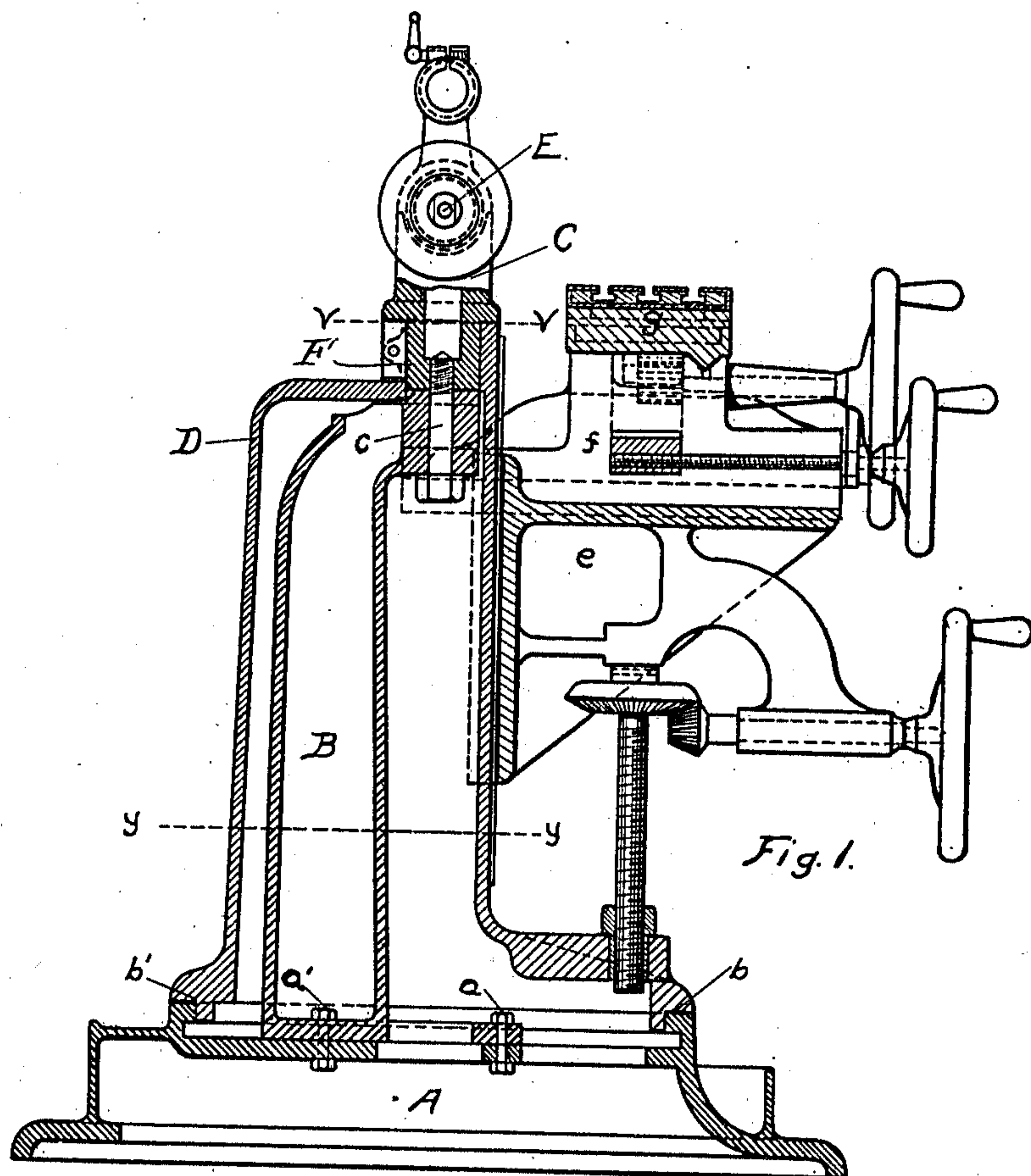


R. P. THOMPSON.
GRINDING MACHINE.
APPLICATION FILED SEPT. 21, 1908.

989,206.

Patented Apr. 11, 1911.

6 SHEETS—SHEET 1.



WITNESSES:
H. P. Croft.
Claude D. Pence

Ralph P. Thompson
INVENTOR.

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6 SHEETS—SHEET 2.

