

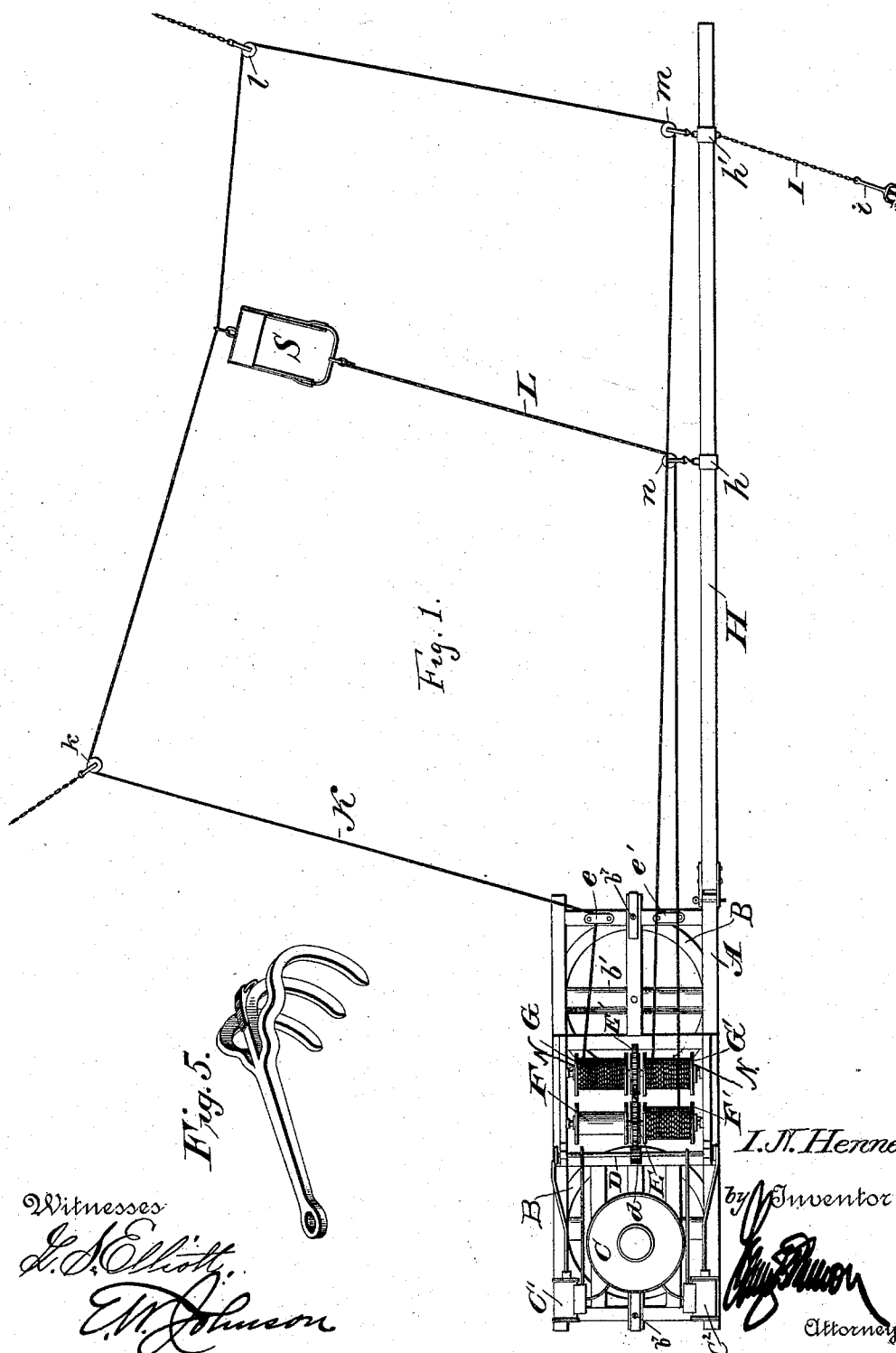
(No Model.)

2 Sheets—Sheet 1

I. N. HENNESSY.
STEAM EXCAVATOR.

No. 470,565.

Patented Mar. 8, 1892.



I. N. Henness.

by Inventor

Attorney

UNITED STATES PATENT OFFICE.

ISAAC N. HENNESS, OF ILWACO, WASHINGTON.

STEAM-EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 470,565, dated March 8, 1892.

Application filed June 25, 1891. Serial No. 397,504. (No model.)

To all whom it may concern:

Be it known that I, ISAAC N. HENNESS, a citizen of the United States of America, residing at Ilwaco, in the county of Pacific and State of Washington, have invented certain new and useful Improvements in Steam-Excavators; 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 of reference marked thereon, which form a part of this specification.

This invention relates to improvements in scrapers operated by a distant power.

The object of the invention is to provide means for operating the scraper from a main frame having an engine and suitable drums, so that the engine can be operated to draw the scraper and to dump it when loaded and to move it when empty to a position for work, the parts being constructed and arranged as will be hereinafter fully set forth.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view. Fig. 2 is a sectional view of the main frame upon which are mounted the engine and the drums over which the cables pass. Fig. 3 is an inverted plan view of the main frame and attachments. Fig. 4 is a detail perspective view of the scraper. Fig. 5 is a detail perspective view of one of the grapples or anchors.

