No. 691,629.

Patented Jan. 21, 1902.

F. HOLBROOK.

BORING APPARATUS.

(Application filed Dec. 14, 1900.)

(No Model.)

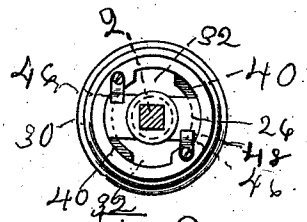
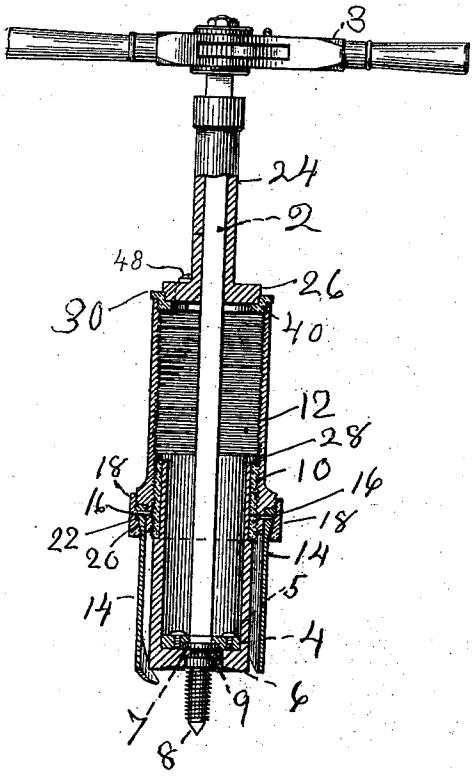


Fig. 1.

Fig. 2.

Fig. 3.



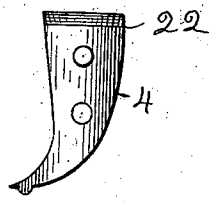
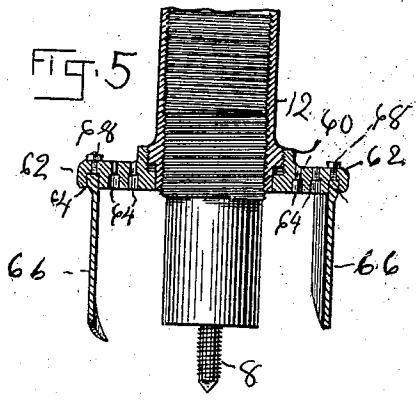


Fig. 4.



Fig. 5.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK HOLBROOK, OF LYNN, MASSACHUSETTS, ASSIGNOR TO NEW ENGLAND FIRE SUPPLY COMPANY, A COPARTNERSHIP COMPOSED OF HIMSELF AND ROBERT E. BUSS, OF LYNN, MASSACHUSETTS.

BORING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 691,629, dated January 21, 1902.

Application filed December 14, 1900. Serial No. 39,887. (No model.)

To all whom it may concern:

Be it known that I, FRANK HOLBROOK, of Lynn, county of Essex, and Commonwealth of Massachusetts, have invented certain Improvements in Boring Apparatus, of which the following, read in connection with the accompanying drawings, is a specification.

The machine herein represented, Figures 1, 2, 3, and 4, and first described is designed specifically for use as an item in ordinary "fire apparatus" and is useful for rapidly boring holes through floors of burning buildings where openings are desirable in order to relieve said floors from flooding with water.

The accompanying drawings are made on a scale of one-quarter of the full working size of said machine.

Fig. 1 is an elevation of a central longitudinal section. Fig. 2 is a sectional plan of the apparatus with handle removed. Fig. 3 is a side elevation, and Fig. 4 is a bottom plan, of one of the cutters.. Fig. 5 is an elevation of a section, showing a modified form of the apparatus.

As shown, said apparatus comprises a shaft 2, on which turns the handle 3. In this connection is employed ratchet-and-pawl mechanism of ordinary construction which permits free movement of the handle 3 in one direction, but interlocks it with said shaft 2 when reversely moved, all this in the usual and well-known manner.

Loose on the shaft 2 and detachably fixed by screws 5 to the part 6 is a collar 4, which, bearing on the head end 7 of said shaft 2, holds said shaft in bearing with part 6 and allows it to be turned freely. Part 6 carries a worm 8, which is held thereto and interlocked therewith by screw 9. Said part 6 carries an integral or fixed band 10 in screw-threaded engagement with part 12. The cutters 14 are detachably secured by pin 16 to the part 12 and are further clamped in position by the collar 18. To this end said collar 18 has screw-threaded engagement with part 12 and has a beveled face 20, opposed to the beveled face 22 on said cutters.

A sleeve 24, arranged for endwise movement on shaft 2, has the cross-bar 26 formed on its bottom end, which is adapted for entering recesses 28 in part 6, whereby said part 6 may be interlocked for movement rotatively with said shaft 2.

Secured on the part 12 is a cap 30, having central opening and notches 32, whereby to allow passage for said cross-bar 26. On the cover 30 also are inwardly-projecting ledges 40, on which the cross-bar 26 may be rested in bearing with stop projections 46 on cap 30, whereby to interlock and cause the part 12 to move rotatively with said shaft 2.

In operating this machine sleeve 24 is first depressed for placing cross-bar 26 in recesses 28 of part 6, whereby said part 6 is interlocked with shaft 2. Handle 3 is then moved for turning part 6, and consequently entering the worm 8 into engagement with the work or object to be cut. This engaging of worm 8 in the work having been completed, sleeve 24 is lifted to an altitude above cap 30, and shaft 2 being turned sufficiently to permit it said sleeve is rested with cross-bar 26 on ledges 40 in bearing with stop projections 46 and directly under straps 48, (see Fig. 2,) where it operates for interlocking part 12 and shaft 2. Handle 3 may then be operated for turning part 2, and with it part 12, whereby cutters 6 are made to cut the work and will be simultaneously fed to the work by reason of the screw-threaded connections between part 12 and said part 6.