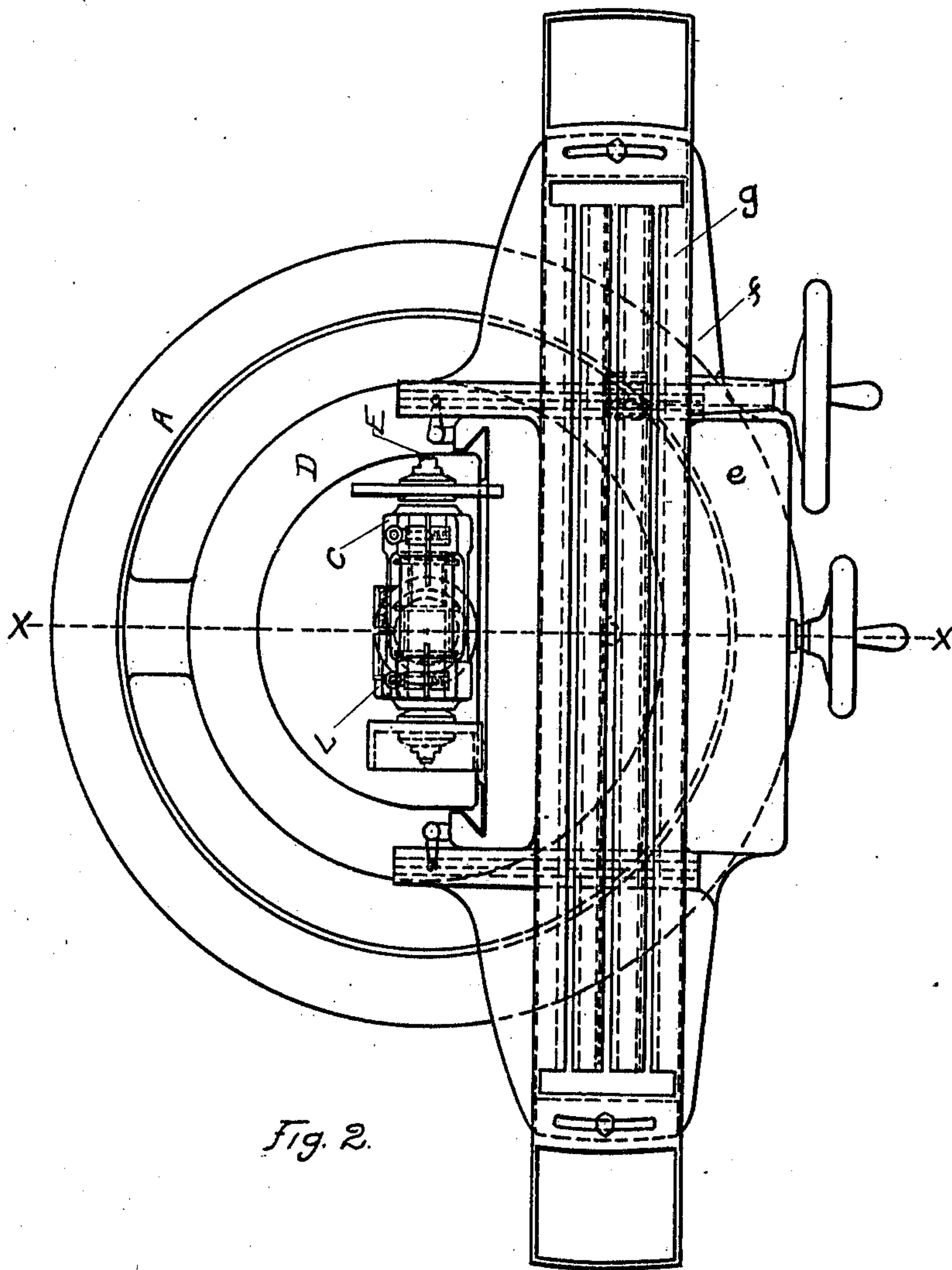


Fig. 2.

WITNESSES:

