

**No. 689,192.**

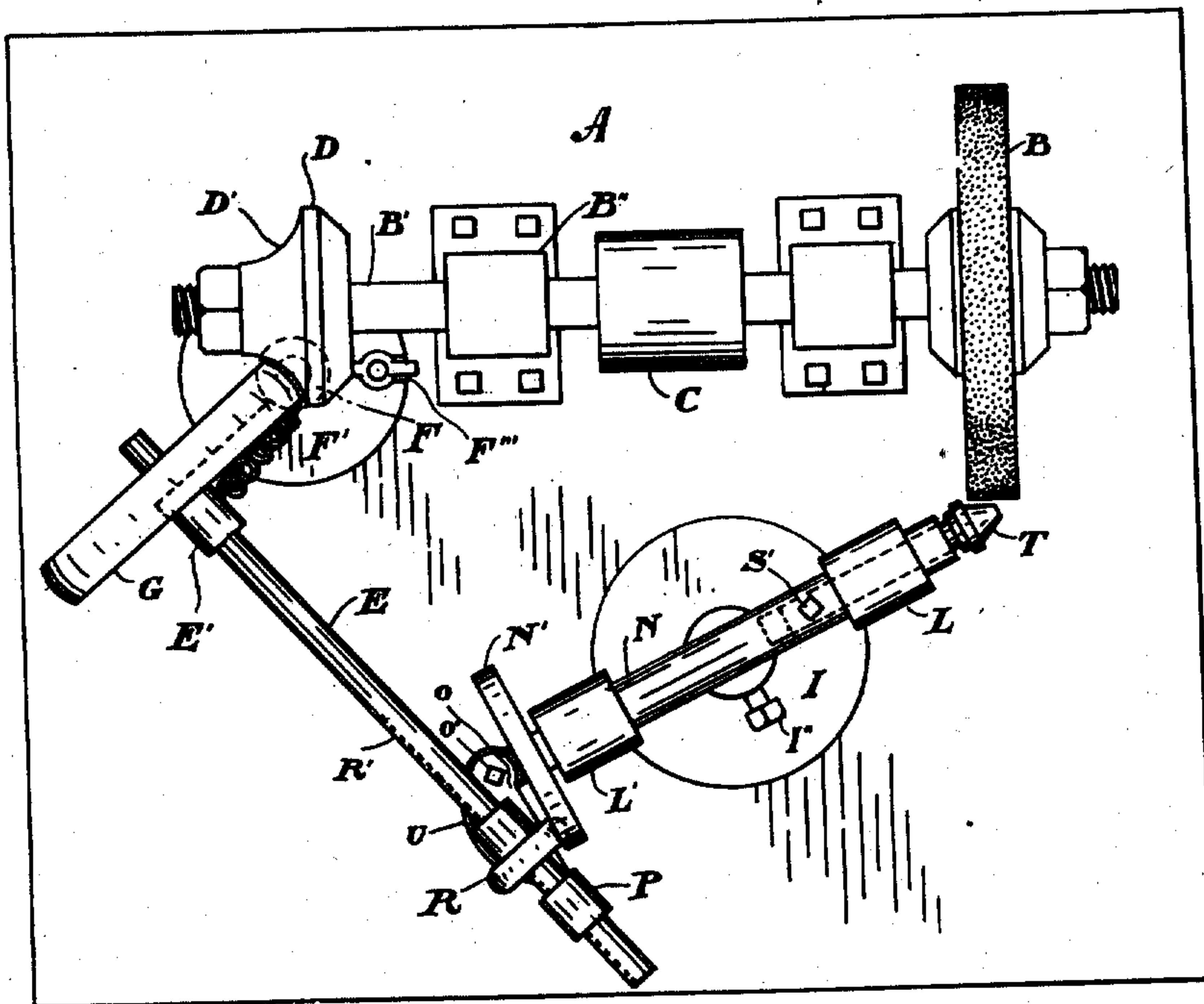
**Patented Dec. 17, 1901.**

**G. L. JONES.**

