

(No Model.)

C. E. VAN NORMAN.
MILLING MACHINE.

No. 578,588.

Patented Mar. 9, 1897.

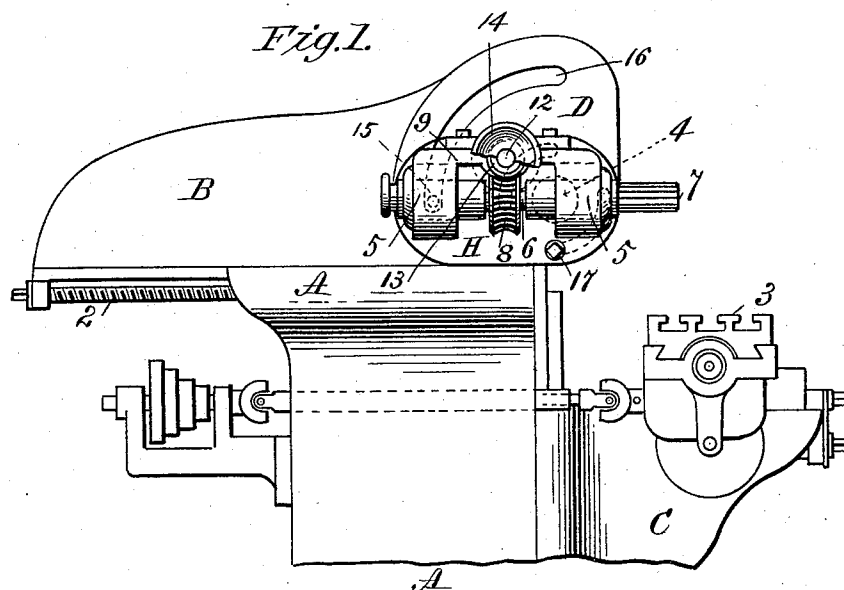
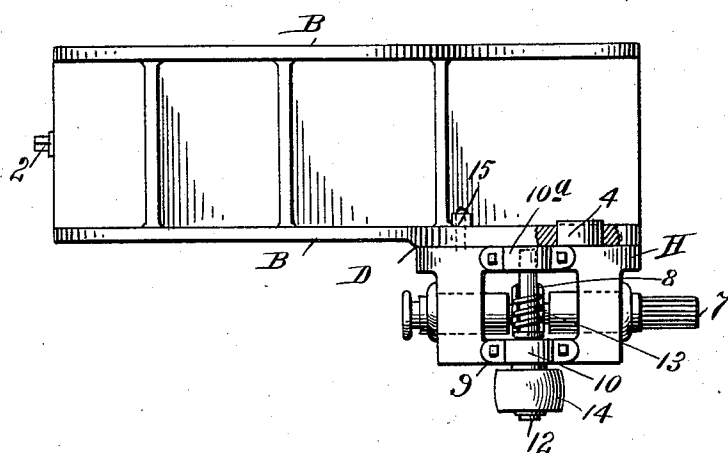


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES E. VAN NORMAN, OF SPRINGFIELD, MASSACHUSETTS.

MILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,588, dated March 9, 1897.

Application filed May 14, 1896. Serial No. 591,510. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. VAN NORMAN, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Milling-Machines, of which the following is a specification.

This invention relates to milling-machines, and particularly to means for driving the tool-spindle of milling-machines having an adjustable head pivoted on the side of the main horizontally-moving head, the object of the invention being to simplify and cheapen the construction of the driving mechanism of the above-named machines; and the invention consists in the construction of said spindle-driving mechanism, all as hereinafter described and claimed.

In the drawings forming part of this specification, Figure 1 is a side elevation of the upper part of a milling-machine, showing the adjustable head on the side of the horizontally-moving head, said adjustable head being turned to a horizontal position, the driving-pulley thereon being partly broken away. Fig. 2 shows a plan view of the top of said horizontally-moving head having the adjustable head thereon in the same position in which they are shown in Fig. 1.

Referring to the drawings, A is the upper portion of the standard or base of a milling-machine.

B is the main head of the machine, adjustable horizontally in suitable ways on the top of the stand A by a screw-rod 2 in the manner usually employed in machines of this class.

C represents a portion of the vertically-adjustable work-carrying table having the slotted bed 3 thereon, which has the usual traverse motion at right angles to the axial line of the milling-tool.

Said main head B has provided on the side thereof at one end a planed surface D for the reception of an auxiliary head H for adjustment in a vertical plane from a vertical to a horizontal position, more or less. Said auxiliary head is supported on said main head by a trunnion 4, closely fitting a hole located in a proper position in said planed surface D. The said auxiliary head H is of oblong form,

as shown in the drawings, and is provided with bearings 5, preferably integral with said oblong base and into which is fitted a suitable spindle 6, one end of which has a tapered hole therein for the reception of the tapered shank of a milling-cutter, as 7. About midway between said bearings 5 on said spindle is fixed in any suitable manner a worm-gear 8. The said bearings 5 are united by a bar 9, preferably integral therewith. In a proper position on said bar is provided a bearing 10 for one end of a shaft 12, lying at right angles to the said spindle 6. The opposite end of said shaft 12 is provided with a bearing 10^a in the edge of the oblong base of the auxiliary head, as shown in Fig. 2. On said shaft 12, in a proper position relative to said worm-gear 8, is a worm 13, fixed thereon, and on the end of said shaft projecting outwardly beyond the side of the bar 9 is a driving-pulley 14. The means of adjustment of said auxiliary head consists of suitable bolts, one of which, 15, is fixed in said head and passes through a slot 16 in the side of the main head and concentric with the trunnion 4, and a nut on the end of said bolt which projects through the side of said main head serves to secure said auxiliary head at any desired point within the limits of said slot 16. Additional means of adjustment consist of two slots in the main head, which are shown only in dotted lines in Fig. 1, and suitable bolts passing through said slots and through a hole in said auxiliary head. The bolts engaging said two smaller slots are fixed in the main head B, and the nuts thereof have a bearing against the face of the auxiliary head H. Only one of said bolts, (indicated by 17) shows in the drawings. (See Fig. 1.) In changing the position of said auxiliary head from the vertical to the horizontal positions the pulley 14 is moved therewith, and therefore to always maintain a proper degree of contact of the driving-belt on said pulley an idler may be provided therefor for that purpose in the usual manner.

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

In a milling-machine having a main head horizontally movable, an auxiliary head se-

cured to the side of said main head, and adjustable thereon in a vertical plane, a tool-carrying spindle rotatably supported in said auxiliary head, and means for driving said
5 spindle consisting of the worm-gear 8, the shaft 12, provided with bearings in said auxiliary head, a driving-pulley on said shaft,

and a worm 13, fixed thereon in operative relation with said worm-gear, substantially as described.

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