

No. 697,581.

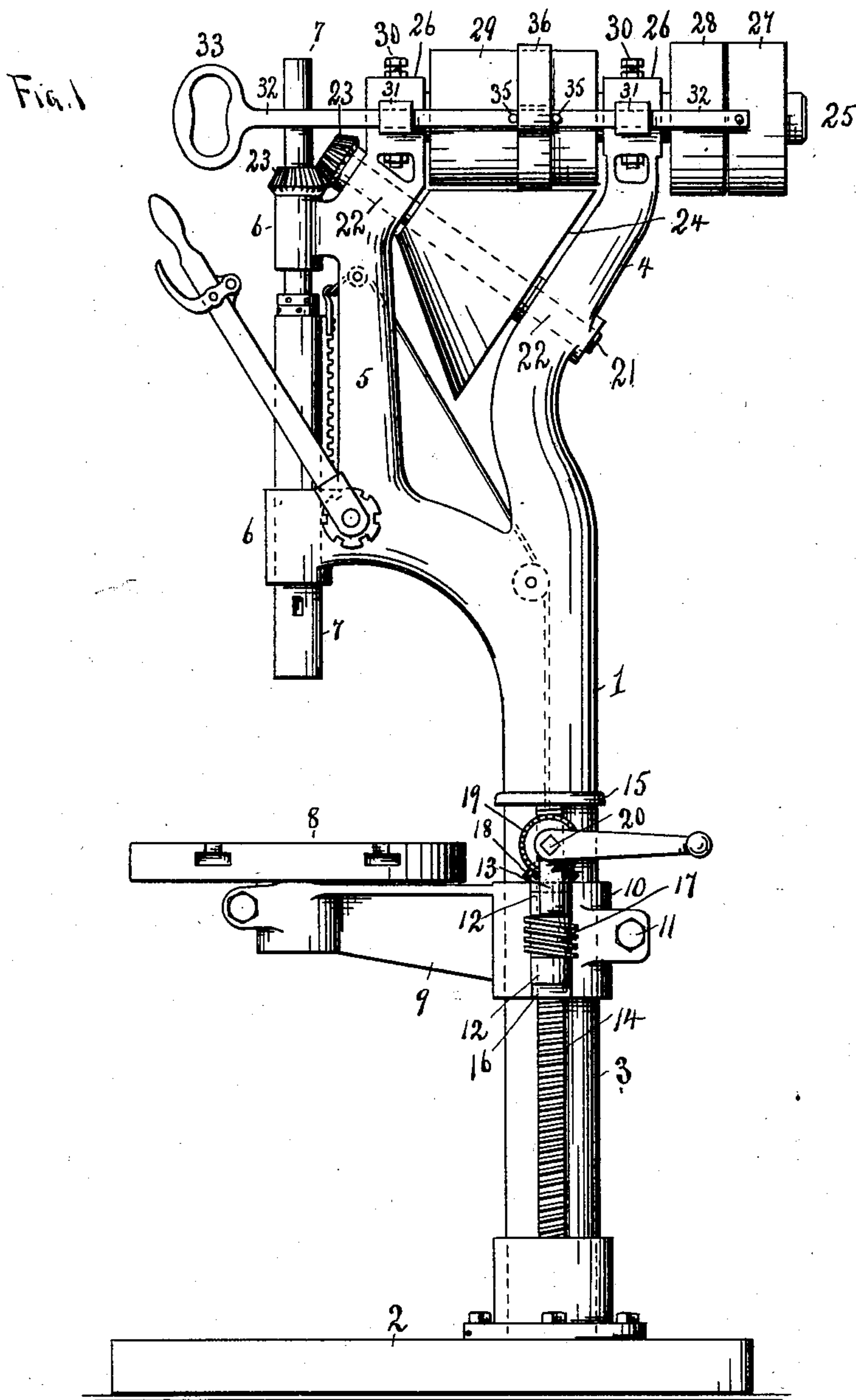
Patented Apr. 15, 1902.