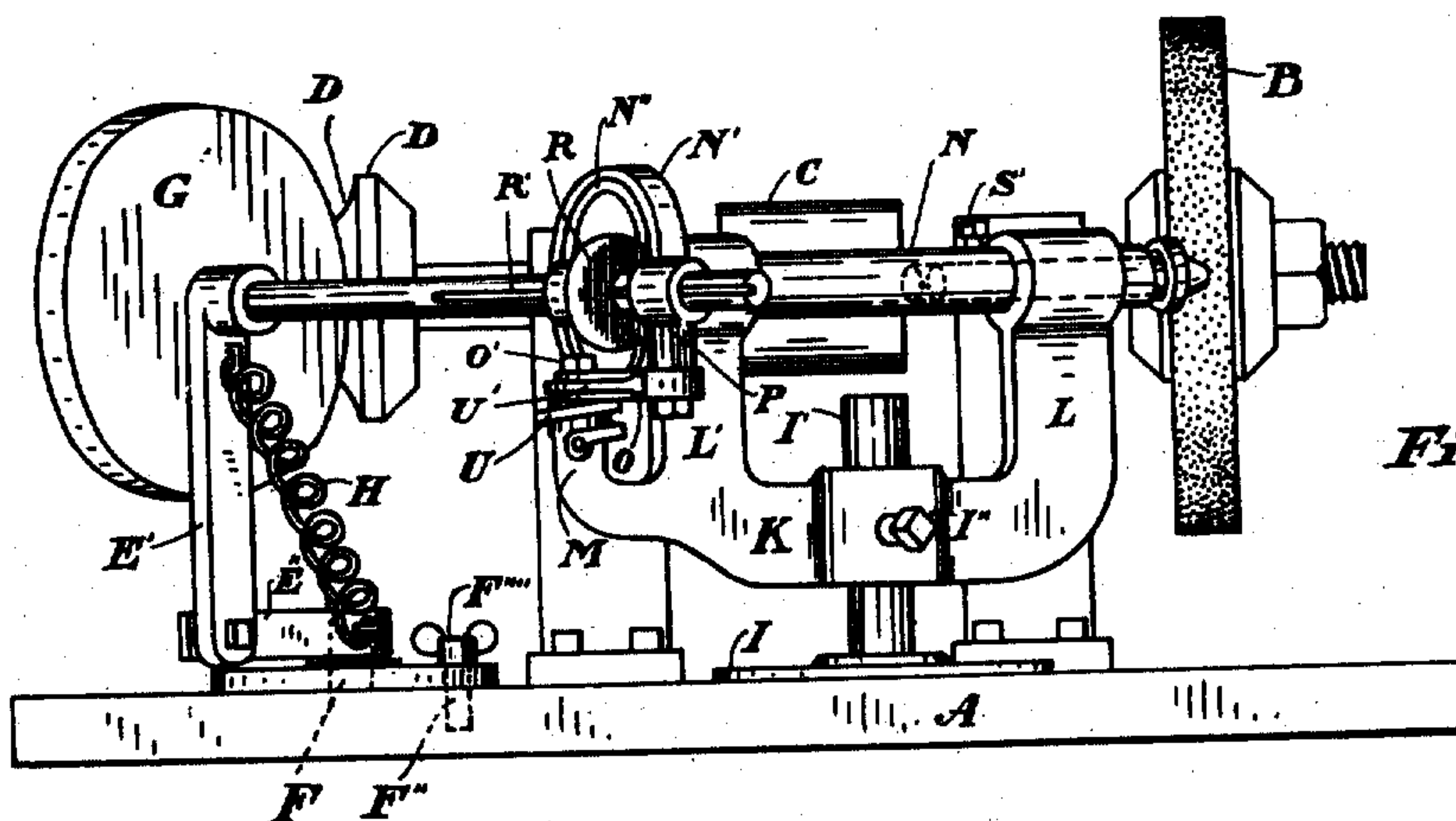
**CONE GRINDING ATTACHMENT FOR EMERY WHEELS.**

(Application filed Aug. 3, 1900. Renewed Oct. 12, 1901.)

