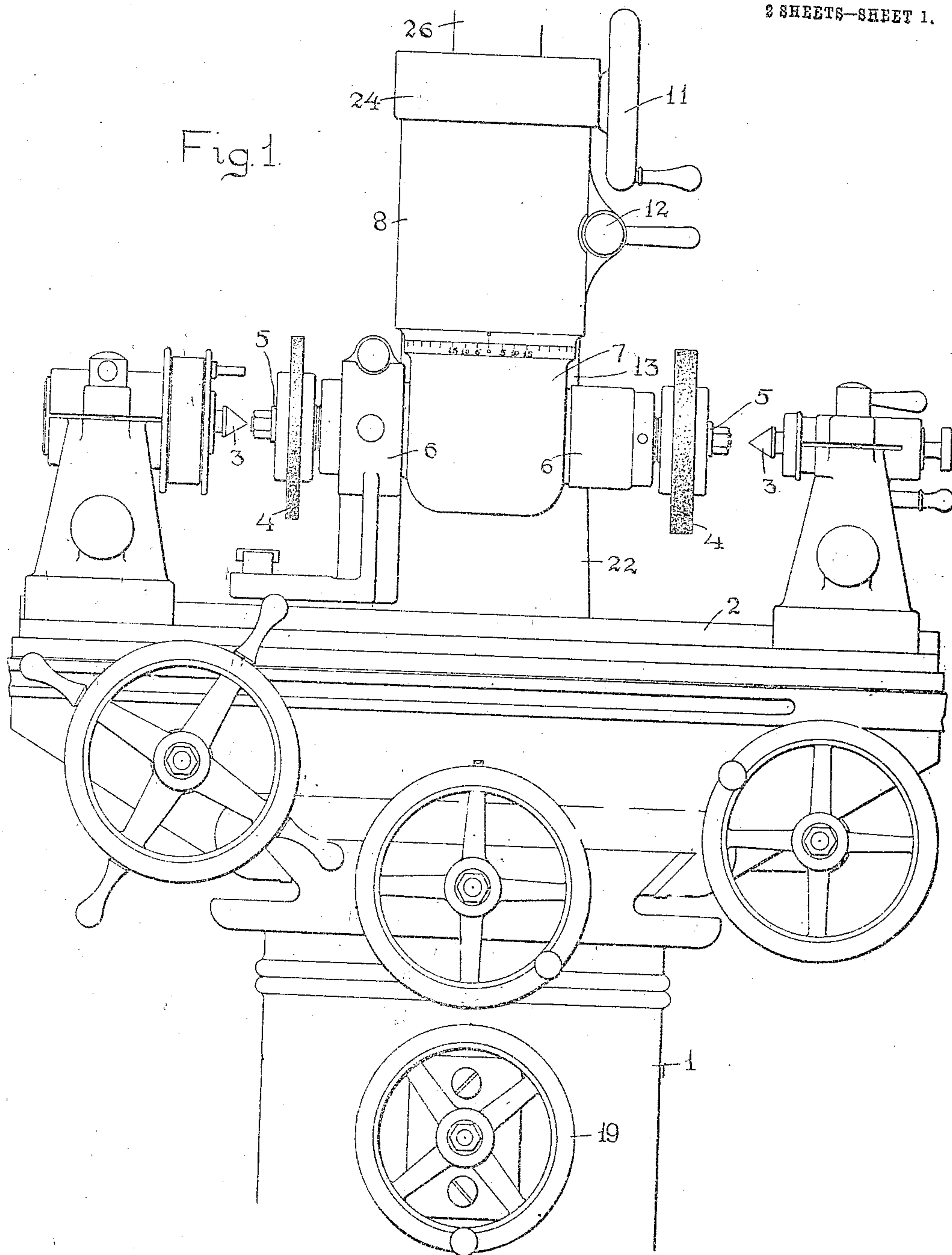


898,673

S. NIKOLOFF.
GRINDING MACHINE.
APPLICATION FILED NOV. 21, 1904.

Patented Sept. 15, 1908.