C. A. WESSMAN.  
DRILLING MACHINE.

(Application filed Apr. 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
C. N. Woodward.  
J. W. Garner

C. A. WESSMAN, Inventor  
By C. A. Snow & Co.,  
Attorneys

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Fig. 2

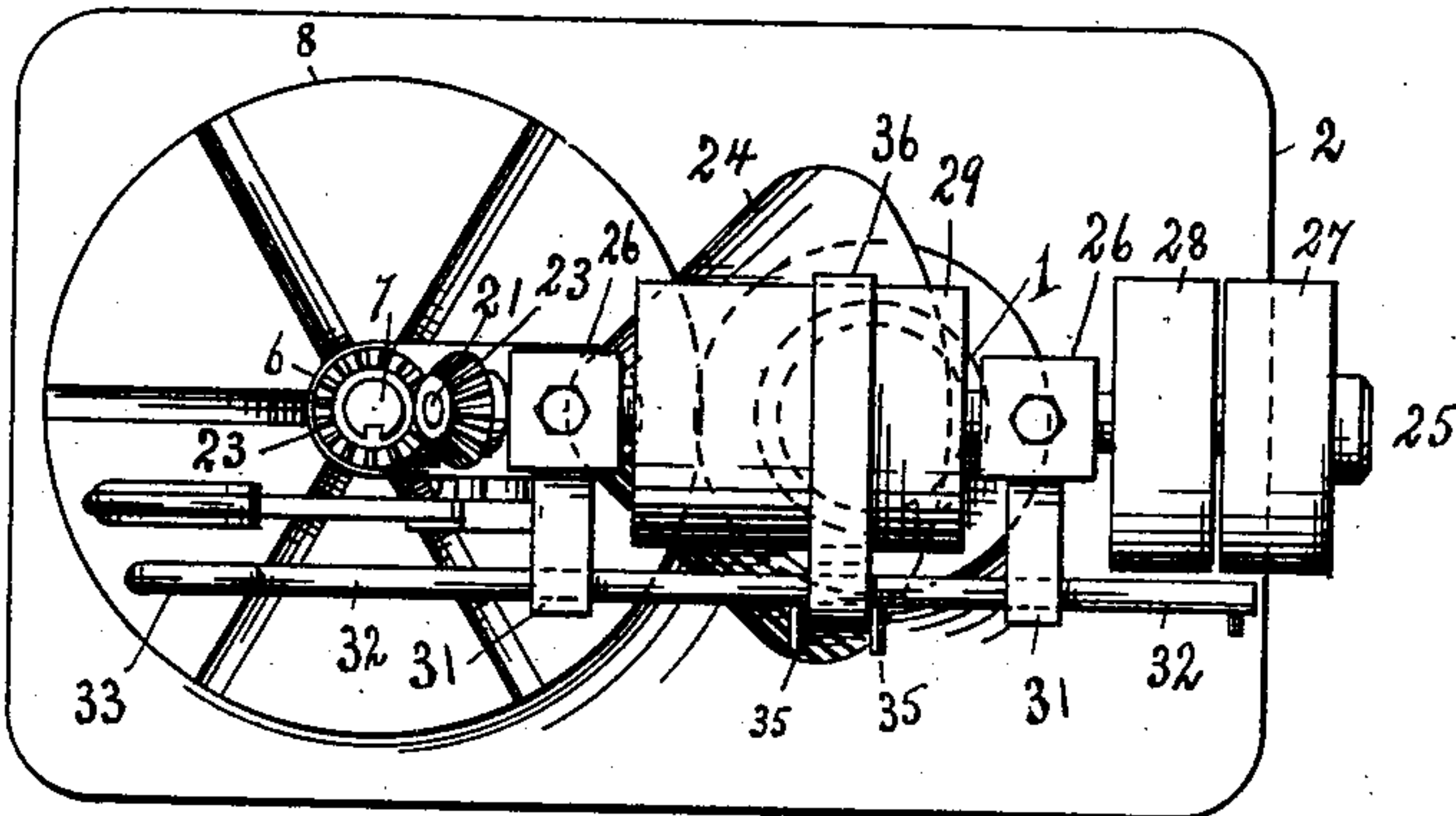


Fig. 3

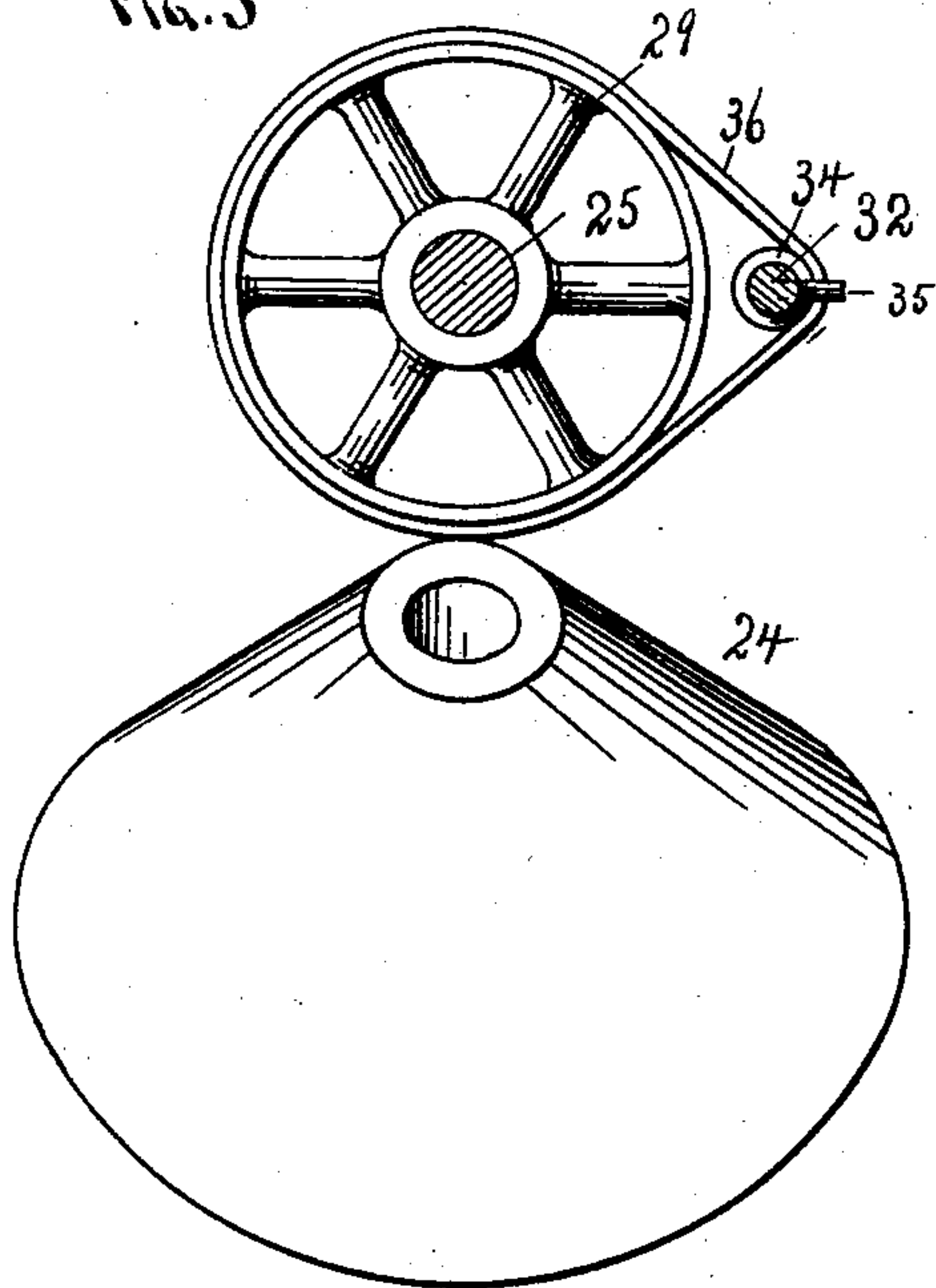


