(No Model.)

E. K. PRESTON.

HOISTING MACHINE.

No. 323,074. Patented July 28, 1885.

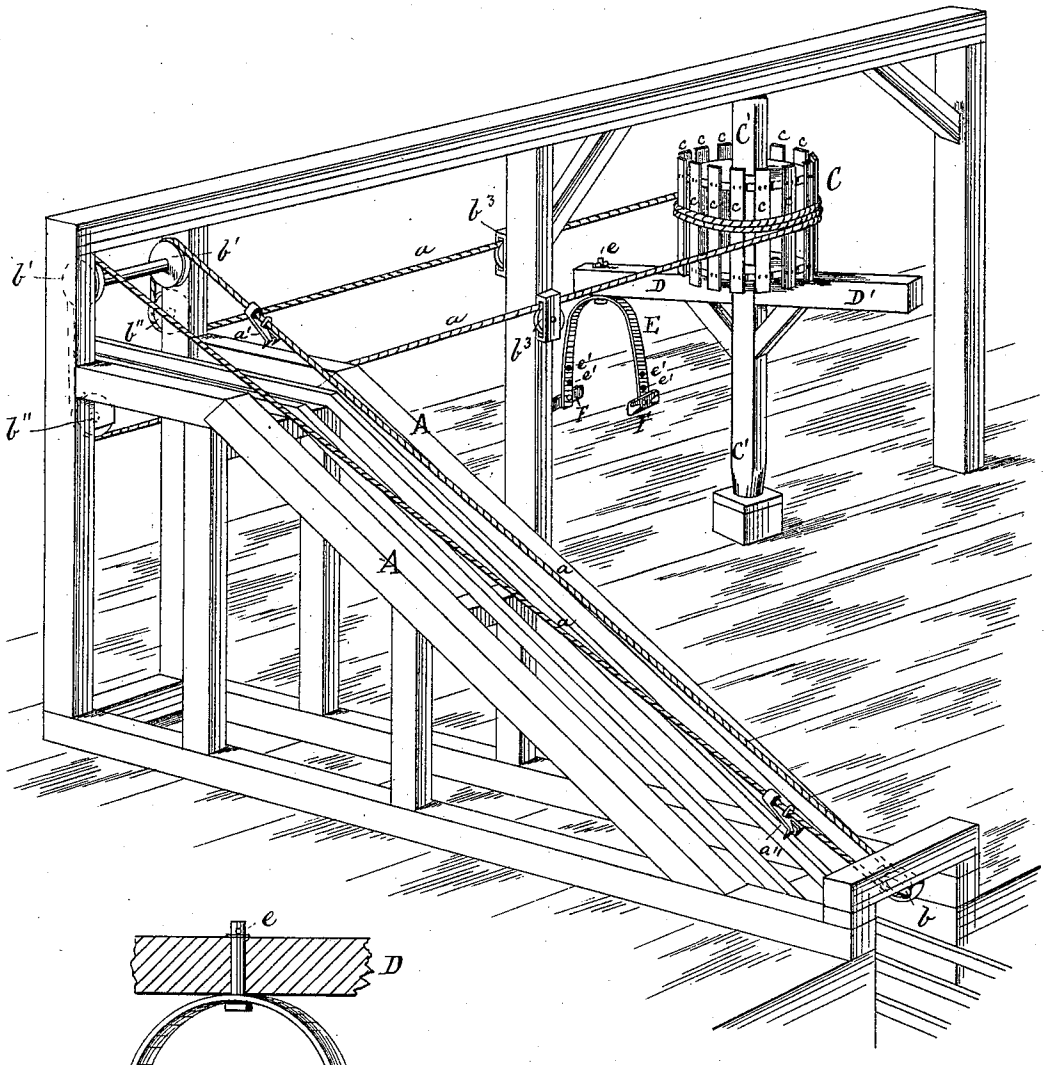

Fig. 1.

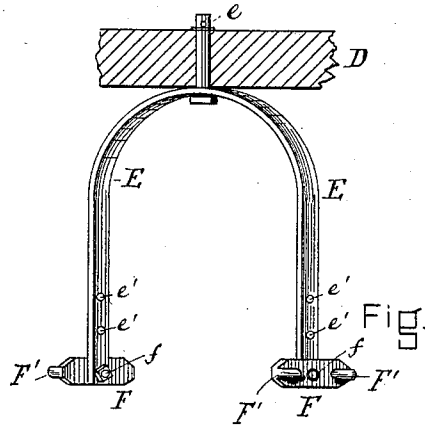

Fig. 2.

WITNESSES.

Charles H. Fogg.

Henry Chadbourn.

INVENTOR.

