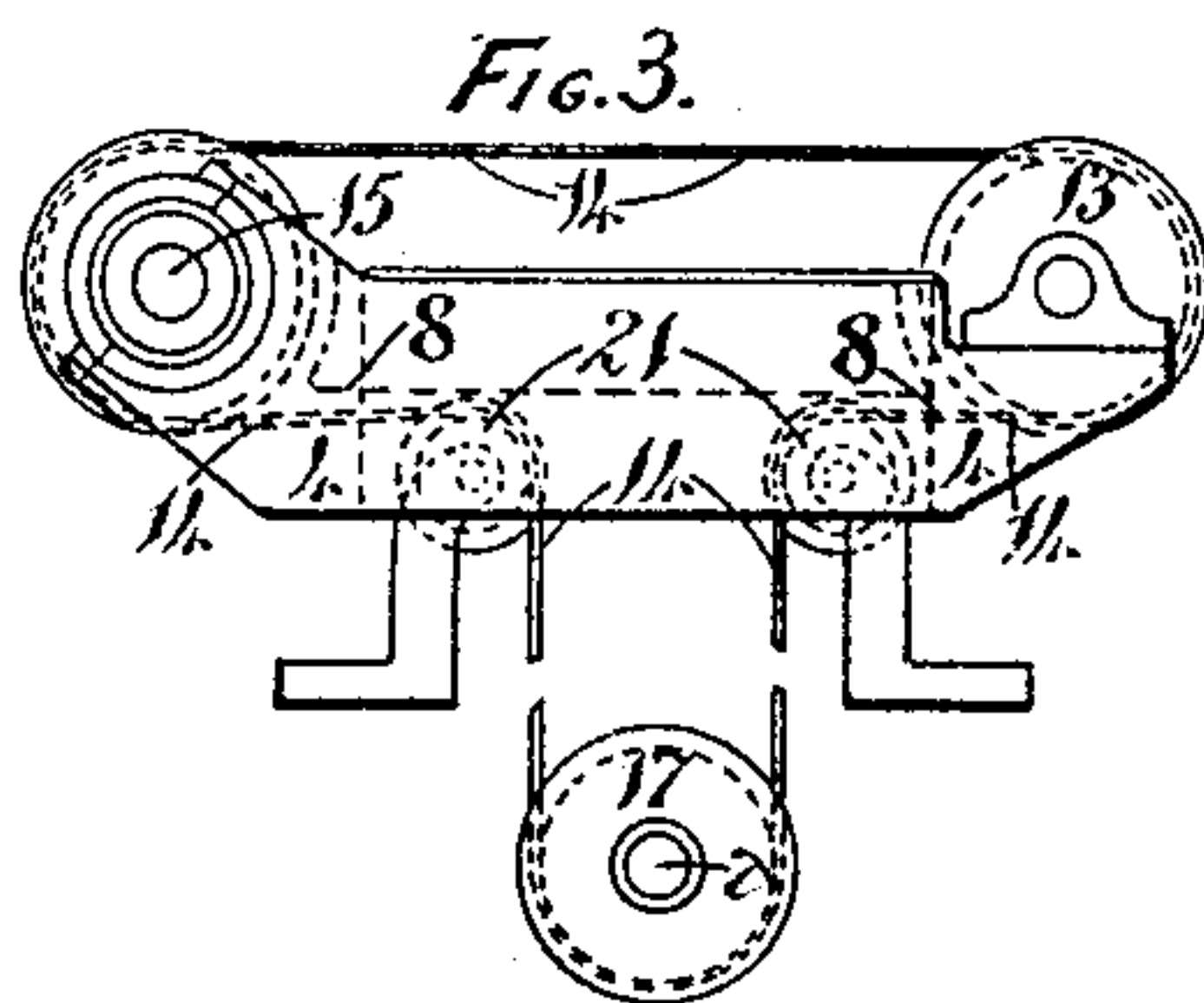
