

900,144.

D. BARNES & C. W. HUNT.

COMBINATION TOOL.

APPLICATION FILED APR. 26, 1907.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

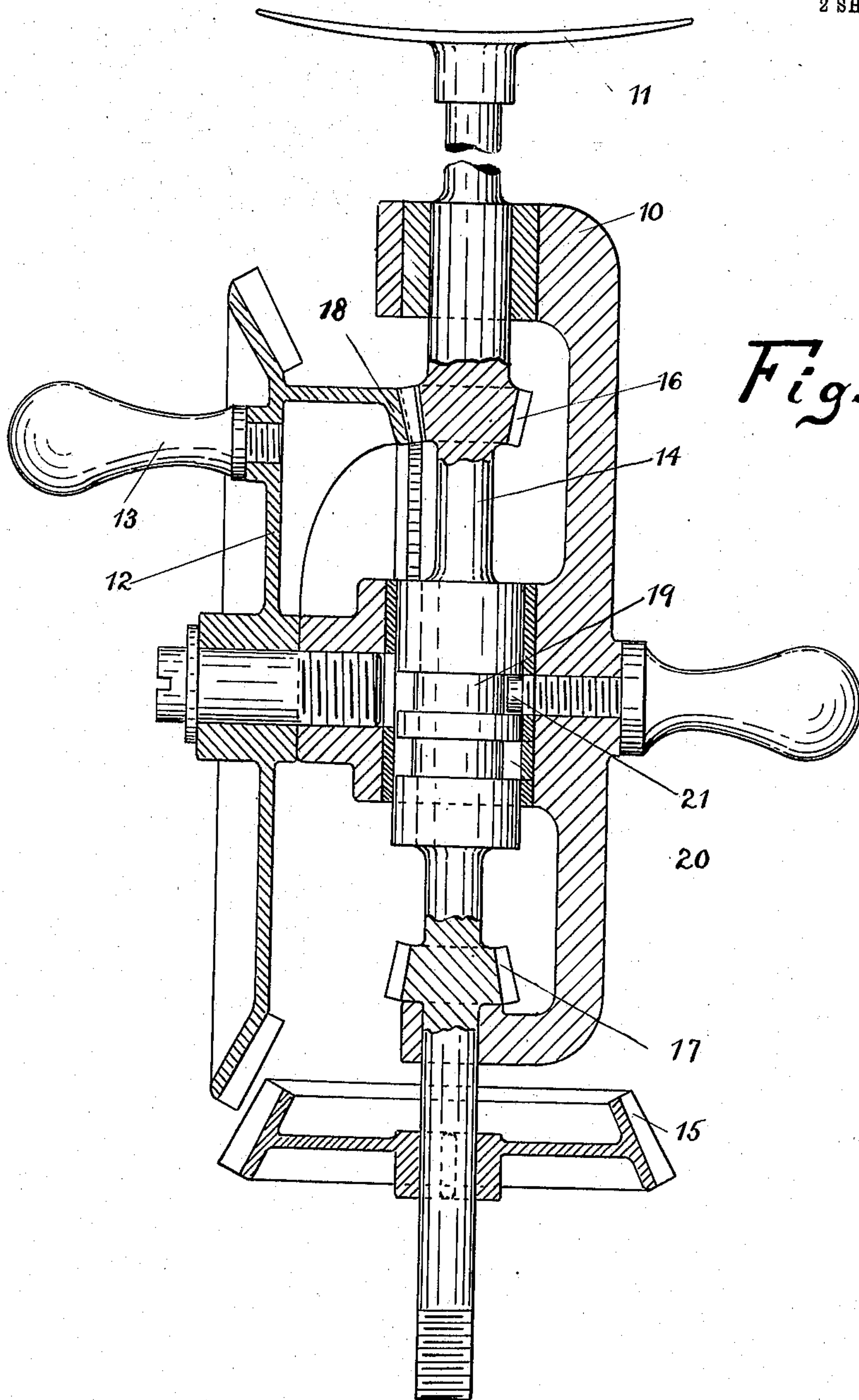


Fig. 1.

