

E. E. INNIS.
 MEANS FOR GRINDING TRIPLE VALVES.
 APPLICATION FILED MAR. 25, 1908.

929,441.

Patented July 27, 1909.

Fig. 1.

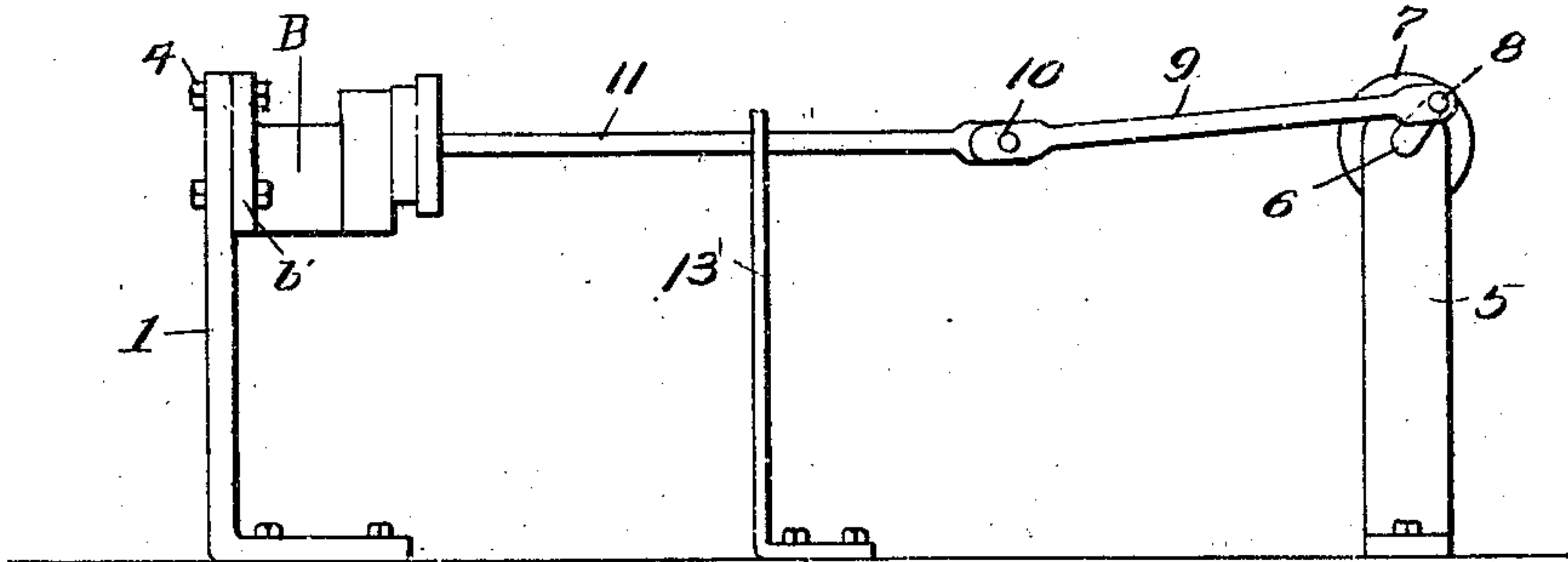


Fig. 5.

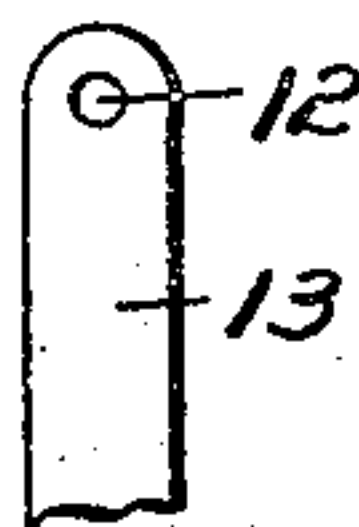


Fig. 2.

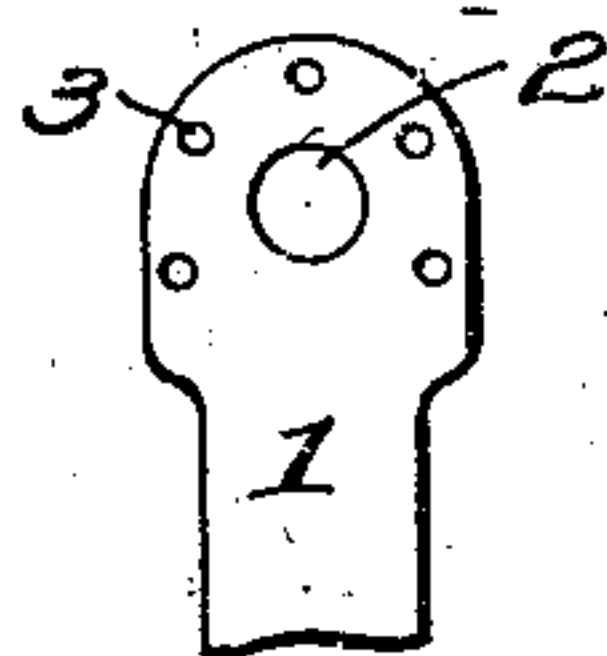


Fig. 6.

