No. 747,542. PATENTED DEC. 22, 1903.

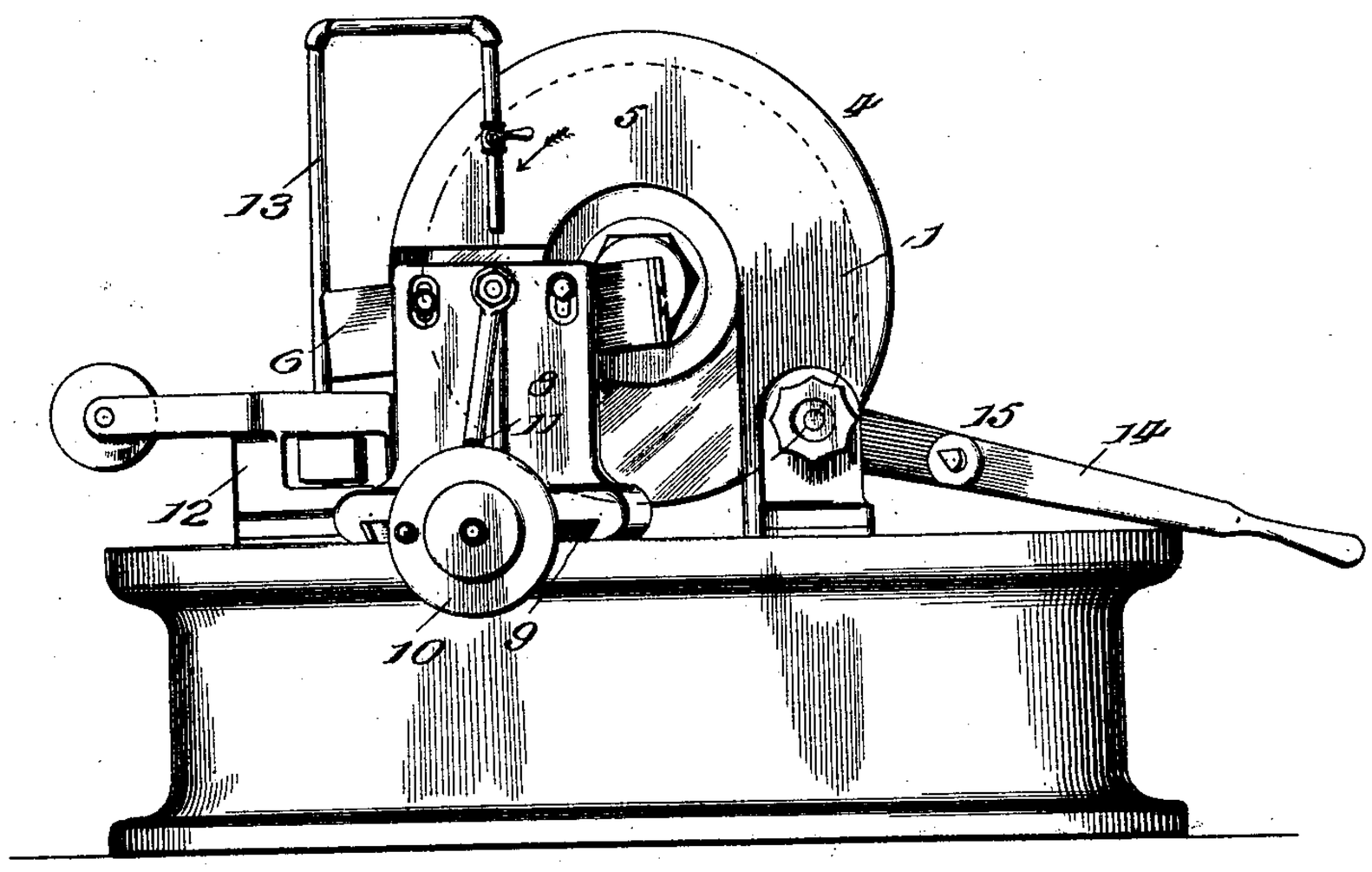
S. S. EVELAND.

MACHINE FOR MAKING ISODIAMETRIC BODIES.

APPLICATION FILED DEC. 26, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

FIG. 1.



