

(No Model.)

M. M. OLM.
HAND DRILL.

No. 509,938.

Patented Dec. 5, 1893.

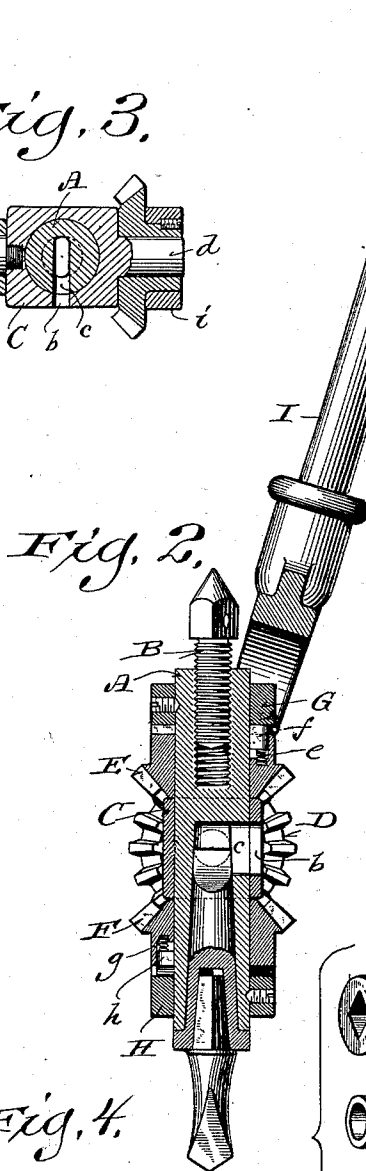
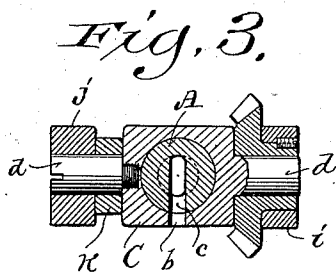
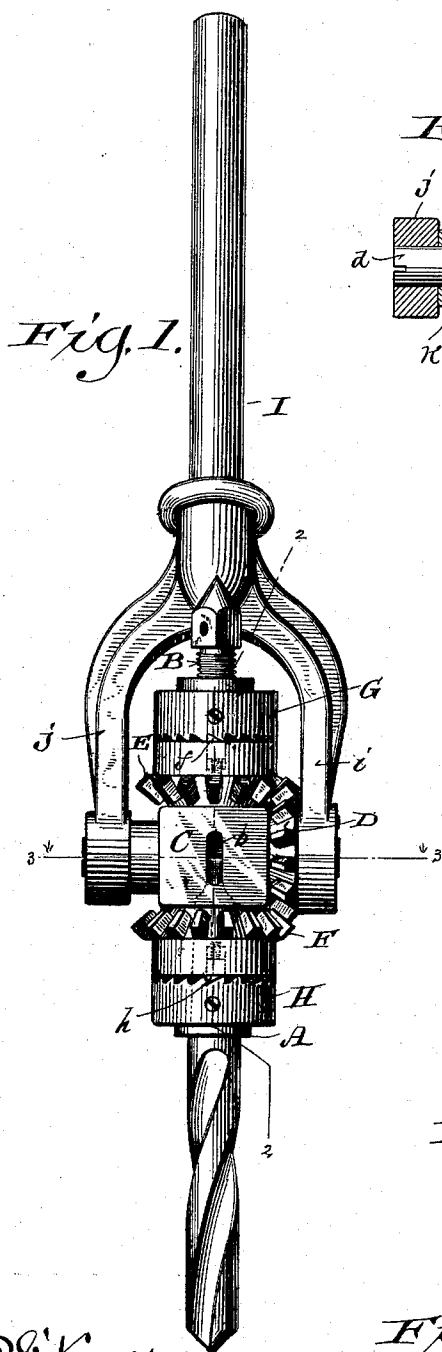


Fig. 4.



