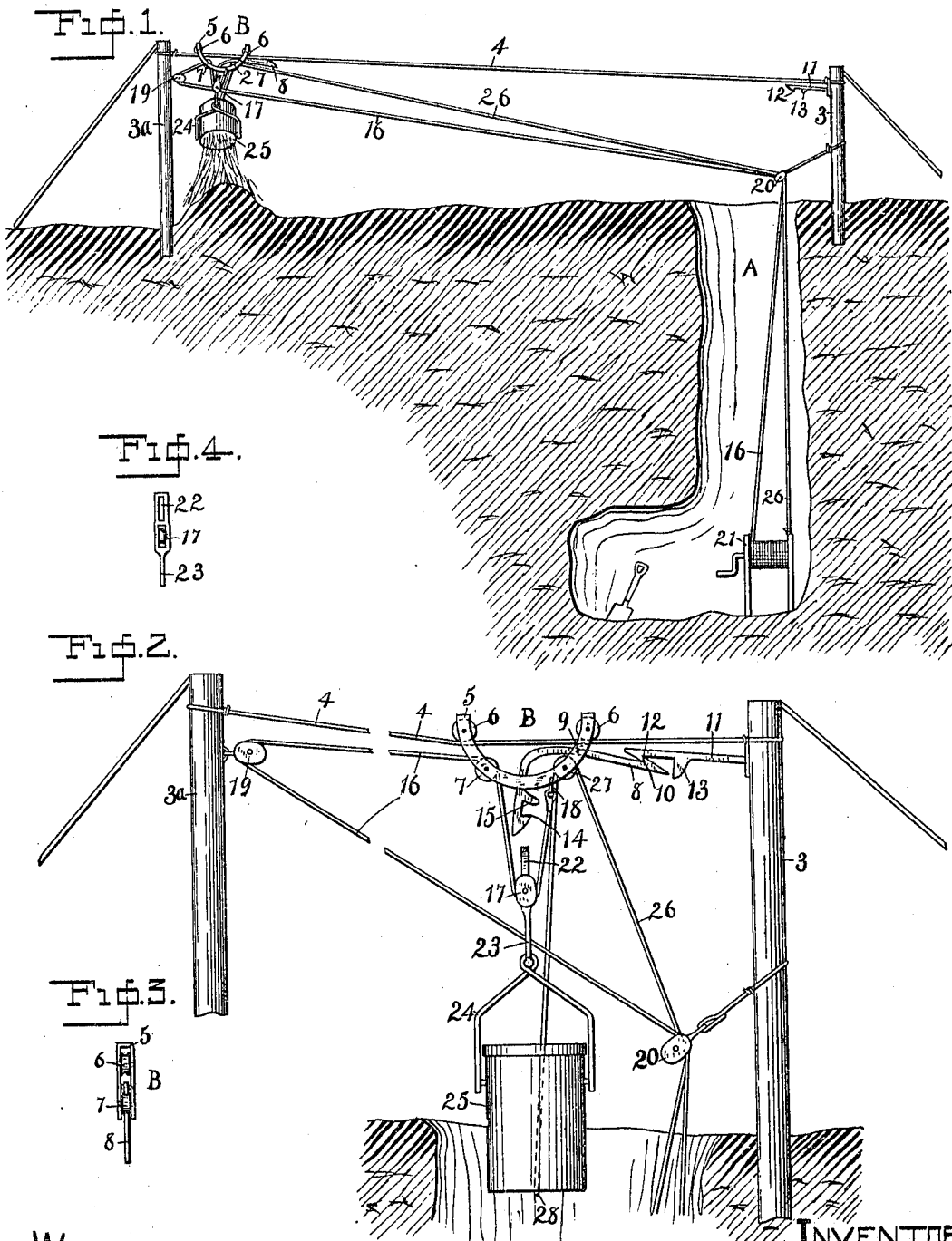


H. E. BOWCHER.
HOISTING APPARATUS.
APPLICATION FILED FEB. 28, 1907.

955,940.

Patented Apr. 26, 1910.



WITNESSES

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HENRY E. BOWCHER, OF DAWSON, YUKON TERRITORY, CANADA.

HOISTING APPARATUS.

955,940.

Specification of Letters Patent. Patented Apr. 26, 1910.

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To all whom it may concern:

Be it known that I, HENRY E. BOWCHER, a subject of the King of Great Britain, residing at Dawson city, in the Yukon Territory and Dominion of Canada, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a specification.

My invention relates to hoisting apparatus and is especially applicable for use in excavating mines, wells, and all work of that character.

The chief objects of my invention are to produce an efficient hoisting apparatus that will be simple in construction, and automatic in its working, so that only one person is needed to operate it; to provide a combined hoisting and dumping appliance requiring only one hand to manipulate it and that can be operated for both purposes mentioned from one point; to furnish means for working the device with equal facility from the surface of the ground or from the bottom of a shaft or well.

Another advantage of my device is that it can be readily and cheaply manufactured from materials commonly in use and with the ordinary tools found in blacksmith or other shops.

A still further advantage lies in the simplicity and light weight of the apparatus, which can be readily transported in mountainous regions and rough countries where such devices are in demand for sinking shafts for prospecting and general mine work.

