

(No Model.)

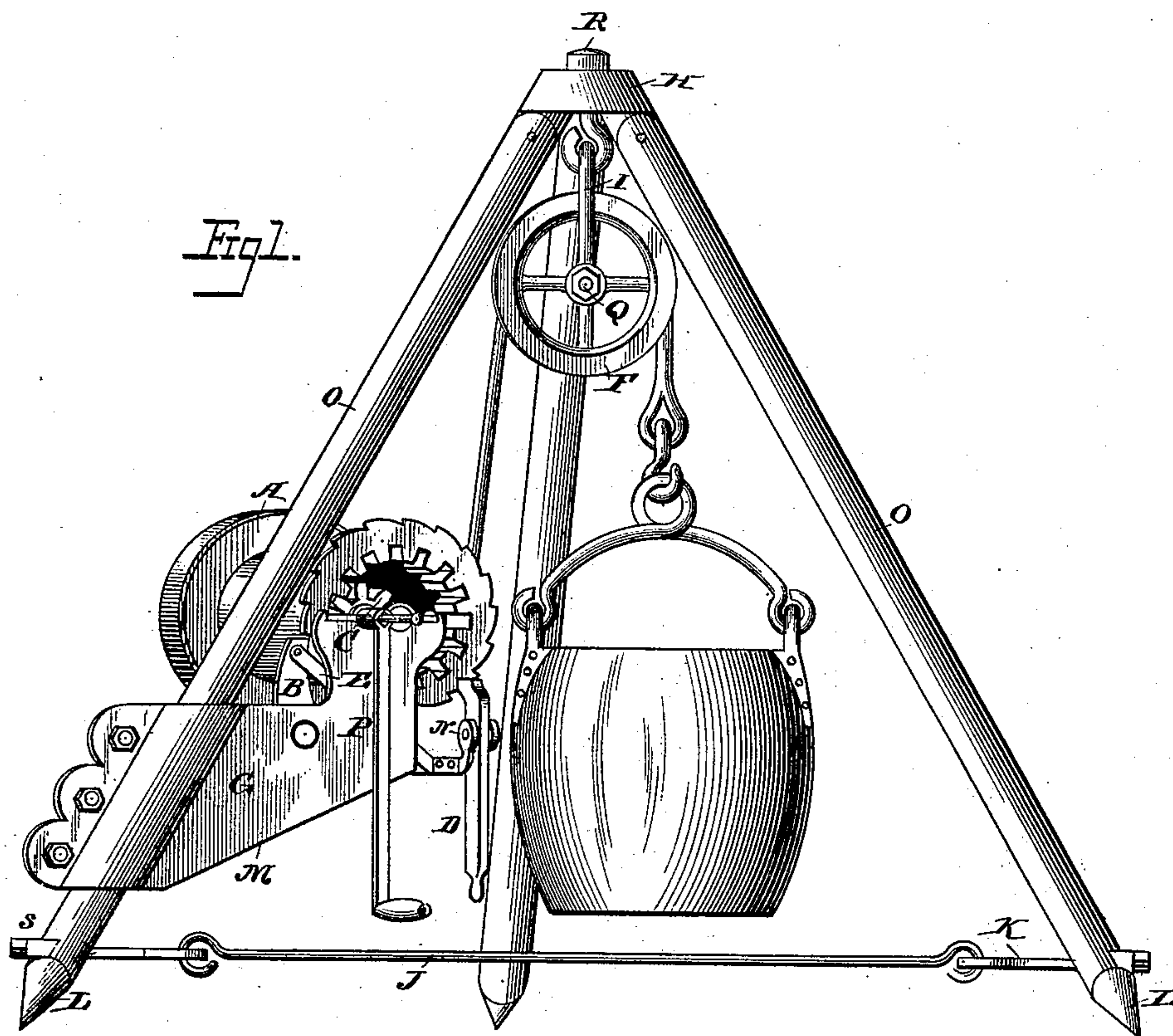
3 Sheets—Sheet 1.

H. S. BAILEY.

MINER'S HOIST.

No. 322,516.

Patented July 21, 1885.