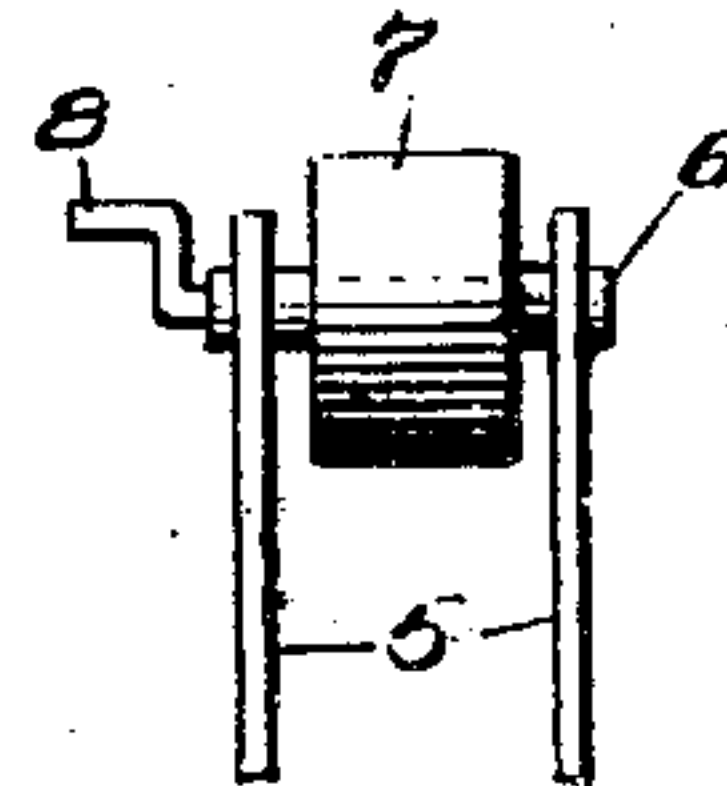


Fig. 3.