The main frame A is preferably a rectangular structure having suitable cross-beams, the side beams being extended in front and provided with perforations for securing an extension H removably thereto. To the under side of the main frame, near each end, is secured an annular platform B, beneath which is located a toothed segment *b*, having bearings *b*⁵ for the supporting-rollers *b*¹, said segments being each turned by a pinion *b*⁶, which meshes therewith and is mounted on a shaft *b*⁷, which extends up through the beam of the frame and is key-ended to receive a suitable lever for operating the same. By turning the segments the angle of the rollers *b*¹ can be varied with respect to the main frame for guiding the structure in transportation or for hold-

ing it stationary when in the field and in a position for use.

C refers to the boiler, and C¹ C² engines, the piston-rods of said engines being connected with a transverse shaft D. This shaft carries a central pinion or cog-wheel *d*, which meshes with a gear-wheel E, which also meshes with a similar gear-wheel E'. The gear-wheels E and E' are rigidly secured to shafts, upon which are loosely mounted drums F, F', G, and G'. The heads of the drums adjacent to the gear-wheels are adapted to be moved into contact with the friction-faces of said gear-wheels by suitable levers N N, each drum being provided with an independent lever, which may be of any ordinary construction.

The main frame is provided at its end opposite the boiler and engines with guide-blocks *e* and *e*¹, through which the cables from the drums may be passed.

The extension-beam H (shown in Fig. 1) is adapted to be secured to the front end of the main frame by a transverse pin. This beam may be made up in section, so that it can be extended to the desired length, and upon this beam are mounted adjustable sleeves *h* and *h*¹, which have eyes for the connection thereto of guide-pulleys *m* and *n*, the sleeve *h*¹ having an extra eye, with which a chain I connects, the opposite end of said chain being attached to a grapple or anchor *i*.

In operation it is only necessary to make use of three of the drums carried by the main frame, the fourth being used for any purpose desired, as for shifting the position of the frame and in pulling stumps out of the field. In the drawings I have shown three of the drums provided with cables, the cable K extending from the drum G through the guide-pulley *e* on the frame and from there around pulleys *k* and *l*, which are properly anchored in the field, to the pulley *m*, carried by the sleeve *h*¹, and from there to the drum G'. The scraper S is attached to this cable between the pulleys *k* and *l*. The cable L is attached to the draft-bail of the scraper and passes over the pulley *n*, carried by the sleeve *h*, and extends to the drum F'. When the drums are revolved, the cables are wound round them in the proper direction, so that as the cable K is slackened by the movement of the drums

G and G' the cable L will be drawn upon to haul the scraper across the field, and the earth gathered or excavated thereby will be deposited adjacent to the beam H, after which the movement of the drums is reversed to bring the scraper to its original position to be again operated. After a sufficient quantity of earth in the path of the scraper has been excavated the adjustable sleeve *h* is moved upon the beam to a position either to or from the main frame. By this arrangement and construction of the parts it will be obvious that the scraper can be used to excavate under water as well as upon land.

15 The scraper S, as shown in Fig. 4, has the side pieces O O, to which is rigidly secured a back piece O', by means of the angle-irons *o* and reinforcing-strips *p* and *p'*. To the front ends of the reinforcing-strips *p* is pivoted the draft-bail P. The cutter or knife R is secured by means of bolts or rivets to the back plate O', and its cutting-edge extends downwardly at an angle with the side pieces, so that said knife will better enter the soil and will be sharpened as the scraper is drawn across the field back to a position for operation.

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

30 1. In combination with the main frame having windlasses mounted thereon, a cable K, connected to two of said windlasses, guide-pulleys with anchors around which the cable K passes, and a cable L, to which a scraper is secured, said coupler being connected to a third windlass, said scraper being also attached to the cable K, substantially as set forth.

2. In combination with a frame A, carrying an engine and a plurality of windlasses, said frame being adapted to be anchored, a beam H, adapted to be secured to the frame at one end and anchored at the other, a cable K, secured at one end to a windlass G, carried by the frame and passed around anchored guide-pulleys to the windlass G', and a cable L, leading from the windlass F' around a movable guide-pulley to the scraper, said scraper being also connected to the cable K, substantially as shown, and for the purpose set forth.

3. In combination with frame carrying windlasses and a driving-motor, a bar H, secured at one end to said frame and adapted to have its other end anchored, cables K and L, connected to different windlasses, guide-pulleys *k* and *l*, anchored in position, as shown, and pulleys M N, secured to the beam H, together with a scraper connected to the cables, substantially as shown, and for the purpose set forth.

4. A scraper consisting of the side pieces O O, having rounded lower corners, a draft-bail rigidly secured thereto, curved angle-plates *o*, connecting the side pieces to the back plate, said back plate having its upper portion bent forwardly and secured to the upper edge of the side pieces, as shown, and an inclined blade secured to the lower edge of the back plate, substantially as set forth.

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

ISAAC N. HENNESSY.

Witnesses:

J. J. BRUMBACH,
J. R. GOULTER.