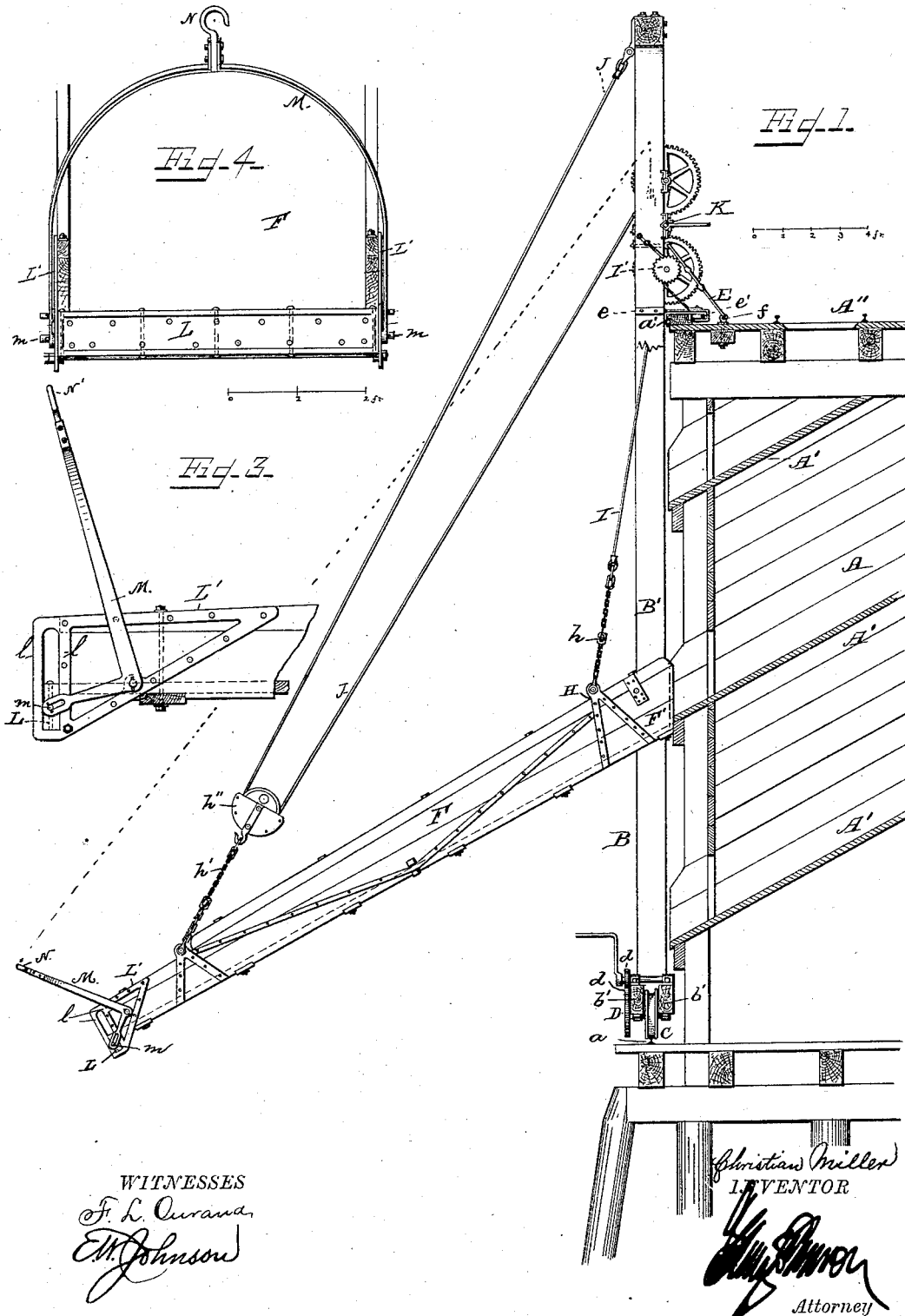


2 Sheets—Sheet 1.

# DEVICE FOR LOADING VESSELS.

Patented Sept. 9, 1884.



(No Model.)