Attests:

J. F. Fayers.

A. C. Linsmann.

Howard S. Bailey

Inventor: by

Foster J. Thuman
attys

(No Model.)

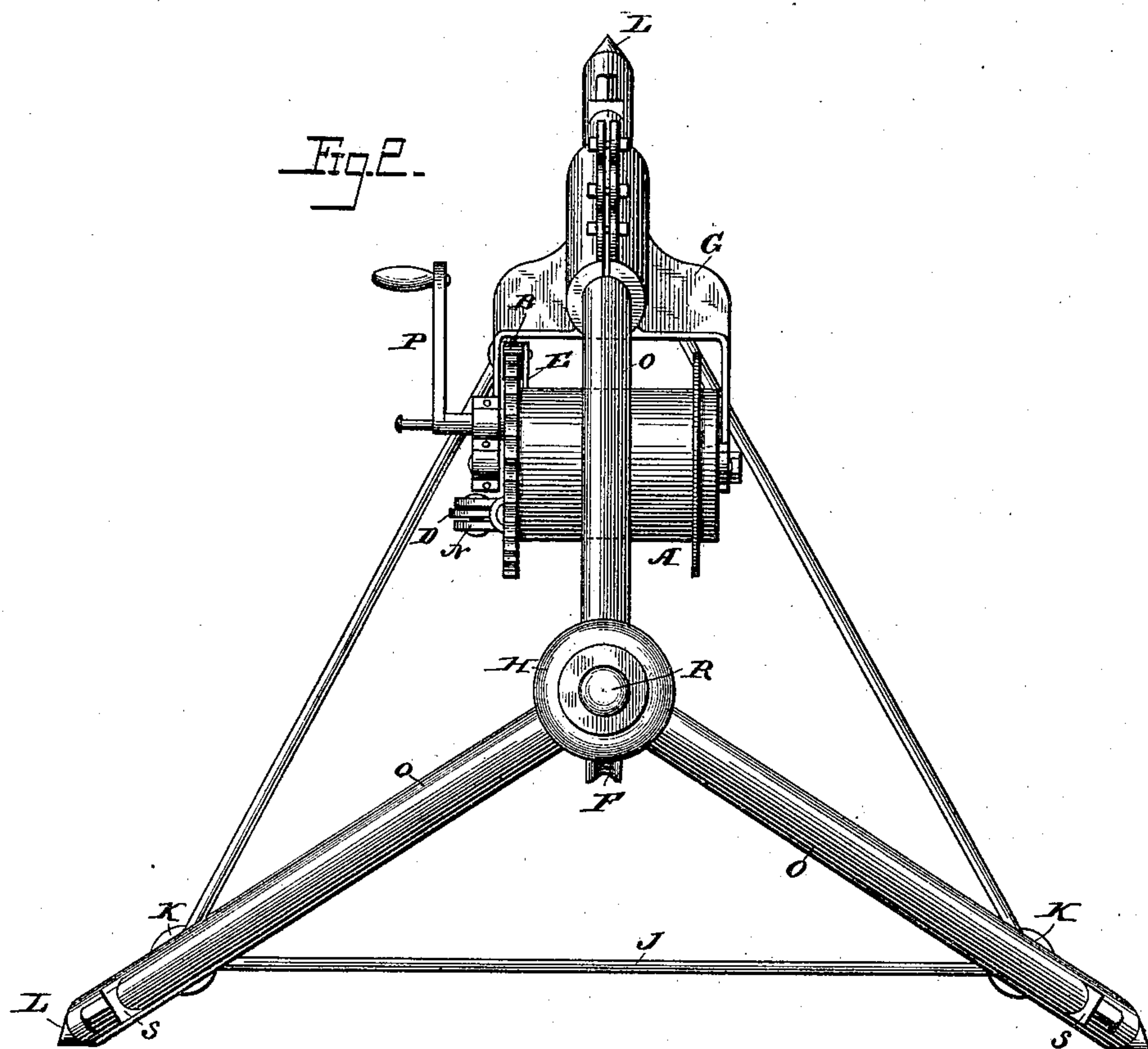
3 Sheets—Sheet 2.