In Fig. 5 is represented a modification of this invention wherein a collar 60 is applied to the part 12, which collar has radially-extending arms 62, with sockets 64, in which are seated the cutters 66. Said cutters being clamped in place by nuts 68 admit of being shifted and secured at different times in the different sockets 64. In this manner the cutters may be adjusted for cutting at different distances from the center conformably to the diameter of hole it is found desirable to make in the intended work.

I claim—

1. In a boring apparatus, the combination with a worm suitably secured thereto, of a cutter carried independently of the worm, and adjustable means for actuating either

the worm or the cutter independently of one another.

2. A boring apparatus comprising a worm, a cutter carried independently of the worm, adjustable means for actuating either the worm or the cutter independently and means for feeding the cutter to or from the work independently of the worm.

3. A machine of the character indicated comprising a worm, a member carrying the worm, a cutter, a member for carrying the cutter, this latter member separately movable, a handle and connections for interlocking it with each of the members at different times.

4. A machine of the character described comprising a member, a worm carried by the member, and engaging the work, a cutter, a second member carrying the cutter, the members independently movable of one another, means for feeding the cutter to the work independently of the worm and a single means operated by the workman for engaging either member to operate it independently of the other.

5. A machine of the character indicated comprising a work-engaging device, a member carrying the device, a cutter, a member carrying the cutter, the latter member operative independently of the first-named member, a single means for engaging either of the members and means for feeding the cutter-carrying member to or from the work.

6. A machine of the character indicated comprising a worm and worm-carrying member, a cutter and a member for carrying the cutter, the members operative independently of one another, a single means for engaging either member alone and a screw-threaded connection between the two members whereby the cutter is fed progressively to the work independently of the worm which remains stationary.

7. A machine of the character indicated comprising a worm and worm-carrying member to be moved for engaging the work, a cutter and cutter-carrying member to be moved independently of the worm-carrying member, for cutting the work, a revoluble shaft supported in the worm-carrying member, connections for interlocking the shaft with either of the members and means for rotating the shaft.

8. A machine of the character indicated comprising worm and worm-carrying members for engaging the work, cutter and cutter-carrying member, the latter operative independently of the worm and worm-carrying member for cutting the work, a single means for actuating the members independently of one another and means whereby to feed the cutters progressively to the work.

9. A machine of the character indicated comprising a worm, and worm-carrying member for engaging the work, a cutter and cutter-carrying member for cutting the work, the members being in screw-threaded connection and telescoping one into the other, and a single means for engaging and operating either member independently of the other.

10. A machine of the character indicated comprising a worm and worm-carrying member, for engaging the work, a cutter and cutter-carrying member for cutting the work, the cutter member operative independently of the worm-carrying member, a single means for actuating either member independently of the other and means for varying the circumference of cut described by the cutter.

11. In a boring apparatus, the combination with two telescopic members, one of which carries a worm and the other of which carries a cutter, one member being entirely receivable in the other, of an independent screw for rigidly and removably fastening the worm to the worm-carrying member, and means for rigidly and removably fastening the cutter to the cutter-carrying member, the members operative independently of each other and means for feeding the cutter to the work progressively.

12. In a boring apparatus, the combination with two telescopic members, one of which carries a worm and the other of which carries a cutter, of means for rigidly and removably securing the worm to the worm-carrying member, the cutter having a beveled face, a pin detachably securing the cutter to the cutter-carrying member, and a collar on the cutter-carrying member having a beveled face which engages the oppositely-beveled face of the cutter to clamp it rigidly in place.

13. In a boring apparatus, the combination with two members, one member carrying a cutter and the other member carrying a work-engaging device, the cutter and work-engaging device each detachably secured to their respective members, a shaft revolubly secured to one of the members, a sleeve movable endwise on the shaft, and means on each member engaged by the sleeve whereby either member may be operated independently of the other.

14. In a boring apparatus, the combination with two members, one of which carries a cutter and the other of which carries a worm secured thereto, of a shaft revolubly secured to the worm-carrying member, a sleeve capable of endwise movement on the shaft, means on the members engaged by the sleeve at different times whereby either member may be operated independently of the other, straps on one of the members whereby to removably secure the sleeve rigidly in place, and a handle on the shaft, the handle provided with a ratchet for continuously or intermittently revolving the shaft.

15. In a boring apparatus, the combination with two members, actuated independently of one another, of a shaft, a head formed on one end of the shaft and a recessed collar fitting over the head of the shaft and secured to one of the members whereby the shaft is removably and rotatively held to the member.

16. In a boring apparatus, the combination with a worm suitably secured thereto, of a cutter carried independently of the worm, and a single means for actuating either the worm or the cutter independently of one another.

17. A boring-machine comprising a plurality of members, one of which is telescopically received and contained in the other, and a single operating means which engages either member independently of the other for actuating them.

18. A boring-machine comprising two members, one of which is telescopically received and contained within the other, one member carrying a worm by which the device may be held to the material to be operated upon, the other member carrying a cutter member, and a single operating means connected to the machine and adapted to actuate either member independently of the other.

Signed by me at Lynn, Massachusetts, this 10th day of November, 1900.

FRANK HOLBROOK.

Witnesses:
C. B. TUTTLE,
A. M. TUTTLE.