M. J. FORD.

TAPPING MACHINE.

APPLICATION FILED FEB. 16, 1912.

1,050,729. Patented Jan. 14, 1913.

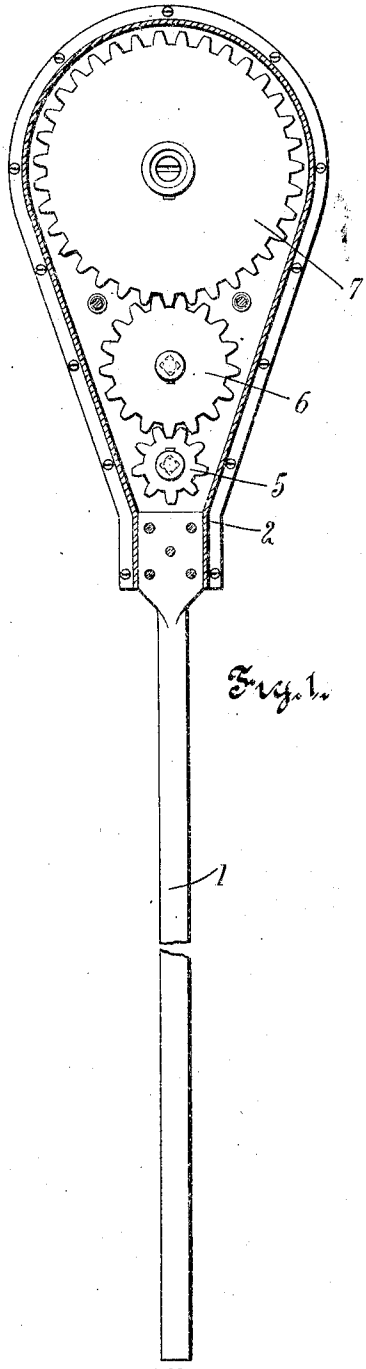

Fig. 1.

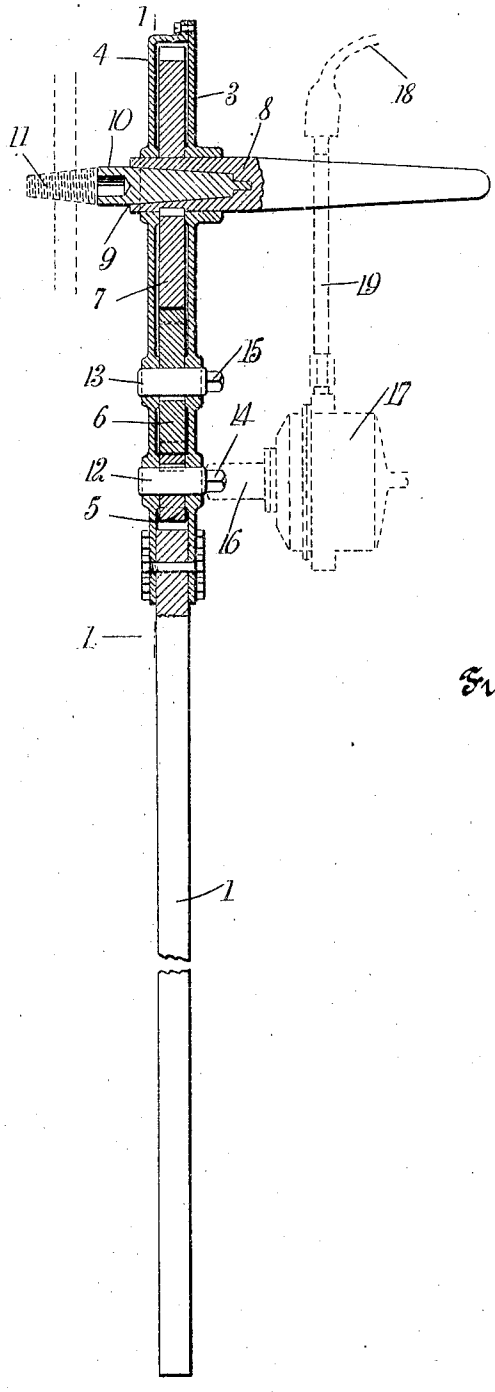

Fig. 2.

WITNESSES

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TAPPING-MACHINE.

1,050,729. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed February 16, 1912. Serial No. 677,916.

To all whom it may concern:

Be it known that I, MARTIN J. FORD, a citizen of the United States, and a resident of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and Improved Tapping-Machine, of which the following is a full, clear, and exact description.

This invention relates to improvements in tapping machines, and has for an object to provide an improved structure wherein a tap may be quickly forced in and then quickly forced out or unscrewed.

A still further object of the invention is to provide a housing and a plurality of multiplying mechanism arranged therein including a tap receiving socket, the same being associated with power means whereby a tap may be screwed or forced into an aperture for threading the same at one speed, and may be forced out or unscrewed at a different speed.

