

No. 822,656.

PATENTED JUNE 5, 1906.

J. T. DUFF.  
GRINDING OR POLISHING MACHINE.

APPLICATION FILED JUNE 24, 1905.

4 SHEETS—SHEET 1.

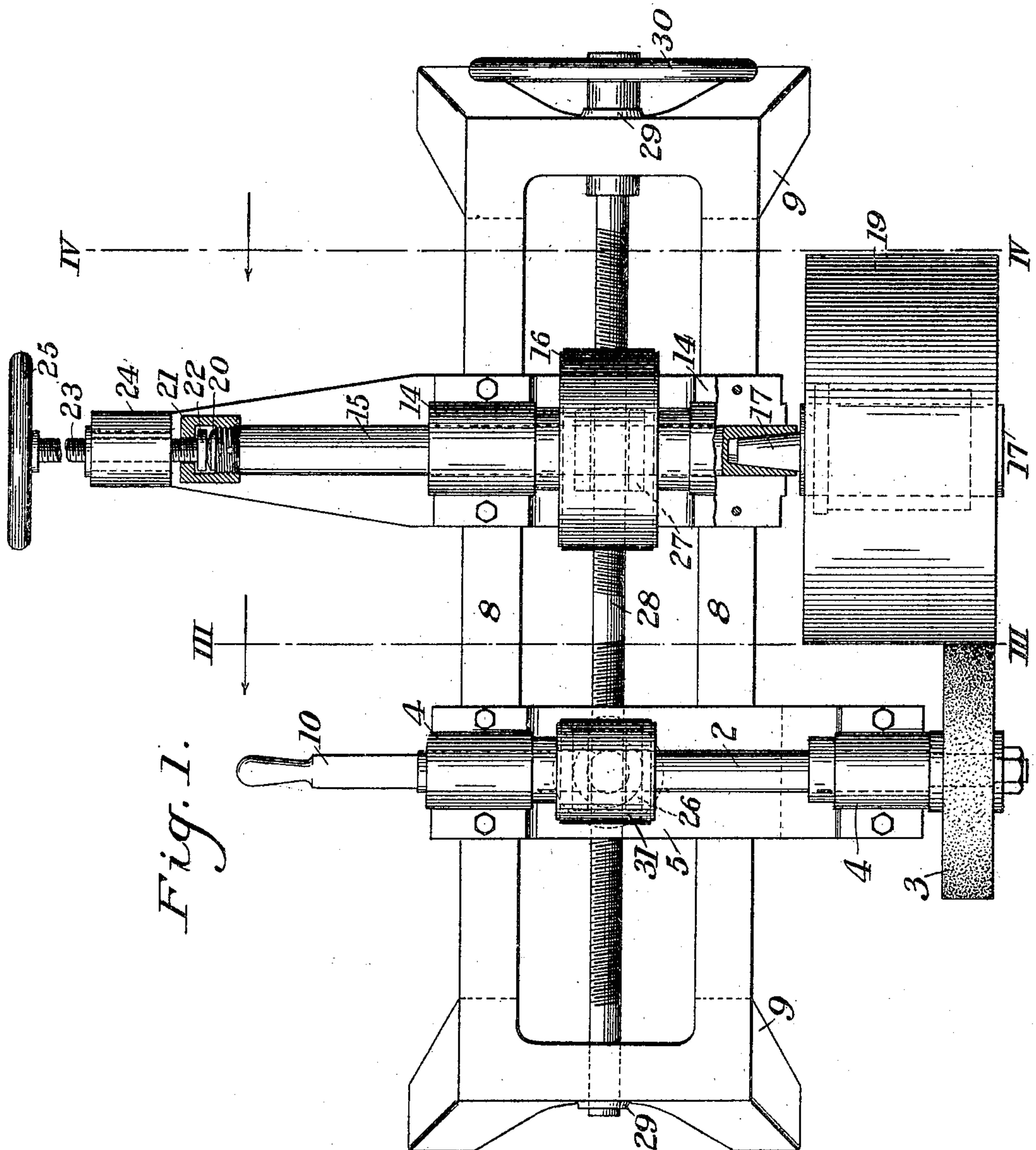


Fig. 1.

