(No Model.)

C. C. KINSMAN.

HOISTING APPARATUS.

No. 524,553. Patented Aug. 14, 1894.

Fig. 1.

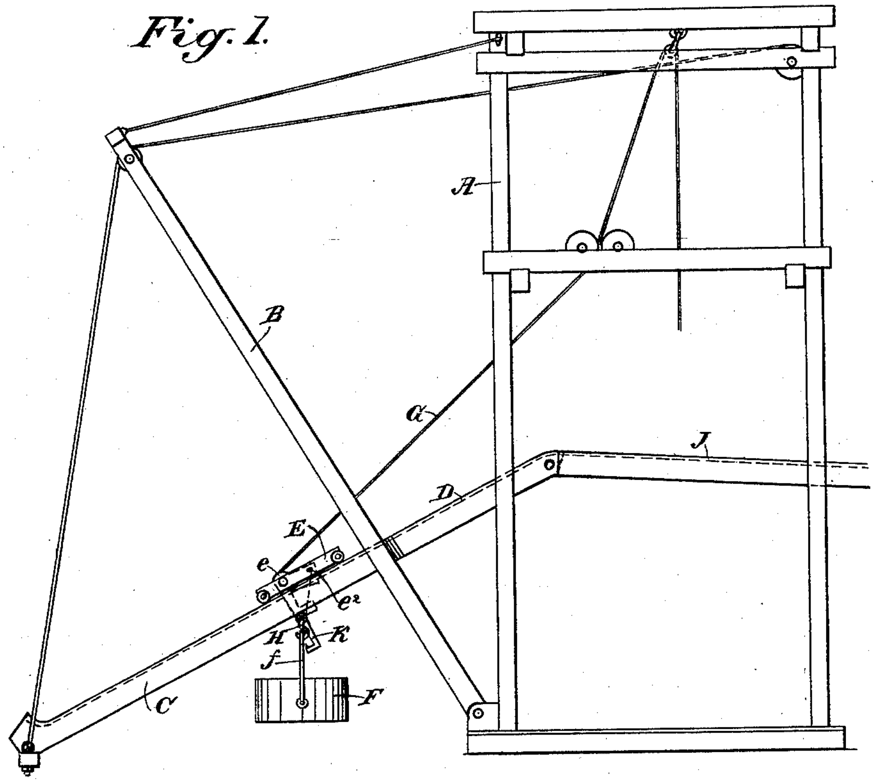


Fig. 2.

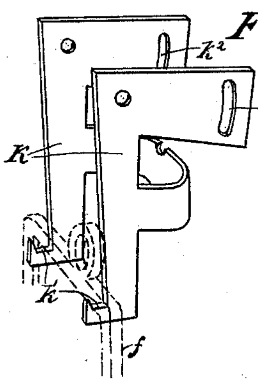


Fig. 3.

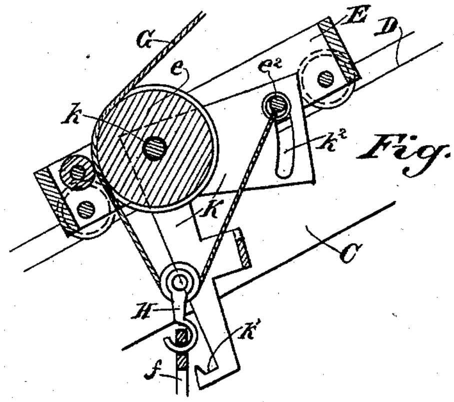
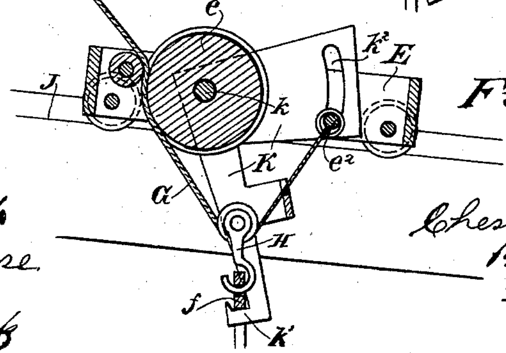


Fig. 4.



Witnesses,

J. H. Nourse

H. F. Ascheck

Inventor,

Chester C. Kinsman

By Dewey & Co. Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHESTER C. KINSMAN, OF SAN FRANCISCO, CALIFORNIA.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 524,553, dated August 14, 1894.

Application filed May 8, 1894. Serial No. 510,501. (No model.)

To all whom it may concern:

Be it known that I, CHESTER C. KINSMAN, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Hoisting Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of hoisting apparatus, designed for unloading coal and other materials in bulk, from ships, and depositing it in more or less distant pockets or bunkers.

My invention consists in the novel improvement hereinafter fully described and specifically claimed, in that type of hoisting apparatus in which oppositely inclined tracks meet in a crest or apex, upon which tracks a trolley, carrying the load, is caused to travel, by means of the main hoisting rope or runner.