In carrying out the objects of the invention, a housing of any desired kind is provided in which is arranged a plurality of interacting gear wheels, two of which act alternately as drive wheels. To the gear wheel which acts continuously as a driven wheel is connected a tap receiving socket whereby whenever power is connected to either of said driving gears power will be communicated with the tap receiving socket for causing the same to screw in or out a tap connected therewith, the power means moving continuously in the same direction.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a view through Fig. 2, approximately on the line 1—1; and Fig. 2 is a vertical central transverse section through the device shown in Fig. 1, a motor being shown in connection therewith.

Referring to the accompanying drawings by numerals, 1 indicates a handle to which is secured a housing 2, formed with a front plate 3 and a back plate 4, screwed or otherwise rigidly secured together. Mounted in the housing 2 are a pair of driving gears 5 and 6, and a driven gear 7. From Fig. 1 it will be observed that the gear 7 is larger than the gear 6, and gear 6 in turn is larger than the gear 5. The gear 7 has rigidly secured thereto a handle 8 which acts as a journal member therefor. The handle 8 is formed with a socket 9 in which is positioned the tap receiving socket member 10 which accommodates a tap 11 designed to be screwed into any desired material. The tap 11 may be formed beveled or straight, as desired. The gear wheels 5 and 6 are rigidly secured to journals 12 and 13 rotatably mounted in the front and back plates 3 and 4. These journals are formed with squared ends 14 and 15 for receiving a projection 16 formed with a socket designed to co-act with the squared portions 14 and 15. The projection 16 is an extension from the rotary portion of the motor 17. The motor 17 may be of any desired kind, but preferably the same is a rotary air motor which receives air from any suitable source through a tube 18 and a hollow handle 19. The hollow handle 19 is designed to continuously resting against the handle 8 for preventing the rotation of the casing of the motor 17.

In small air motors the same are usually constructed so as to continuously rotate in one direction in order to obviate complicated mechanism for causing a reverse movement, and by reason of this fact the motors may be used in screwing in taps 11, but cannot be used in withdrawing the same. The result is that the taps may be quickly screwed in for cutting the threads but must be removed by a wrench manually. By the provision of the driving or power wheels 5 and 6 the tap may be forced in or screwed in by the motor 17 and again forced or screwed out by the motor 17. When the motor 17 is in the position shown in Fig. 2, the power is applied to the gear wheel 5 so that the device is on its lowest speed and the tap 11 is being screwed into place for cutting a thread. As it requires less power to screw the tap out than it does to force the same in, the projection 16 from the motor 17 is moved over to the squared portion 15 and the motor started in the same direction. This will cause a reverse movement of all of the gear wheels and consequently a reverse movement of the tap 11. By this construction and arrangement it will be observed that the motor drives the tap in at comparatively low speed so as to exert ample power thereon, but removes the tap quickly at a comparatively high speed, the motor continuously operating in the same direction. The handle 1 when in use is grasped by the operator for holding the device in

place and steadying the same, the handle 8 preventing any undesirable movement of the motor 17.

Having thus described my invention I claim as new and desire to secure by Letters Patent,—

1. In a tapping machine of the class described, a tap-receiving socket member, a gear wheel rigidly connected with said socket member, a second gear wheel in mesh with said first mentioned gear wheel, connections whereby a motor may be attached to said second gear wheel for driving said socket member at a given speed, a third gear wheel meshing with said second mentioned gear wheel, and connections whereby a motor may be attached extending from said third gear wheel.

2. In a tapping machine of the class described, a tap-receiving socket, a handle for holding said socket, a gear wheel rigidly secured to said handle, a second gear wheel meshing with said first mentioned gear wheel, said second mentioned gear wheel being formed with an axle having a squared end, and a third gear wheel meshing with said second mentioned gear wheel, said third gear wheel being smaller than said second mentioned gear wheel, said third mentioned gear wheel having an axle rigidly secured thereto provided with a squared end.

3. In a tapping machine, a housing formed of a pair of co-acting plates, means for securing said plates together, a handle rigidly secured to said plates for supporting the same, a plurality of different sized gears meshing with each other, journaled in said housing, a tap receiving socket rigidly connected with the largest gear wheel, and a driving journal member rigidly connected with each of the said remaining gear wheels.

4. In a tapping machine of the class described, the combination with a power motor formed with a supporting handle and adapted to operate in one direction only, of a pair of intermeshing gear wheels adapted to be connected at different times to said power motor, a driven gear wheel intermeshing with one of said first mentioned gear wheels, a handle rigidly secured to said driven gear wheel acting as a journal therefor, said handle extending outward into the path of movement of the handle of said power motor for preventing a rotary movement of the motor casing, and a tap receiving socket mounted under said journal.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN J. FORD.

Witnesses:
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