

March 24, 1925.

1,531,059

M. ZAJAC

DEVICE FOR OPERATING TOOLS

Filed Oct. 3, 1924

3 Sheets-Sheet 1

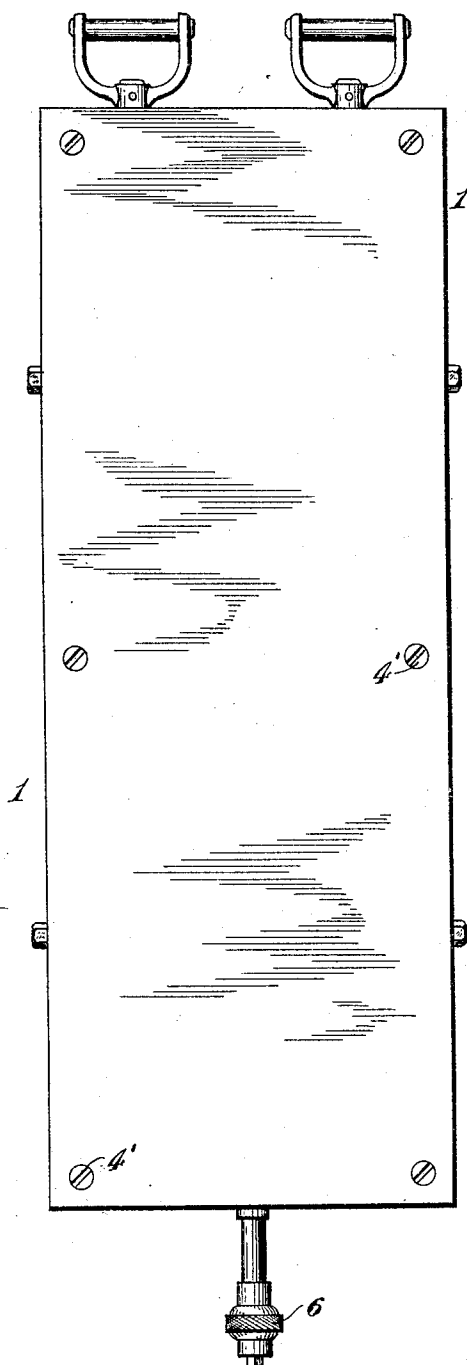


Fig. 1.

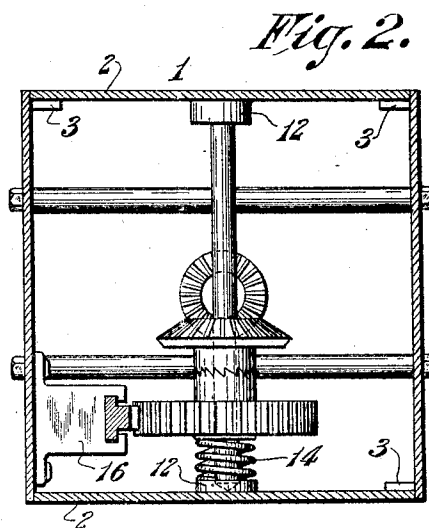


Fig. 2.

BY

INVENTOR,

Marcin Zajac,

Harry M. Bowin.
ATTORNEY.

March 24, 1925.