Fig. 4

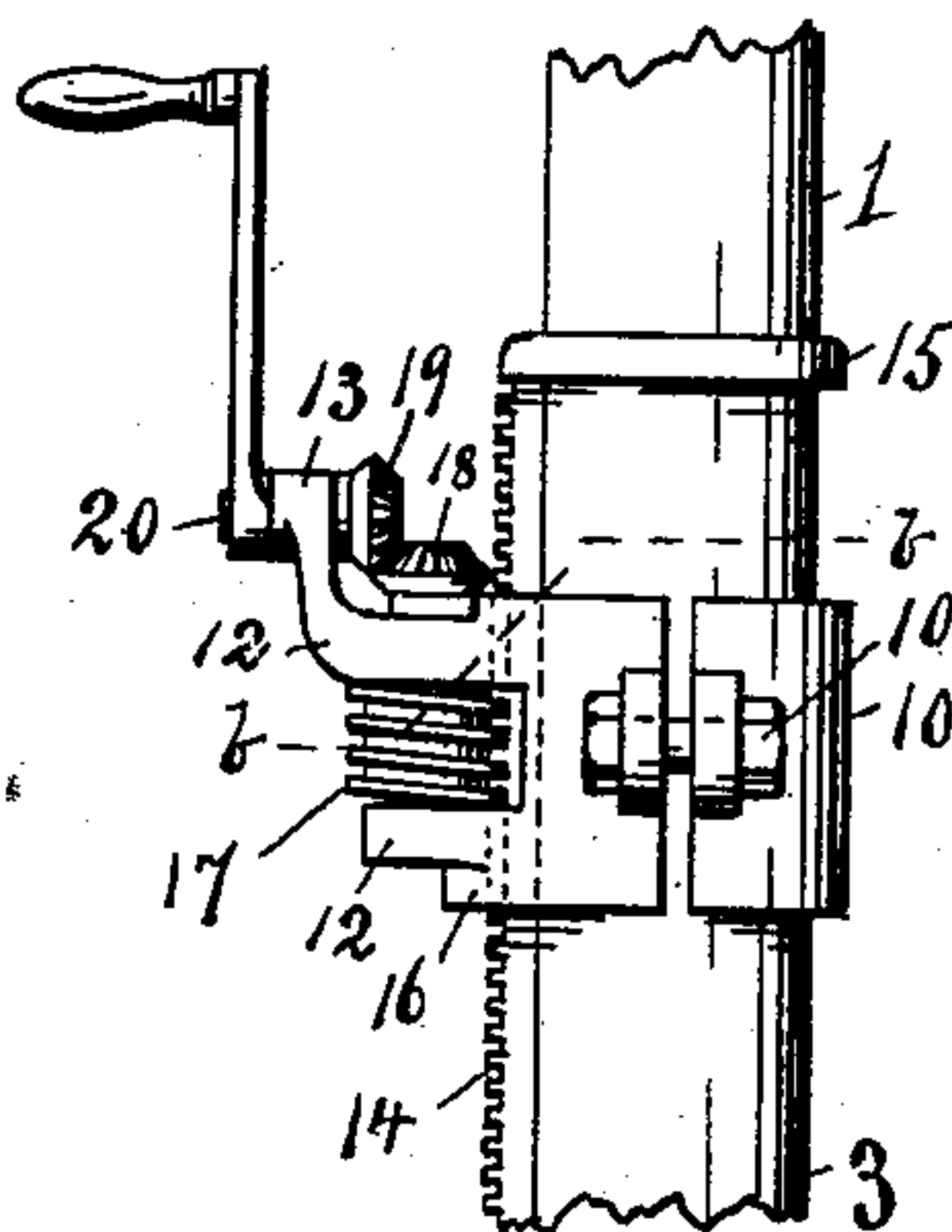
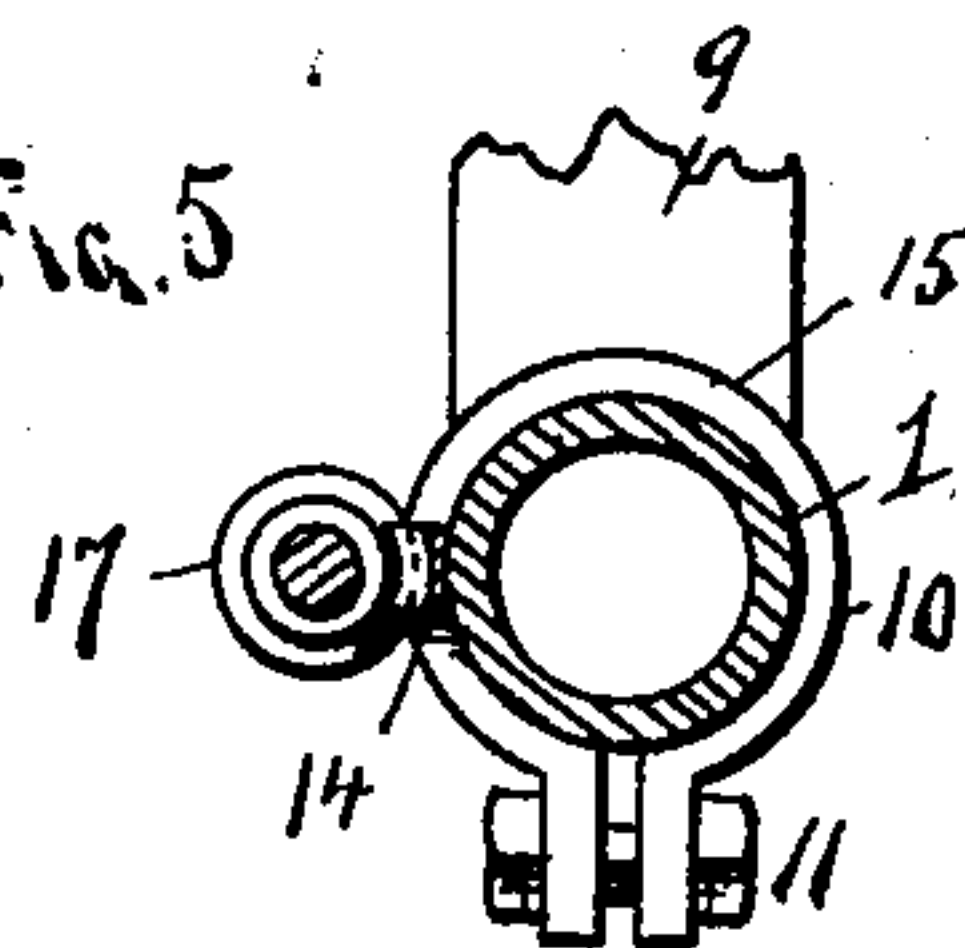