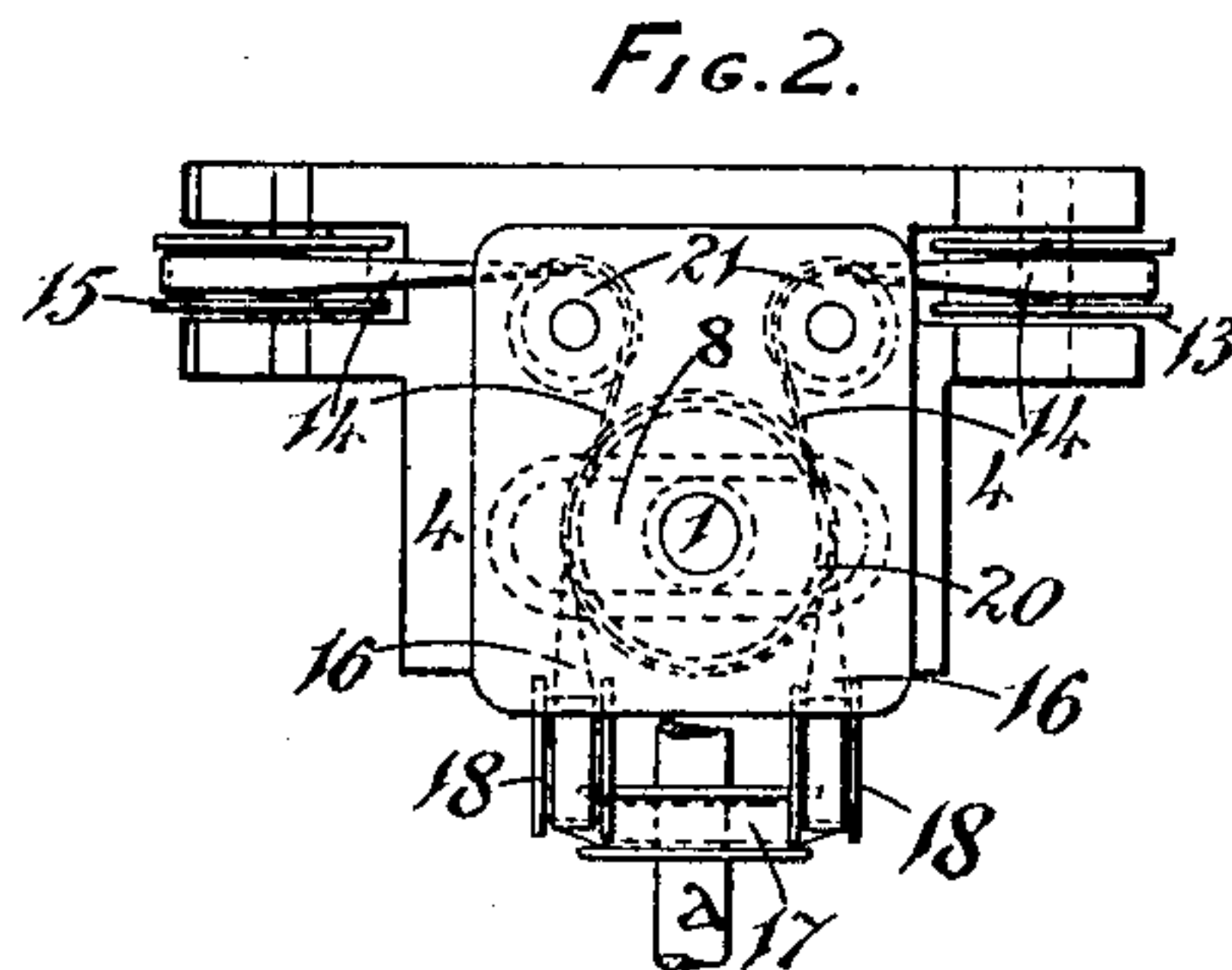