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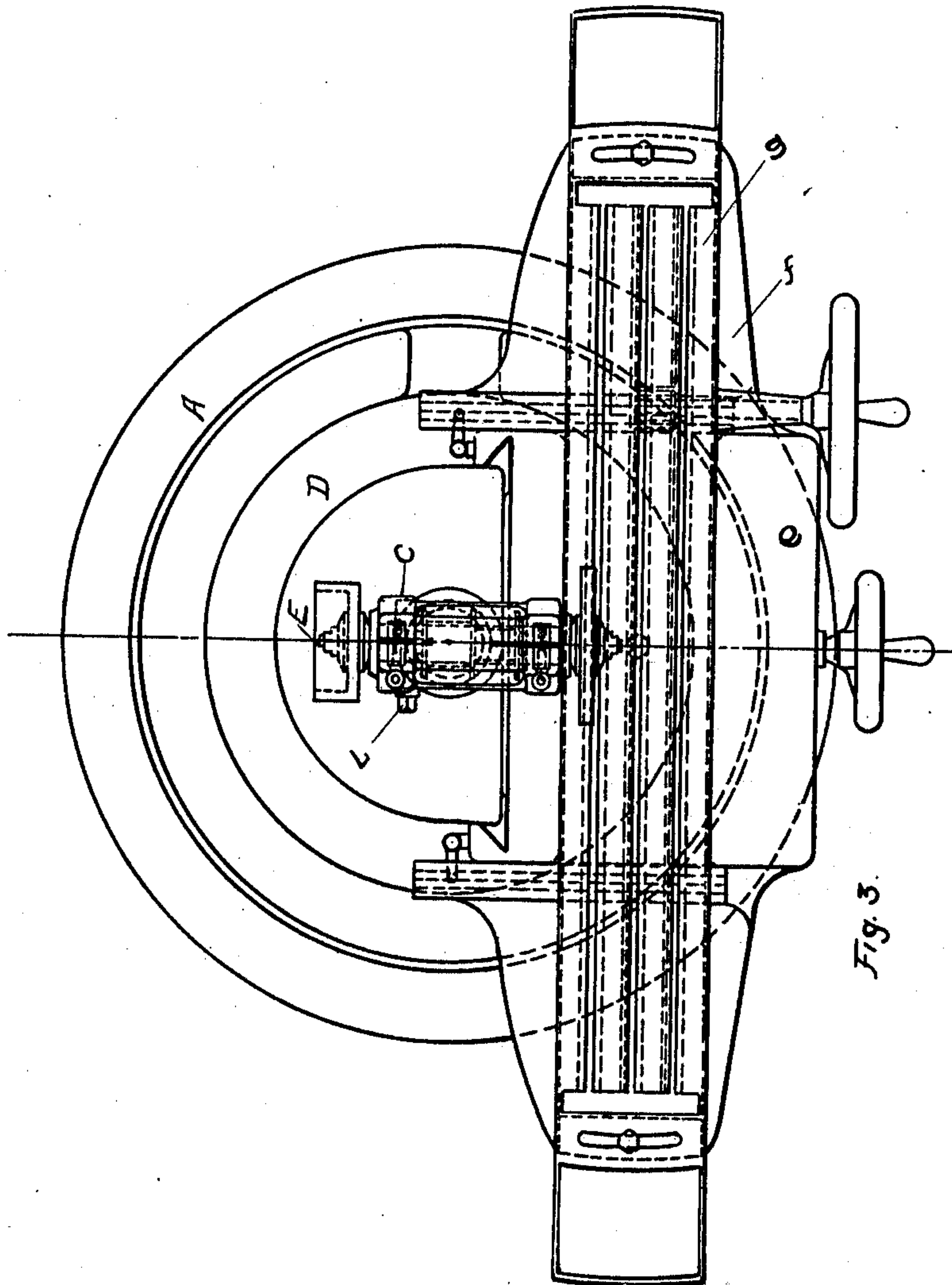
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6 SHEETS-SHEET 3.



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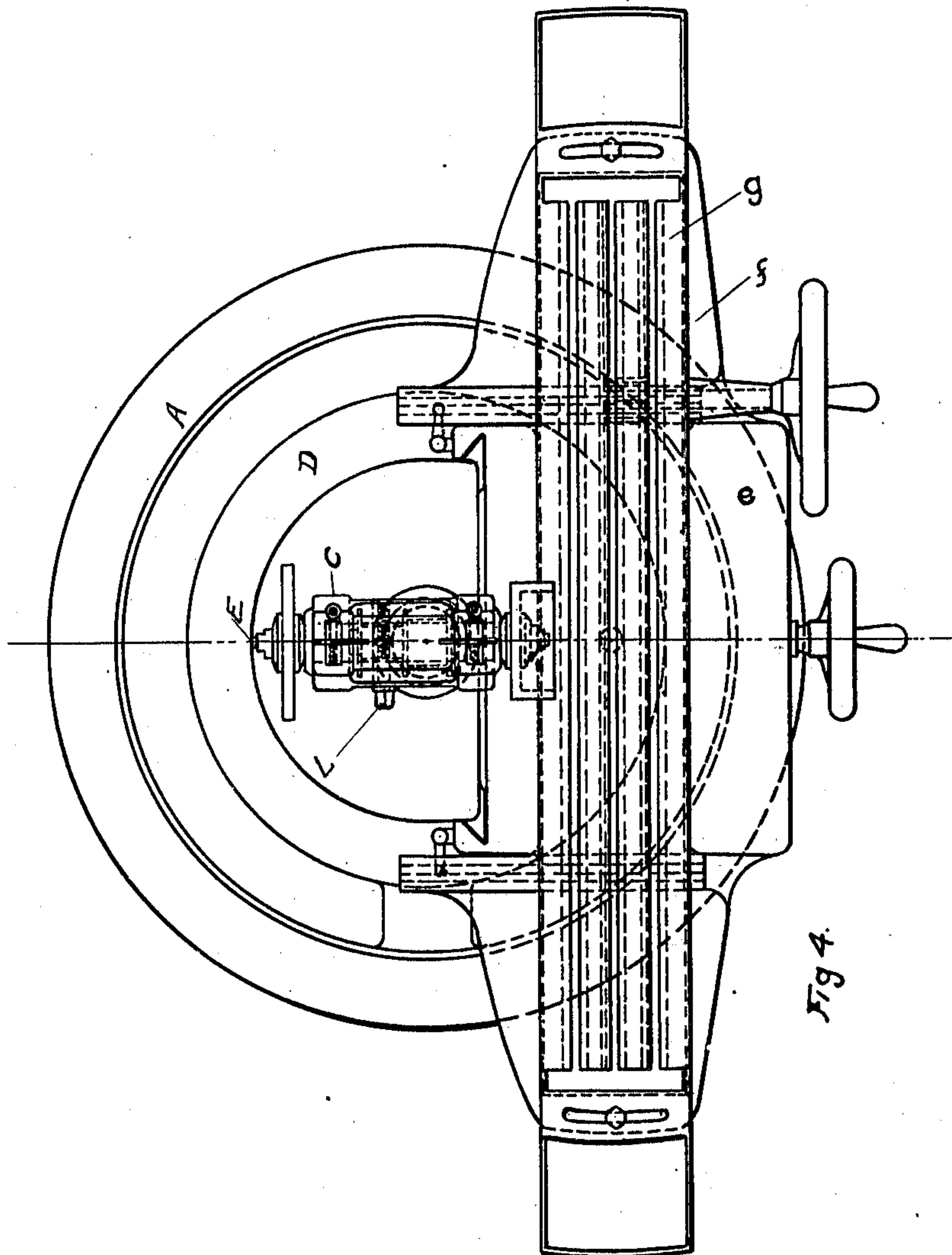
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6 SHEETS—SHEET 4.