H. S. BAILEY.

MINER'S HOIST.

No. 322,516.

Patented July 21, 1885.



Attests:
J. F. J. J. J.
J. F. J. J. J.

Howard S. Bailey
Inventor: by
J. F. J. J. J.
attys

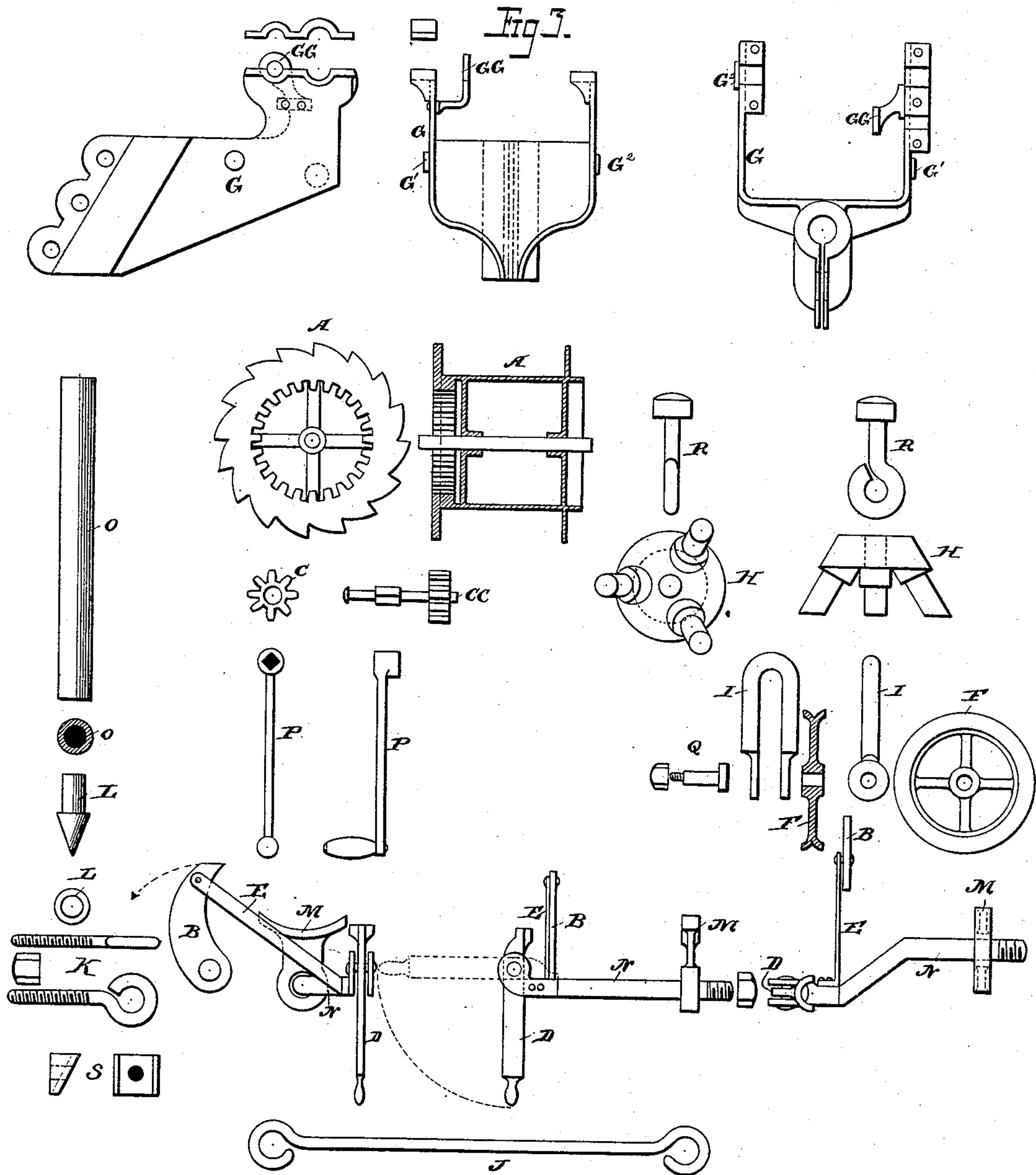
(No Model.)