WITNESSES

*R. H. Alderson*  
*Warren W. Swartz*

INVENTOR

*John T. Duff*  
*by Charles H. Dwyer*  
*his atty.*

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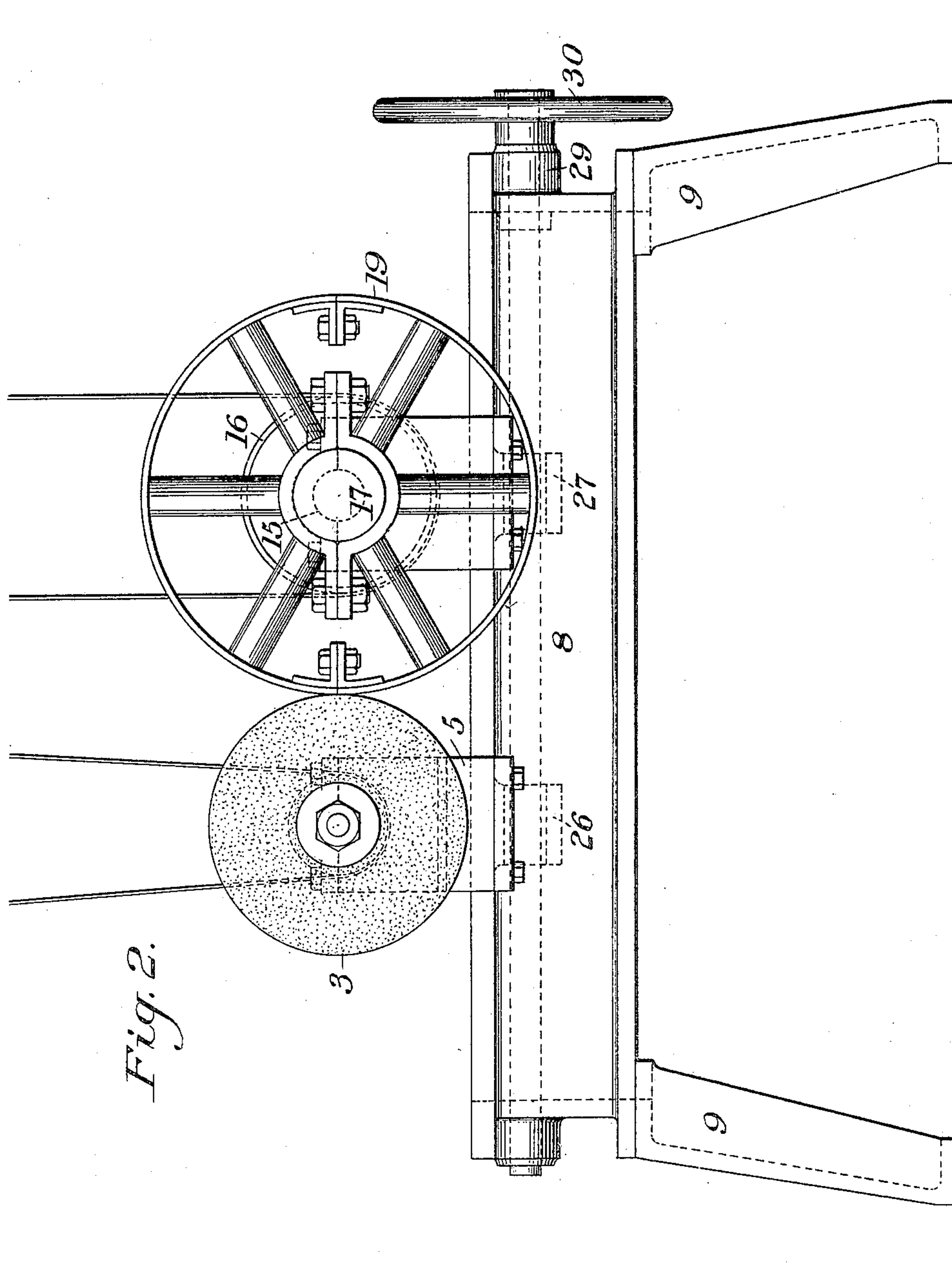


Fig. 2.

