

No. 738,246.

PATENTED SEPT. 8, 1903.

S. C. SCHAUER.

DRILL PRESS.

APPLICATION FILED JULY 6, 1903.

NO MODEL.

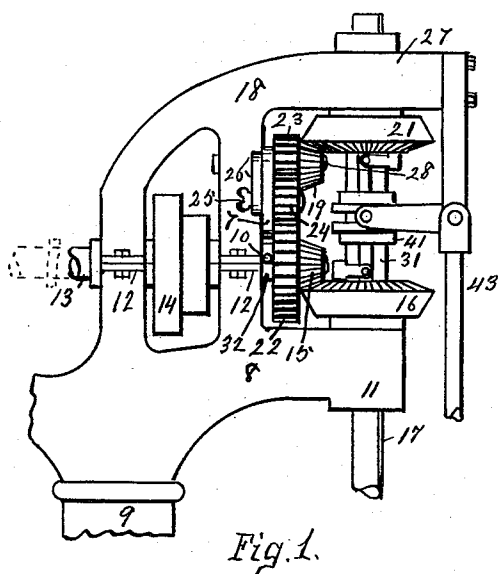


Fig. 1.

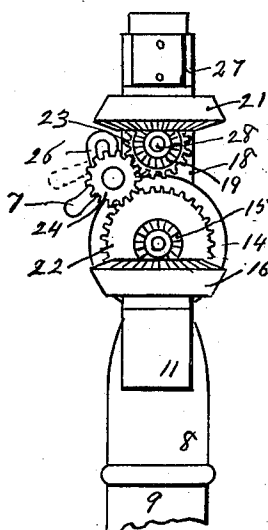


Fig. 2.

WITNESSES,

J. G. Homing,
John Francis.

Sherman C. Schauer, INVENTOR.

By Robert S. Carr. Atty.

UNITED STATES PATENT OFFICE.

SHERMAN C. SCHAUER, OF CINCINNATI, OHIO, ASSIGNOR TO CINCINNATI MACHINE TOOL CO., OF CINCINNATI, OHIO, A COPARTNERSHIP CONSISTING OF HIMSELF AND AUGUST H. TUECHTER, OF CINCINNATI, OHIO.

DRILL-PRESS.

SPECIFICATION forming part of Letters Patent No. 738,246, dated September 8, 1903.

Original application filed July 30, 1902, Serial No. 117,656. Divided and this application filed July 6, 1903. Serial No. 164,261. (No model.)

To all whom it may concern:

Be it known that I, SHERMAN C. SCHAUER, a citizen of the United States, residing at Cincinnati, Ohio, have invented a new and useful Improvement in Drill-Presses, of which the following is a specification.

My invention relates to drill-presses, and this is a divisional application of my application for drill-presses serially numbered 117,656 and filed July 30, 1902.

The objects of my invention are to provide means to rotate the spindle more rapidly in a rearward than in a forward direction to better adapt it for tapping purposes and to provide a detachable reversing mechanism for the spindle which may be disengaged from action without being detached from the frame. These objects are attained in the following-described manner, as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a drill-press embodying my improvement, and Fig. 2 a front elevation showing the driving and reversing gears.

In the drawings, 8 represents the frame mounted on column 9 and formed with gear-bearing 11 and shaft-bearings 12. Driving-shaft 13 is journaled in bearings 12 and provided with step-pulley 14, splined thereon, and with driving bevel-pinion 15, removably secured thereon by means of taper pin or set-screw 10 in its hub 32. Bevel-gear 16 engages with pinion 15 and is formed with a hub whereby it is journaled in bearing 11.

Bracket 18 may be substituted for the usual caps on bearings 12 and removably secured to the frame by means of cap-screws. Said bracket is formed with bearing 27 to register with bearing 11 and is provided with a stud 28, which projects therefrom parallel to the driving-shaft. Bevel-pinion 19 of the same size and similar to pinion 15 is idly mounted on said stud and in the same vertical plane with said pinion 15. Bevel-gear 21 of the same size and similar to gear 16 engages with pinion 19 and is formed with an extended hub whereby it is journaled in bearing 27, with its face toward that of gear 16.

