W. J. BRENNAN.

DRILLING AND TAPPING ATTACHMENT.

APPLICATION FILED APR. 26, 1915.

1,170,041. Patented Feb. 1, 1916.

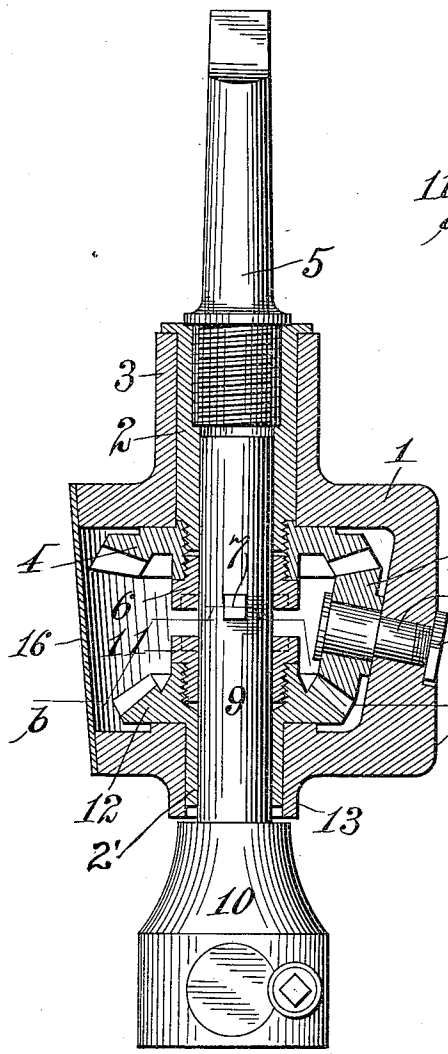

Fig. 1.

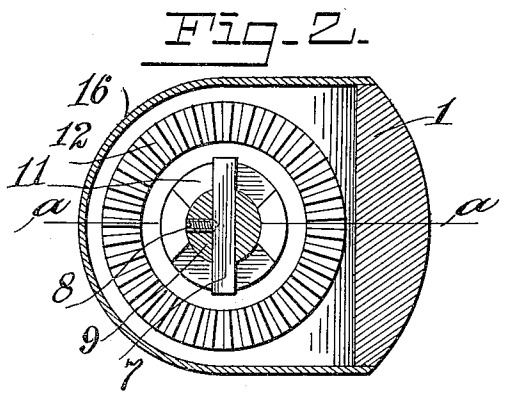

Fig. 2.

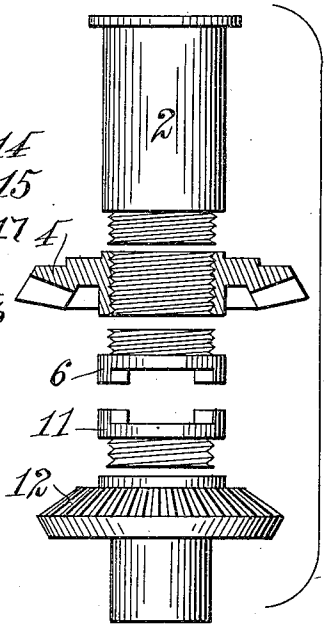

Fig. 3.

Witness

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DRILLING AND TAPPING ATTACHMENT.

1,170,041. Specification of Letters Patent. Patented Feb. 1, 1916.

Application filed April 26, 1915. Serial No. 23,790.

To all whom it may concern:

Be it known that I, WILLIAM J. BRENNAN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Drilling and Tapping Attachments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in drilling and tapping attachments for use in drill presses or similar machines.

The object of the invention is to provide a simple and efficient attachment of the above character wherein the clutch devices *per se* are detachable from the gears upon which they are mounted and may be replaced when usage requires it without discarding other parts less liable to be affected by usage, to the end that economy and efficiency are preserved; and a further object of the said invention is to provide a supporting frame constructed in one box-like integral piece in which the various elements may be conveniently assembled and removed, as will appear from the description to follow in connection with the accompanying drawings.