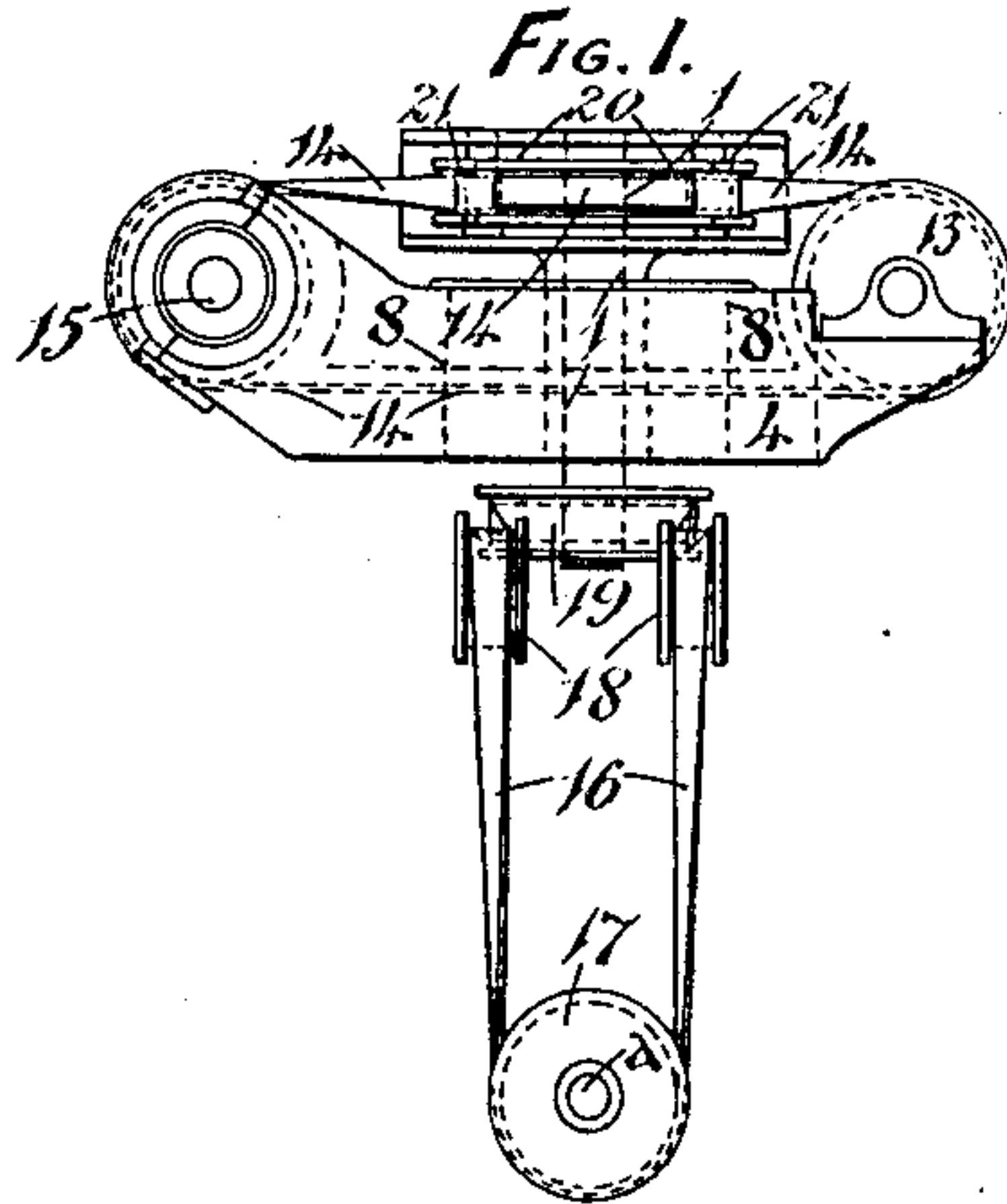


