

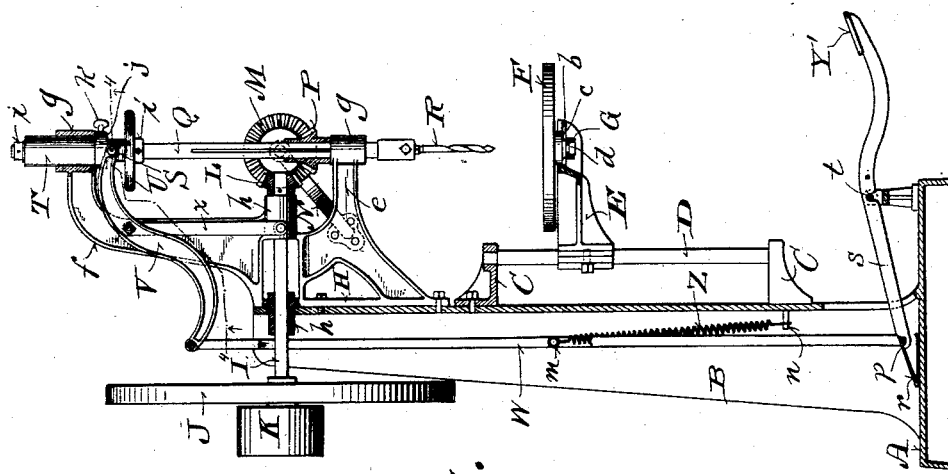
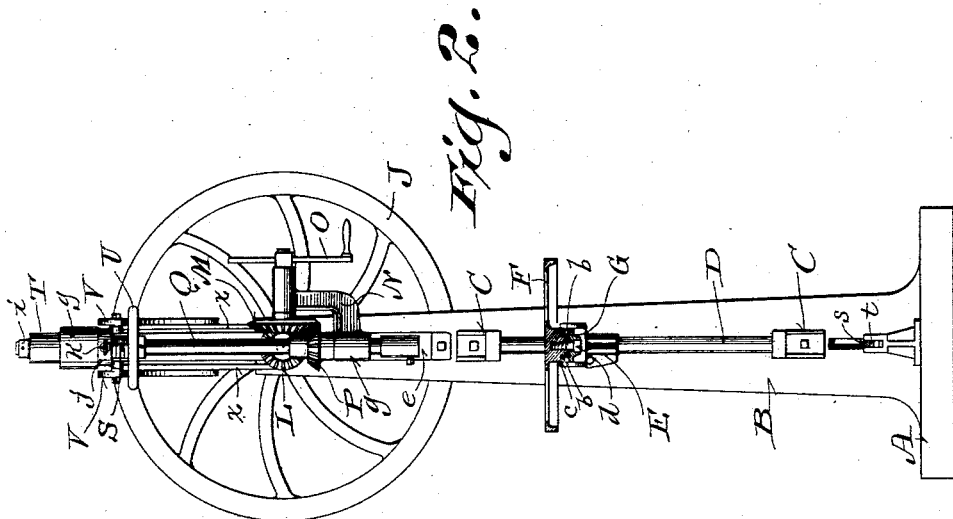
(No Model.)

2 Sheets—Sheet 1.

N. REMMEL.
DRILLING MACHINE.

No. 525,742.

Patented Sept. 11, 1894.



Witnesses
Geo. W. Louny,
W. E. Oliphant

Fig. 1.

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Nicholas Remmel
By H. G. Underwood
Attorney

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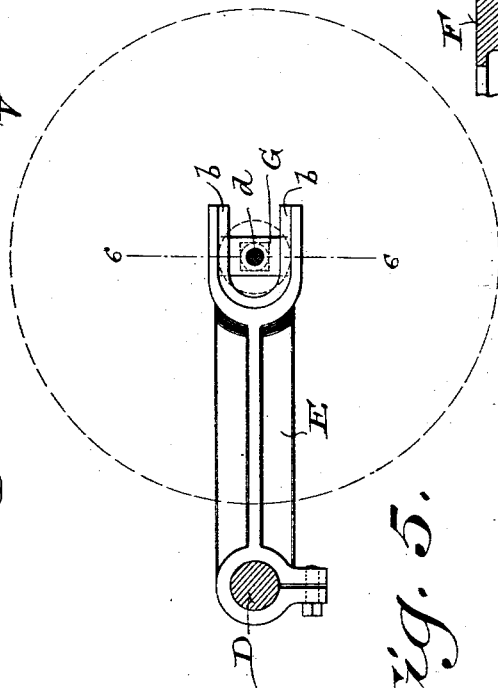
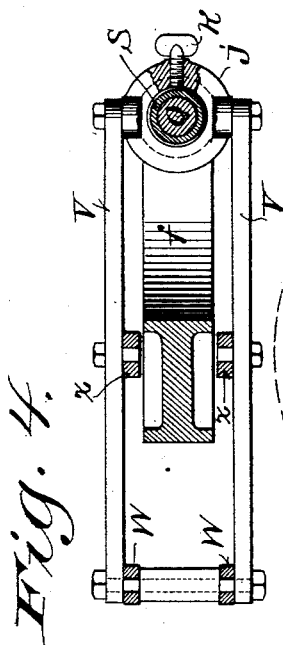