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6 SHEETS—SHEET 5.

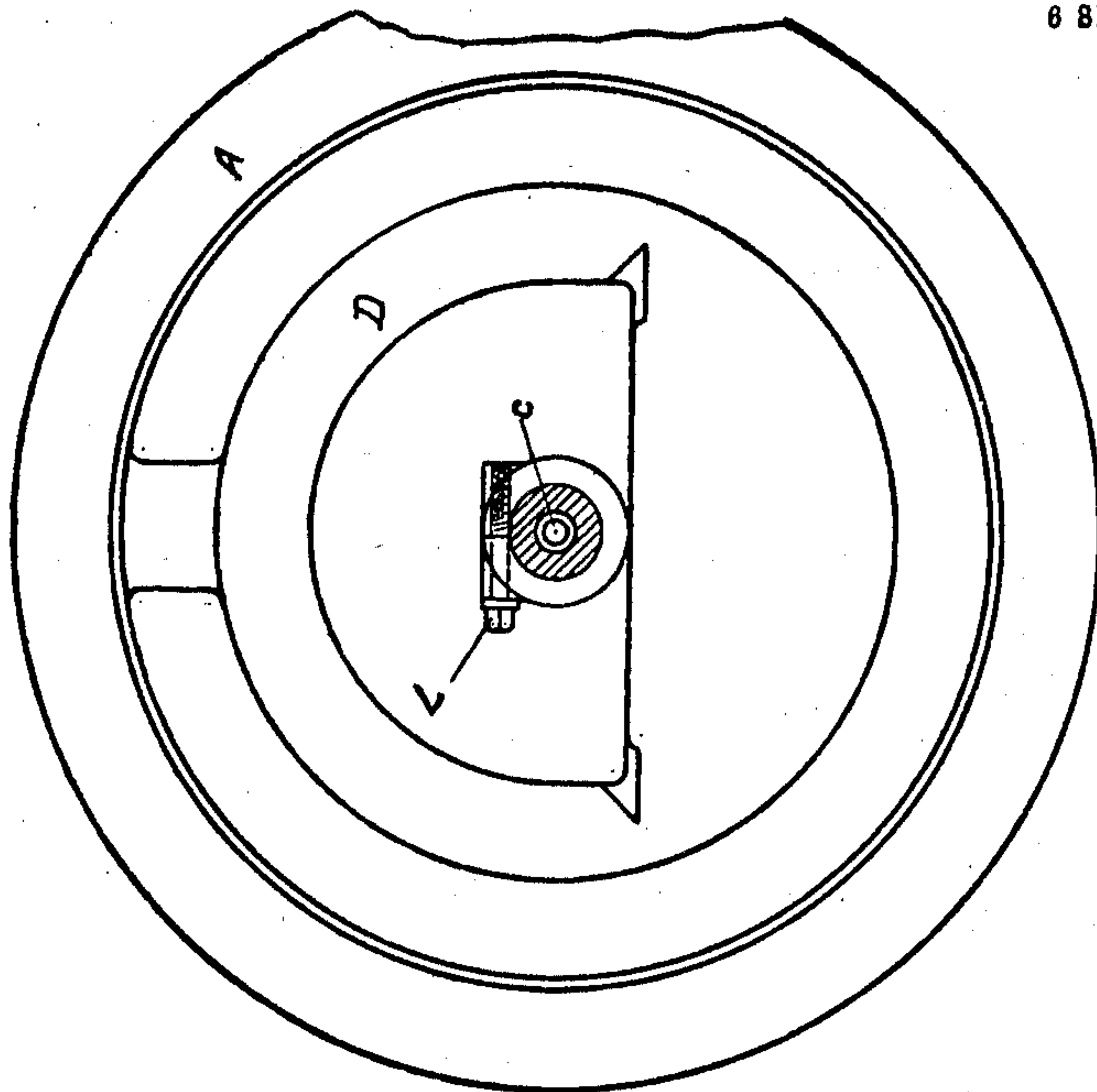


Fig. 5.

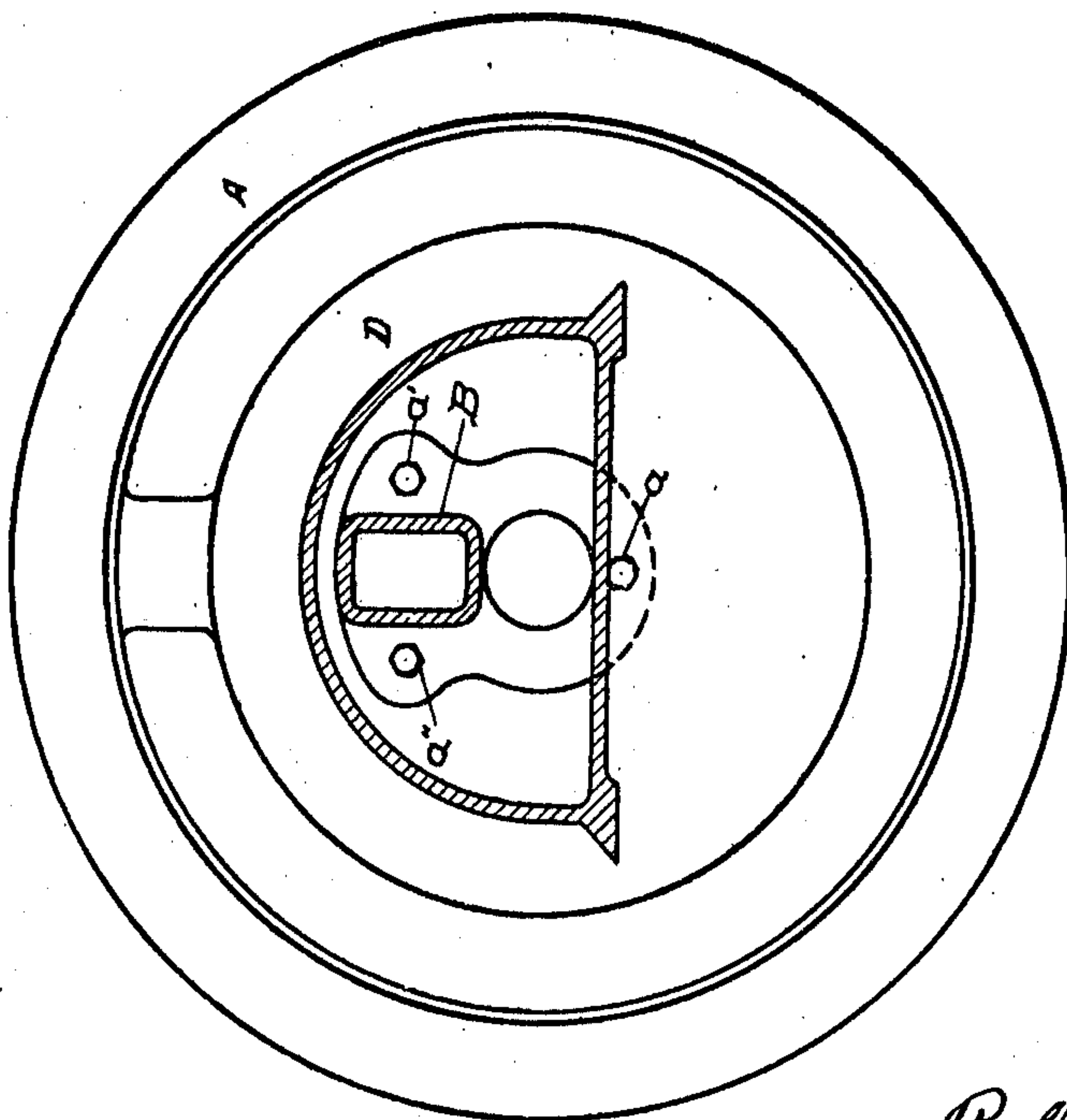


Fig. 6.

