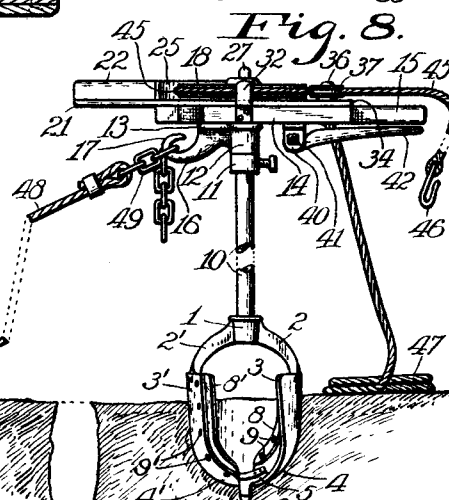
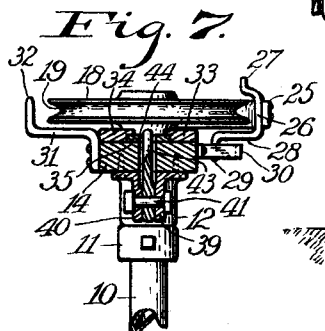
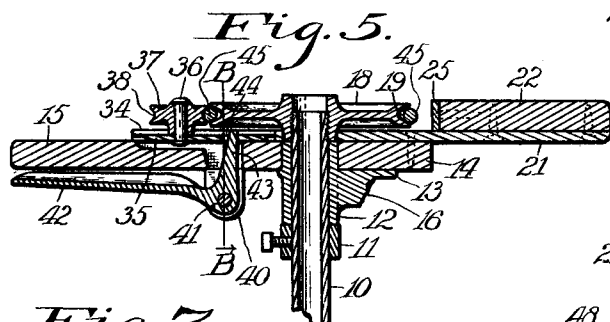
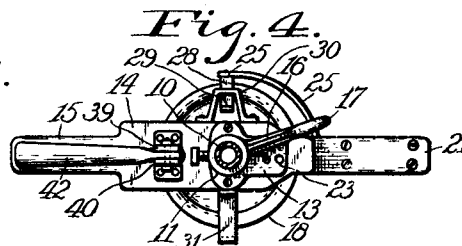
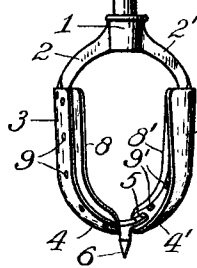
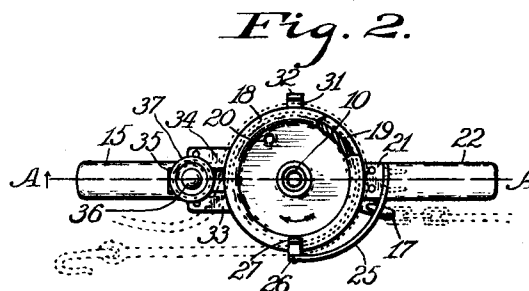
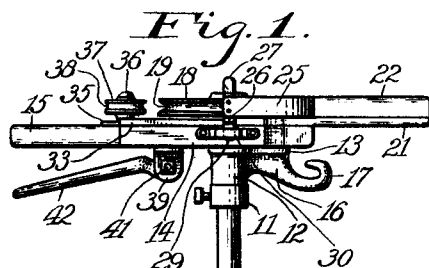


H. F. HOLTMAN.
HORSE POWER POST HOLE AUGER.
APPLICATION FILED MAY 22, 1912.

1,051,331.

Patented Jan. 21, 1913.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY F. HOLTMAN, OF INDIANAPOLIS, INDIANA.

HORSE-POWER POST-HOLE AUGER.

1,051,331.

Specification of Letters Patent.

Patented Jan. 21, 1913.

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To all whom it may concern:

Be it known that I, HENRY F. HOLTMAN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Horse-Power Post-Hole Auger, of which the following is a specification, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to apparatus for boring holes in the ground in which to place fence-posts or poles to support wires or for other purposes, the invention having reference more particularly to means whereby the boring operations may be accomplished either by horse-power or by hand-power.

An object of the invention is to provide an improved machine for boring post-holes that shall be so constructed as to be simple, of light weight and effective and which may be cheaply manufactured.

Another object is to provide a powerful machine for boring post-holes that shall be so constructed as to be adapted for hand operation if desired and which may be adapted for boring either in wet or damp ground or in dry or sandy ground, and which shall be durable and economical in use.

With the above mentioned and other objects in view, the invention consists in a boring implement, a frame for handling and guiding the implement and means for actuating the implement, all of novel construction; the invention consisting further in the parts and combinations and arrangements of parts as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a side elevation of the improved post-hole borer; Fig. 2, a top plan of the machine; Fig. 3, an end view of the auger or boring implement; Fig. 4, a horizontal section through the shaft of the auger looking upward; Fig. 5, a section on the plane of the line A A in Fig. 2; Fig. 6, a fragmentary section near the line A A looking in the opposite direction from that of the preceding figure; Fig. 7, a sectional elevation on the line B B in Fig. 5, and Fig. 8, a side elevation of the machine complete with attachments thereof.