Witnesses.
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Jas. A. Richmond

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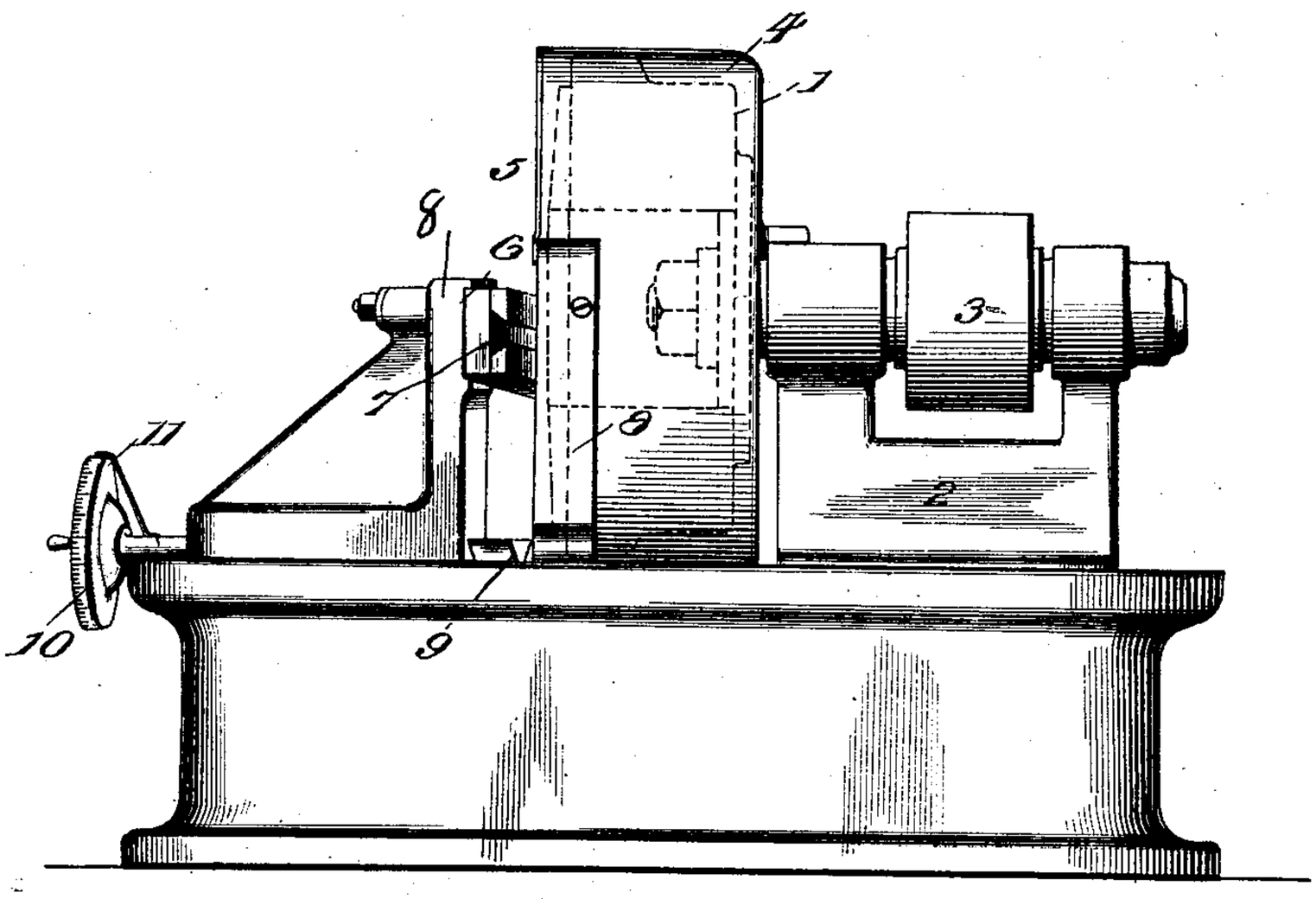
NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