WITNESSES:
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6 SHEETS—SHEET 6.

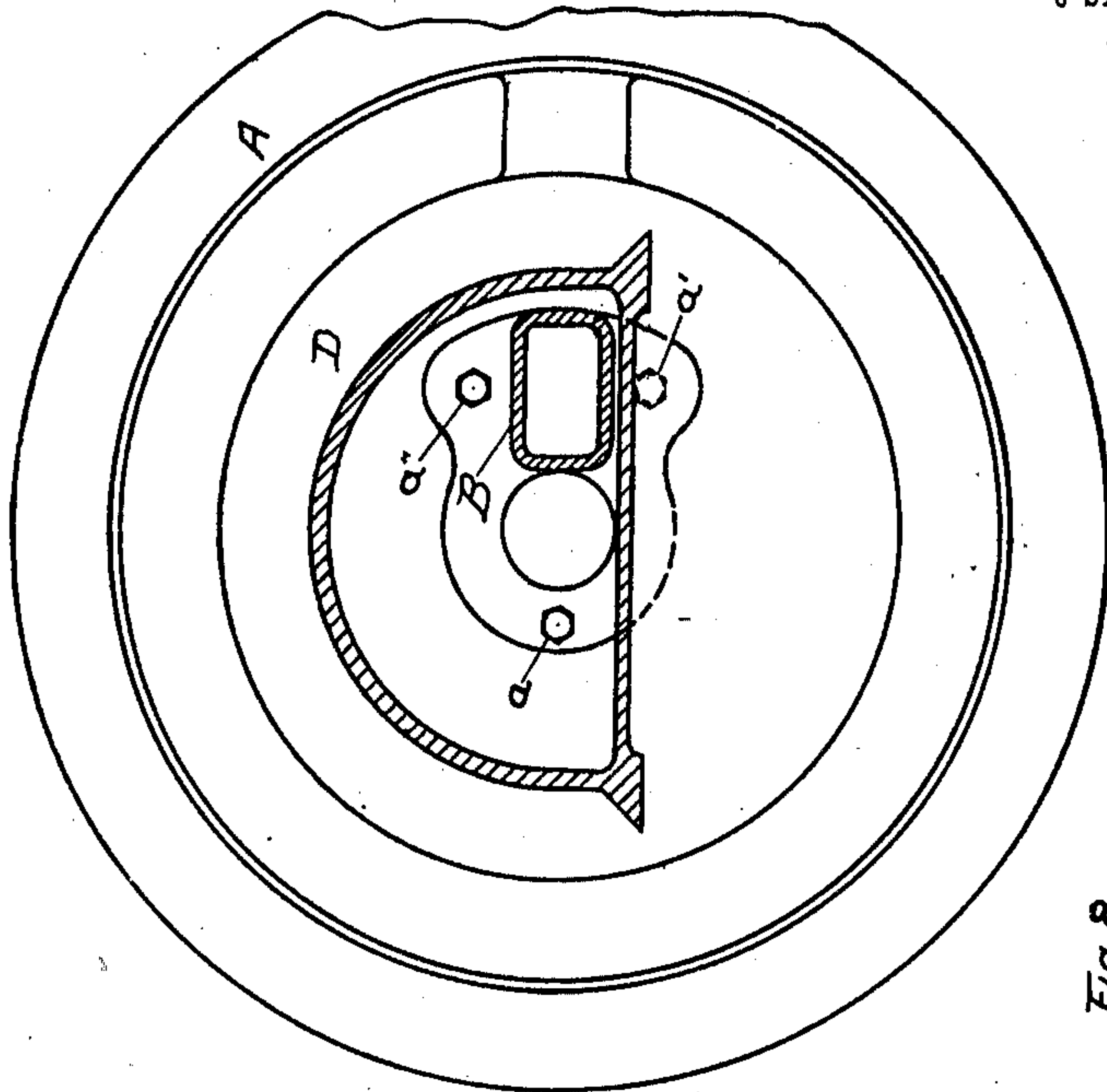


Fig. 8.