Similar reference characters in the different figures of the drawings indicate corresponding elements or features of construction herein referred to.

The auger proper may be variously constructed in detail and preferably comprises a socket 1 from which extend two arms 2 and 2' to which are secured two curved boring blades 3 and 3', respectively, that are sufficiently narrow to carry the borings from the hole when the earth is damp or holds well together, the blades having inwardly curved end portions 4 and 4' respectively adapted to bore into the earth, the end portions being secured to a connecting plate 5 provided with a centering point 6. The rearward edge portions of the blades have bolt holes 7 and 7' therein respectively, and extension blade sections 8 and 8' are detachably secured to said edge portions by means of bolts 9 and 9' respectively secured in said bolt holes.

A shaft 10 of suitable length is fixedly secured to the socket 1 and preferably is composed of a piece of pipe screwed into the socket. The shaft is provided with a collar 11 at a suitable distance from the normally upper end thereof, the end portion being rotatably mounted in a journal box 12 which is provided and constitutes a part of a controlling head or frame. The journal box has an external flange 13 between its end portions and a frame member 14 preferably composed of wood is secured to the flange and receives the upper end portion of the journal box, said frame member having a handle 15 formed on one end thereof. A coupling device is carried by the controlling head and preferably comprises a shank 16 cast integrally with the journal box 12 and its flange, the shank having a hook 17 thereon. A driving wheel 18 is suitably secured to the upper end of the shaft 10, the wheel preferably being screwed onto the shaft and it has a peripheral V-shaped groove 19 therein. The wheel has a pin hole 20 in its web portion to receive a locking pin.

A frame plate 21 is secured to the normally upper side of the frame member 14 and extends beyond one end of the member and has a handle member 22 preferably composed of wood, secured to its upper side so as to constitute a handle that is offset upward away from the hook 17. The member 14 has a pin hole 23 therein located so as to receive a locking pin 24 inserted through the pin hole 20 for locking the driving wheel to the controlling head when it is desired to turn the auger by hand. A curved plate spring 25 is secured at one end to the

inner end of the handle member 22 and it extends partially about the driving wheel, the free end of the spring having a guide plate 26 thereon that is supported opposite the groove 19 for normally retaining a rope in the groove, the guide plate having an upwardly extending finger 27 thereon. The lower portion of the guide plate 26 has an arm 28 thereon extending inwardly toward the member 14 and has a finger 29 thereon that extends downwardly into a loop 30 secured to the member 14 and constituting a safety stop to prevent accidental fracture of the spring when drawn outward from the wheel. The guide plate 26 is located at one side of the axis of the shaft 10, and at the opposite side of the axis a bracket 31 is secured to the member 14 and has an upturned guard finger 32 thereon that extends opposite the groove 19 at a suitable distance from the periphery of the wheel 18, to prevent a rope when in the groove from accidentally falling out of the groove.

The upper side or top of the member 14 is provided with two guides 33 and 34 between which a slide 35 is movably mounted, the slide being composed of metal and provided with an axle stud 36 on which a roller 37 having a peripheral groove 38 is rotatably mounted so as to be opposite to the groove 19 a suitable distance from the periphery of the wheel 18. The under side of the member 14 is provided with a pair of ears 39 and 40 which support a pivot 41 to which is connected an operating lever 42 having an arm 43 thereon that extends through a suitable aperture in the member 14 and into an aperture 44 formed in the slide whereby to force the roller 37 toward the driving wheel, the handle portion of the lever 42 falling away by the force of gravity from the handle 15 for retracting the roller.

A suitable cable or rope 45, preferably composed of hemp, is provided for actuating the driving wheel, one end of the cable or rope being provided with a draft hook 46 to which a horse may be hitched. When the machine is in operation or ready for use the cable or rope is placed between the driving wheel 18 and the roller 37 and extends partially around the wheel in the groove, the guide plate 26 being moved outward by hand while placing the rope over the wheel. The hook 46 is arranged near the guide plate 26 before starting operations and the remaining portion of the cable or rope may be formed into a coil 47 on the ground in proximity to the machine. A suitable cable 48, preferably composed of wire is provided and a chain 49 is connected to one end thereof, an anchor post 50 being connected to the opposite end of the cable and provided with a handle 51. A link of the chain 49 is connected to the hook 17 when the machine is in operation,

for resisting the tendency of the pulling strain on the cable 45 to draw the auger out of perpendicular position, and also for preventing the controlling head from turning with the shaft 10.

