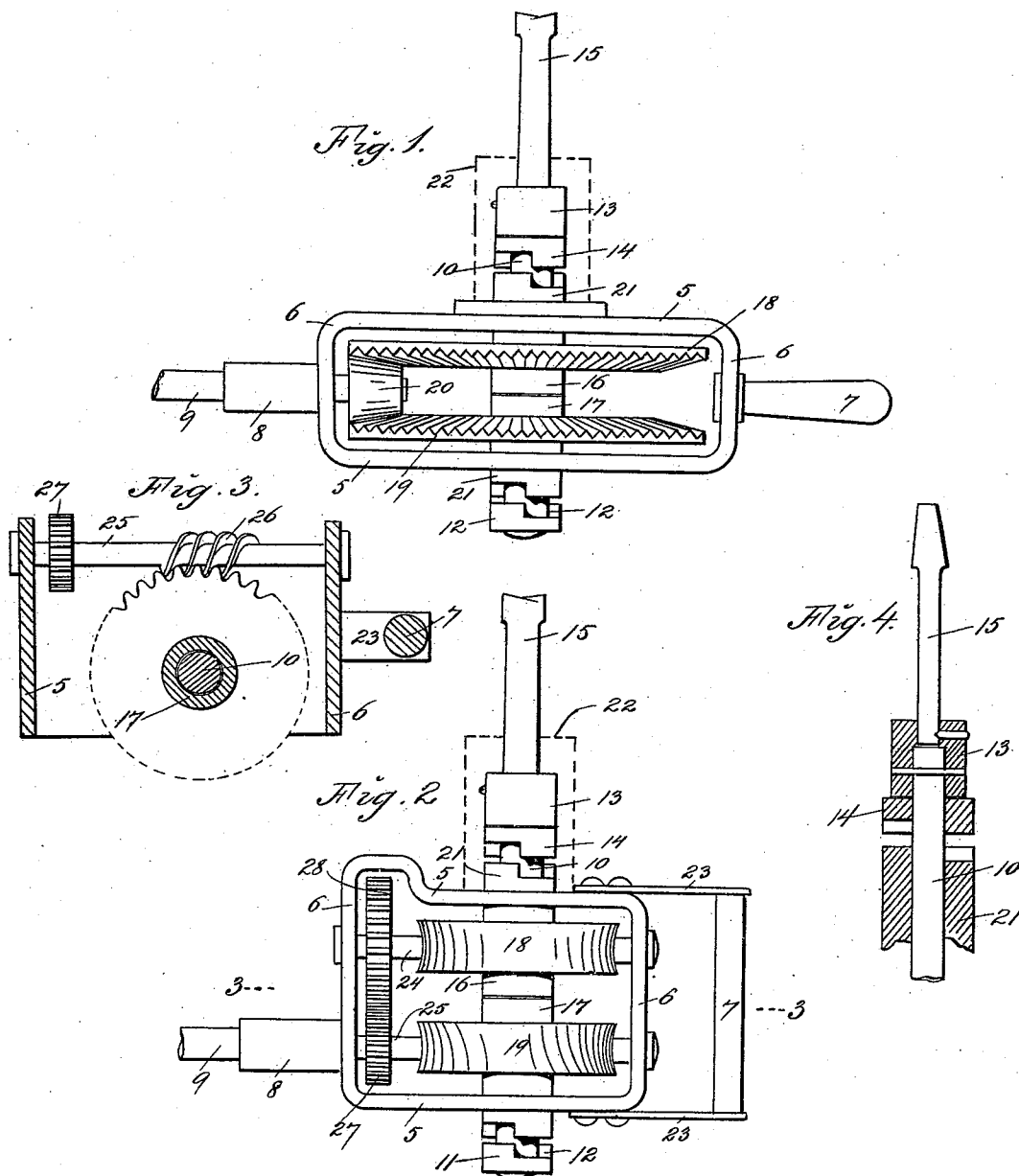


(No Model.)

C. J. FRAVEGA & A. JANET.
TAPPING AND REAMING MACHINE.

No. 580,972.

Patented Apr. 20, 1897.



WITNESSES

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CHARLES JULES FRAVEGA AND ARMAND JANET, OF TOULON, FRANCE.

TAPPING AND REAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 580,972, dated April 20, 1897.

Application filed June 27, 1896. Serial No. 597,136. (No model.)

To all whom it may concern:

Be it known that we, CHARLES JULES FRAVEGA and ARMAND JANET, citizens of France, and residents of Toulon, in the Department of the Var, France, have invented certain new and useful Improvements in Tapping and Reaming Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar numerals of reference indicate corresponding parts.

This invention relates to tapping and reaming or boring machines; and the object thereof is to provide an improved device of this class which is adapted to be operated by hand with the aid of a suitable motor, a further object being to provide a simple and effective tap or tool carrier to which a tap or reaming or boring tool may be secured, and whereby a hole may be tapped in any desired position by the aid of any kind or class of motive power, or by means of a crank or similar device, and in which the operation may be automatically arrested as soon as the hole has been tapped to the required depth, and in the operation of which it will be only necessary for the operator to lean upon or press against the carrier or tool-holder for beginning to tap, and to pull the carrier or holder outwardly in order to disengage the tap from the hole when tapped, and in which either of the above-named results may be produced without stopping or reversing the movement of the motor.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a plan view of our improved tool-carrier; Fig. 2, a similar view showing a modified form of construction; Fig. 3, a section on the line 3 3 of Fig. 2, and Fig. 4 a sectional detail view.