WITNESSES:

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*Sally C. Yundigly*

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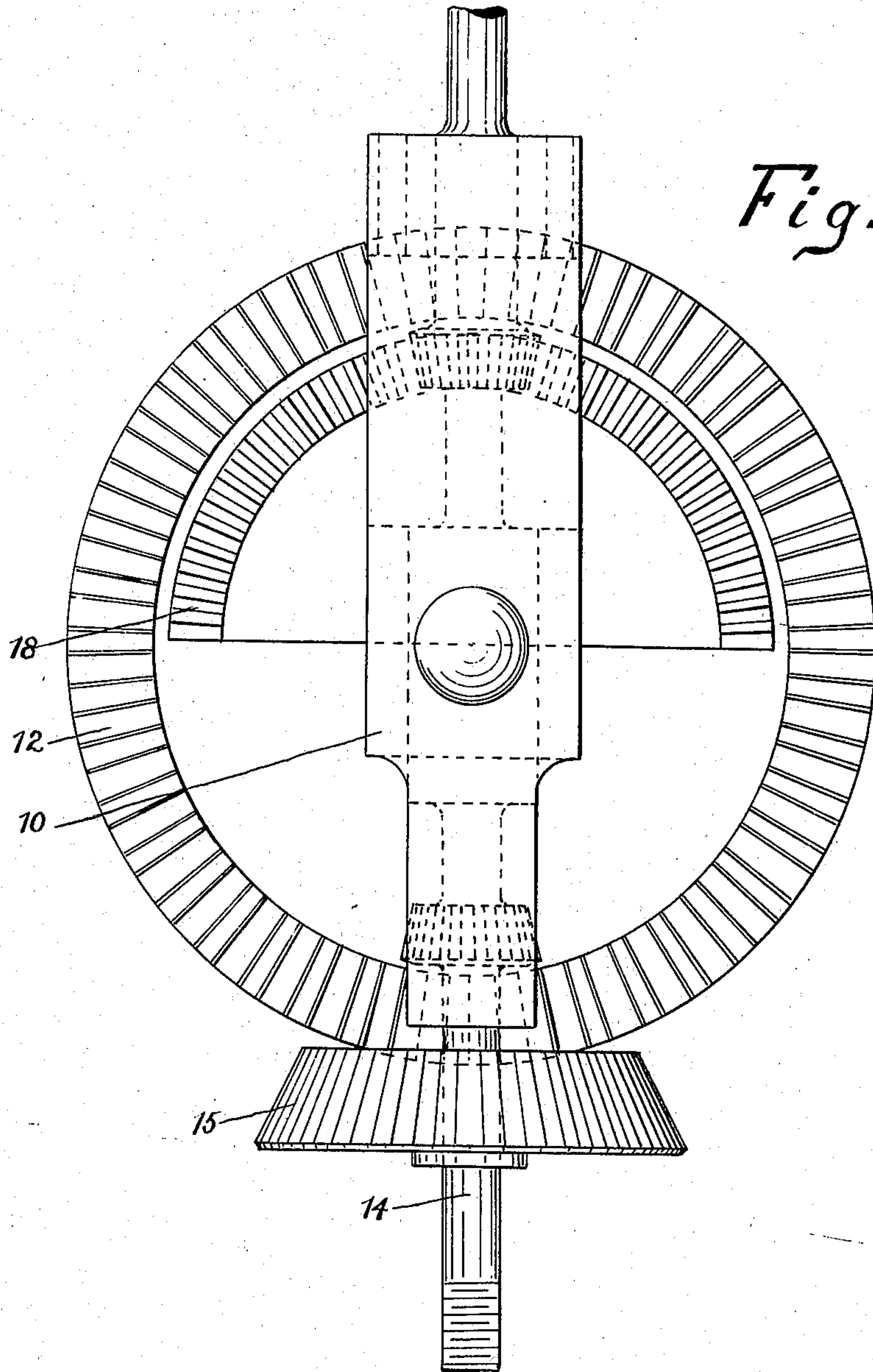
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2 SHEETS—SHEET 2.



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

DAVID BARNES AND CLARENCE W. HUNT, OF OSSINING, NEW YORK; SAID HUNT ASSIGNOR  
TO SAID BARNES.