In practical use the cable or rope 45 is first placed in position somewhat as illustrated in Fig. 8 and by broken lines in Fig. 2, and while a draft animal, or a number of persons if desired pulls on the cable or rope 45 so as to turn the driving wheel 18, the attendant, with his hands on the handle portions 15 and 22 holds the shaft 10 in upright or other desired position, one hand grasping the lever 42 and forcing the roller 37 toward the driving wheel for holding the rope closely in the groove 19, for the purpose of preventing slipping of the rope in the groove. The cable 48 is temporarily anchored in any suitable manner while the first one of a series of holes is bored, and afterward the anchor post 50 is placed in a hole while another hole is being bored, the cable 48 being of suitable length to space the machine at the required distance from the anchor post to establish the proper position for the next adjacent post hole, and the cable 48 may be lengthened or shortened by means of the links of the chain 49, as may be desired. During operations the horse may be stopped while the attendant lifts the earth from the hole. When the cable 45 is drawn out its full length and a deeper hole is required the attendant draws the roller 37 away from the rope, and while the horse is backed toward the machine the rope is simply pulled back in sliding contact with the driving wheel, and the boring may then be continued as before. After completing a hole the rope 45 may be quickly lifted entirely away from the driving wheel 18 and carried back to the machine and then again connected with the wheel as before, or the horse may remain where stopped and the attendant may throw off the rope and permit it to remain on the ground while he carries the machine toward the horse to the next position for boring.

When the earth is dry and crumbles or is sandy the extensions 8 and 8' are applied to the auger but are removed when the earth is inclined to be sticky or is heavy.

Having thus described the invention, what is claimed as new is:—

1. A post-hole boring machine including a controlling head having a pin-hole therein, a shaft rotatably mounted in the head, an auger secured to the shaft, a driving wheel for the shaft having a pin-hole therein, and a locking-pin removably inserted in the pin-holes.

2. A post-hole boring machine including a boring auger having an operating-shaft provided with a grooved driving wheel, a controlling head mounted on the operating-

shaft, and a roller movably mounted on the head adjacent to and opposite to the groove of the wheel.

3. A portable boring machine including
5 a controlling head having a controlling handle thereon, a shaft rotatably mounted in the head, a boring implement secured to the shaft, a grooved wheel secured to the shaft, a driving rope, and a guide supported by
10 the head opposite to the groove of the wheel for guiding the rope in the groove.

4. A post-hole boring machine including a boring auger, a controlling head having an axle stud movably mounted thereon, a
15 roller rotatably mounted on the stud, a shaft secured to the auger and rotatably mounted in the head and having a grooved driving wheel secured thereto, and means for forcing the axle stud toward the groove of the
20 driving wheel.

5. A post-hole boring machine including a controlling head having two handles and also a hook thereon, a shaft rotatably mounted in the head, an auger secured to
25 the shaft, a driving wheel secured to the shaft and having a peripheral V-shaped groove, a slide movably mounted on the head and having an axle stud thereon in proximity to the groove, a grooved roller
30 rotatable on the stud, a lever pivoted to the head and having an arm connected with the slide for moving the roller toward or from the groove, a spring secured to the head and extending partially about the
35 wheel, a guide plate secured to the spring opposite the groove and having two fingers thereon, a stop secured to the head to be engaged by one of the fingers, a guard supported by the head opposite the groove, a
40 rope extending partially about the wheel in the groove and between the wheel and the roller and also the guide plate, the rope extending also between the wheel and the

guard, and a cable connected to the hook and having an anchor post connected 45 thereto.

6. In a boring machine, the combination with a boring implement having an operating shaft, and a controlling head rotatably mounted on the shaft and having handles 50 thereon, of a driving wheel secured to the shaft adjacent the head and having a peripheral groove therein, means for temporarily locking the driving wheel to the head, a driving rope, and means mounted on the 55 head for temporarily holding the rope in the groove of the wheel.

7. In a boring machine, the combination with a boring implement having an operating shaft, and a controlling head rotatably 60 mounted on the shaft, of a driving wheel secured to the shaft adjacent the head and having a groove in the periphery thereof, a slide movably mounted on the head and having an axle stud thereon in proximity 65 to the groove, a roller rotatable on the stud, and a lever pivoted to the head and having an arm connected with the slide for moving the roller toward or from the groove.

8. In a boring machine, the combination 70 with a boring implement having an operating shaft, and a controlling head rotatably mounted on the shaft, of a driving wheel secured to the shaft adjacent the head and having a groove in the periphery thereof, a 75 driving rope, and a device mounted on the head and yieldingly arranged opposite the groove for guiding and holding the rope in the groove.

In testimony whereof, I affix my signature 80 in presence of two witnesses.

HENRY F. HOLTMAN.

Witnesses:

E. T. SILVIUS,
J. H. GARDNER.