In the practice of our invention we provide a suitable frame, consisting of side plates 5 and end plates 6, and secured to one of the end plates 6 is a handle 7, and to the opposite end plate 6 a tube or tubular bearing or journal 8, which may serve as another handle for the frame, and through which passes a power-shaft 9, which is adapted to be revolved by any desired form, kind, or class of motor, and passing transversely through the side plates 5 of the frame is a shaft 10, on the outer end

of which is mounted a clutch 11, having an angular slot 12 in the inner side thereof, and mounted on said shaft and secured thereto adjacent to the opposite side of the frame is a collar 13, the inner end of which is provided with a clutch 14 similar to the clutch 11, and the tap or reaming or boring tool 15 is adapted to be connected with the end of the shaft 10 by means of the collar 13, into which it is inserted.

Mounted on the shaft and passing through the frame are two tubular mandrels 16 and 17, said mandrels being free to revolve in said frame and being so connected therewith that they cannot move laterally therein, and mounted on the mandrel 16 is a gear-wheel 18, and on the mandrel 17 is a gear-wheel 19, and said gear-wheels are provided with beveled perimeters on their inner sides and are adapted to be reversely revolved by a beveled gear 20, which is mounted on the end of the shaft 9, and said shaft may be revolved by any form of suitable motor and may be provided with a flexible coupling, if desired, or it may be operated by a crank.

The gear-wheels 18 and 19 are rigidly connected with the mandrels 16 and 17, respectively, and each of said mandrels is provided at its outer end with a clutch 21, said clutch on the mandrel 16 being adapted to operate in connection with the clutch 14 and the clutch 21 on the mandrel 17 being adapted to operate in connection with the clutch 11.

We may connect with that side of the frame adjacent to the collar 13 a suitable buffer 22, consisting of a tube or of rods connected with the frame and shown in dotted lines and which is designed for stopping automatically when tapping blind holes, as it will be shown hereinafter, but this buffer may or may not be employed, as desired.

In Fig. 2 we have shown a slight modification in which the gear-wheels 18 and 19 are different in form from those shown in Fig. 1, the gears thereon being worm-gears and formed transversely of the perimeters, and mounted in said frame adjacent to the wheel 18 is a shaft 24, and adjacent to the wheel 19 is a similar shaft 25, and this shaft constitutes a continuation of the power-shaft 9, and each of the shafts 24 and 25 is provided with worm-gears 26, as shown in Fig. 3, and mounted

on the shaft 25 is a gear-wheel 27, adapted to operate a gear-wheel 28, mounted on the shaft 24.

Instead of using equal wheels it may be preferred, as shown in the drawings, to use as wheel 27 a pinion or smaller wheel and as 5 28 a larger one, and by means of this construction the wheels 18 and 19 will not be revolved at the same speed, the wheel 18 running more slowly and the wheel 19 more 10 quickly, this arrangement giving more power when tapping and more speed for moving the tool outward after tapping.

The operation will be readily understood 15 from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

It will be understood that the tap or the reaming or boring tool is to be connected with 20 the shaft 10 by means of the collar 13, and the power-shaft 9 is revolved either by a motor or by the crank, as hereinbefore stated. The frame is grasped by the handles 7 and 8, and the gear-wheels 18 and 19 are revolved 25 in opposite directions, and if as said wheels are revolved the frame is pressed in the direction of the tap 15 the mandrel 16 engages with the clutch 14, and said shaft 10 is revolved and the tap or other reaming or boring 30 tool is driven into the hole to be tapped or reamed or bored. In the case of reaming or boring the tool can be withdrawn only by pulling, and in the case of tapping when the tapping has proceeded to the required extent, 35 the frame being withdrawn in the direction of the operator, the mandrel 16 will be disengaged from the clutch 14, the mandrel 17 will engage itself in the clutch 11, and the shaft 10 will be turned in the reverse direction, unscrewing the tap till it may be with- 40 drawn without being necessary to stop or reverse the motion of the power-shaft 9. In case of tapping blind holes when the buffer 22 meets the article in which is the hole to be tapped the frame, although being pressed 45 against it, cannot follow the advance of the tap 15, and as the shaft 10, connected with the tap by means of the collar 13, must follow it the clutch 14, attached to the shaft, 50 is gradually disengaged from the clutch 21,

fixed to the frame. Tapping is therefore arrested automatically at a given point, according to the length given to the buffer, without requiring to give any attention for stopping the motion of the power-shaft 9.

This device is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and it is evident that some changes in and modifications of the construction herein described 60 may be made without departing from the spirit of our invention or sacrificing its advantages—for instance, the disposition of the handle, as shown in Fig. 2.

Having fully described our invention, we 65 claim as new and desire to secure by Letters Patent—

In a tapping and reaming machine, a frame having side plates provided with openings, and end plates provided with outwardly-extending handles, 7 and 8, one of the said handles being of a tubular construction, a power-shaft mounted therein, a transversely-extending shaft passing through the said openings in said side plate, a clutch mounted on 75 its outer end and having an angular slot therein, a collar mounted on the said shaft at the end thereof opposite to said clutch and adjacent to said collar-frame, said collar being adapted to carry a boring-tool in its outer 80 end, a second clutch on the inner end of said collar having also an angular slot therein, tubular mandrels mounted on said shaft and passing through said frame and being adapted to engage either of said clutches, gear- 85 wheels mounted on said mandrels, means for engaging said gear-wheels and aforesaid power-shaft, and a buffer secured to the outer side of the said frame and adjacent to said collar; all of the said parts being combined 90 substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 12th day of June, 1896.

CHARLES JULES FRAVEGA.

ARMAND JANET.

Witnesses:

C. GERST,

L. M. MULLER.