3 Sheets—Sheet 3.

H. S. BAILEY.
MINER'S HOIST.

No. 322,516.

Patented July 21, 1885.



Attests:

J. F. Jagers.
H. C. Jansmann.

Howard S. Bailey
Inventor: by
Foster & Freeman
attys

UNITED STATES PATENT OFFICE.

HOWARD S. BAILEY, OF DENVER, COLORADO.

MINER'S HOIST.

SPECIFICATION forming part of Letters Patent No. 322,516, dated July 21, 1885.

Application filed February 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, HOWARD S. BAILEY, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Miner's Hoist-Machine, of which the following is a specification.

My invention relates to improvements in miners' hoists operated by hand-power.

10 The object of my improvements are, first, to provide a machine that one man can operate; second, to afford facilities for securing the drum automatically from retraction; third, to provide a brake that must be applied to the
15 drum, thereby controlling the weight before the drum can be released. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

20 Figure 1 represents my invention in elevation; Fig. 2, a plan of the same; Fig. 3, the machine in detail.

Similar letters refer to similar parts throughout the several views.

25 The pipes or casing O, the cap H, its lugs or legs set at an angle governing the spread of the standards relative to the diameter of the shaft over which the machine is to be placed, the lugs extending into the standards and secured there by a bolt passing through
30 them and the standards, the points L, extending into the standards and secured there by the adjusting-rods K passing through them and the standards, the hooked bracing-rods J, the washers S, and the nuts on the rod K,
35 by which the standards are adjusted to bear squarely against the shoulder of the cap H, constitute the frame of the machine.

The drum-frame G surrounds, with the exception of a small space, one of the standards.
40 Two lips extending from the frame G on each side of the space carry bolts that clamp the lips together, securing the frame to the standard. This allows the operator to secure the frame at the height best suited to himself.
45 The wings of the frame G carry boxes with caps in which set the shafts of the drum A and pinion C. The projection GG on the frame G is detachable. It is the bearing of the end CC of the pinion-shaft C. It is secured from
50 the outside of the frame by bolts.

The drum A rests between the wings of frame G, and it is operated by an internal gear

and pinion. The internal gear is a part of the drum. On the circumference of the flange over the internal gear is a ratchet. This
55 flange is made heavy to withstand sudden shocks. The rope is wound upon the drum between the two flanges. The drum is extended beyond the narrow flange, forming a bearing for the brake M. The drum is metal
60 throughout, and is preferably cast upon its shaft.

The pinion C meshes into the internal gear of the drum A. Its square shaft is dressed to fit its bearings. A square place is left on
65 which to apply the crank P. As the pinion is not to be disengaged from the internal gear, I make the end of the pinion-shaft round and of smaller diameter than the square. The crank when placed on this bearing will not
70 revolve with the pinion-shaft.

The pawl B is secured to the frame G at the boss G'. Directly below the ratchet-tooth the point of the pawl engages. If the pawl be
75 moved from the ratchet, the motion will be a downward one, as shown by the arrow in Fig. 3; consequently the pawl may be easily disengaged from the ratchet if the drum be held from slipping by the brake.

The bar E connects the pawl B with the
80 brake-rod N. The brake-rod N passes freely through the frame G at G'. A nut on the end prevents its being withdrawn. The brake M rests loosely on the rod between the frame and the flange of the drum. As the brake is
85 curved to fit the drum, it will keep its place. The rod N if extended from the frame too far would encroach upon the path of the crank P.

As some provision must be made to extend
90 the rod N, so that proper leverage may be obtained to operate the brake and pawl easily, I turn up the end of rod N and form of it a fork. In this fork, pivoted a short distance from its end, hangs the lever D. If the brake is not to be used, the lever is swung up until
95 the short end of the lever bears on the top of the rod N, as represented in Fig. 3 by the dotted lines. The lips on the end of the lever D straddle the rod N, making it more rigid.

