2 Sheets—Sheet 1.

G. H. WOOD

Operating Earth-Augers.

No. 225,453. Patented Mar. 9, 1880.

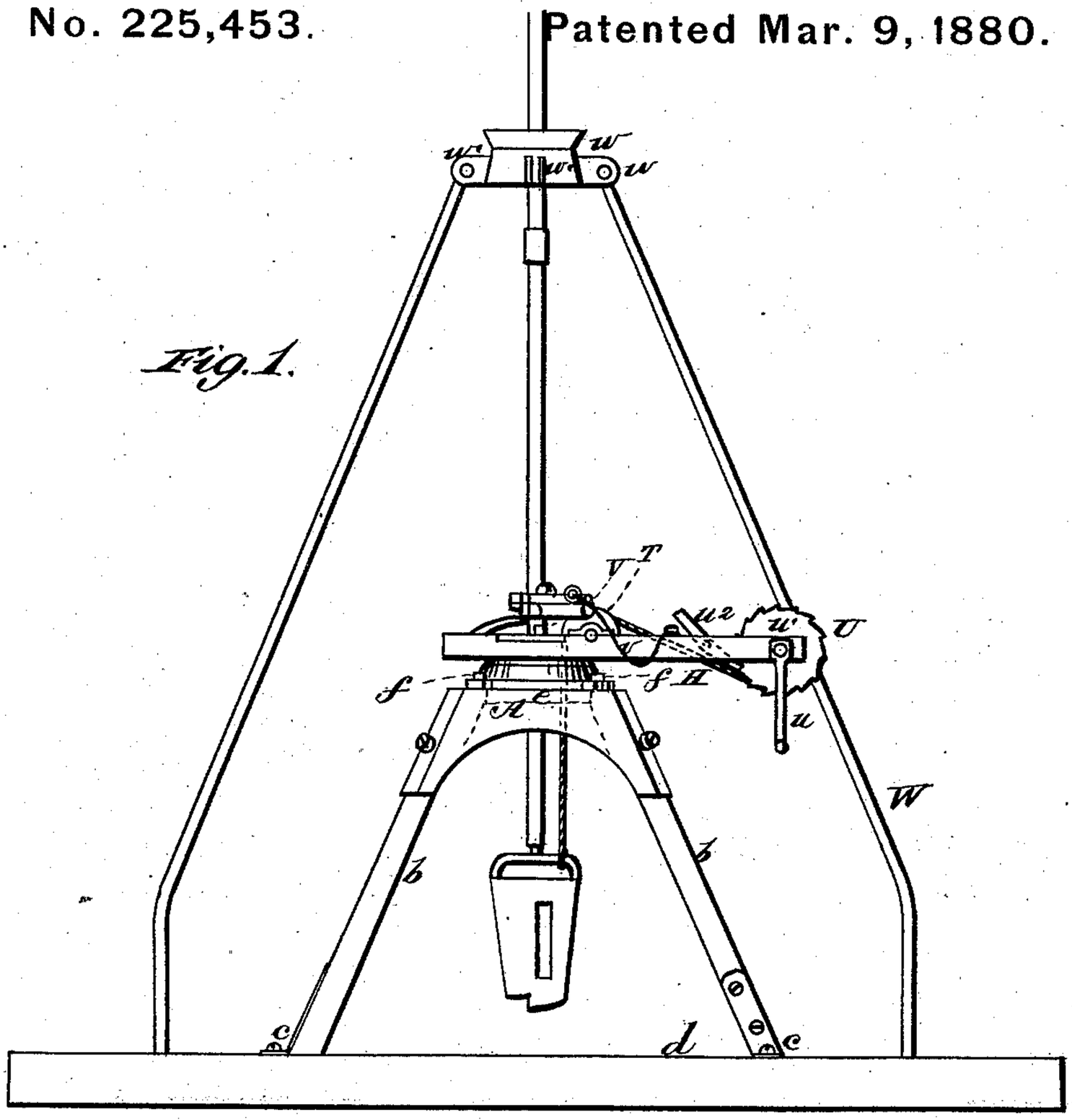

Fig. 1.