A small spur-gear 23 is secured on the rear end of pinion 19, and a larger spur-gear 22 is splined or otherwise removably secured on the rear end of hub 32 of pinion 15 and in the same plane with gear 23. Intermediate spur-gear 24 is mounted on arm 7 in continuous engagement with gear 23. Said arm is pivotally mounted concentric with the axis of said gear 23 and may be adjustably secured with gear 24 either in or out of engagement with gear 22 by means of clamping-screw 25 being engaged with curved link 26, which projects from the said bracket 18 concentric with the axis of gear 23. When intermediate gear 24 is secured in engagement with gear 22, bevel-gears 16 and 21 are rotated simultaneously in opposite directions and at different speeds proportioned to the different size of gears 22 and 23.

Set-screw 10 may be loosened and driving-shaft 13 moved axially in the bearings 12 for the removal therefrom of pinion 15, when a different-sized gear may be substituted on its hub for gear 22 to effect a change in the relation of the driving to the reversing speed of the spindle.

Drill-spindle 17 is movable axially through gears 16 and 21, and sleeve 31 is splined thereon between said gears. Said sleeve is provided with clutch mechanisms adapted to frictionally and separately engage with said respective gears. Collar 41, splined on the sleeve and controlled by means of hand-lever 43, serves to actuate the clutch mechanisms in or out of engagement with either of the respective gears 16 and 21, whereby the spindle may be rotated in a forward or backward direction, as desired.

Bracket 18, with the gears mounted thereon, is distinctly a reversing attachment, which may be omitted in the manufacture or sale of the drill-presses and supplied thereafter, if desired.

I am aware that drill-presses have been made and patented embodying means to rotate the spindle in opposite directions and at respectively different speeds. I do not claim such invention broadly; but

What I do claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a drill-press, the combination with a
5 spindle, similar driving and reversing bevel-
gears therefor, a clutch mechanism arranged
to detachably engage the spindle with either
of the gears, and similar driving and driven
pinions in continuous engagement with said
10 respective gears, of a spur-gear carried by
said driving-pinion, a smaller spur-gear car-
ried by said driven pinion, an intermediate
spur-gear in continuous engagement with said
smaller spur-gear, and means to detachably
15 engage it with said larger spur-gear, where-
by the difference between the driving and re-
versing speeds of the spindle is graduated to
correspond with the difference in the size of
said larger and smaller spur-gears.
- 20 2. In a drill-press, the combination with a
spindle, similar driving and reversing gears
therefor, clutch mechanisms arranged to en-
gage the respective gears with the spindle, an
idle pinion mounted on a stud and engaging
25 with said reversing-gear, a driving-shaft mov-
able axially in its bearings, a driving-pinion
removably secured thereon and engaging with
said driving-gear, of a spur-gear removably
secured on said driving-pinion, a smaller

spur-gear secured on said idle pinion, an in- 30
termediate spur-gear mounted idly on an arm
and in continuous engagement with said
smaller spur-gear, and adjustable by means
of said arm in an arc concentric with said
smaller spur-gear and in and out of engage- 35
ment with said larger spur-gear, and means
to secure said arm in different positions of
adjustment.

3. In a drill-press, the combination with a
frame, a driving-shaft journaled thereon, a 40
spindle, a driving-pinion, a driving-gear en-
gaging therewith, a clutch mechanism ar-
ranged to detachably engage the spindle with
the driving-gear, of a bracket removably se-
cured on the frame, a reversing-gear mount- 45
ed thereon, a clutch mechanism arranged to
detachably engage the spindle therewith, a
stud projecting from the bracket, a pinion
idly mounted thereon and engaging with the
reversing-gear, a train of spur-gears arranged 50
to detachably connect the driving with the
idle pinion, whereby the reversing-gear may
be rotated in a direction opposite to that of
the driving-gear.

SHERMAN C. SCHAUER.

Witnesses:

AUG. H. TUECHTER,
R. S. CARR.