2 SHEETS—SHEET 1.



Witnesses

Roy D. Tolman
Penelope Bomberbach

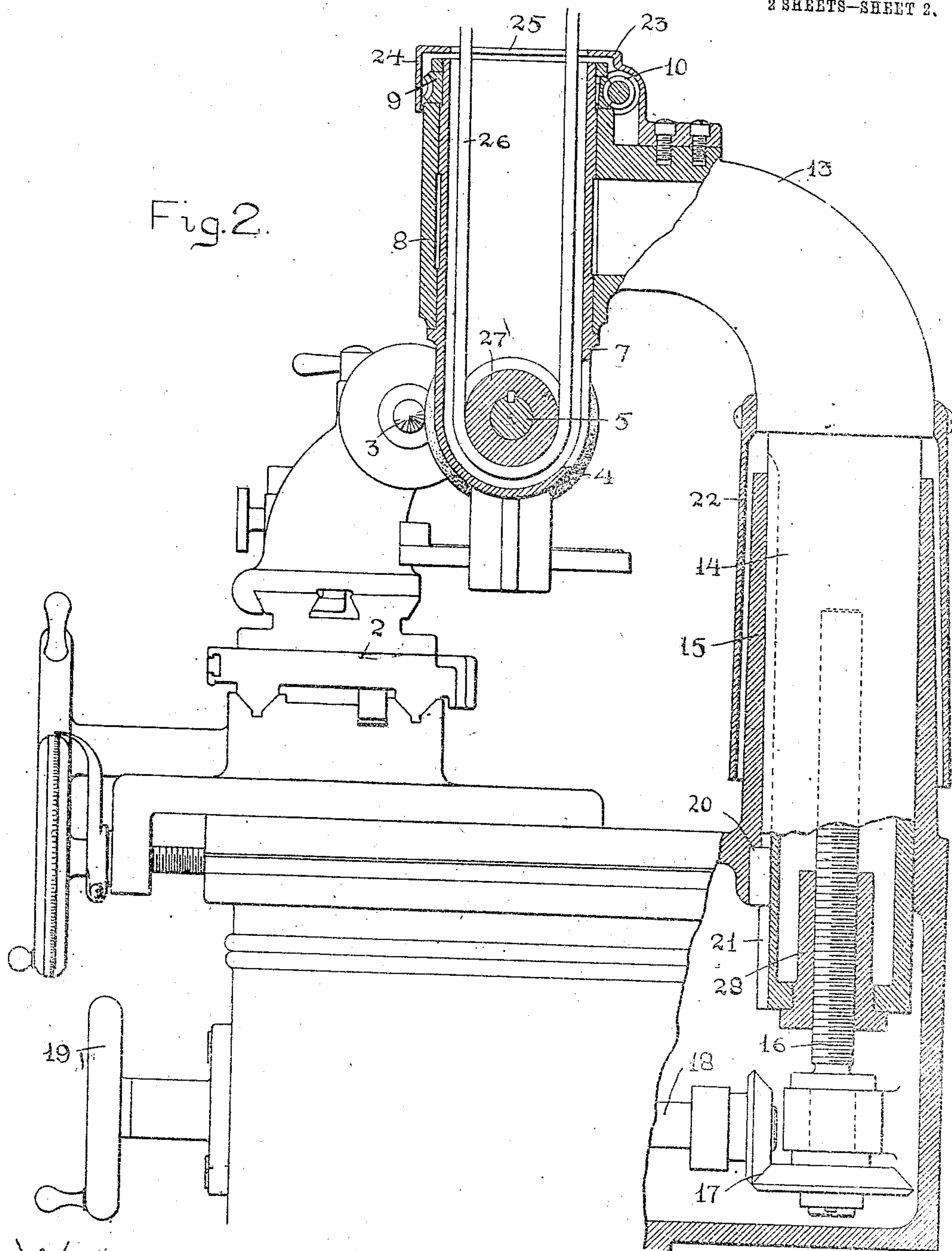
Inventor
Subbo Nikoloff.
By *Rufus D. Ford*
Attorney

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Ro. J. Toman

Penelope Lombard

Inventor
Subbo Nikoloff
By Rufus P. Fowler
Attorney

UNITED STATES PATENT OFFICE.

SUBBO NIKOLOFF, OF WORCESTER, MASSACHUSETTS.

GRINDING-MACHINE.

No. 898,673.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed November 21, 1904. Serial No. 233,605.

To all whom it may concern:

Be it known that I, SUBBO NIKOLOFF, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Grinding-Machines, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a front view of a grinding machine embodying my invention. Fig. 2 is a side elevation partly shown in section.

Similar reference letters and figures refer to similar parts in the different views.

My present invention relates to that part of a grinding machine which is concerned in the support and adjustment of the grinding wheel shaft, and it consists in the construction and arrangement of parts, as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings, 1 denotes a supporting post or framework, 2 a table or bed upon which the work to be ground may be supported, or if desired, the work may be held between centers 3, 3.

4, 4, denote grinding wheels carried upon a rotating shaft 5 journaled in bearings 6, 6, carried by the lower end of an adjustable sleeve 7. The sleeve 7 is journaled in a bearing 8 with its axis at right angles to the axis of the grinding wheel shaft 5. Attached to the upper end of the sleeve 7 is a worm gear wheel 9 engaged by a worm 10 provided with a hand wheel 11 by which the worm 10 is rotated in order to relatively adjust the sleeve 7 in the bearing 8.