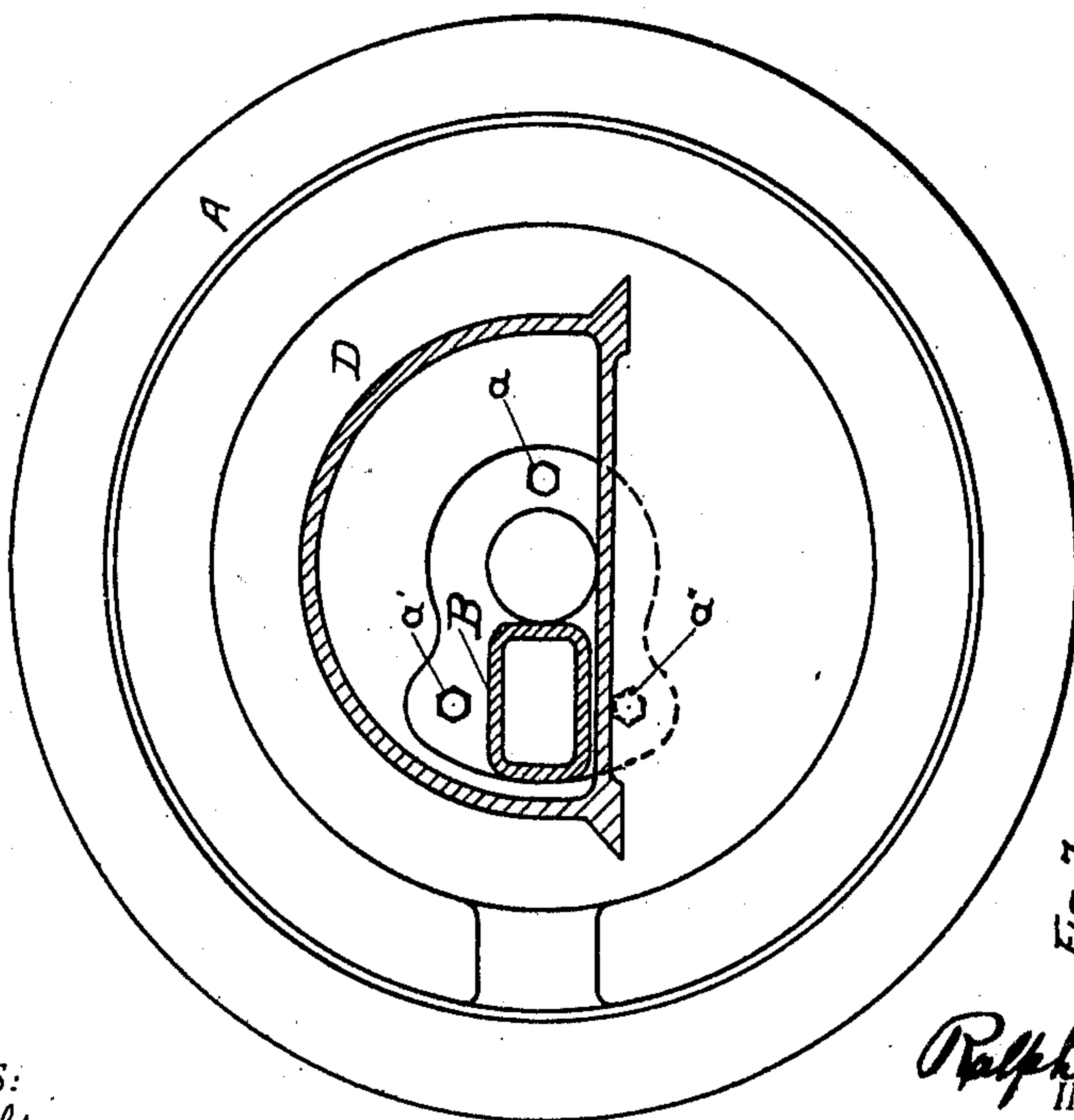


Fig. 7.

WITNESSES:
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Claude D. Pence

Ralph P. Thompson
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UNITED STATES PATENT OFFICE.

RALPH P. THOMPSON, OF SPRINGFIELD, OHIO.

GRINDING-MACHINE.

989,206.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed September 21, 1908. Serial No. 454,124.

To all whom it may concern:

Be it known that I, RALPH P. THOMPSON, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented a new and useful Improvement in Grinding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of grinding machines in which a grinding spindle is mounted in a fixed position upon a column or support, with means for adjusting the work to give the proper contact with the wheel.

The object of my invention is to provide in such a grinding machine, an outer column rotatable on the base of the grinder, and adapted to inclose the columnar support of the grinding head and spindle, the said outer column at the same time carrying the adjustable grinding table. I accomplish these objects by the construction shown in the accompanying drawings, which form a part of these specifications, and in which like parts are designated by the same character in the different views.

Figure 1 shows a vertical cross section at right angles to the grinding spindle with the table adjusted to a position parallel with the spindle. Fig. 2 is a plan view with the table in same position as that shown in Fig. 1. Fig. 3 is also a plan view showing the table adjusted at right angles to the grinding spindle with the end of the grinding spindle projecting over the table. Fig. 4 is also a plan view showing the table adjusted at right angles to the opposite end of grinding spindle to that shown in Fig. 3. Fig. 5 shows a cross section through the clamping collar on neck of grinding head. Figs. 6, 7, and 8 are cross sections through the trunk on a horizontal plane, showing the relative position of parts in the different positions of the table as shown in Figs. 2, 3 and 4.