1,531,059

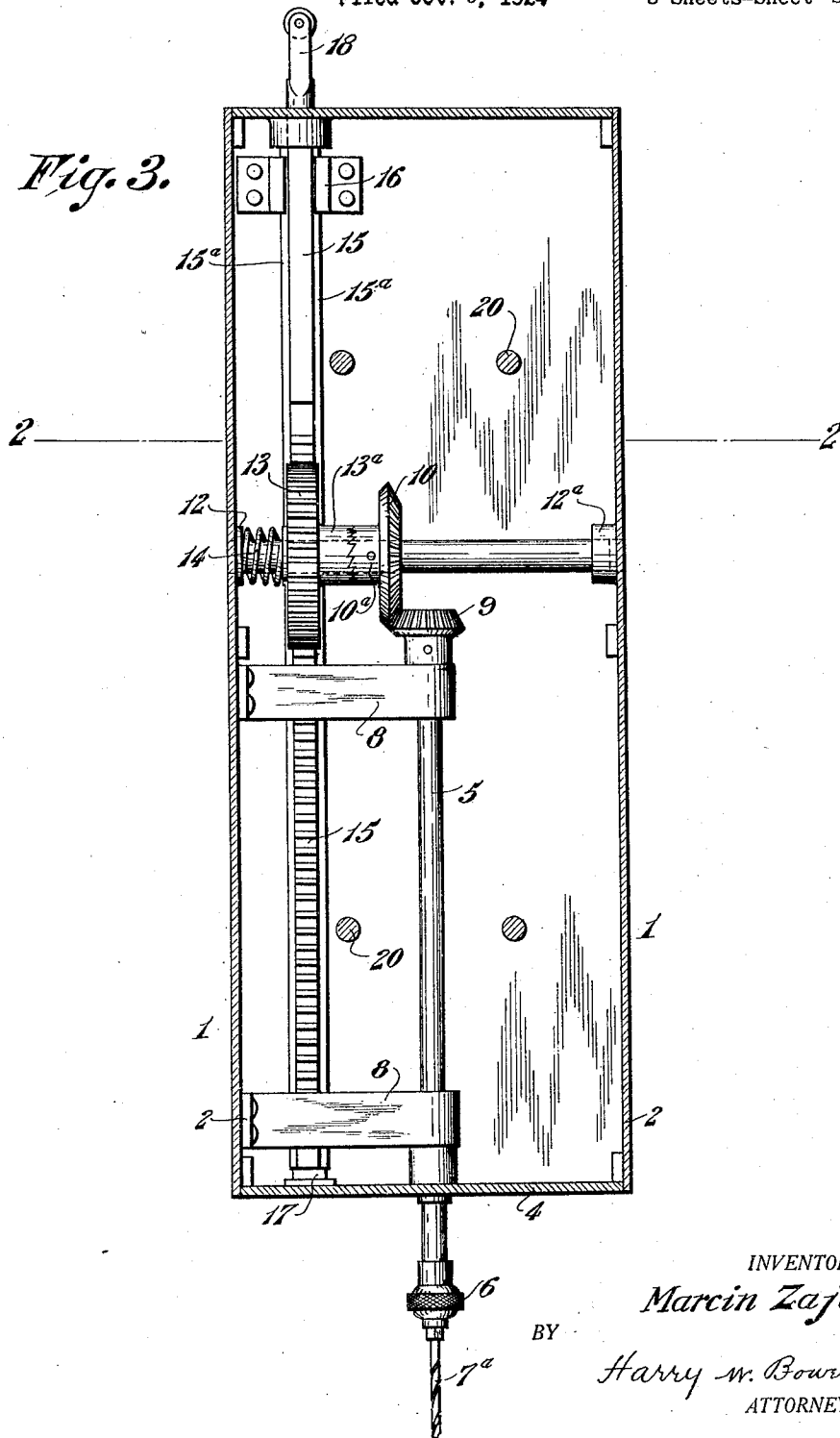
M. ZAJAC

DEVICE FOR OPERATING TOOLS

Filed Oct. 3, 1924

3 Sheets-Sheet 2

Fig. 3.



March 24, 1925.

1,531,059

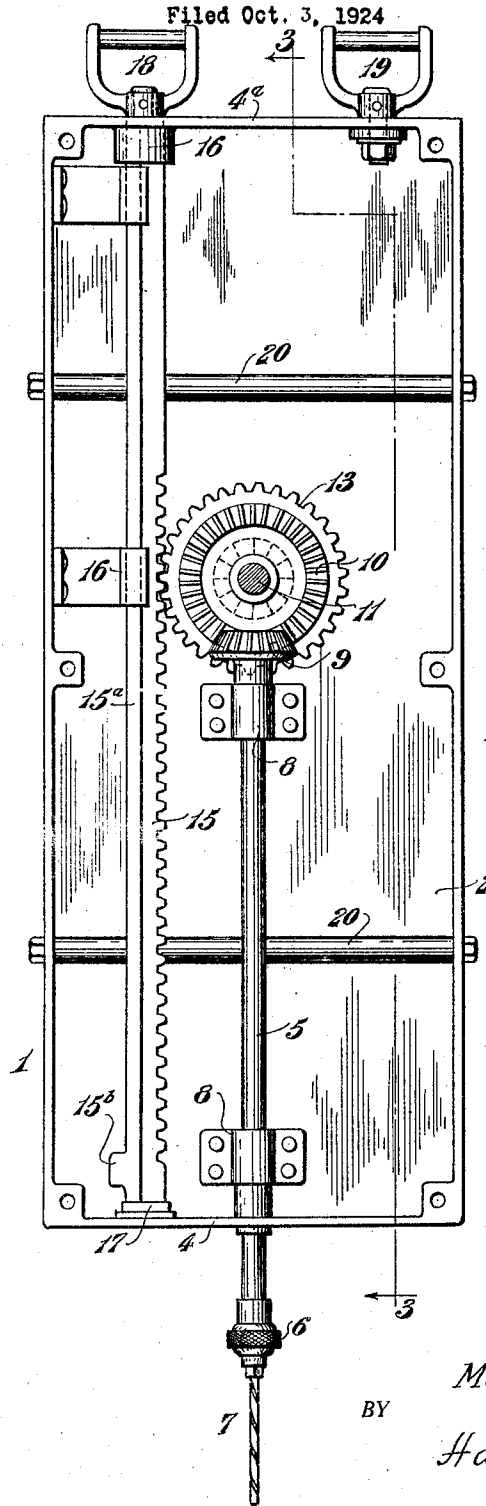
M. ZAJAC

DEVICE FOR OPERATING TOOLS

Filed Oct. 3, 1924

3 Sheets-Sheet 3

Fig. 4.



INVENTOR,

Marcin Zajac,

BY

Harry W. Bowin.
ATTORNEY.

Patented Mar. 24, 1925.

1,531,059

UNITED STATES PATENT OFFICE.

MARCIN ZAJAC, OF CHICOPEE, MASSACHUSETTS.

