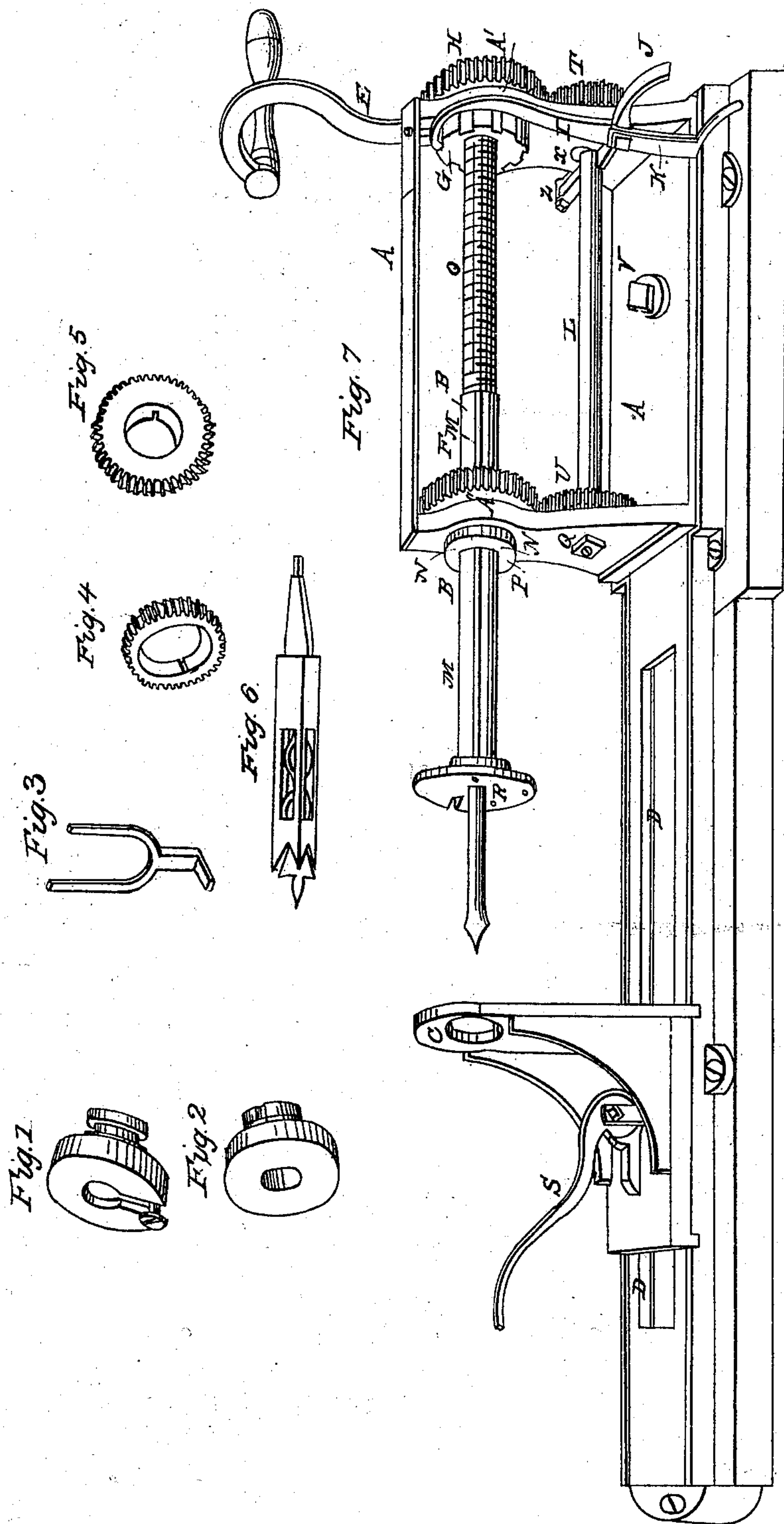


A. A. WILDER.
Drilling Machine

No. 3,897.

Patented Jan'y 31, 1845.



UNITED STATES PATENT OFFICE.

A. A. WILDER, OF DETROIT, MICHIGAN.

MACHINE FOR BORING AND CUTTING SCREWS.

Specification of Letters Patent No. 3,897, dated January 31, 1845.

To all whom it may concern:

Be it known that I, ARETUS A. WILDER, of Detroit, Michigan, have invented a new and useful Improvement in Drilling and Mortising Wood or Metal; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, in which—

Figure A. is a perspective view. Fig. 1. view of a socket for the rest. Fig. 2. a socket for the face plate for drilling. Fig. 3. key or wedge for fastening the socket. Figs. 4. and 5. adjustable cog wheels. Fig. 6. mortising auger.

The nature of my invention consists in an improvement in drilling or mortising metal by means of a useful combination in machinery, whereby the operation is greatly simplified and expedited.