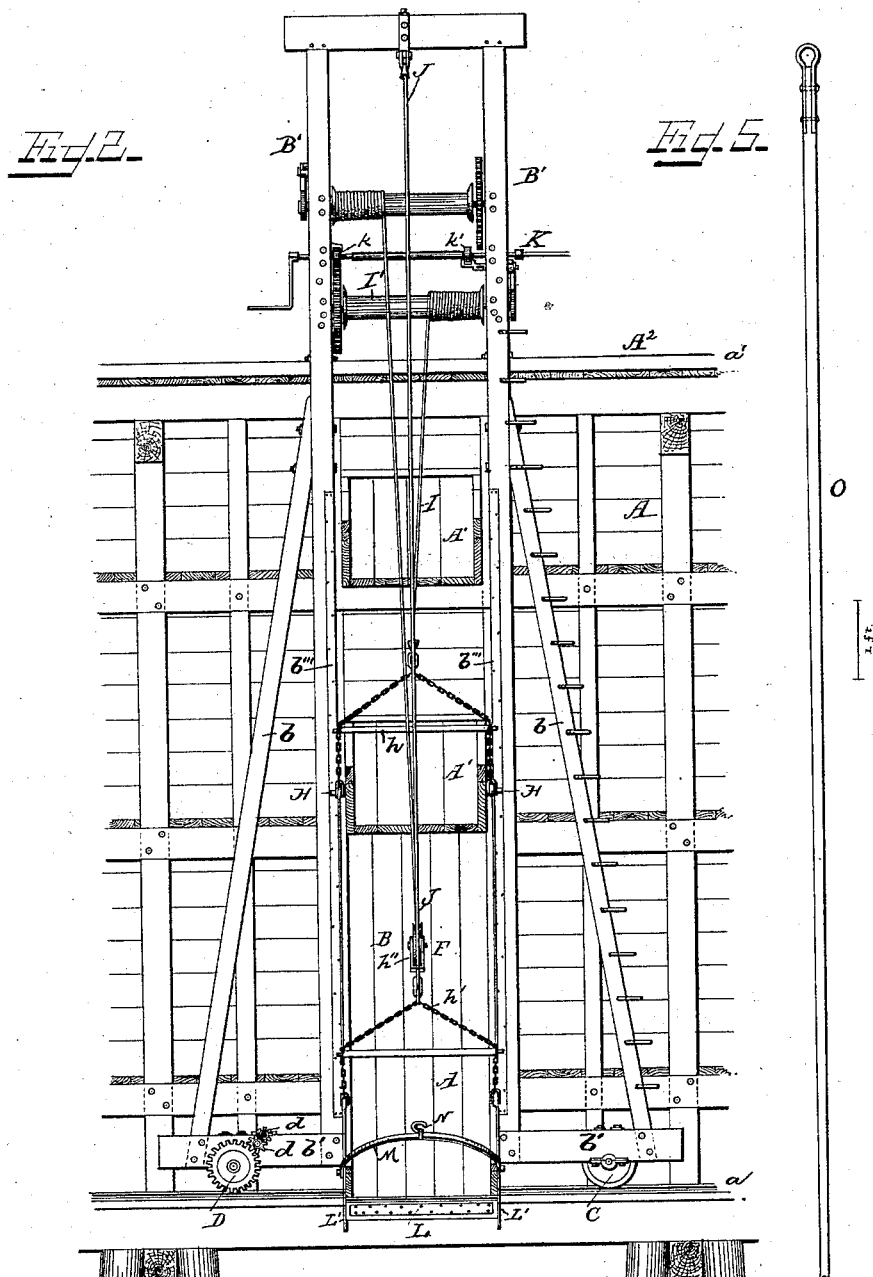
2 Sheets—Sheet 2.

C. MILLER.

DEVICE FOR LOADING VESSELS.

No. 304,947.

Patented Sept. 9, 1884.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHRISTIAN MILLER, OF SEATTLE, WASHINGTON TERRITORY.

## DEVICE FOR LOADING VESSELS.

SPECIFICATION forming part of Letters Patent No. 304,947, dated September 9, 1884.

Application filed May 22, 1884. (No model.)

### *To all whom it may concern:*

Be it known that I, CHRISTIAN MILLER, a citizen of the United States of America, residing at Seattle, in the county of King and Territory of Washington, have invented certain new and useful Improvements in Devices for Loading Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in adjustable chutes which are adapted for the delivery of coal or other material from a stationary structure to vessels for transportation, the object of my invention being to provide a structure which may be adjusted laterally in front of stationary chutes, which structure carries an adjustable chute which is capable of a vertical adjustment upon the lateral adjustable structure; and to this end my invention consists in the construction and combination of parts, and in an improved end-gate for the adjustable chute, as will be hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side view, partly in section, showing the apparatus applied for use. Fig. 2 is a front view. Fig. 3 is an enlarged side view of the end-gate. Fig. 4 is an end view of the same, and Fig. 5 is a detail view of the rod for operating the end-gate.