(No Model.)

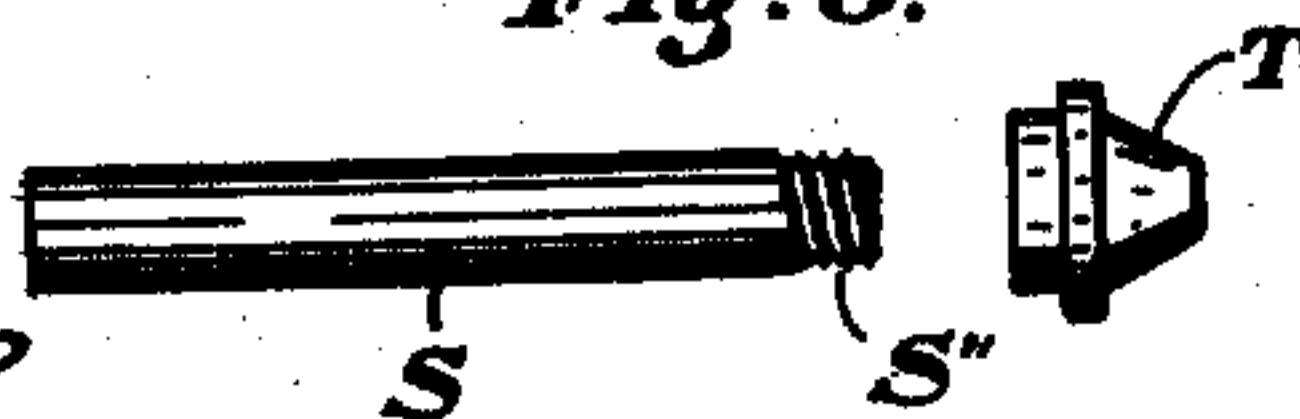


**Fig. 1.**



*Fig. 2.*

**Fig. 3.**



**WITNESSES,**

Thomas L. Ryan

A. Carl Boyer

*INVENTOR,*

George L. Jones

Mr. DuVal Brown

ATTORNEY



# UNITED STATES PATENT OFFICE.

GEORGE L. JONES, OF MUNCIE, INDIANA.

## CONE-GRINDING ATTACHMENT FOR EMERY-WHEELS.

SPECIFICATION forming part of Letters Patent No. 689,192, dated December 17, 1901.

Application filed August 3, 1900. Renewed October 12, 1901. Serial No. 78,475. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. JONES, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Cone-Grinding Attachment for Emery-Wheels, of which the following is a specification.

The aim and purpose of this invention is to provide an attachment capable of being easily and quickly attached to or detached from an emery-wheel of the ordinary mounting and construction, so that the article to be ground can be revolved with the emery-wheel. It is the purpose to apply the attachment to the emery-wheel-actuating means when in use, and when not in use to detach the same and allow the emery-wheel to be used for ordinary purposes. The attachment can be applied to the mechanism of any ordinary emery-wheel without altering the mechanism thereof with the exception of placing a gear-wheel on the end of the emery-wheel-actuating shaft on the opposite end of the emery-wheel. It will be noticed that the gear-wheel is placed upon the end of the emery-wheel shaft outside of the standards. The gear-wheel can be placed on the shaft of any double-spindle emery-wheel mechanism without in the least affecting the mechanism or changing the location of the supporting-standards or drive-pulley.

Another object is to provide an attachment with flexible gearing, so that the article to be ground can be held at any angle to the emery-wheel and with any amount of pressure or entirely removed from the wheel.

A further object is to provide the attachment with removable work-holding mandrels to hold different articles to be ground.

A still further object is to provide an attachment simple in construction, so as not to get out of order, and one that can be easily operated.

These and other objects not hereinbefore mentioned are accomplished by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a top plan view of an emery-wheel and its mountings with my attachment applied thereto. Fig. 2 is a side eleva-

tion of the same, and Fig. 3 is a detached view of the work-holding mandrel.