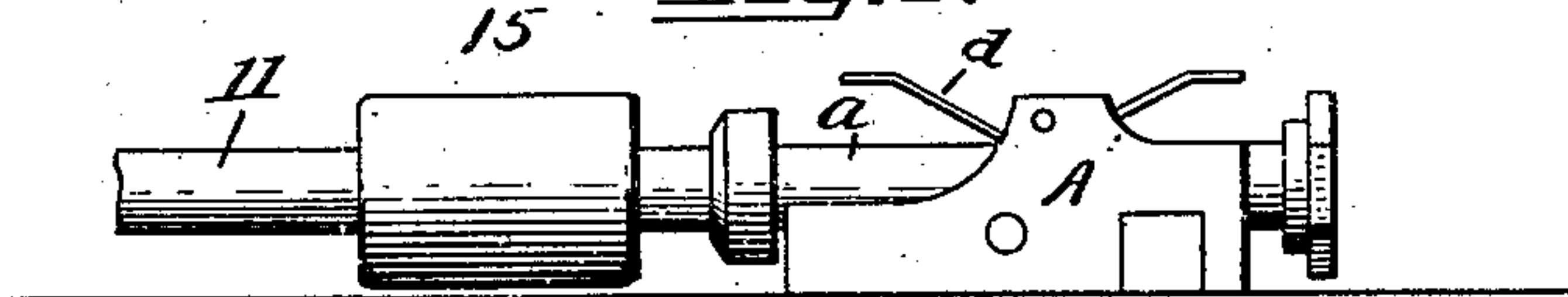
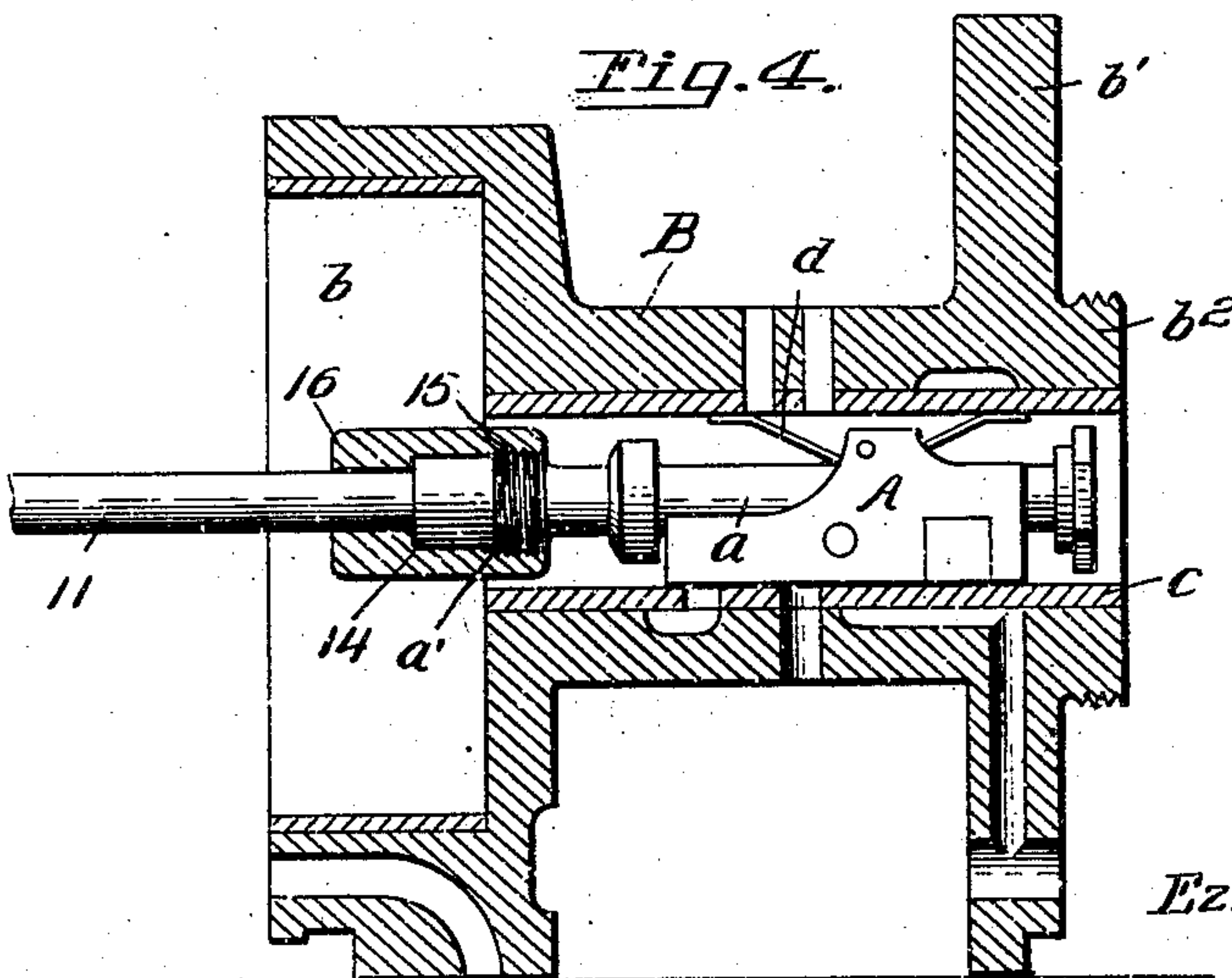


Fig. 4.



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Witnesses

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MEANS FOR GRINDING TRIPLE VALVES.

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Specification of Letters Patent.

Patented July 27, 1908

Application filed March 25, 1908. Serial No. 423,241.

To all whom it may concern:

Be it known that I, EZRA E. INNIS, a citizen of the United States, residing at Childress, in the county of Childress and State of Texas, have invented new and useful Improvements in Means for Grinding Triple Valves, of which the following is a specification.

This invention relates to means for grinding triple valves, including the valves proper and their bodies or casings, so that each valve and its casing may be accurately ground for a close and true fitting of their contact surfaces.

The object of the invention is to provide simple and effective means whereby such valves may be rapidly and economically ground.

In the accompanying drawing:—Figure 1 is a side elevation of the apparatus with a valve supported in position to be ground. Fig. 2 is a detail view of the upper end of the support for the valve casing. Fig. 3 is a side view of the valve, showing the operating rod connected therewith. Fig. 4 is a longitudinal section through the valve and its casing, with the operating rod coupled to the valve. Fig. 5 is a detail view of the upper end of the guide standard. Fig. 6 is an end view of the drive shaft and supports.