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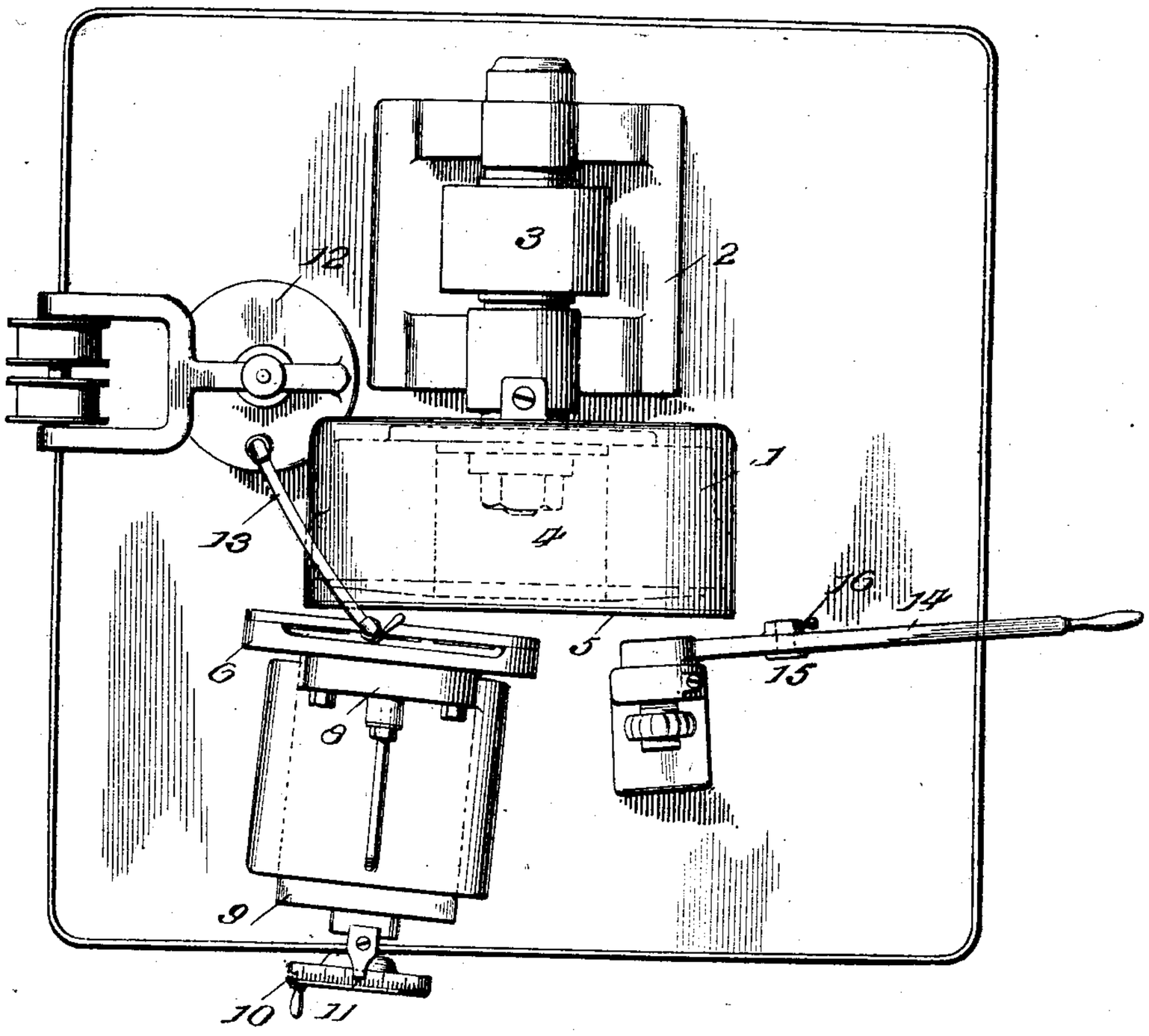
NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

SAMUEL S. EVELAND, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR MAKING ISODIAMETRIC BODIES.

SPECIFICATION forming part of Letters Patent No. 747,542, dated December 22, 1903.

Application filed December 26, 1901. Serial No. 87,296. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL S. EVELAND, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Machine for Making Isodiametric Bodies, of which the following is a specification.

One object of the present invention is to provide for rapidly, accurately, and inexpensively preparing a number of isodiametric bodies, as metallic cylinders, of any given diameter within exceedingly small variations and also to prepare any number of such bodies or cylinders of substantially the same diameter and varying from each other within like narrow limits which may be expressed as decimals of an inch.

Another object of the invention is to provide a comparatively simple, reliable, automatic, and inexpensive machine for making such bodies, cylinders, or round shafts.

To these and other ends hereinafter set forth the invention comprises the improvements hereinafter described and claimed.

The nature, characteristic features, and scope of the invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a front view of a machine embodying features of the invention. Fig. 2 is a side view of the same, and Fig. 3 is a top or plan view of the machine.

In the drawings, 1 is the movable grinder. As shown, it consists of a cup-shaped emery or equivalent wheel arranged for rotation, for example, in bearings 2, and 3 is a pulley by means of which power may be applied to it.

4 is a housing which when present leaves the face 5 of the grinder or wheel exposed.

6 is the holder, and it is provided with a notch 7. This notch 7 has an inclined wall which constitutes, as it were, a lip for holding the blank in such a way that the blank is supported from its periphery, afforded a range of endwise motion, and its periphery projects beyond the lip into contact with the face 5 of the grinder. In the embodiment of the holder shown in the drawings the notch 7 may be described as of dovetail shape, since it is made up, in effect, of two notches. The blank in such case is placed in the dovetail opening, and a portion of the blank projects outward beyond the face of the holder. The dovetail notch extends clear across the holder, so that the blank can be fed through it. The holder is shown as adjustably applied to a carrier 8, and the carrier is movably fitted to ways 9.