DEVICE FOR OPERATING TOOLS.

Application filed October 3, 1924. Serial No. 741,520.

To all whom it may concern:

Be it known that I, MARCIN ZAJAC, a citizen of the United States, residing at Chicopee, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Devices for Operating Tools, of which the following is a specification.

The present invention relates to tools, having reference particularly to an improved device for rotatably driving such tools as screw drivers, drills bits and the like.

The invention has for an object the provision of a device of this character which is manually-operable and adapted to be controlled and guided with one hand of an operative and operated with the other; a further object being to provide a device of the character named which is simple in construction, durable and inexpensive, and which comprises a relatively small number of compactly assembled elements.

In carrying out my invention, I provide a reciprocative driving element, a transverse driven shaft adapted for intermittent rotation, a tool-carrying spindle in parallel alignment with the driving element, and gearing and clutch means connecting said spindle with the driving element whereby reciprocative movement of the driving element transmits rotary movement to said spindle, and means for housing the parts, all as hereinafter fully described and specifically set forth in the appended claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view showing the exterior of my improved device;

Fig. 2 is a cross sectional view taken on the line 2—2 of Fig. 3;

Fig. 3 is a longitudinal sectional view taken on the line 3—3 of Fig. 4; and

Fig. 4 is a side view having one wall of the housing removed.

In the drawings 1 indicates the housing in general, which embodies a rectilinear structure open at two of its sides and closed at its ends, said sides adapted to be closed by means of plates 2, which are held on lugs 3, by means of screws 4'.

Extending centrally and longitudinally within the housing 1 and through one end wall 4 thereof is the rotating spindle 5, having a suitable chuck 6 on the outer end thereof for holding a tool, as a drill or bit

7, shown in Fig. 4 of the drawings, or a screw driver 7^a, shown in Fig. 3 of the drawings, said spindle being journaled through suitable bearings 8, fixed to the housing 1. Fixedly mounted on the inner end of the spindle 5 is a relatively small bevel-pinion 9, which meshes with a bevel wheel 10, which is fixedly mounted on the transverse driven-shaft 11, said shaft being journaled at its ends in suitable bearing-boxes 12 and 12^a, whereby said shaft may freely rotate.

Formed integral with the bevel wheel 10, is a hub 10^a having a radially toothed face which is adapted for interlocking engagement with the similarly toothed face of the hub 13^a of a gear wheel 13, which is loosely mounted on the shaft 11; said hub-members constituting a clutch which is maintained normally closed by means of a helical spring 14, located between the wheel 13 and the bearing box 12.

Meshing with the wheel 13 is the driving element consisting of a rack-bar 15 having side flanges 15^a, which engage overlapping bearings 16 fixed to one wall of the housing 1. The rack bar 15 is provided near its inner end with a stop 15^b, adapted to limit the outward movement of said rack-bar, and a flexible cushion 17 is fixed on the inner surface of the end wall 4, upon which the inner end of said rack-bar may impinge.

On the outer end of the driving element 15 is a handle 18, whereby said element may be manually reciprocated, and the end wall 4^a of the housing 1 is provided with a fixed handle 19, whereby the device, as a whole, may be manipulated and guided.

The housing 1 may be suitably strengthened by means of transverse braces 20. While the housing as illustrated constitutes a rectilinear casing having removable side walls, whereby the enclosed elements may be conveniently assembled, I do not confine myself however, to the specific construction shown, as under the spirit of my invention I believe that I am entitled to employ such variations of minor details as may fall within the scope of the appended claim.

The teeth of the clutch members are so formed that rotation of the wheel 13 in one direction imparts rotary movement to the wheel 10, thus transmitting rotary movement to the wheel 9 and its connected spindle 5, whereby the connected tool may

be rotated in a direction for driving the same, but rotation of the wheel 13 in an opposite direction allows the clutch member 13^a to slip on the clutch member 10^a, thus
5 the reciprocative movement of the driving member 15 rotates the wheel 13 in two directions and the spindle 5 in but one direction the direction for driving the tool—the spring yielding mounting of the wheel 13
10 admitting of independent rotation of the wheel 13 in relation to the wheel 10.

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

15 A drill comprising a portable inclosing casing, a reciprocable rack bar mounted therein, means for retaining the bar in position comprising flanges on opposite sides of the rack proper, plates attached to the
20 casing and engaging the flanges, a stop on the bar for limiting the upward movement of the same, a transversely located shaft

rotatably mounted in opposite walls of the casing, a gear loosely mounted on the shaft and engaging the teeth of the rack bar, a
25 beveled gear fixed to the shaft, the said gears having inter-engaging teeth for driving the shaft, a spring on the shaft for normally moving the gear towards the beveled gear for causing the teeth to mesh,
30 a rotating spindle located in the casing, bearing means for supporting the spindle, a beveled gear on its upper end and meshing with the teeth on the beveled gear on the transverse shaft, said spindle projecting
35 below the lower end of the casing and having means for receiving a drill, the construction and arrangement being such that
40 when the rack bar is operated in one direction the operating spindle is driven and when operated in the other direction the spindle is idle.

MARCIN ZAJAC.