Fig. 5.

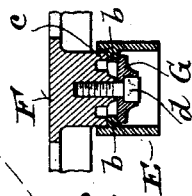
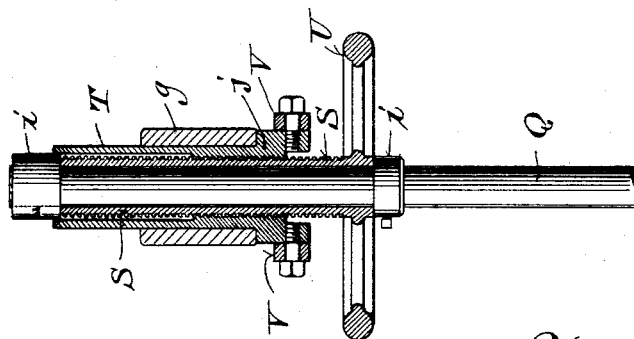


Fig. 6.



Fig. 7.

Fig. 3.



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UNITED STATES PATENT OFFICE.

NICHOLAS REMMEL, OF KEWASKUM, WISCONSIN.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 525,742, dated September 11, 1894.

Application filed January 20, 1894. Serial No. 497,521. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS REMMEL, a citizen of the United States, and a resident of Kewaskum, in the county of Washington, and in the State of Wisconsin, have invented certain new and useful Improvements in Drilling-Machines; 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 simple economical boring machine that may be driven by hand or power and in which the elevation of the tool may be governed by hand or foot at the will of the operator, 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 a side elevation of my improved boring machine partly in section; Fig. 2, a front elevation of the same partly in section; Fig. 3, a detail view partly in section illustrating a tool-stock head constituting part of the machine; Fig. 4, a detail section on line 4—4 of the first figure; Fig. 5, a like view illustrating the work-table bracket and its connections; Fig. 6, a detail transverse section taken on line 6—6 of the preceding figure, and Fig. 7, an under side view of a clamp-washer embodied in said machine.

Referring by letter to the drawings A represents the base and B the standard of my machine. Extending outward from the front of the standard are parallel bearing blocks C held in place by screws or other suitable means, and journaled in these blocks is a vertical rod D to which an adjustable bracket E for a work-table F is clamped, this bracket being best illustrated in Fig. 5.

The outer end of the bracket E is in the form of a fork provided with an interior countersunk ledge *b* upon which the hub *c* of the work-table is supported, and held in place by means of a screw *d* that passes up through a clamp-washer G into said hub. The clamp-washer impinges against the under face of the ledge *b* in the fork-end of bracket E and a preferably angular central socket in said washer receives the corresponding head of the screw *d*. Consequently the work-table may be positioned without the employment of

a tool to hold or operate said screw, it only being necessary to revolve said table in the proper direction to tighten or loosen the connection, this being one of the novel features of my invention. The table herein shown is intended for the support of metal work, but one suitable for wood-work may be readily substituted.

Projecting from the front of the standard above the work-table is a casting H held in place by screws or other suitable means. Branches *e f*, of the casting have their outer terminals in the form of guides *g*, and on a line intermediate of the guides said casting is provided with bearings *h* for a horizontal shaft I the latter being fast at one end in a fly-wheel J and belt-pulley K of ordinary construction. The other end of the shaft I carries a pinion L in mesh with a gear-wheel M that is fast on a spindle having its bearing in an arm N that is bolted or otherwise suitably joined to the casting H above specified, and connected to the outer end of the spindle is a hand-crank O that is preferably adjustable as to throw. The gear-wheel M is also in mesh with a pinion P splined on a stock Q for the boring tool R, the head and body of this tool-stock being loose in the guides *g* above specified.

From the foregoing it will be understood that a rotation may be imparted to the tool-stock by hand through the medium of the crank O or by a motor having belt-connection with the pulley K on the horizontal shaft.