In Fig. 1 is shown a vertical cross section on the line X X of the plan view Fig. 2.

A represents the base of the machine to which the column B is rigidly secured by bolts, two of which are shown at *a a'*. The column B supports the grinding head C which carries the bearings, and also spindle E for the grinding wheel. The head C is rigidly secured to the top of the column B by means of a heavy bolt *c*. The outer column D incloses and protects the column B.

This outer column D is so shaped that it will clear the column B when it is turned on its bearings *b b'* through an arc of 180 degrees. The outer column D is flattened upon the carriage side, thus permitting of the carriage and table to be brought in close to the wheel when it is so desired.

The adjustable knee which has a bearing on the outer column D is shown at *e*. The knee has screw adjustment, by means of which the elevation of the table is secured.

The carriage is shown at *f* and the grinding table at *g*.

The traverse movement of the table passes the work across the wheel, and is accomplished by means of a rack and pinion. The adjustment of the angularity of the wheel to the work, is secured by turning the outer column D, upon its bearing *b b'* on the base A. This turning movement of the outer column D permits of an adjustment of the table, so that its travel is parallel with the grinding spindle, at right angles to the spindle, or at any desired intermediate point through an arc of 180 degrees.

The plan view Fig. 2 shows the outer column D in position to cause the table to travel parallel with the grinding spindle.

Fig. 6 shows a cross section of the outer column and inner column on the line *y y* Fig. 1. The position of the outer and inner columns in Fig. 6 is the same as in Fig. 2.

Fig. 3 shows the outer column turned to bring the table at right angles to the grinding spindle at one end.

Fig. 7 shows a cross section on the line *y y* Fig. 1 of the outer and inner column in the same position as Fig. 3.

Fig. 4 shows the machine swung to the other extreme from that shown in Fig. 3 which brings the table at right angles to the opposite end of the grinding spindle.

Fig. 8 shows the cross section *y y* Fig. 1 of the outer and inner column in the same position as Fig. 4.

The collar F Figs. 1 and 5, which forms the bearing of the outer column upon the neck of the grinding head, is split to form a clamp, the clamping screw of which is shown at L Fig. 5, which is a plan view cross sectioned at *v v* Fig. 1, omitting the table, saddle and knee. The collar F may be clamped upon the neck of the grinding head by means of the screw L, thus rendering the outer column, inner column, and grinding head substantially as one piece,

thereby eliminating vibration to the greatest possible extent.

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

1. In a grinding machine, a grinding spindle journaled in the bearings of a grinding head that is supported in an immovable position by being solidly mounted upon a column which is attached rigidly to a spreading base, altogether forming a fixed support from foundation to spindle bearing, and an inclosing outer column which at its lower end has an angular bearing of wide diameter on the base of the grinder and upon which the outer column may turn through an arc of 180 degrees, the said outer column inclosing the said column which rises from the base within the diameter of the annular bearing of the outer column upon the base, and extending free of said column to the grinding head above, where the outer column forms a bearing upon the neck of the grinding head and upon which it may be clamped at any position of the outer column upon the base, all substantially as shown and described.

2. In a grinding machine having a grinding spindle which runs in journals, a support for said journals adapted to hold them in an immovable position in relation to the base of the grinder, and an outer column or body which may turn upon a bearing on said base through an arc of a circle, said outer column inclosing said support for said grinding spindle, each being so shaped that

their sides do not come in contact at any position of travel of the outer column upon the base, the said outer column being flattened on one side and supplied with vertical shears or guides upon which a knee is mounted which carries the grinding table, the said vertical bearing of the knee upon the outer column constituting the guide for vertical adjustment of the table, and means for clamping the said outer column to the said spindle support substantially as shown and described.

3. In a grinding machine, the combination with a base and fixed column, a grinding head rigidly mounted thereon, an outer column surrounding said fixed column and adapted to turn through an arc of 180 degrees on a bearing on the base, and means for clamping the fixed columns and outer column together at any point of the said movement of 180 degrees.

4. In a grinding machine, the combination with a base and fixed column, a grinding head rigidly mounted thereon, an outer column surrounding said fixed column and adapted to turn through an arc of 180 degrees, on a bearing on the base, said outer column provided with vertical shears for the purpose of securing the vertical adjustment of the table.

In testimony whereof I affix my signature in the presence of two witnesses.

RALPH P. THOMPSON.

Witnesses:

W. H. PARKER,
H. P. CROFT.