The ends of the yoke I are formed into col-
100 lars, representing parallel surfaces, between which the sheave F revolves upon the stud Q, passing through the collars of the yoke. The yoke is prevented from clamping the sheave

by the nut arriving at the shoulder of the bolt before reaching the collar.

The eye-bolt R is formed around the yoke I after passing through the cap H, and the ring is brought close together to avoid any possibility of the yoke jumping from it.

The adjusting-rods K are threaded to the rings formed on their ends, in which the hooks on the ends of the bracing-rods J are placed.

The operation is as follows: A bucket at the bottom of a shaft, filled with rock, is attached to a rope passing over the sheave E and around the drum A. The crank P is placed on the square of the pinion-shaft C, the operator standing facing the shaft. As he turns the crank, the pinion meshing into internal gear of the drum A revolves the drum, winding the rope around it, and raising the bucket. The pawl B rides and drops into the ratchet-teeth as the drum revolves, the weight of the lever D and rods N and E holding it always against the ratchet, thus securing the drum and bucket from back rotation should the crank P be released. As soon as the bucket has reached the sheave F, the operator removes the crank P from the square to the round bearing. Changing his position, he raises the lever D with his left hand, holding it close to his left side. Grasping the bail of the bucket with his right hand, (which, from his position, is not twenty inches from him, requiring no reaching or bending of the body,) and applying pressure enough to the brake with the left hand to hold it from moving, he moves the lever D to the left, by a side movement of the body, enough to disengage the pawl B from the ratchet. Then easing the brake, he lowers the bucket, at the same time drawing it toward him, landing it with ease.

The motion of the body necessary to disengage the pawl from the ratchet does not exceed two inches; and as the pawl is pivoted to move downward when moving away from the ratchet, the slightest pressure will disengage it, if the drum be held, as it must be, to hold the bucket from dropping when the pawl is disengaged. Should the lever be released, the pawl is thrown in the ratchet by the weight of the lever and rods.

The machine is strong, simple, and safe, and can be operated with ease by one man.

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

1. A miner's hand-hoist consisting of standards of pipe or casing vertically inclined toward and meeting together, a cap having legs extended into and secured to the standards,

points entering and extending from the lower ends of standards, adapted to secure them from slipping, and hooked bars embracing ringed threaded rods, passing through the points and standards, having washers and nuts, and operating to adjust the standards to equal strains, all substantially as herein set forth.

2. A miner's hand-hoist consisting of piping or casing for standards vertically inclined and meeting a cap having legs extending into and secured to them, bolt passing through the cap with head resting on the top thereof and its point forming a ring, and a yoke having collars formed on its ends, carrying a stud having upon it between the collars a rope sheave, all substantially as set forth and described.

3. A miner's hand-hoist consisting of vertically-inclined standards meeting a cap extending into and secured to them, with points extending from their lower ends and secured one to the other by adjustable bracing-rods, a frame carrying a drum secured to one of the standards, adapted to wind rope between its flanges, the circumference of one of the flanges being formed into ratchet-teeth, an internal gear on one of the flanges, a pinion secured in the boxes on the frame, operated by a crank on the pinion-shaft, containing a square and round bearing for manipulating the crank, and a sheave upon a stud supported by a yoke held by a bolt passing through and resting upon a cap, all as herein set forth and described.

4. In a miner's hand-hoist, the combination of a drum for winding rope, operated by an internal gear and pinion having ratchet-teeth on the circumference of the flange, over the internal gear therein, a brake resting freely upon a rod passing through it and secured to the drum-frame close to it, a pawl bearing on the ratchet-teeth of the flange and connected with the brake-rod by a rod or bar attached to each, the ends of the brake-rod being turned up and forked, and having between the forks a lever hanging at right angles to the brake-rod, but free to swing until the short end bears on the top of the brake-rod, and operating to lengthen said rod, the weight of the lever holding the pawl against the ratchet on the drum-flange and operating to control the same, substantially as set forth.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

HOWARD S. BAILEY.

Witnesses:

WILLIAM E. SCOTT,
WALTER WILLIAM BALL.