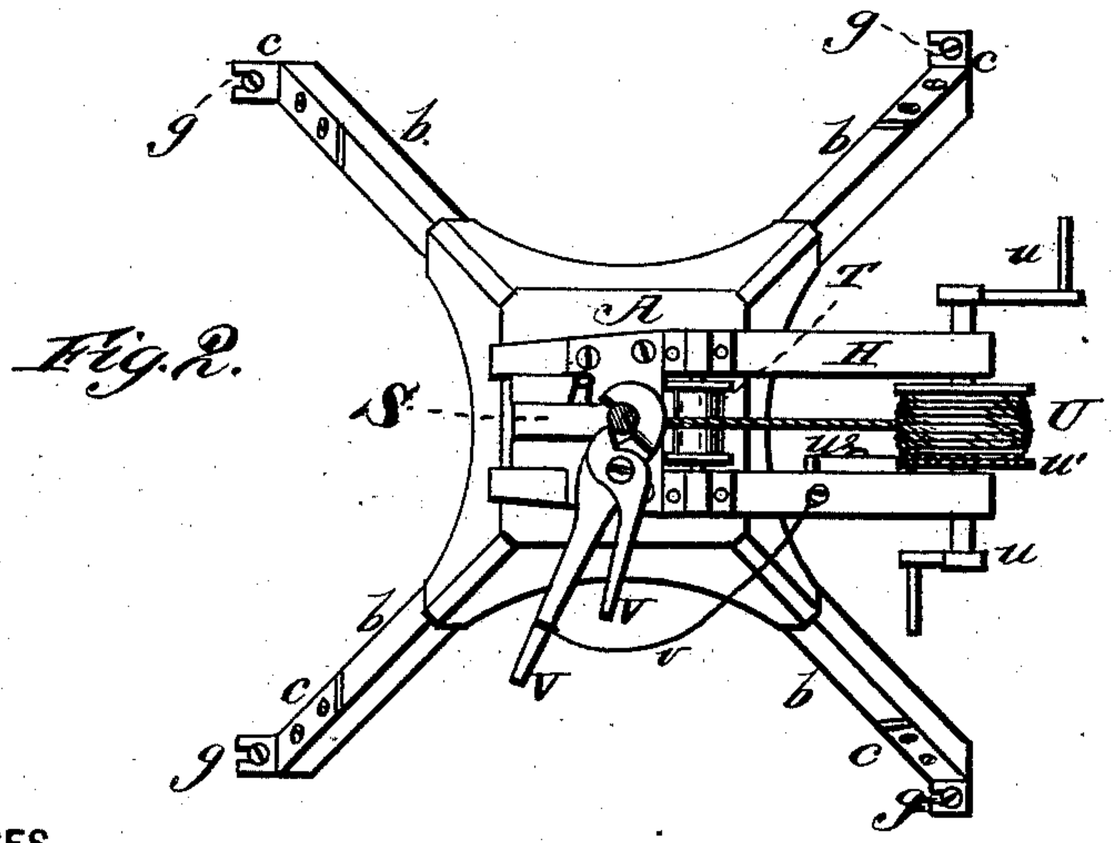

Fig. 2.

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Fig. 3.

