

(No Model.)

G. D. FOSTER.

APPARATUS FOR HOISTING AND CONVEYING BUNDLES.

No. 578,397.

Patented Mar. 9, 1897.

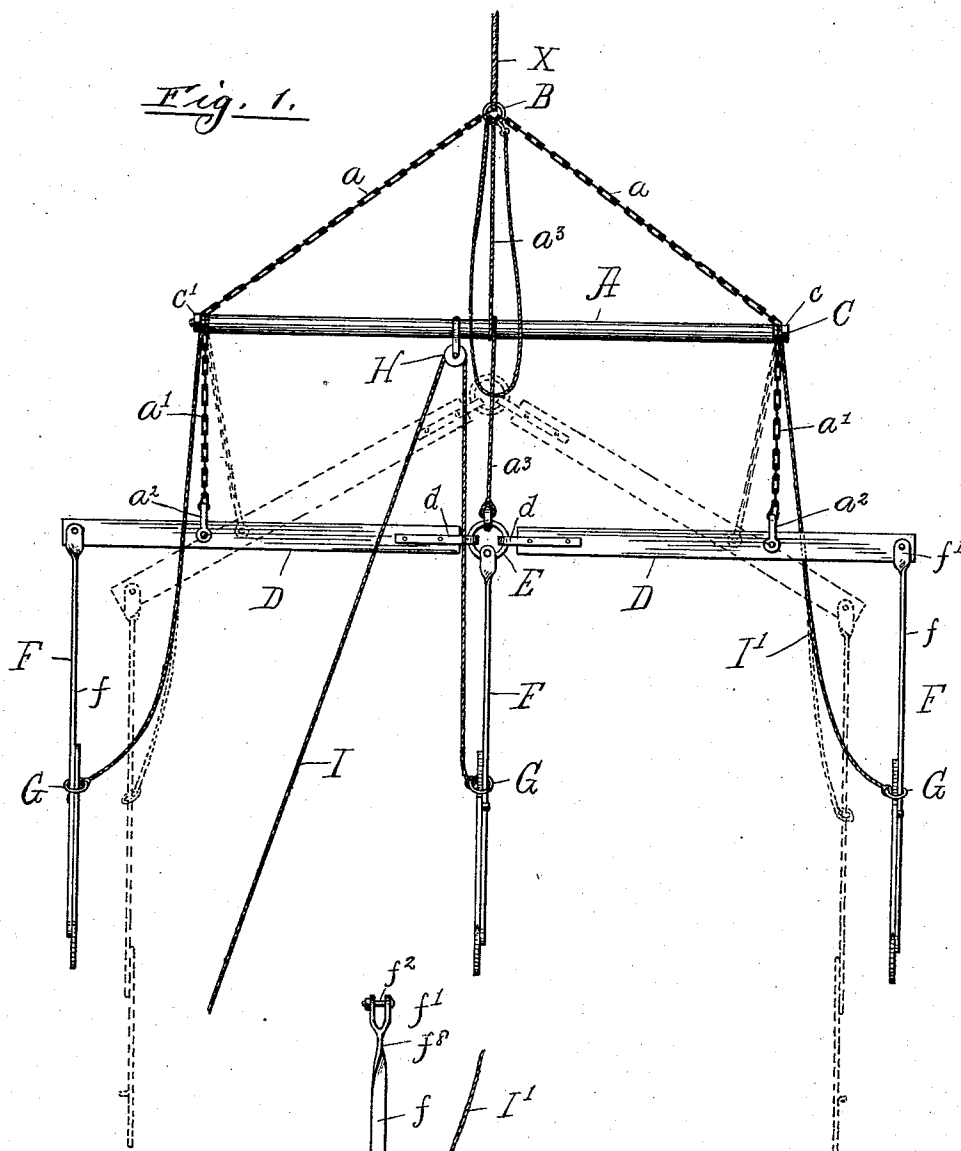


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE D. FOSTER, OF PRESTON, IOWA.

APPARATUS FOR HOISTING AND CONVEYING BUNDLES.

SPECIFICATION forming part of Letters Patent No. 578,397, dated March 3, 1897.

Application filed September 19, 1896. Serial No. 606,350. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. FOSTER, of Preston, in the county of Jackson and State of Iowa, have invented certain new and useful Improvements in Apparatus for Hoisting and Conveying Bound Bundles, of which the following is a specification.