Fig. 5.

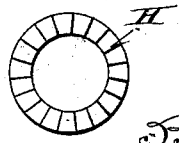
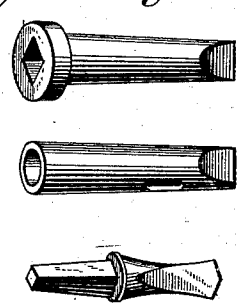


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

MAX M. OLM, OF FOND DU LAC, WISCONSIN, ASSIGNOR OF ONE-HALF TO
CHARLES F. OLM, OF SAME PLACE.

HAND-DRILL.

SPECIFICATION forming part of Letters Patent No. 509,938, dated December 5, 1893.

Application filed June 3, 1893. Serial No. 476,482. (No model.)

To all whom it may concern:

Be it known that I, MAX M. OLM, a citizen of the United States, and a resident of Fond du Lac, in the county of Fond du Lac, and in the State of Wisconsin, have invented certain new and useful Improvements in Hand-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a ratchet-drill having a universal hand-lever and a continuously rotative tool-spindle, said invention consisting in certain peculiarities of construction and combination of parts hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents an elevation of a hand-lever ratchet-drill constructed according to my invention, and Figs. 2 and 3, sectional views of the same respectively taken on lines 2—2 and 3—3 of the preceding figure. Fig. 4 represents a plan view of a portion of a miter-wheel forming part of the drill; Fig. 5, a plan view of a ratchet-collar that also forms part of said drill, and Fig. 6, a series of interchangeable parts pertaining to the aforesaid drill.

Referring by letter to the drawings, A represents a tool-spindle, such as is common to ordinary ratchet-drills and so well known as not to need specific description, this spindle being provided with the usual pressure screw B and adapted to have a locking engagement with drill shanks or reducers for such shanks; a long drill being shown in Fig. 1, a stub-drill and reducer for its shank in Fig. 2, and this latter drill, its reducer and another reducer are collectively shown in detail by Fig. 6.

Loose on the tool spindle is a block C having a vertical slot *b* that is brought into register with a similar slot *c* in said spindle when it is desirable to dislodge a drill or reducer for the same. The block C is provided with lateral trunnions *d* one of which has a toothed miter-wheel D loose thereon, and this miter-wheel meshes with corresponding wheels E, F, loose on the tool-spindle A at opposite sides of said block.

A spring *e* is seated in the miter-wheel E

under tension of a clutch pawl *f* engaging a ratchet-collar G fast on the tool-spindle A, and a similar spring *g* and clutch-pawl *h* in the miter-wheel F are relative to another ratchet-collar H also fast on said spindle, the teeth of the latter ratchet-collar being faced in a direction opposite those of the former.

The hand-lever portion I of my drill has a forked inner end, one branch *i* of which is keyed on the hub of the miter-wheel D and the other branch *j* is loose on the opposite trunnion of the block C against a washer *k*, as best illustrated in Fig. 3.

From the foregoing description of the construction and arrangement of parts it will be seen that the hand-lever is capable of universal movement, and that whether it be operated back and forth, swung in a circle or given a compound reciprocative rotary motion, there will be a continuous rotation of the drill, because of the relative disposition of the clutch-pawls and ratchet-collars.

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

The combination of the tool-spindle, a block loose thereon and provided with lateral trunnions, a toothed miter wheel loose on one of the trunnions, similar miter-wheels loose on said spindle at opposite sides of the block and meshed with the one aforesaid, a spring seated in each of the latter miter-wheels, a clutch-pawl held outward by each spring, ratchet-collars fast on the aforesaid spindle in opposition to the pawls, the teeth of one collar being faced opposite those of the other, and a hand-lever having one fork fast to the first miter-wheel and another fork loose on the opposite block-trunnion, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, in the presence of two witnesses.

MAX M. OLM.

Witnesses:

WM. D. CONKLIN,
F. F. DUFFY.