The bearing 8 is cut apart on one side and its two halves are clamped together by a clamping screw 12 in order to pinch the sleeve 7 and hold it in its adjusted position. The bearing 8 is formed upon the outer end of a curved arm or gooseneck 13 carried on the upper end of a vertical sliding spindle 14 having a sliding movement in a hollow post 15 by means of an actuating screw 16 which is rotated by miter gears 17, horizontal shaft 18 and hand wheel 19, in order to raise and lower the spindle 14 in the hollow post 15. The spindle 14 is held from rotating by means of a key 20 held in the post 15 and sliding in a keyway or slot 21 in the spindle 14. Attached to the base of the gooseneck 13 is a sleeve 22 which extends downwardly

over the hollow post 15 in order to prevent the admission of dirt to the bearing portions of the spindle 14. Mounted upon the top of the gooseneck 13 is a plate 23 which extends over the bearing 8 and is provided with a downwardly projecting flange 24 to inclose the worm gear wheel 9. The plate 23 has a central opening 25 to admit a driving belt 26 which is conducted from an overhead driving shaft, not shown, to a belt pulley 27 attached to the grinding wheel shaft 5. The vertical adjustment of the grinding wheels is accomplished by means of a hand wheel 19 and screw 16 engaging a nut 28 held in the lower end of the spindle 14. By means of the worm gear wheel 9 and worm 10, rotated by the hand wheel 11, the adjustable sleeve 7 may be rotated within the bearing 8 by loosening the clamping screw 12 in order to vary the axis of the grinding wheel shaft 5 relatively to the axis of the work held on the centers 3, 3, and the grinding wheel shaft 5 is securely held in its adjusted position by again tightening the clamping screw 12, any adjustment of the axis of the grinding wheel shaft 5 imparting a corresponding twist to the driving belt 26 which is slight for the ordinary adjustment of the grinding wheel shaft 5 as the axis of the sleeve 7 passes through the center of the driven pulley 27. The bearing portions of the spindle 14 are protected from dust by the sleeve 22 which moves with the spindle 14 and incloses the hollow post 15 and the bearing surface of the worm 10 and worm gear wheel 9 are likewise protected from dust by the top plate 23 with its downwardly projecting flange 24.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a grinding machine, the combination with a framework and work holding means, of a bearing for a spindle, a spindle vertically adjustable therein and having at its upper end an overhanging extension, a bearing supported by said overhanging extension, a sleeve rotatively adjustable in said bearing, means for adjusting said sleeve in its bearing, a journal bearing in said sleeve, and a grinding wheel shaft in said journal bearing.

2. In a grinding machine, the combination with a framework and work holding means, of a vertically adjustable spindle provided with an overhanging extension, a sleeve journaled vertically in said overhanging

extension, a horizontal grinding wheel shaft supported by said sleeve, and means for the axial adjustment of said sleeve in its bearing.

3. In a grinding machine, the combination
5 of a vertically adjustable spindle provided with an overhanging extension, a sleeve journaled in said overhanging extension, means for the axial adjustment of said sleeve in its bearing, a grinding wheel shaft sup-
10 ported by said sleeve, a pulley carried by said shaft and inclosed within said sleeve.

4. In a grinding machine, the combination with a framework, of a hollow post support-
15 ed on said framework, a spindle adjustable in said post, a sleeve carried by said spindle and overlapping said post, an overhanging extension on said spindle, and a grinding wheel shaft carried by said extension.

5. In a grinding machine, the combination
20 with a framework, of a bearing, a spindle slidable in said bearing, means for the vertical adjustment of said spindle, an overhanging extension carried by said spindle, and having a bearing for a vertical sleeve, a ver-
25 tical sleeve held in said bearing and having an opening in its upper end, means for the axial adjustment of said sleeve in its bearing, a grinding wheel shaft supported by said sleeve, a pulley held on said shaft and in-
30 closed in said sleeve, and a belt connection for said pulley inclosed in said sleeve.

6. In a grinding machine, the combination of a bearing, a sleeve rotatively adjustable
35 in said bearing, a grinding wheel shaft journaled in said sleeve, a driven pulley attached

to said shaft and inclosed in said sleeve, and means for axially adjusting said sleeve in its bearing.

7. In a grinding machine, the combination of a vertically adjustable spindle provided
40 with an overhanging extension, a sleeve held in a vertical bearing in said overhanging extension, a worm gear attached to said sleeve, and a worm journaled in said overhanging extension and in engagement with said worm
45 gear.

8. In a grinding machine, the combination with a framework, of a pair of work holding centers supported by said frame, a vertically adjustable spindle, an overhanging exten-
50 sion carried by said spindle, a vertical bearing supported by said extension, a sleeve rotatively adjustable in said bearing, a grinding wheel shaft journaled in said sleeve, and means for axially adjusting said sleeve to
55 bring the axis of the grinding wheel shaft at an oblique angle to the axis of said work holding centers.

9. In a grinding machine, the combination with a hollow post, of a spindle adjustable in
60 said hollow post, a depending extension from said spindle for supporting a grinding wheel, and a sleeve attached to said spindle and overlapping said hollow post, said sleeve arranged to protect said spindle from dust
65 from said grinding wheel.

SUBBO NIKOLOFF.

Witnesses:

ALBERT J. GIFFORD,
GEORGE E. STEPHENS.