The object of my invention is, generally, to simplify the mechanism in this class of apparatus, and especially to improve that particular hoisting apparatus patented to James W. Kinsman May 31, 1892, No. 475,963, by dispensing with the second trolley and second track of that device wholly, and accomplishing the result of relieving the hoisting rope or runner of the load, and temporarily supporting it, by much more simple and equally operative means.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a view of my apparatus. Fig. 2 is a view of the hook frame. Fig. 3 is a longitudinal section through the trolley, showing it on the track of the boom. Fig. 4 is a similar view showing it on the track to the bunkers.

A is a frame, to which is hinged the shears B, and C is the boom suitably supported. Upon the upper surface of the boom is a track D, upon which is mounted and adapted to travel a trolley E.

F is the bucket or tub in which the material is hoisted. It has a bail *f*.

G is a hoisting rope or runner. This is connected with the bucket or tub and with the trolley E, by passing over a guide sheave *e* on the trolley frame, carrying a hook block H in its bight, and having its end secured to a cross shaft e^2 fast in the trolley frame.

The hook H engages the bail *f* of the tub F. The runner passes upwardly and around a suitable course to a hoisting drum.

In operation, the boom C is set at such an angle that the loaded tub will be hoisted by the runner, without causing the travel of the trolley, which is then at the lowermost end of the track D; but when the tub has reached the limit of its vertical hoist, the pull on the runner has the effect of pulling the trolley E up the inclined boom, carrying the tub with it.

Supported by the frame A is a track J which is inclined downwardly in a direction opposite to the inclination of the track D, but at a slighter angle, and it joins said track in a crest or apex so that the trolley E passes from the boom track D on to the track J and back again.

The track J extends to the pocket or bunker which may be at such a distance that it is necessary that the track J should have but a gentle inclination in order to avoid the necessity of having to raise the load to an undue height. Therefore, as this track J has a gentle inclination it results that the slacking away of the runner when the trolley reaches the crest of the track merely has the effect of lowering the loaded tub while the trolley remains stationary. To avoid this difficulty and provide means for positively supporting the loaded tub on its course to the bunker, independently of the runner, the device of the patent heretofore referred to, disclosed a second trolley, traveling upon a track below and parallel with the track J, said trolley being picked up by the first trolley, and by suitable means receiving and supporting the weight of the tub or bucket, as the two trolleys moved down the gentle incline of their tracks. To accomplish this same result, namely, of transferring the load at the crest of the oppositely inclined tracks from the hoisting rope or runner to a more positive support, so that the trolley with its load may, by the slacking away of the runner, pass down the gentle incline of the track to the bunker, I have pivoted at *k* to the frame of the trolley E the angled or bell crank hook frame K. The depending arms of this hook frame terminate in suitable hooks *k'* while

their horizontal arms are freely slotted, as shown at k^2, over the cross-shaft e^2 in the frame of the trolley E. The disposition of the weight of this hook frame is such that when the trolley E is upon the greater incline of track D, the frame will hang in a state of rest in such position that its hooks will be free of the bail of the tub or bucket, in which position it is limited by the cross-shaft e^2 of the trolley frame, resting in the upper end of the slots k^2. The hoisting rope or runner at the beginning of the operation will, therefore, pull up the bucket or tub to the limit of its vertical hoist, and the whole device will then travel up the inclined track D until the crest is reached, whereupon, as the trolley swings over the apex or crest, and gets upon the opposite incline or track J, the bucket or tub will be swung on to the hooks k' which will thereafter positively suspend the load, allowing the slacking away of the runner or hoisting rope, to permit the descent of the trolley, on its way to the bunker or pocket; and in this position the hook frame K is limited by the cross-shaft e^2 of the trolley frame, resting in the lower ends of the slots of its horizontal arms. The return trip is made in this position, up the track J, until the crest is again reached whereupon the trolley swinging over on to the greater incline of track D, will carry its perpendicularly suspended bucket or tub off the hooks k' so that the weight may be lowered away.

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

1. In a hoisting apparatus having oppositely inclined tracks, the combination of a trolley for carrying the load on the tracks, a hoisting rope or runner for lifting the load and carrying the trolley with said load up the inclines and lowering it down again, and a swinging hook frame carried by the trolley and adapted to automatically make and break engagement with the load as the trolley passes over the crest of the oppositely inclined tracks whereby the load is transferred at said crest to and from the hook frame and the hoisting rope alternately, substantially as described.

2. In a hoisting apparatus having oppositely inclined tracks, the combination of the trolley traveling upon said tracks, the hoisting rope or runner secured to the trolley and carrying in its bight means for engaging the bail of the tub or bucket, and the hook frame pivoted to the trolley frame and having means for limiting its movement, said hook frame having hooks for engaging the bail of the tub or bucket and adapted to transfer the tub or bucket to and from the hoisting rope as the trolley passes over the crest of the tracks, substantially as herein described.

3. In a hoisting apparatus having oppositely inclined tracks, the combination of the trolley, the hoisting rope or runner secured thereto and carrying a hook block in its bight for suspending the bucket or tub and the angled frame pivoted to the frame of the trolley, having the hooks at the lower ends of its vertical arms for engaging the bucket or tub, and the slots in the ends of its horizontal arms freely playing over a limiting shaft in the frame of the trolley, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

CHESTER C. KINSMAN.

Witnesses:
S. H. NOURSE,
J. A. BAYLESS.