A. MACDONALD.
 EMERY WHEEL DRIVE IN MACHINES FOR GRINDING, TURNING, AND FINISHING SHAFTS,
 PISTON RODS, PINS, TOOLS, &c.
 APPLICATION FILED APR. 2, 1907.

916,174.

Patented Mar. 23, 1909.



WITNESSES
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ALFRED MACDONALD, OF WHITEINCH, SCOTLAND.

EMERY-WHEEL DRIVE IN MACHINES FOR GRINDING, TURNING, AND FINISHING SHAFTS, PISTON-RODS, PINS, TOOLS, &c.

No. 916,174.

Specification of Letters Patent.

Patented March 23, 1909.

Original application filed June 4, 1906, Serial No. 320,143. Divided and this application filed April 2, 1907.
Serial No. 365,930.

To all whom it may concern:

Be it known that I, ALFRED MACDONALD, engineer, a subject of the King of Great Britain and Ireland, and a resident of Whiteinch, Lanarkshire, Scotland, have invented certain new and useful improvements in the emery-wheel drive in machines for grinding, turning, and finishing shafts, piston-rods, pins, tools, and other machined work, of which the following is a specification, constituting a divisional application for the hand-drive to emery-wheels described in my pending application, Serial No. 320,143, filed June 4, 1906.

This invention has reference to improvements in the emery wheel driven in machines for grinding, turning, and finishing shafts, rods, pins, tools and other machined work, and the principal object is to produce a universal drive to emery wheel such that said wheel can advance or recede or swing around to any angle while it is revolving for the purposes of grinding, turning or finishing articles. And in order that my said invention and the manner of carrying same into practice may be properly understood I have hereunto appended explanatory drawings in which—

Figures 1 and 2 are a side elevation and plan view respectively of a universal drive to emery wheel from the main internal shaft, in which the emery wheel base carrying the emery wheel can advance or recede, or swing around to any angle while it is being revolved for the purposes of grinding, turning and finishing articles, while Fig. 3 is a side elevation corresponding to Fig. 1 of a plain drive in which the emery wheel base carrying the emery wheel can only advance or recede to or from the work while the emery wheel is revolving.

Referring to Figs. 1 and 2:—The main internal shaft *a* receives its motion from the headstock of an ordinary machine of this class in the usual well known manner and motion is conveyed from this shaft *a* to the emery wheel spindle 15, on which is mounted the emery wheel, as follows:—A belt 16 passes over pulley 17 secured on shaft *a* then over one of the two guide pulleys 18 and drives a pulley 19 keyed to the lower end of a vertical shaft 1; the belt 16 then returns over the other guide pulley 18. On the other end of vertical shaft 1, a pulley 20 is

secured and a belt 14 passes around this pulley 20, around one of the two guide pulleys 21, around pulley 13 at rear of emery wheel base 4 and drives the emery wheel spindle 15, while the belt returns over the other guide pulley 21.

A slot 8 would be cast in the emery wheel base 4 to permit the emery wheel to advance or recede and the belt 14 would always be at a uniform tension while the emery wheel base 4 was advancing or receding, or swinging around to any desired angle. The emery wheel base 4 would be advanced or receded or swung around as required in the usual well known manner.

In the arrangement shown in Fig. 3, the emery wheel base 4 has only a to and fro transverse motion and the belt 14 passes around the pulley 17 on main internal shaft *a* and over guide pulleys 21 supported on brackets which would be mounted on the usual main slide. This belt 14 further passes around the pulley 13 and drives the emery wheel spindle 15. A slot 8 would be cast in emery wheel base 4 to permit the emery wheel base 4 carrying the emery wheel to advance or recede with the belt 14 at a uniform tension.

What I claim is:—

1. In a machine of the character described, a tool support with slotted base adapted to be advanced and receded during the rotation of the tool, a main internal driving shaft, and means passing through said slotted base for imparting rotary motion from the latter to the tool carried by the support.

2. In a machine of the character described, a tool support with slotted base adapted to be advanced and receded during the rotation of the tool, a main internal driving shaft and flexible means for imparting rotary motion from the latter to the tool carried by the support, said driving means passing through said slotted base of the latter.

3. In a machine of the character described, a main internal driving shaft, a pulley on the same, an endless belt passing around said pulley and means in connection therewith for driving a rotary tool, in combination with a sliding support for said tool having a slotted base and adapted to be advanced and receded during the rotation of the tool, said belt passing through the slotted base of said tool.

4. In a machine of the character described

a movable tool support having a slotted base,
a spindle passing through said slotted base,
a main internal driving shaft and means for
transmitting from the latter through said
5 spindle rotary motion to a tool carried by
the support, said support being adapted to
begin a rotary as well as a reciprocating
movement during the rotation of the tool.

In testimony whereof I have signed my
name to this specification, in the presence of 10
two subscribing witnesses.

A. MACDONALD.

Witnesses:

R. C. THOMSON,
T. B. BROWNLIE.