WITNESSES

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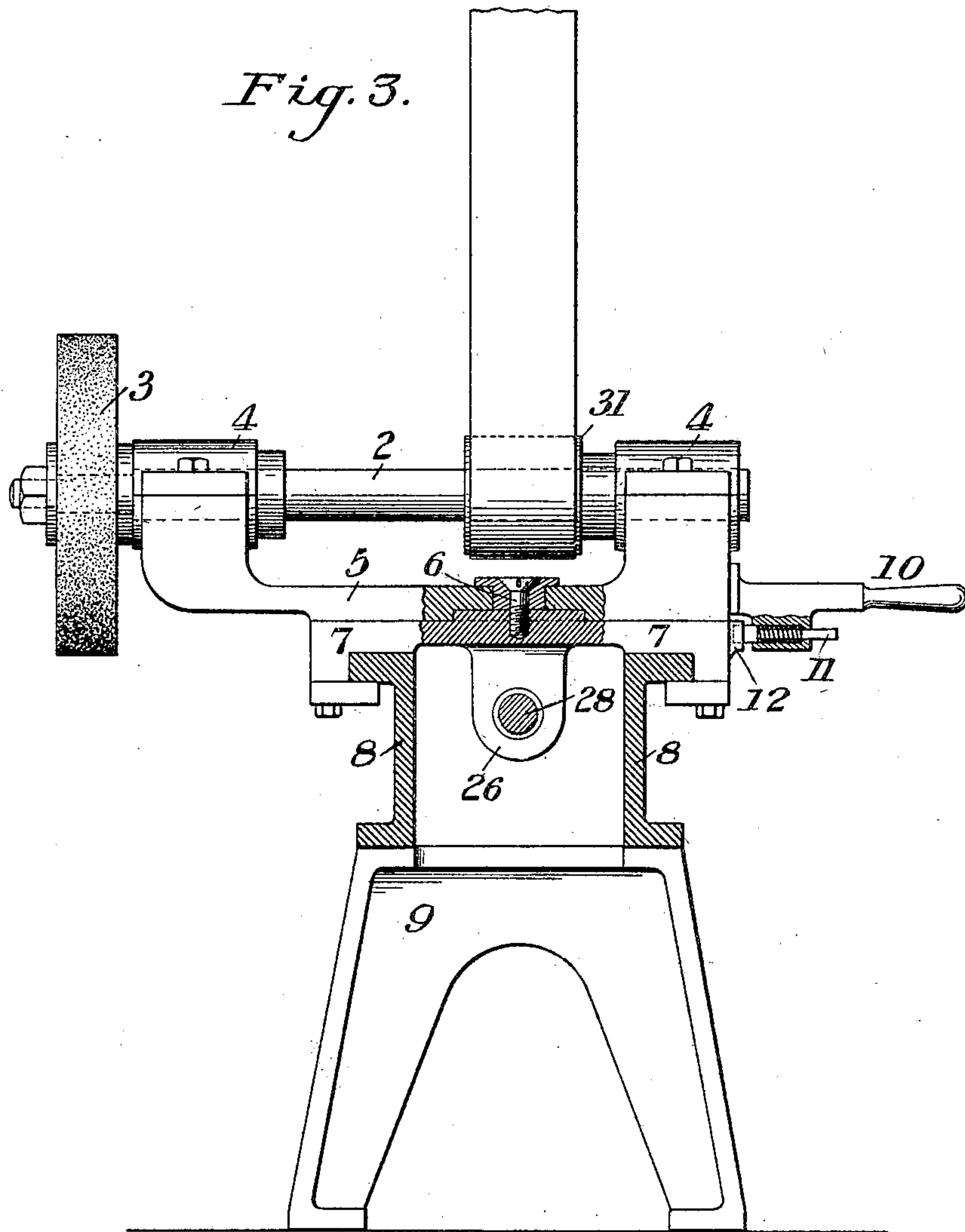
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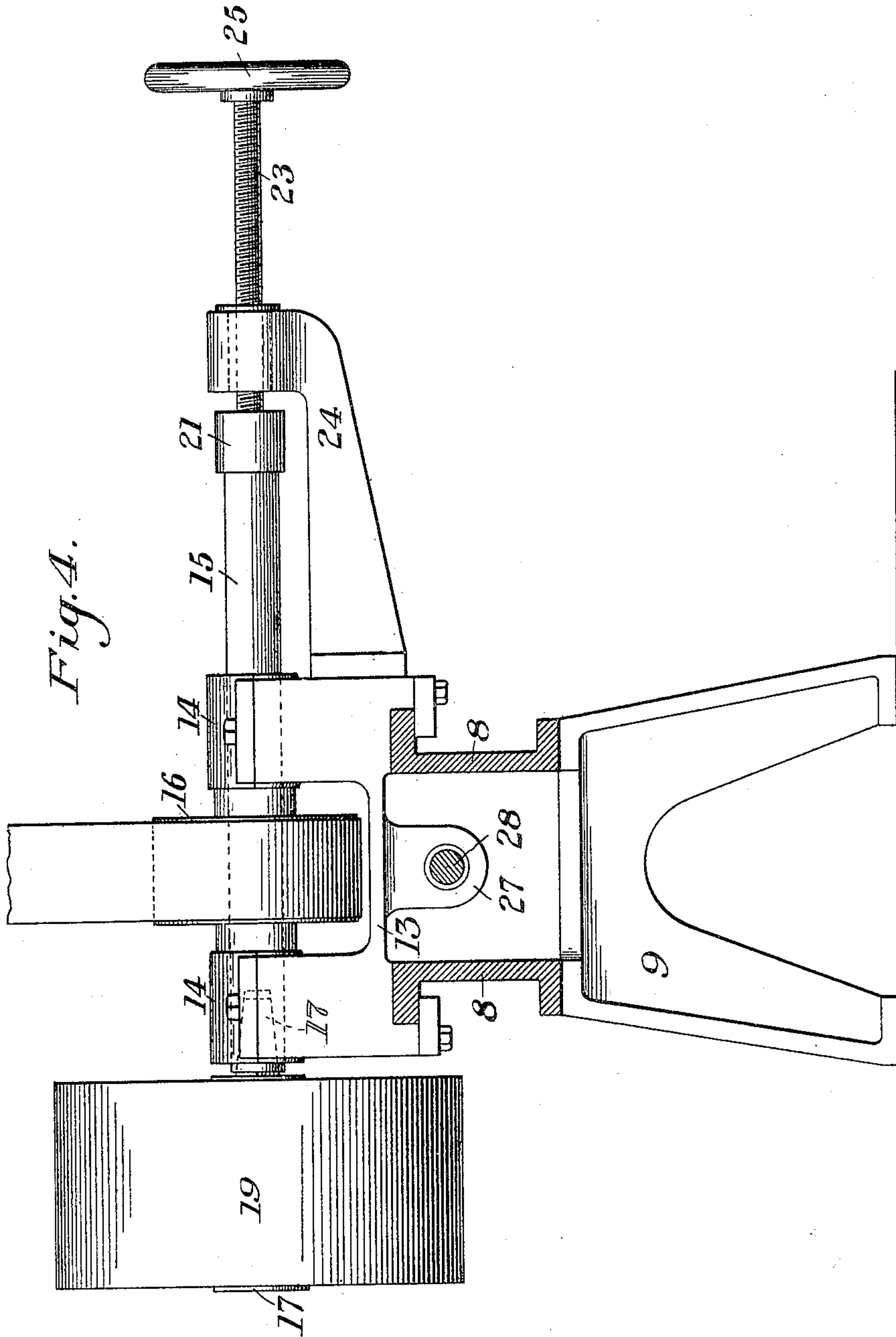
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4 SHEETS—SHEET 4.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN T. DUFF, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF  
TO JOSEPH McNAUGHER, OF ALLEGHENY, PENNSYLVANIA.