The nature of my construction is as follows: A suitable iron frame (A) is constructed similar to those used for lathes, with two vertical standards (A' A'') one at each end. This frame is adjustable by means of a nut and screw (V) that confines it to the bed on which it rests, and can be turned for the purpose of drilling in any direction; near the top of the standards, holes are made for the reception of two boxes that turn in said holes, and through which the mandrel or drill stock B. passes. This drill stock has a screw cut on it from the rear end to the center of the length thereof, from thence it is a round rod with a feather (M) projecting from one side its whole length, and in the front end there is a socket for receiving the tools like a common lathe mandrel. This mandrel is turned by means of a crank (E) attached to its rear end outside the standard (A'). The boxes above named for holding the mandrel, are constructed as follows: That on the front standard (A'') passes through the hole therein and extends out far enough in front to have a collar (P) on it, and on the inside for the spur wheel F to be fixed thereto, its bore fits the mandrel and a groove (N) is cut in one side for the feather (M) on said mandrel so that the box and wheel are made to turn with it. The other box in the rear standard (A') has a female screw cut in it to fit the screw on the mandrel. This has a collar G on its inner or front end in which notches are cut for a purpose hereafter de-

scribed and at the other side of the standard it has on it a spur wheel (H).

Directly under the mandrel there is a shaft L that extends from the front standard (A'') through the back one (A') in which there is a slot α cut to allow that end of shaft L a vertical motion. On the front end of the said shaft a wheel (U) is affixed and at the other end outside the standard (A') there is another spur wheel T. The first named wheel (U) works into the wheel (F) directly above it on the mandrel by which it is driven, the other wheel (T) can be thrown in or out of gear with wheel (H) by means of a horizontal lever J that extends across the standard (A') on the inside just under the shaft L which has its bearing on said lever, the fulcrum of which is at Z on one side of the standard at the extreme end of the lever the other end of which is formed into a handle projecting out on the other side. Between the shaft and said handle, an upright piece or dog is bolted that projects downward and when the wheel (T) is in gear with (H) rests on the standard and holds the shaft up. This is lettered (K) in the drawing. By the same bolt another dog (I) is jointed to the lever (J) that curves up over the nut (G) and when the lever is let down this dog catches into the notches on nut (G) and holds it fast. Thus it will be seen that when the shaft is raised, and the wheel (T) is brought into gear with (H) the nut (G) is free to turn with a velocity proportioned to the difference of the diameter of the two wheels (H, T).

The bed or casting upon which the frame (A) stands is made with rails, extending from the frame to the front of the machine; upon these rails there is a foot block (C) of the usual construction and fastened at any point on said rails required by means of a cam lever (S) of common construction with flanges (D) on each side under which a cross bar of metal slides that is connected with the cam lever which causes the whole to be clamped together, and holds the rest tight.

In working my machine, I alter the feed by changing the relative size of the graduating wheels (H and T) that is to say, changing one pair for another, (a pair of these wheels are shown detached in Figs. 4. and 5.) for it is plain, that if these two wheels were of the same diameter, the mandrel

would not be moved either forward or back, but by having the wheel (H) small and a larger one (T) below on shaft (L) working into it, the mandrel will recede and by reversing the proportions of these wheels the mandrel will advance at a velocity proportioned to their difference.

By placing a proper tool in the socket of the rest (see detached Fig. 1.) when it is held by a screw, a right or left screw can be cut, if a rod of metal attached to the mandrel is run through said rest into which the tool projects, right ones by causing the mandrel to advance and left ones, by causing it to recede by the gearing above named.

When it is required to withdraw any tool connected with the mandrel from the material operated upon the wheel T is thrown out of gear by pushing the dog (K) from the edge of the frame (A) to which place it has been raised, this motion lowers the lever J, upon which the shaft L revolves, and by this action also the upper dog I is lowered and catches into one of the notches in the nut (G) and thus prevents it together with the graduating wheel (H) from revolving.

The rapidity of motion of the mandrel in receding is then dependent upon the thread of its screw.

Near the top of the foot block (C) there is a hole to admit sockets Figs. 1 and 2 for different purposes, as described above, these sockets are secured by means of a key Fig. 3, that slides into the groove in the sockets after they are put in place.

When I wish to apply greater power than that of the hand, I mesh a wheel attached to a shaft on one end, the other having a pulley, into the upper graduating wheel H, and apply the power by means of an endless belt to the pulley above named.

Having thus fully described my improvement what I claim as my invention and desire to secure by Letters Patent is—

The combination of the lever (J) and dogs (K and I) with the nut G and shaft (L) for stopping the nut and throwing the wheel (T) out of gear as herein set forth.

ARETUS A. WILDER.

Witnesses:

PETER HAY,
I. N. McPARLAN.