In order to clearly indicate the mode of use of my invention, I have shown in the drawing an ordinary form of triple valve A and triple valve casing B. The stem *a* of the valve is provided at one end with the usual threaded portion *a'* for the connection of the piston head of the valve therewith. The casing B is formed at one end with a chamber *b* in which the said piston head operates, and is provided at its opposite end with the apertured bolting flange *b'* and threaded coupling projection *b²*.

c is the valve bushing or seat arranged within the casing B and *d* the spring carried by the valve for holding its surfaces in close engagement with the coacting surfaces of the seat.

The purpose of my invention is to provide a simple and effective construction of mechanism whereby the valve A may be reciprocated in its casing B, so that the surfaces of the valve and its seat will be accurately ground by friction for a close and true fitting of their contact surfaces together. To this end I provide means for supporting the valve casing and means for

reciprocating the valve therein, such reciprocating means being guided to operate in a true path so as to insure an accuracy of movement of the valve for a uniform grinding of the contacting surfaces.

In the drawing I have shown one means for carrying my invention into practical effect, and therein I employ a standard or supporting member 1 for the valve casing B, which standard or supporting member is provided at its upper end with an opening 2 to receive the coupling projection *b²* of the casing, and is also provided around said opening with openings 3 for the passage of bolts 4, whereby the casing is fastened thereto. These bolts pass through the usual bolt openings in the flange *b'*, and secure the casing to the support 1 so that the chambered end *b* of the casing projects outward.

Arranged at a suitable distance from the support 1 is a pair of standards 5, between which extends a drive shaft 6 journaled in suitable bearings therein. On the shaft between the members is a pulley 7 by which power may be applied thereto from any suitable source. One end of the shaft projects beyond the adjacent standard and is formed to provide a crank 8.

A pitman 9 is connected at its outer end with the crank 8 and is pivotally attached at its inner end, as at 10, to the outer or rear end of an operating rod 11, which rod is arranged to reciprocate through a guide opening 12 in the upper end of a standard or suitable guide member 13. The inner or forward end of the rod 11 is formed with a head 14 to bear against the threaded portion *a'* of the triple valve stem, to which it is connected by a coupling sleeve 15. The said coupling sleeve is internally threaded at its outer portion to engage the part *a'* and is provided with a flange 16 to engage the rear surface of the head 14, which flange embraces the rod 11 but is not secured thereto, thus enabling the sleeve to be rotated in one direction or the other to couple the rod with or uncouple it from the valve stem.

In the operation of the device, the valve is secured in the manner shown to the supporting standard or bracket 1 and the valve connected by the coupling 3 with the rod 11, after which the shaft 6 is set in operation, by which the rod 11, through the pitman 9 and crank 8, will be reciprocated back and forth and correspondingly reciprocate the valve A in its casing B, by which means the

engendered friction will cause any imperfections in the engaging surfaces of the valve and casing to be worn smooth and to an accurately fitting condition. To facilitate
5 this operation it will be understood, of course, that a grinding medium of grit or any other suitable material may be employed between the surfaces of the parts, but a simple reduction of the surfaces to a close
10 fitting engagement by ordinary frictional contact is preferred. As the rod 11 is accurately guided in a true path by the guide member 13 it will be apparent that the valve
A will be correspondingly reciprocated, so
15 that the valve cannot move out of its normal path and cause uneven wear. Any number of valve casing supporting devices and valve reciprocating devices may be employed for operation from one and the same shaft 6
20 to enable a plurality of triple valves to be ground at a time from the same source of power, but the present disclosure is sufficient to illustrate the principle of my invention, from which the advantages resulting from
25 my mode of grinding valves of this class will be readily appreciated by those versed in the art.

Having thus fully described the invention, what is claimed as new is:—

30 An apparatus for grinding triple valves comprising a vertical standard for horizontally supporting the valve casing, said standard being provided with an opening for the

reception of a projection on one end of the valve body, and having a series of holes extending partially around said opening for the passage of bolts to secure a flange at
35 said end of the valve body to said standard, bearing standards, a crank shaft horizontally supported in said bearing standards, a
40 reciprocating rod having an annular head or shoulder at one end thereof, a coupling sleeve fitted to slide and rotate on the headed end of the rod, said sleeve having at one end
45 a bore for the passage of the rod and at its other end an internally threaded portion for engagement with the threaded end of the valve stem, and provided between said bore and threaded portions with a chamber of
50 greater diameter than the bore to receive said annular shoulder, a pitman connecting the threaded end of the rod with the crank shaft, whereby said rod is reciprocated in a
horizontal plane, and a guide standard disposed between the valve supporting standard
55 and shaft and provided with an opening through which the rod reciprocates, whereby said rod will be guided in its reciprocatory movements in a straight path to correspondingly reciprocate the valve within its casing.
60

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

EZRA E. INNIS.

Witnesses:

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