10 is a feed-screw for feeding the holder toward and away from the face of the grinder, and 11 is a micrometer attachment for use in operating the feed-screw.

12 is a pump which when present serves to supply water or other proper lubricant, for example, by way of the connections 13.

14 is a pivotal arm connected with the table of the machine and fitted with a stock 15 for holding a dressing-tool. The dressing-tool is placed in the stock 15 and secured to place, for example, by means of the set-screw 16. The arm 14 may then be turned about its pivot-point and in that way serves to present the dressing-tool to the face of the grinder, so that the tool in moving across the face of the grinder serves to dress it.

In use the grinder is driven in the direction indicated by the arrow, for example, by way of the pulley 3, and the pump 12 is set in motion, so that it supplies water through the connections 13 to the face of the grinder. The holder 6 is then properly adjusted in respect to the face 5 of the grinder, for example, by means of the feed-screw 10 and other described adjustments. The cylindrical rod, blank, or shaft is then fed into one end of the notch 7 on the inner face of the holder. A portion of the periphery of the blank finds a bearing along the lip at the lower edge of the notch, and a portion of it finds a bearing on the bottom of the notch, and a portion of it projects from the notch and face of the holder into contact with the face 5 of the grinder, so that as the grinder-face travels the blank rotates; but the friction of the blank in the notch causes its cylindrical surface to travel more slowly than the face of the grinder, and in this way the cylindrical surface of the blank is accurately ground to the required size, and it is so ground that the diameter of the finished blank is the same in all directions within limits expressed by decimals, as thousandths of an inch. The blank travel-

ing across the face of the cup-shaped wheel from near the cutter toward the periphery or otherwise stated radially is subjected to a peculiar and advantageous grinding action, because the grinding portions of the wheel travel progressively faster from the center toward the periphery.

The specific construction of the holder constitutes the subject-matter of an application for a patent serially numbered 87,295, filed by me, and hence the same is claimed in that application.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details without departing from the spirit thereof. Hence I do not limit myself to the precise construction and arrangement of parts hereinabove set forth, and illustrated in the accompanying drawings; but,

Having thus described the nature and objects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A machine of the class specified comprising the combination of a moving annular grinder having its grinding-face between its inner and outer bounding circles, and a notched holder arranged opposite and to one side of the center of the face and adapted to support the blank in rolling contact with the face and to permit it to travel endwise in respect to the holder and from the inner toward the outer bounding circles of the face, substantially as described.

2. A machine of the class specified comprising the combination of a moving annular grinder, and means for supporting the blanks in rolling contact with the face of the grinder and for permitting of their free endwise travel across the face from the inner toward the outer bounding circle whereby they are subjected to grinding portions of increasing speed, substantially as described.

3. A machine of the type specified comprising the combination of a moving annular grinder, and a holder operatively positioned in respect to the face of the grinder and provided with a notch extending radially across the face and from the inner to the outer bounding circles thereof which notch supports the blanks in rolling contact with the face and affords them free endwise travel in respect to the holder, substantially as described.

4. A machine of the class specified comprising a revoluble annular binder having its grinding-face between its inner and outer bounding circles, a notched holder arranged opposite the face of the grinder and adapted to support the blanks in rolling contact with the face and to permit of their travel endwise in respect to the holder, and means for adjusting the holder, substantially as described.

5. A machine of the type specified comprising the combination of a moving annular grinder, and a holder radially arranged in respect to the face of the grinder and adapted to support blanks in rolling contact therewith and to permit of their free endwise motion, substantially as described.

6. A machine of the type specified comprising the combination of a moving annular grinder, and a holder provided with a dovetail slot radially arranged in respect to the face of the grinder whereby blanks are revolubly supported in and travel through the dovetail slot, substantially as described.

7. The combination of the revoluble grinder, and means for supporting blanks in rolling contact therewith and for permitting them to travel endwise and radially of the grinder whereby they are subjected to changing speed of grinding-surface, substantially as described.

8. In a machine for grinding rollers, a revoluble grinding-wheel and a work-holder comprising a plate, having a groove in connection therewith extending the length of said plate, said groove being of a size to loosely support the roller while giving it freedom for endwise movement, means for adjusting the inclination of said work-holder to and from the plane of a diameter of the grinding-wheel and means for adjusting said work-holder bodily to and from the grinding-face of the wheel.

In testimony whereof I have hereunto signed my name.

SAMUEL S. EVELAND.

In presence of—

W. J. JACKSON,

JAS. A. RICHMOND.