## GRINDING OR POLISHING MACHINE.

No. 822,656.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed June 24, 1905. Serial No. 266,699.

*To all whom it may concern:*

Be it known that I, JOHN T. DUFF, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Grinding or Polishing Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of my improved grinding or polishing machine. Fig. 2 is a front elevation of the same. Fig. 3 is a cross-section on the line III III of Fig. 1 looking toward the left, and Fig. 4 is a section similar to Fig. 3 on the line IV IV of Fig. 1.

My invention relates to the grinding or polishing of the rims of pulleys, wheels, &c., and is designed to provide improved apparatus by which this operation may be rapidly and cheaply carried out.

In the drawings, 2 represents a shaft carrying at its end a polishing or grinding disk 3. The shaft 2 is mounted in bearings 4 4, carried on a turning base-plate 5, which is pivoted to the vertical pin 6. The plate 5 is mounted upon the slide 7, which may be adjusted along the longitudinal open frame of the machine, having the flanged side members 8 8 resting on the supporting members 9. The plate 5 may be turned by the projecting handle 10, having a spring-pressed catch 11 engaging notches or ratchet-teeth in a segment-plate 12. The plate 5 may thus be turned and adjusted to any desired angular position in the manner of a turret, this being held in the adjusted position by the latch or catch. On the same frame members 8 8 is another slide 13, having bearings 14, carrying a shaft 15, to which is secured a large driving-pulley 16. The outer end of this shaft is shaped to receive removable mandrels 17. In the form shown the mandrel is tapered at its inner end and is driven into corresponding recesses in the end of the shaft which is provided with an open slot, through which the mandrel may be driven out. The pulley 19 to be ground is secured to the mandrel, which is then driven into the shaft 15.

The rear end of the shaft 15 is rounded and preferably provided with a rounded friction-plate 20, a cap 21 being screwed to this end of the shaft. Within this cap fits the enlarged end portion 22 of a screw-shaft 23, fitting within a screw-threaded hole in the arm 24.

The shaft 23 terminates in hand-wheel 25, by means of which the shaft 15 may be moved endwise in either direction to move the face of the pulley across the grinding-wheel, and thus bring the different parts of its face into the position to be ground or polished.

In order to adjust the grinding-wheel and pulley toward or from each other, and thus enable the apparatus to be used for different sizes of pulleys or wheels, I preferably provide the slides 7 and 14 with depending ears 26 and 27, which are provided with right and left hand screw-threads, respectively. A longitudinal shaft 28 extends through the end portions 29 of the frame members 8 and is provided with a hand-hole 30. The shaft 28 is provided with a right and left hand screw-threads engaging the correspondingly screw-threaded holes in the ears or lugs 26 and 27 of the two slides, and by turning the hand-wheel the slides may be simultaneously moved toward or from each other. I can thus adjust the shafts to correspond to different sizes of pulleys or wheels to be ground. The grinding-wheel shaft 2 is provided with a pulley 31, which is preferably smaller than the corresponding pulley on the mandrel-shaft, so that the grinding or polishing wheel may be driven at a considerably-higher speed than that of the pulley. I preferably drive the pulley in the same direction as the grinding-wheel, the direction being clockwise for both looking at Fig. 2.