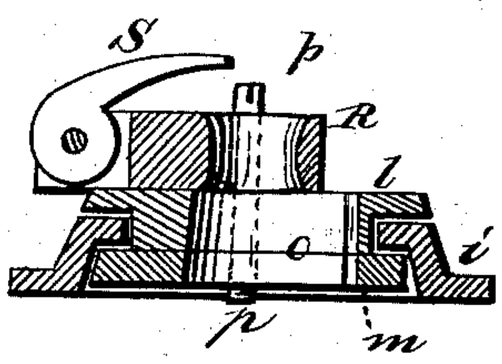


Fig. 4

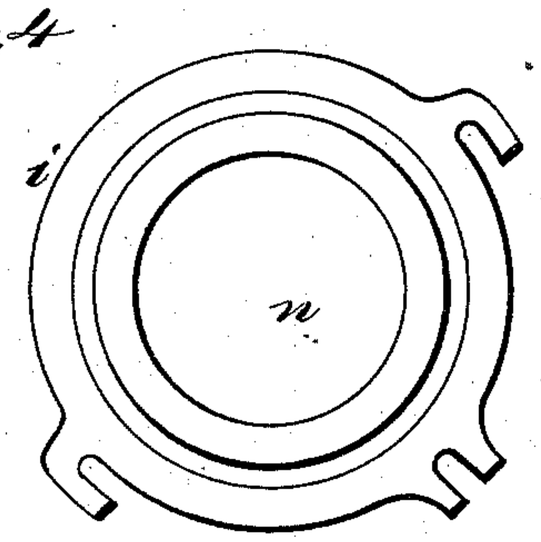


Fig. 5.

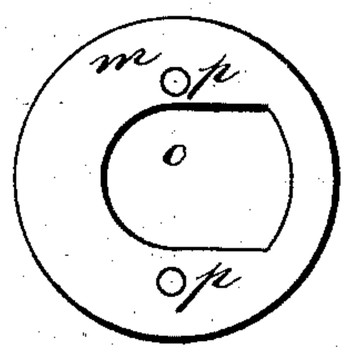
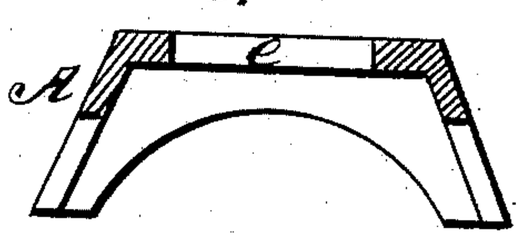


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE H. WOOD, OF GOUVERNEUR, NEW YORK.

OPERATING EARTH-AUGERS.

SPECIFICATION forming part of Letters Patent No. 225,453, dated March 9, 1880.

Application filed September 13, 1879.

To all whom it may concern:

Be it known that I, GEORGE H. WOOD, of Gouverneur, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Machines for Operating Augers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my machine for operating augers. Fig. 2 is a plan view. Fig. 3 is a sectional detail view; and Figs. 4, 5, and 6 are detail views.

This invention relates to machines for lowering, turning, and lifting earth-augers employed in the sinking of wells.

The objects in view are to construct a machine which may be set up and adjusted for work in the least possible time; also, to avoid unnecessary waste of time in either coupling or uncoupling the rods; also, to provide a windlass used in lowering and lifting the auger, which will be kept out of the way while boring, and yet be close at hand and ready to be brought into instant use when wanted; also, when uncoupling is necessary, to provide for the ready use of the appliances for such purpose; also, to provide an absolute safeguard against any damage arising from the breaking of the rope or other part of the lifting appliances while lifting the auger.

My improvement essentially consists, first, in the construction and arrangement of the supporting-frame and the modes of attaching the same to the ground-support or bed; secondly, in a windlass adapted to rotate horizontally around the axis of the boring-rod; thirdly, in the horizontally-rotating frame on which the windlass is mounted; lastly, in certain other improvements, all of which will be hereinafter more fully described, and particularly pointed out in the claims.

In the drawings, A designates a cast-metal cap upon legs *b*, and *c* the metal plates or feet by means of which the legs are secured to the ground-support or bed *d*. The cap A is formed with a central opening, *e*, and provided with three upwardly-projecting screws or bolts, *f*. Each one of the legs *b* is secured to a corner of the cap by a bolt, thereby forming a strong and simple frame which may be easily put together or taken apart.

The angle-plates *c*, which constitute the feet of the legs *b*, are slotted, as at *g*, and as herein shown these slots all point in the same direction. In securing the frame in position the slotted ends of the angle-plates *c* are slipped under the heads of screws or bolts which are set in the bed or ground-support, and then by simply tightening the said bolts or screws a firm attachment is obtained. By loosening the screws the whole machine may be at once removed, as will be required when the casing for the well is to be lowered.