A represents a permanent structure, which is provided with stationary chutes  $A'$ , which communicate with the supply of coal or other material to be discharged, said structure being mounted on suitable supports and at a suitable locality, as at the end of a wharf or pier, or the same may form a portion of a warehouse. This structure is provided near its lower portion and at its upper portion with beams  $a$   $a'$ , both of which extend longitudinally in front of the same, and serve to support the longitudinal or lateral structure B, which consists of vertical beams  $B'$ , which are braced

by beams  $b$ , which are rigidly attached to a horizontal beam,  $b'$ . The horizontal beam  $b'$  is provided on its under side with the journals, within which are mounted supporting-wheels C, which travel upon the track  $a$ , one of said supporting-wheels being provided with a laterally-extending axle, upon which is mounted a gear-wheel, D, with which mesh two spur-wheels,  $d$   $d'$ , the upper spur-wheel being provided with a crank-arm for turning the same. By providing two spur-wheels motion is communicated to the drive-wheel D in the same direction that the crank is rotated. The side beams,  $B'$ , of the frame B are provided at a point slightly above the longitudinal rail with straps  $e$ , having bent ends, within which are journaled rollers  $e'$ , which engage with the rear face of the upper longitudinal rail,  $a'$ , and retain the upper part of the structure B in a vertical position.

At suitable points upon the platform  $A''$  are secured eyebolts  $f$ , with which engage adjustable brace-rods E, which are provided at one end with hooks for the engagement of the eyebolts, and at the other end are secured to the frame  $B'$ . These rods serve the purpose of holding the frame B against lateral movement when made fast, and are readily removed from the eyebolts when it is desired to move the structure from place to place. The front portion of the vertical beams  $B'$  have secured thereto plates  $b''$ , behind which are located grooves in which the vertical adjustable chute slides.

The vertical adjustable chute F is provided with means for securing the same at its end  $F'$  to the standards  $B'$ , and said chute is provided with brace-rods, as shown. Near the end  $F'$  of the chute F, on each side of the same, are secured straps  $H'$ , with which engage chains which are connected to a spreader,  $h$ , and are centrally connected above said spreader with a swivel-connection, to which is attached a rope, I, which passes over a transverse shaft,  $I'$ , mounted between the vertical beams  $B'$ . This shaft is provided at one end with a pawl and ratchet, and at the other end with a gear-wheel, with which meshes the pinion mounted on a crank-shaft. Near the outer end of the chute F is a similar structure, the

upper end of the chain *h*' of said structure being connected to a block, *h*'', around which passes a rope, one end of which is permanently attached to the central portion of the cross-beam attached to the upper end of the vertical beams *B*', the opposite end of this rope *J* passing around a horizontal shaft, which is provided with a pawl and ratchet at one end, and a gear-wheel at the opposite ends of the pawl and ratchet, as shown in Fig. 2.

The crank-shaft *K*, which is mounted between the rotary shafts, is provided with pinions *k**k*'', and the portion of the shaft upon which these pinions are located is square and provided with collars, so that the pinions or shaft can be shifted, so that they may mesh with either of the gear-wheels or both at the same time, as may be desired.

The end of the chute *F* is provided with an end-gate, *L*, which operates between the vertical portions *l* of a casting, *L*', which is secured to each side of the chute, and extends sufficiently below the floor of the same to allow the gate to lie beneath the same. The gate is provided with end pins, *m*, which are embraced by the slotted ends of the angle-levers *M*. The upper portions of said angle-levers are bent over and meet centrally over the central part of the chute, and are connected to a hook, *N*, as shown in Fig. 4. This hook *N* is adapted to engage with a rod, *O*, as shown in Fig. 5, for operating the arms of the lever, so as to raise or lower the gate from the lower chute while the same is in operation. If desirable, a flexible connection may be attached from the hook *N* to the upper portion of the structure *B*, and the gate can be raised by tightening said flexible connection. It will be seen that by the arrangement of this end-gate the same will be held open by gravity, and when open will be below the floor of the chute.

The structure *A* is provided with a series of stationary chutes, *A*', which are located at intervals along the front portion of the structure, longitudinally as well as vertically; and the frame *B*, by the means hereinbefore described, may be moved in front of any of the stationary chutes, as desired. The adjustable chute can then be adjusted at any desirable angle, so that the material can be discharged through the hatch of a vessel without moving the vessel.

I claim—

1. In a device for loading vessels from a permanent structure provided with a series of stationary chutes, a traveling carriage or frame adapted to be moved in front of said stationary chutes, and carrying an adjustable chute and a windlass and connections for raising and lowering the same, substantially as shown, and for the purpose set forth.

2. In a device for loading vessels from a stationary structure provided with a series of stationary chutes, said structure being provided with supporting-rails and means for moving and securing the movable carriage, a chute vertically adjustable upon the carriage and provided at its end with an end-gate, and means for adjusting and securing in position the movable chute, substantially as specified.

3. In combination with the adjustable chute *F*, for the purpose specified, an end-gate attached thereto and operating between guides located so that the gate will fall below the floor of the chute when not in use, and operating means, substantially as specified.

In testimony whereof I affix my signature in the presence of two witnesses.

CHRISTIAN MILLER.

Witnesses:

HENRY FRY,  
OWEN EVANS.