In the use of the apparatus the pulley is placed on the mandrel and the mandrel is driven in or secured to the shaft 15. Both the mandrel-shaft and the grinding-wheel shaft are then rotated, the grinding-wheel being driven, preferably, at high speed. As the pulley rotates its surface is ground, and during this grinding action the pulley is moved endwise by means of the hand-wheel 25, so as to bring the different portions of its rim into contact with the grinding or polishing disk. The width of the polishing-disk is therefore independent of the width of the rim, and with rims of different widths their different portions may be brought into engagement with the grinding-disk.

The advantages of my invention result from the simple and efficient apparatus which will rapidly grind the outer face of pulleys or wheels having different diameters and



of different widths of rim, also from the manner in which any desired angle of adjustment may be given the grinding-wheel whereby pulleys having different forms of crowned surfaces may be accurately and rapidly ground.

In grinding pulleys with a crown-face or a ridge at the center I adjust the grinding-wheel carrier and its turret to the proper angle, and by thus adjusting the angular position of the wheel and moving the pulley endwise along the bed I can give any desired shape to the outer face of the rim.

Instead of adjusting the mandrel-shaft endwise I may adjust the grinding-wheel endwise to bring it to the different portions of the pulley. The means for connecting the pulley and the rotary shaft may be varied, and many other changes may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. In a rim grinding or polishing machine, a rotary rim-carrying shaft, a rotary grinding or polishing wheel, and means for moving one of said parts endwise and angularly relative to the other to bring the grinding-wheel into contact with the different parts of the rim-face; substantially as described.

2. In a rim grinding or polishing machine, a shaft having a grinding-wheel, a shaft arranged to carry the rim or pulley, and means for adjusting both shafts toward or from each other to provide for pulleys of different sizes; substantially as described.

3. In a rim grinding or polishing machine, a shaft carrying a grinding-wheel, a shaft arranged to support the pulley or rim, and means for turning the support for the grinding-shaft bearings to different angular positions; substantially as described.

4. In a rim grinding or polishing machine, a shaft having a grinding-wheel, a shaft substantially parallel thereto to carry the pulley to be drawn, means for adjusting one shaft endwise and angularly relative to the other, and means for adjusting at least one of said shafts toward and from each other; substantially as described.

5. In a rim grinding or polishing machine, a grinding-wheel, a shaft arranged to carry the pulley to be ground, means for rotating both the wheel and the shaft, and means for effecting a simultaneous adjustment of said wheel and shaft toward and away from each other; substantially as described.

6. In a rim grinding or polishing machine, a shaft carrying a grinding-wheel, a turret-carrier for said shaft, and a slide supporting the turret-carrier; substantially as described.

7. In a rim grinding or polishing machine, an endwise-movable shaft arranged to carry the pulley to be ground, a friction-plate at the end of said shaft and an adjusting device bearing against said friction-plate; substantially as described.

8. In a rim grinding or polishing machine, a bed-frame, a pair of slides movable along said frame, means for simultaneously adjusting said slides toward and from each other, a grinding or polishing disk having a shaft mounted on one of the slides, a pulley-supporting shaft mounted on the other slide, and means for adjusting one of said shafts endwise to bring the different parts of the pulley-face in contact with the grinding or polishing disk; substantially as described.

9. In a rim grinding or polishing machine, a grinding-wheel shaft, a shaft arranged to carry the pulley to be ground, movable bearings for both shafts, and a double-threaded adjusting-screw for actuating said movable bearings whereby the two shafts may be simultaneously moved toward and away from each other; substantially as described.

10. In a rim grinding or polishing machine, the combination with an endwise-movable shaft arranged to carry the pulley to be ground; of a grinding-wheel carrying-shaft and a rotary support for said shaft; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN T. DUFF.

Witnesses:

GEO. B. BLEMING,  
H. M. CORWIN.