g'*, engaged with and forming the bearing proper of the shaft, and adapted to slide in a slot or recess, *g''*, formed in an outer stationary frame or casting, G², bolted to the frame-piece H. A spring, *g'''*, may be placed in the recess *g''*, between the block *g'* and the upper wall of the recess, for the purpose of causing the prompt separation of the pulleys when the pressure applied to force them into contact is released; but said spring will not usually be required when the construction herein shown is employed, in which the pulleys tend to remain apart by the action of gravity.

A pivotal support for the end of the shaft E remote from the friction-wheels F', such as is herein shown, may in practice not usually be found necessary, inasmuch as the slight movement of the pulley requisite to enable it to be engaged with and disengaged from the pulley I' may take place without interfering with the smooth running of the shaft. It is to be understood, also, that the pulley I' may be made movable instead of the pulley F, or, in other words, that the drum E may be placed upon the shaft I, and the belt-pulley I² upon the shaft F, with the same result as in the particular construction shown.

The connecting-bar K is herein shown as provided with an eye or bearing, *k*, at its lower end, within which the shaft runs, and is engaged with the end of the shaft F outside of the pulley F'; but said connecting-bar may be engaged with the shaft at a point adjacent to the pulley in any other way found convenient or desirable. It is to be understood, also, in this connection, that the shafts F and I may be made relatively movable by sustaining devices constructed otherwise than as herein shown, and my invention is not limited to any particular means for supporting the shaft in such manner as to permit such relative movement.

By the construction in the devices for bringing the friction-pulleys into engagement, it is obvious that a simple and practical means is afforded for controlling the movements of the drum from any point desired. In the accompanying drawings a platform, O, is shown, upon which an operator may stand in position to oversee the entire area of a barn or mow in which hay is being stored, the trip-rope C' of the hay-fork and the rope M for controlling the drum being carried to a point within reach of the operator standing upon the platform, so that the movement of the carrier and discharge of the hay can be readily controlled by said operator.

The construction in the connection between the shaft I and the drum-shaft, embracing separable friction-pulleys, has the important advantage, among others, that upon the release of the pulleys the drum is adapted to readily run backward to allow the uncoiling of the rope D in returning the carrier and fork to take another load of hay. The drum E and driving devices connected therewith may obviously be located at any convenient point relatively to the carrier and carrier-track, suitable intermediate guide-pulleys for the ropes D and M being provided, if found necessary. The lever L may in some cases be located in such manner that a guide-pulley for the rope M is unnecessary.

The main feature of novelty in my invention is embraced in a construction comprising, in connection with a traveling carrier and an elevating device operated by a single rope, a winding-drum for the rope, and devices for actuating the drum, comprising separable friction-pulleys, such as are herein shown, or other connecting device, such as a friction-clutch or other kind of clutch device, together with a rope or equivalent means for actuating the said connecting device from a distant point.

In Fig. 4 is shown a friction-clutch which may be employed instead of the friction-pulleys above described. In said figure, P is a belt-pulley mounted loosely upon the shaft F of the drum E, and Q is a disk constructed to slide longitudinally but not to rotate upon the shaft. The pulley P is provided with an inner conical bearing-surface, *p*, adapted for frictional engagement with the outer conical

surface, q , of the disk, and said disk is provided with a hub or sleeve, Q' , provided with an annular groove, q' , within which is fitted to rotate a ring, q^2 , which is pivotally connected with a lever, O^2 , so that when the lever is moved the disk will be shifted endwise of the shaft in a familiar manner. The lever Q^2 is held by a spring, Q^3 , in position to retain the disk Q free from the pulley P , so that the clutch will remain normally disengaged. To the free end of the lever is attached a rope, M , which extends to a point within reach of the operator. By drawing upon the said rope the clutch may obviously be held in engagement and the drum turned as long as desired, the spring Q^3 operating to disconnect the clutch as soon as the rope is released.

A similar result to that obtained by the employment of the separable friction-pulleys and the friction-clutch above described may obviously be obtained by the use of other kinds of clutches; but a device giving frictional engagement is preferred to one in which the parts are positively engaged. It is to be understood, however, that the term "clutch device," as used in the appended claim 1, is intended to embrace these separable friction-pulleys above described and equivalent devices, as well as a form of clutch such as is herein illustrated in Fig. 4, and other forms of clutch giving positive engagement by the interlocking of their relatively movable parts.

I claim as my invention—

1. The combination, with a carrying apparatus comprising a traveling carrier and a hoisting device operated by a single rope, of a winding-drum for the rope, driving-connections uniting the drum-shaft with a source of

power, comprising a clutch device or its equivalent, constructed to stand normally disconnected, and a rope or equivalent means connected with said clutch device for actuating the latter from a point remote from the drum, substantially as described.

2. In a carrying apparatus, the combination, with a traveling carrier, of a winding-drum, a shaft therefor, a driving-shaft parallel with the drum-shaft, friction-pulleys upon the said shafts adapted to stand normally apart, and means engaged with one of said shafts for bringing the pulleys together, substantially as described.

3. The combination, with a traveling carrier, of a winding-drum, a shaft therefor, a driving-shaft parallel with the drum-shaft, friction-pulleys upon the said shafts, and means for bringing the pulleys together, comprising a pivoted lever, L , a bar, K , connected with the lever and with one of the said shafts, and a rope, M , connected with the lever, substantially as described.

4. The combination, with a traveling carrier, of a winding-drum, a shaft therefor, a driving-shaft parallel with the drum-shaft, friction-pulleys upon the said shafts, a pivoted lever, L , a bar, K , connected with the lever and with one of said shafts, a rope, M , and one or more guide-pulleys for the rope, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

ANSON WOLCOTT.

Witnesses:

C. CLARENCE POOLE,
M. E. DAYTON.