## COMBINATION-TOOL.

No. 900,144.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed April 26, 1907. Serial No. 370,436.

*To all whom it may concern:*

Be it known that we, DAVID BARNES and CLARENCE W. HUNT, citizens of the United States, and residents of Ossining, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Combination-Tools, of which the following is a specification.

Our invention relates to a combination tool of the breast-drill type and in which means are provided whereby in giving the operating handle a continuous rotation, either continuous rotation in one direction, or alternate rotation in opposite directions of the tool spindle may be obtained.

For this purpose our invention consists essentially of a breast-drill having in addition to the usual actuating mechanism for imparting continuous rotation to a tool, means to throw this mechanism out of engagement and to throw other mechanism into engagement, whereby an alternate rotation of the said tool may be obtained with the same continuous rotation of the operating handle of said breast-drill.

The nature of our invention will be best understood in connection with the accompanying drawings in which—

Figure 1 is a partial vertical section of our combination tool. Fig. 2 is a side view.

Similar characters of reference designate corresponding parts throughout the several views.

In the drawings, 10 is the frame of a breast-drill provided with the brace 11.

12 is an actuating wheel provided with the operating handle 13.

A tool spindle 14 passes through the frame 10 and one end is provided with means for attaching a suitable tool or tool holder (not shown).

The miter actuating gear wheel 12 is adapted as in the usual form of breast-drill to engage with a similar miter gear wheel 15 keyed to the tool spindle 14, whereby in turning the handle 13 in either direction a corresponding rotation of the spindle 14 is obtained. The gear wheels 16 and 17 are arranged on the spindle 14 and are adapted under certain conditions to engage with the segmental gear wheel 18 upon the inner side of the wheel 12. The teeth of said gear wheel extend over less than one-half the cir-

cumference as shown. The spindle is further provided with two peripheral grooves 19 and 20 into either of which a stop 21 is adapted to be fitted, being screwed through the frame 10, as shown, and provided at its outer end with a handle by which the tool is held and steadied.

The operation of our combination tool is as follows: For ordinary purposes as drilling, screwing, etc., in which a continuous rotation in one direction only is required, the tool operates in the usual manner, the gear wheel 12 engaging the gear wheel 15 and the teeth of gear wheel 18 being in this position inoperative. In this case the stop 21 fits the lower groove 20 and the gear wheels 16 and 17 are raised out of engagement with the segmental wheel 18. Should it be desired to have an alternate rotation of the tool as for purposes such as the scraping or grinding of valves and valve seats, the stop 21 is removed from the groove 20 and the spindle lowered bodily until the stop 21 fits the groove 19, as shown in Fig. 1. This permits the teeth of gear wheel 18 to engage with the gear wheels 16 or 17, so that in turning the handle 13 the said gear wheel 18 engages first with one of the two gear wheels 16 and 17 and then with the other. In so doing the spindle 14 is first turned in one direction while one of the gear wheels 16 or 17 is in engagement; and then in the opposite direction while the other is in engagement. The rotation of the handle 13, however, is always in the same direction, that is, it has a continuous rotation in one direction while the spindle 14 rotates alternately in opposite directions.

We claim:

A combination breast drill and a valve grinder, comprising: a frame provided with an upper, lower and intermediate bearing; a vertically adjustable tool spindle mounted therein, and provided at its upper end with a brace; an upper and a lower gear wheel secured to said spindle; a third gear wheel secured to said spindle, said spindle having two peripheral grooves; a removable stop passing through the intermediate bearing of said frame and adapted to engage said peripheral grooves; an actuating gear wheel, and an actuating handle attached thereto, said gear wheel being adapted to engage said third gear wheel secured to the spindle when



the said stop engages one of said peripheral grooves; and a segmental gear in connection with said actuating gear wheel adapted to alternately engage with said upper and  
5 lower gear wheels secured to said spindle when the said stop engages the other of said peripheral grooves.

Signed at Ossining, in the county of

Westchester, and State of New York, this eight day of April 1907.

DAVID BARNES.

CLARENCE W. HUNT.

Witnesses:

THOMAS M. SMITH,  
FRANK T. YOUNG.