Ezra K. Preston.

by Gilbert Gudrew

his atty.

UNITED STATES PATENT OFFICE.

EZRA K. PRESTON, OF BEVERLY FARMS, MASSACHUSETTS.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 323,074, dated July 28, 1885.

Application filed June 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, EZRA K. PRESTON, a citizen of the United States, residing at Beverly Farms, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Hoisting Machinery; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to improvements in hoisting machinery adapted to be worked by horse or other animal power; and it is carried out as follows, reference being had to the accompanying drawings, where Figure 1 represents a perspective view of the invention, and Fig. 2 represents a portion of the beam and the swivel-yoke to which the animal is harnessed.

Similar letters refer to similar parts wherever they occur on the drawings.

In Fig. 1 I have shown the invention as applied to an ice-elevator for the purpose of hoisting cakes of ice from a lake or river and to deliver them in a store-house; but the invention is equally well adapted for hoisting buckets of coal or other materials, as may be desired.

In Fig. 1, A represents the inclined ways of an ice-elevator, as usual, and *a* is the endless rope or chain, provided with hooks *a' a''*, as shown, for gripping the ice-cakes as they are being pulled upward on the inclined ways A.

b is a pulley located at the lower end of the ice-elevator, around which pulley runs the endless rope or chain *a*, as shown.

b' b' are guide-pulleys located in the upper end of the elevator A, from which the endless cord is carried around guide-pulleys *b'' b''*, and one or more guide-pulleys, b^3 b^3, to the circular drum C, as shown in Fig. 1. The drum C is preferably provided on its cylindrical surface with a number of ribs or staves, *c c c*, so as to cause the rope *a* to cling more firmly to it as the drum is rotated. The drum C is secured to the vertical post or shaft C', supported in its upper and lower ends in suitable bearings or pillow-blocks of any ordinary construction, as shown in Fig. 1.

Below the drum C is secured to post or shaft C' the horizontal beam D, having an extension, D', on the opposite side of post or shaft C', to balance the portion D, and thus make the post or shaft C' turn easily in its bearings.

On the outer end of beam D is arranged the metal yoke E, to which the draft-animal is harnessed. Said yoke E is made to swivel or turn on pin *e*, secured to beam D, as shown in Fig. 2, or it may be hinged to said beam in any other suitable manner, it being only essential that the yoke E shall be permitted to turn horizontally relative to beam D, so as to enable the draft-animal to be turned around half a revolution while harnessed to yoke E when the motion of drum C is to be reversed.

To the lower ends of the yoke E are secured, by means of bolts *f f* or equivalent means, the plates F F, each one having the respective hooks F' F'', for hitching the ends of yoke to the breeching and hames on the draft-animal.

For the purpose of adjusting the positions of the plates F F up and down on yoke E according to the height of the animal, I provide the sides of the said yoke with a number of perforations, *e' e' e'*, as shown in Fig. 2, to either of which the plates F may be secured, as may be required.

The operation is as follows: The draft-animal is harnessed to the swivel-yoke E, as above described, and driven in a circular path in one direction until the load, whatever it may be, is hoisted to the desired elevation, when the animal is turned half a revolution with the yoke E and driven in a circular path in an opposite direction to the first one, so as to cause the empty bucket or hook to descend, while another loaded bucket, cake of ice, or other load is made to ascend to the desired elevation; and as the draft-animal is thus at all times positively harnessed to the yoke E and beam D, it will be seen that I am able to dispense with any brakes or retaining devices to hold the beam D and its drum C stationary when the position of the animal is being reversed.

The animal, when harnessed to swivel-yoke E, has a perfect control of the hoisting device, and when it is being reversed no slip on the drum will happen, as the weight of the animal serves, as it were, as a brake to prevent the drum from moving by the weight in suspension for the time being.

For elevating ice-cakes it may be preferable to employ an endless rope or chain, *a*, with

guide-pulleys, as shown in Fig. 1; but for hoisting coal in buckets, or for other hoisting purposes, I may prefer to have a rope or chain (not endless) with buckets or hooks secured to its ends, as used on ordinary hoisting devices.

What I wish to secure by Letters Patent, and claim, is—

1. In a hoisting-machine, the vertical post or shaft C', located in suitable bearings, and having the drum C secured to it, and the beam D, combined with the swivel-yoke E, hinged to the beam D, as and for the purpose set forth.

2. In a hoisting-machine, the draft-beam D and swivel-yoke E, hinged to it as described, in combination with hooked plates F F, vertically adjustable on the yoke E, substantially in a manner and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

EZRA K. PRESTON.

Witnesses:
ALBAN ANDRÉN,
CARL A. ANDRÉN.