This invention relates to improvements in apparatus for hoisting and conveying away or moving bound bundles—such, for instance, as corn-shocks and the like—and relates more specifically to an improved set of grappling devices by means of which a plurality of bundles may be picked up and conveyed away simultaneously.

The object of the invention is to provide a simple and convenient apparatus of the character referred to which may be employed for hoisting one, two, or more bundles simultaneously and which may be operated to trip or discharge the load carried by all of the several grappling devices by tripping a single one of the grappling devices. At the same time the construction of the apparatus is such that its grappling devices may be engaged with the several bundles constituting a load without necessitating any lifting up or handling of the latter and without dragging the apparatus from bundle to bundle.

The invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and the same will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is an elevation of the apparatus hanging in its suspended position, the change position assumed by the parts after tripping being indicated in dotted lines. Fig. 2 is a detail side elevation of one of the grappling-hooks.

Referring to said drawings, A designates a spreader-bar suspended so as to hang horizontally by means of suspension cables or chains a , which are connected with each end thereof and converge upwardly together to a suspension-ring B. As a convenient construction, the spreader-bar A consists of a piece of gas-pipe, through which is inserted a rod C, slightly longer than the said bar, provided at one end with a head c and screw-threaded at its other end and provided with a retaining-nut c' , the space between the ex-

treme end of the spreader-bar and the inner face of the head or retaining-nut forming in effect an annular rabbet or notch for the engagement of the suspension-chains. The rod C also serves to stiffen and strengthen the spreader-bar.

From each end of the spreader-bar is suspended an oscillatory bar D, conveniently and as herein shown, by extensions a' of the suspension-chains. The oscillatory bars, which may aptly be designated "equalizing-bars," are each conveniently suspended by means of a clevis a^2 , which is connected with the bar at a point distant from its outer end a distance approximately equal to one-third the total length of the bar, so that a weight applied to the inner end will counterbalance a weight twice as great at the outer end.

The two equalizing-bars are flexibly connected at their inner ends conveniently and, as shown in the present instance, by means of strap-iron loops d , mounted upon the proximate end of each bar, through which loops is passed a ring E, the arrangement being such that a flexible union is formed, which will permit the bars to oscillate or move out of alinement with each other both vertically and horizontally.

In order to hold the equalizing-bars in a normally horizontal position and to prevent their inner ends from being pulled down by a load suspended from the center of the apparatus, a cable or rope a^3 is extended from the ring E upward to the spreader-bar and connected with the latter and desirably extended from thence to the ring B.

From the outer end of each equalizing-bar is suspended a grappling device F, and from the ring E is suspended a third grappling device F', these several grappling devices being in the present instance alike in construction and of equal length.

It is to be understood that the scope of the invention is not limited to the use of a grappling device like that herein illustrated and that the construction herein described is but one practical embodiment of the invention.

Describing said grappling device in detail, f designates a straight shank conveniently made of strap-iron and provided at its upper end with a yoke-fork or integral clevis f' , adapted to embrace the end of the equaliz-

ing-bar, and through which and the latter is inserted a pin f^2 . With the lower end of the shank f is pivotally connected a hook f^3 , provided with a shank f^4 , which is of suitable length to afford a convenient handhold by means of which the hook may be manipulated to cause it to engage the band of the bundle, and is adapted to be held in substantial alinement with the shank f when hoisting a bundle by means of a ring G, which is arranged to embrace the said shank f and the upper reduced end portion f^5 of the shank of the hook. In order to hold the ring from sliding down below a certain point, the shank f^4 is made wider or provided with an outsetting shoulder f^6 immediately below the reduced portion f^5 , and in order to hold the hook from oscillating back beyond the position of alinement with the shank f a stop-stud f^7 is inserted in the widened portion f^6 in such position as to engage the front edge of the shank f . In order that the hook f^3 may stand in a position at right angles to the plane of the bars, the shank f of each grappling-hook is provided with a one-quarter twist f^8 , this position of the hooks being preferable in order that the several bundles may hang side by side while being hoisted.

To now describe the tripping devices by means of which when one hook is tripped and its load discharged the others will be automatically tripped, H designates a guide-pulley suitably connected with any preferred stationary part of the apparatus, in the present instance at a point near the center of the spreader-bar.