Fig. 5



Witnesses  
*W. H. Woodward*  
*J. W. Garner*

C. A. WESSMAN Inventor,  
By *C. A. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

CARL A. WESSMAN, OF CHICAGO, ILLINOIS.

## DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 697,581, dated April 15, 1902.

Application filed April 1, 1901. Serial No. 53,869. (No model.)

*To all whom it may concern:*

Be it known that I, CARL A. WESSMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Drilling-Machine, of which the following is a specification.

My invention is an improved drilling-machine; and it consists in the peculiar construction and combination of devices herein-after fully set forth and claimed.

The object of my invention is to provide improved means for increasing and decreasing the speed of the drill-shaft at will.

In the accompanying drawings, Figure 1 is a side elevation of a drilling-machine constructed in accordance with my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a detail section of the friction-gear for increasing and decreasing the speed of the drill-shaft. Fig. 4 is a detail elevation of the means for raising and lowering the work-table. Fig. 5 is a detail sectional view taken on a plane indicated by the line *b b* of Fig. 4.

The standard 1 rises from the base 2 and has the cylindrical lower portion 3 and the arms 4 5 at its upper end. The arms 5 are provided with bearings 6 for the revoluble and vertically-adjustable drill-shaft 7, which is raised and lowered by the means usually employed in machines of this character and here shown. The work-table 8 is carried by an arm 9, which is pivotally mounted and adapted to slide vertically on the cylindrical portion 3 of the standard. The pivotal collar 10 of said arm is provided with an adjusting-bolt 11, with bearings 12, and with a bearing 13. A vertically-disposed rack-bar 14 bears against the cylindrical portion 3 of standard 1 and has at its upper end a sleeve or annulus 15, which engages and is adapted to rotate on the said cylindrical portion of said standard. The said rack-bar passes through a groove or guideway 16 in one side of the pivotal collar 10 of supporting-arm 9 and is engaged by a worm 17, which is vertically disposed and is journaled in the bearings 12. A miter-gear 18 is fast on the upper end of the worm-shaft and is engaged by a similar gear 19 on a crank-shaft 20, which may be operated manually and is journaled in the bearing 13. By this means the work-

table may be raised and lowered, as may be required, and may be swung from under the drill-shaft or disposed under the same.

An inclined shaft 21 is journaled in bearings 22, with which the arms 4 5 of standard 1 are provided. The said shaft 21 is geared to the revoluble drill-shaft 7 by beveled gears 23, as shown, and on the said shaft is a friction-cone 24, which is fast thereto. A power-shaft 25 is journaled in suitable bearings 26 at the upper ends of the arms 4 5. Said power-shaft has at its rear end a fast pulley 27 and a loose pulley 28. Said shaft further carries a cylindrical pulley 29, which is disposed opposite and in proximity to the upper side of the friction-cone 24. Adjusting-screws 30 are provided, by means of which the shaft 25 may be adjusted vertically in its bearings to cause the cylindrical pulley 29 to be moved toward or from the friction-cone 24, as may be required. Arms 31, which are horizontally disposed, project from one side of the bearings 26. The said arms support a longitudinally-movable shifting-rod 32, which is provided at its front end with a suitable handhold 33, which may be readily grasped by the operator. The said shifting-rod carries a small pulley or sleeve 34, which is revoluble thereon and is provided with pins or stops 35, which project from said shifting-rod at points at opposite ends of said pulley or sleeve. An endless friction-belt 36 connects the cylindrical pulley 29 and the sleeve or pulley 34. The said belt bears on the upper side of the friction-cone 24 and when the shaft 25 is in rotation causes the said friction-cone 24 to rotate, thereby rotating the drill-shaft. The desired friction is maintained and secured by adjusting the power-shaft 25 by the means hereinbefore described. By means of the shifting-rod 32 the friction-belt may be shifted longitudinally on the pulley 29 and friction-cone 24, and hence caused to bear on the latter at any desired point to increase or decrease the speed of the drill-shaft. The belt being flexible responds immediately to the movement of the shifting-rod, and being obliquely disposed on the pulley 29 when the shifting-rod is moved the rotation of the drum is effective in moving the belt back or forth thereon, thus greatly facilitating the change of speed. Moreover, the belt being inter-

posed between the pulley and the friction-cone maintains the friction between them under all conditions.

Having thus described my invention, I  
5 claim—

In a drilling-machine, the combination of a standard having forked arms at its upper end, one of said arms being vertical, a drill-shaft journaled in bearings on said vertical  
10 arms, an inclined shaft journaled in bearings in said forked arms and geared to said drill-shaft, a friction-cone on said inclined shaft, the upper side of said cone being disposed in a horizontal plane, a horizontally-  
15 disposed power-shaft, journaled in bearings on said forked arms and having fast and loose pulleys thereon, a cylindrical, elongated pul-

ley 29 on said power-shaft, opposite said friction-cone, a longitudinally-movable shifting-rod, in supports with which said forked arms  
20 are provided, a pulley and stops on said shifting-rod, and an endless friction-belt, connecting said pulley and said pulley 29, said belt engaging said friction-cone and being shift-  
25 able thereon by said rod, to vary the speed of the drill-shaft, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CARL A. WESSMAN.

Witnesses:

VICTOR A. HELLSTROM,  
OSCAR E. WILSON.