H designates the windlass-frame, which is composed either of wood or iron, or both, as desired. On the under side and near one end of the windlass-frame are the appliances for admitting of its horizontal rotary movement. These consist of a cap, *i*, and the disks *l m*, constructed and arranged as follows: The cast-metal cap *i* is formed with a central opening, *n*, and with slotted projections, in which the slots are all formed in parallel lines. This cap *i* is adjusted upon the cap A of the frame by passing its slotted projections under the heads of the screws *f*. The disks or collars *l m* are formed with the openings *o*, and are placed the one above and the other below the cap *i*, and then bolted firmly together and to the cap A by means of the long bolts *p*. These bolts *p* also pass through the windlass-frame which rests upon the upper disk, *l*, whereby the said frame and disk *l* may be rotated upon the stationary cap *i*, and at the same time be securely maintained thereon by means of the bolts *p* and disk *m*, arranged below the cap and adapted to move with the said upper disk, and also serve the purpose of a nut and washer.

R is a metal guide-piece firmly secured to the frame H and centered directly over the cap *i*. The opening through this guide-piece is enlarged at both ends, and is of sufficient size to admit of the free passage of the boring-rods and their couplings.

S is a friction-pawl attached to one side of the guide-piece R, and arranged to be turned

over against the rod when lifting the auger, its object being to keep the rod up and prevent damage in case of the breaking of the rope or windlass, or to hold the rod and auger in position while coupling or uncoupling the rods or changing the auger.

T is a pulley mounted in the frame H as near as practicable, to the guide-piece R. The rope passes from the windlass U over this pulley, and thence, through the cap *i* and disks or collars *l m*, down alongside of the rods to the auger, where it is fastened.

U designates the windlass, having double cranks *u u*, and arranged with its bearings near the outer end of frame H. The windlass is provided with a ratchet, *u'*, and the frame with a pawl, u^2, the same being used while lifting the auger.

V V are the levers of a pipe-wrench used for turning the rod and auger. This wrench is connected with frame H by means of a strap, cord, or chain, *v*, in such manner that the said levers, when turning the auger, shall be at about right angles with the frame and draw it around with them, causing it to make a complete horizontal rotation at each turn of the auger. thus preventing all twisting of the rope around the rods, for, as the windlass rotates with the turning of the auger and its rods, the rope will be kept in a line parallel with the rods.

W designates the legs of a tripod, and *w* the tripod-head. As the principal or only use of this tripod is to guide and steady the rods above the machine, the legs may be made of any desired length and of any suitable material. The head *w* is formed with an opening, wide and flaring at the bottom and slightly flaring at the top, so as to permit the rod to enter readily at the bottom and to allow the easy passage of the couplings up or down. This opening through the tripod-head is oblong, so that several rods already uncoupled may stand with their upper ends in the opening while the rods still attached to the auger are passed up or down through the head. The head *w* is provided with flanges *w'* and secured to the legs by bolts or screws passed through the same.

In practice the tripod will be placed so that the oblong opening will have its longest sides in line with the direction of the wind and the leeward end thereof directly over the opening in the guide-piece of the windlass-frame.

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

1. In a well-boring machine, the frame or stand which supports the windlass, composed essentially of the cap A, legs *b*, and the slotted feet or angle-plates *g*, having the slots all formed in parallel lines, substantially as shown and set forth.

2. The windlass-frame H, adapted to rotate horizontally upon the cap or plate A and around the axis of the rod, substantially as shown and set forth.

3. The combination of the windlass, rotary frame H, cap *i*, disks *l m*, and the cap or plate A, all constructed and adapted for operation substantially as herein specified.

4. A pipe-wrench connected with the rotary windlass-frame H by a flexible cord, strap, or chain *v*, so that when the wrench is turned the frame will also be rotated and the twisting of the cord or rope from the windlass to the auger prevented, as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE H. WOOD.

Witnesses:
GEO. B. WINSLOW,
F. H. SMITH.