I designates a trip rope or cable connected at one end with the ring G of the central grappling-hook, extending thence over the guide-pulley H, and from thence to the operator.

I' designates tripping-cables, each connected at one end with one of the rings G of the two outer grappling-hooks, and extending thence upwardly to and connecting with any preferred substantially stationary part of the hoisting apparatus, in the present instance to the ring or link of the suspension-chain which is engaged with the adjacent ends of the spreader-bar. The cables I' are adjusted to such length as to provide a small amount of slack, so that a slight oscillation of the equalizing-bar will not result in withdrawing the tripping-ring G.

The operation of the apparatus constructed as above described will probably be understood, but may be briefly outlined as follows: The apparatus, being suspended from the end of any suitable hoisting-cable X, is lowered to the wagon-rack, whereon the corn-shocks or other bundles are usually laid side by side and the grappling-hooks severally engaged with the bands of three bundles lying side by side, each hook being secured in operative hoisting position by means of a retaining-ring after it has been engaged with the bundle. The load is now hoisted and conveyed to the

bundles, the arrangement of the equalizers being such that the one bundle suspended at the middle counterbalances the two outer bundles. When the proper point is reached, the operator trips the central hook by pulling on the trip-rope I, whereupon, the weight being removed from the inner ends of the equalizers, the latter fly up, thus lowering their outer ends and automatically withdrawing the retaining-rings from the outer grappling-hooks and allowing the latter to discharge their bundles.

If it be desired to hoist but two bundles at a time, one of these will be placed upon the central grappling-hook and the other on either of the outer ones. The operation of tripping will obviously be the same as before described. In this case the weight of the bundle on the central hook will obviously overbalance the bundle upon the shorter outer end of the equalizer and the central suspension-cable will prevent the bundle on the middle hook from depressing the equalizing-bar below a horizontal position. If but a single bundle is to be hoisted, this will obviously be placed on the central hook.

Inasmuch as the connection between the ends of the equalizers is made flexible, the apparatus may obviously be swung through a barn-door or other opening which is only wide enough to admit the spreader-bar, the outer ends of the equalizers in such case being oscillated laterally, so as to approach each other sufficient to pass through.

While I have herein shown what I deem to be the best embodiment of my invention now known to me, yet it will be obvious that the details thereof may be varied considerably without departing from the spirit of the invention and without involving more than ordinary mechanical skill. I do not, therefore, wish to be limited to the precise details shown.

I claim as my invention—

1. An apparatus for hoisting bundles and the like, comprising an oscillatory bar, a plurality of releasable grappling devices suspended from said bar and means for effecting the release of one of said grappling devices and interconnections operating to automatically effect the release of the remaining grappling devices upon the release of the first.

2. An apparatus for hoisting bundles and the like, comprising an oscillatory bar, suspension-cables connected, one at a point between its ends and at one side of the center thereof and the other to the longer end, a releasable grappling device connected with each end, a trip-rope for releasing the load from the grappling device at the longer end of the bar and connection operating to automatically release the other grappling devices when the bar is oscillated.

3. An apparatus for hoisting bundles and the like, comprising a horizontally-suspended spreader-bar, a pair of interconnected oscillatory bars suspended from said spreader-bar, a plurality of releasable grappling de-

vices suspended from said equalizing-bars and means for effecting the release of all of said grappling devices upon the tripping of one.

- 5 4. An apparatus for hoisting bundles and the like, comprising a horizontally-suspended spreader-bar, a pair of equalizing-bars suspended from said spreader-bar and having their proximate ends flexibly connected with
10 each other, each of said bars being suspended from a point between its ends and nearer the free or unconnected end thereof, a releasable grappling device mounted upon the free end of each equalizing-bar, and a third releasable
15 grappling device connected with the proximate ends of both equalizing-bars, a tripping-

rope extending from the trip of the central grappling device to an overhead pulley and tripping-ropes connecting the trip of each of the end grappling devices with a relatively 20 stationary overhead part whereby the tripping of the central grappling device will operate to automatically trip the other grappling devices.

In testimony that I claim the foregoing as 25 my invention I affix my signature, in the presence of two witnesses, this 3d day of September, A. D. 1896.

GEORGE D. FOSTER.

Witnesses:

O. E. SACHRIDER,
E. D. HOLLESTER.