Comprising the tool-stock head is a pair of sleeves S, T, in screw-thread engagement, the former sleeve being loose on the tool-stock proper between fixed collars *i* and provided at its lower end with a hand-wheel U that is in one piece therewith or otherwise rigidly connected thereto. The thread of the sleeve S is external and continues the entire length of said sleeve above the hand-wheel, but the thread of the sleeve T is internal and terminates a certain distance above the lower end of the same, the remainder of the bore of this latter sleeve being of sufficient diameter to permit travel of the upper tool-stock collar therein.

The sleeve T has loose engagement with the upper one of the guides *g*, set forth in the foregoing, and a shoulder *j* at the lower end

of said sleeve opposes said guide to limit upward movement of the former in the latter and a set screw *k* in this shouldered portion of the sleeve may be employed to lock both sleeves together.

Pivotaly connected to the shouldered portion of the sleeve *T* is a pair of curved arms *V* likewise connected to a pair of vertical rods *W*, and a pair of links *X* is employed to connect said arms to the outer bearing in which the horizontal shaft *l* revolves. The vertical rods *W* are arranged within the standard of the machine and joined midway of their length by a brace *m*, the latter and an eye *n* or other suitable device on said standard being connected by a spiral spring *Z* of suitable power. Another brace *p* connects the lower ends of the vertical rods *W* and I prefer to provide the latter with spring-feet *r* to cushion their descent when retracted by the spring. The shank *s* of a foot-treadle *Y'* has a recess adjacent to its inner end for engagement with the lower brace *p* between the vertical rods *W* and another recess in the treadle shank is for engagement with a fulcrum *t* on the base of the machine. The treadle-shank extends through a suitable aperture in the machine-standard and the recesses in said shank being reverse to each other, it will be seen that the treadle may be readily put in or out of position without the use of tools, this being one of the especial features of my invention.

From the foregoing it will be readily understood that the tool may be given a positive vertical adjustment by a rotation of the hand-wheel connected to the innermost sleeve of the tool-stock head, and both sleeves being locked together said tool may be fed to the work by a movement of the foot-treadle against the power of the spring *Z*, the latter acting to cause an automatic retraction of the aforesaid tool when pressure is removed from said treadle. However the result of the treadle-movement is the same whether the sleeves comprised in the tool-stock head be in or out of lock, but it is preferable to have them in lock to prevent any possibility of rotary motion on the part of the inner sleeve when it is not desirable to utilize the hand-wheel as a means for bringing the tool in and out of engagement with the work, as is preferable when the machine is employed on heavy material.

From the foregoing it will be seen that I make provision for reciprocating the tool by two mechanical movements either or both of which may be utilized in the same machine, and this is also one of the important features of my invention.

Having now fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. A boring machine having a horizontal bracket fork-shaped at its outer end and the fork provided with an interior ledge, a work-table supported on the ledge, a clamp-washer impinged against the under face of said ledge, and a screw that extends through the washer into the table, whereby this table may be turned in one direction to tighten and in the opposite direction to loosen, substantially as set forth.

2. A boring machine having a horizontal bracket fork-shaped at its outer end and the fork provided with an interior ledge, a work-table supported on the ledge, an angularly recessed clamp-washer impinged against the under face of said ledge, and a screw that extends through the washer into the table and has a head fitting the washer-recess, said table being turned in one direction to tighten and in the opposite direction to loosen, substantially as set forth.

3. A boring machine having a tool-stock provided with a head comprising a pair of sleeves in screw-thread engagement, suitable means for locking one sleeve to the other, and a treadle-controlled mechanism connected to the outer sleeve the parts being combined substantially as set forth.

4. A boring-machine having a tool-stock provided with a head comprising a pair of sleeves in screw-thread engagement, suitable means for locking the sleeves together, and a spring-controlled treadle mechanism connected to the outer sleeve, the parts being combined substantially as set forth.

5. A boring-machine comprising a base and standard, a vertically adjustable work-table and stationary guides, a longitudinally adjustable tool-stock having its body and head loose in the guides, a pair of arms pivotally connected to the tool-stock head, vertical rods likewise connected to the arms, a spring connecting the rods and standard, a treadle connected to said rods, a pair of links connecting said arms and a stationary part of the machine, a gear-mechanism for rotating the tool-stock, a hand-crank forming part of the gear-mechanism, and a motor-connecting device, also forming part of said gear-mechanism, substantially as set forth.

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

NICHOLAS REMMEL

Witnesses:

CHAS. A. SILBERZAHR,
ANDREW SCHMIDT.