Of the accompanying drawings, which illustrate the said invention, Figure 1 is a vertical sectional view showing the parts in their driving position; Fig. 2 is a cross sectional view on the line *b*—*b* of Fig. 1; Fig. 3 is a vertical elevation of the several elements arranged in juxtaposition but disconnected.

In a detail description of the invention, similar reference characters designate the same parts in both the description and the drawings.

The cage or inclosing frame 1 is of rectangular or box-like form with an open side through which the parts are inserted and said frame has alined tubular extensions 3 and 13. The open side of said frame is closed by a cover plate 16 which is removably secured in position. A bushing or sleeve 2 is journaled within the tubular extension 3 of said frame and the stock or shank 5 is screwed therein or otherwise connected therewith. The said stock and bushing are constantly rotated in the same direction, the said shank being of the usual form and insertible within the socket in the spindle of a drill press or other machine in which the device is to be used. The inner or lower end of the bushing or sleeve 2 is exteriorly screw-threaded to receive a main driving pinion 4. This pinion 4 has its hub extended and interiorly screw-threaded to receive a clutch member 6 which thus becomes a detachable part of said pinion. The driven tool spindle 9 extends through the clutch member 6 and pinion or driving gear 4 into the bushing 2 and carries a clutch member 7 and a chuck or head 10 which holds the cutting tool or tap. A reversing pinion 12 is arranged opposite the driving pinion 4 and of smaller diameter so that the reverse movement will be imparted to the tool spindle 9 at an increased speed. This pinion 12 has a sleeve or tubular extension 2′ which projects into the extension or frame portion 13. The pinion 12, like the pinion 4, has its hub extended and provided with interior screw-threads to receive another clutch member 11 which becomes a detachable part thereof. The pinion or gears 4 and 12 are connected by an intermediate pinion 14 of similar construction and arranged upon an angle owing to the different diameters of the pinions 4 and 12. The intermediate pinion 14 is mounted to rotate upon a stud 15 which is screwed into the side of the frame and secured by a nut 17.

The operation of the tool is readily understood. When the clutch member 6 is engaged by the clutch member 7 on the tool spindle, the said spindle is driving in the same direction with the shank 5 and at a uniform speed therewith; the tap is then boring the hole. The withdrawal of the tap from the hole is done when the clutch members 7 and 11 engage, at which the reverse or withdrawal movement is imparted to the tool spindle 9.

The detachable character of the pinions 4 and 12 with reference to the clutch members 6 and 11 has the advantageous features of thereby being able to discard the clutch members when they become worn out or inefficient without in a like manner discarding the gears. In a word, new clutch members may be inserted in the gears in the places of those removed. And further,

owing to the clutches 6 and 11 being detachable from the gears, it is possible to assemble the parts in a frame of comparatively narrow walls and of a compact form. The gear 14 may first be placed in position, then the sleeve 2 may be inserted in position and the gear 12 and its sleeve together with the clutch member 11 supported by said gear, after which the driving gear 4 may be screwed onto the exposed end of the sleeve 2.

Having described my invention, I claim.

In an attachment for tapping machines, the combination with a frame comprising two parallel walls united by a vertical wall, said parallel walls having alined tubular extensions, of a bushing in one of said extensions having an exteriorly screw-threaded end within said frame, a driving spindle connected with said bushing, a driving pinion, an intermediate pinion connecting said of said bushing and having an axial extension, a clutch member having a screw-threaded connection with said axial extension, a driven pinion having a sleeve extended into the other tubular extension of said frame, said driven pinion having an axial extension, a clutch member screwed into the axial extension of said driven pinion, an intermedite pinion connecting said driving and driven pinions, a tool spindle extending through said pinions and the clutch members carried thereby, and a clutch member carried by said tool spindle and adapted to engage one or the other of the clutch members carried by said pinions, substantially as specified.

In testimony whereof I affix my signature.

WILLIAM J. BRENNAN.