I accomplish the above and other minor results by the use of a cable stretched between two posts or other supports upon which a frame or trolley provided with pulleys is adapted to travel, a hook attached to the trolley for supporting the bracket when hoisted and the necessary blocks and tackle for operating the device.

In the accompanying drawing which forms a part of this specification:—Figure 1 is a view of my improved hoisting and dumping apparatus assembled to operate in the shaft of a mine; Fig. 2 is an enlarged view of the trolley and attachments, and Fig. 3 is an end view of the trolley; Fig. 4 is a detail of the loop for supporting the bracket upon the hook.

Referring to the drawing the numerals 3, 3^a, indicate posts set in the ground to form supports for the main line cable 4 which is

stretched between the posts 3, 3^a. The post 3 is located near the mouth of the shaft A and the other, 3^a, is set at the place where it is desired to dump the material. The line cable 4 is inclined somewhat downwardly from the post 3^a to the shaft post 3 in order to bring into use the force of gravity when the bucket is returned from the dump to the shaft. A framework or trolley B preferably formed of a single piece circular in shape and bent upon itself at 5 to form the sides is provided with pulleys 6 which are adapted to engage the cable 4, and travel thereon thus supporting the trolley and attachments.

Below one of the pulleys 6 is pivoted a pulley 7, and near the opposite end of the trolley frame is pivotally mounted a curved lever 8 one end of which projects horizontally from the trolley and terminates in a shoulder 10 which engages with the end of a horizontal bar 11 projecting from the post 3, by means of a shoulder 12 when the trolley is in its lowest or initial position in the cable 4. When the arm 8 engages the bar 11 its movement toward the post 3 is limited by the stop 13 against which the end of said arm strikes. The opposite end of said arm or lever is bent downward and terminates in a hook 14. Above this hook is a stop 15. One end of a traction or hoisting rope 16 is passed over the pulley 7 to change its direction and is then carried down to and around a sheave in a pulley block 17 and terminates in an eye which is secured in a ring 18 attached to the frame of the trolley B. The opposite end of this traction rope is carried through a pulley block 19 secured to the post 3^a and is led back to a double pulley block 20 attached to the shaft post 3. Passing over one of the pulleys in said block it is carried down into the shaft A and wound around a windlass 21.

To the pulley block 17 is attached a bail or loop 22 which projects vertically from the block and is adapted to engage the hook 14 of the lever 8. To the same block 17 is a pendent arm 23 which engages the eye of a bail 24, of a bucket 25 supported by pivot-
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A clamping rope 26 secured at one end to any convenient point near the operator is carried over one of the pulleys in the block 20 and then around a pulley 27 pivotally mounted in the trolley frame whence it passes to the lower edge 28 of the bucket

and then fastened. It will readily be seen that traction made upon this rope will cause the bucket to tilt upon the lugs 25^a and dump the contents.

5 The operation of the device is as follows: The posts are firmly set in the required positions with the cable stretched between them, the trolley mounted upon the cable and held by the bar 11 in the position shown
10 in Fig. 2, by engaging with the lever 8, and the rest of the apparatus arranged in the manner shown, the bucket being at the bottom of the shaft. The operator having filled the bucket, raises it by pulling upon the
15 rope 16 or by turning the windlass 21 until the loop 22 strikes the stop 15 of the lever 8. This will release the lever from engagement with the bar 11 and the loop 22 will catch upon the hook 14. By continuing the trac-
20 tion upon the rope the trolley will travel along the cable 4 until the point for dumping is reached. This can be determined by the length of the rope 26 when the operator is at the bottom of the shaft and out of
25 sight of the place. If the rope 26 is made fast the dumping will be automatically brought about by turning the windlass until the said rope is brought into action or the bucket may be dumped at any point along its course
30 by pulling upon the rope attached to the bucket. When the bucket is empty the inclination of the cable will carry the trolley back to its starting point the lever 8 will strike the stop 13 with sufficient force to
35 disengage the loop 22 from the hook 14, the shoulders 10 and 12 will engage and hold the trolley stationary, while the bucket will descend into the shaft by its own weight it being understood that this reverse movement
40 of the trolley and descent of the bucket are

permitted by relaxing the pull upon the rope 16, and that the movements of the trolley and bucket are constantly under the control of the operator by means of said rope 16.

It is obvious that many changes may be made in the devices of my invention as here-
in disclosed without departing from the spirit and scope thereof and I do not wish, therefore, to be limited to the precise construction set forth.

Having thus described my invention what I claim as new, is:—

In a hoisting, conveying and dumping apparatus, the combination of a supporting cable and terminal posts to which said cable is secured, a pulley attached to one of said posts and a hook having an integral stop attached to the other post, a carrier having sheaves arranged to travel on said cable and other sheaves to receive the operating rope, a bent lever pivotally mounted on said carrier and having at one end a hook adapted to engage the hook and stop on said post, and on its other end a hook and stop, a bucket having a bail, a pulley and hook pivotally connected with said bail, said hook adapted to engage the hook and stop on said lever, and operating ropes connecting the carrier and traveling over the pulleys on the carrier, bucket and post whereby the bucket will be hoisted relative to the carrier and the carrier drawn between the terminal posts substantially in the manner set forth.

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

HENRY E. BOWCHER.

Witnesses:

CHARLES MACDONALD;
J. W. MACKEY.