In the drawings, A designates the table for supporting the mounting for the emery-wheel and attachment.

B designates the emery-wheel, mounted on the shaft B'. This shaft is mounted on the table by means of the standards B".

C designates a pulley for revolving the wheel.

The parts already described are of the usual construction.

On the opposite end of the shaft from the emery-wheel is secured a friction-wheel D. The wheel has its friction-surface D' concave for a purpose hereinafter described. The placing of this friction-wheel D on the end of the emery-wheel shaft is the only change necessary to apply my attachment to the emery-wheel-actuating mechanism.

E designates a shaft extending at an angle from the shaft B'. One end of this shaft E is supported by the post E'. The lower end of this post is pivoted to the free end of an arm E'', which in turn has its opposite end pivoted to the post F, extending upwardly from the plate F', which is rigidly secured to the table under the friction-wheel D.

On the end of the shaft E beyond the post E' is a friction-wheel G, which is adapted to have frictional contact at all times with the frictional wheel D. A bolt F'' extends through a slot F''' in the plate F down through the table. The upper end of the bolt is provided with a hand-nut F'''' for holding the plate to the table.

H is a coiled spring having its upper end secured to the upper portion of the post E' and its lower end secured to the arm E'', adjacent its pivotal point on the plate. The purpose of this spring is to always keep the friction-wheels G and D in contact when the alignments of the shafts E and B' are changed, as hereinafter described. The opposite end of the shaft E is mounted on a slidable standard. This standard consists of a plate I, which is not connected to the table and is adapted to be slid over the table at will by the operator. Extending up from the slidable plate I is a standard I'. This standard I' supports a casting K, which is held in adjustable heights from the plate I by means



of the set-bolt I'. The casting K is provided with three parallel upwardly-extending arms L, L', and M, respectively. The arms L and L' extend up the same height and have journaled thereon a shaft N, which extends at an angle to the shaft E and also to the shaft B'. On the end of the shaft beyond the arm L is secured a friction-wheel N'. Pivoted to the upper end of the arm M is a horizontal arm O. This arm is secured in place by means of the nut O'. The free end of this arm has pivoted thereto an upright post P, which supports the end of the shaft E.

R designates a friction-wheel secured to the shaft E by means of the spline R'. This wheel R is adapted to have frictional contact with the friction-wheel N', which is provided with an annular groove N'' for that purpose.

The opposite end of the shaft N is hollowed out and is adapted to hold the work-holding mandrel S. This mandrel is secured in the shaft by means of the set-screw S'. On the end of the mandrel is screwed the cone T, which is to be ground.

By referring to Fig. 3 it will be seen that the outer end of the mandrel is provided with screw-threads S'', on which the cone is adapted to be screwed. As all cones are not provided with the same pitch of thread, I make the mandrels detachable, so that I can have a mandrel with a thread to fit any cone. By making the mandrels readily detachable I provide an attachment which is especially valuable for this class of work.

U designates a coiled spring surrounding the post M. This spring is provided with an extension U', having its end bearing against the arm O for pressing the wheel R against the wheel N'.

In the operation of the device the friction-wheel D will revolve the friction-wheel G and the shaft E, which will revolve the wheel R and wheel N' and shaft N, carrying the cone to be revolved. As the shaft E has a pivotal connection with its support and the said shaft is also pivoted at the other end to the standard carrying the shaft N, it will be seen that the cone can be readily redrawn from the emery-wheel B or that the pressure of the cone against the emery-wheel can be varied at will by simply moving the sliding standard over the table. By mounting the friction-wheel R on the shaft E and providing the wheel N' with the annular groove N'' the two wheels will always be in frictional contact. By having the friction-wheels, which are in contact with each other, held together by springs I am enabled to vary the relative position of the shafts at will and at the same time always have a positive contact between the wheels, so that there is no danger of the cone ever stopping when against the emery-wheel, thereby damaging the cone. There will always be enough friction between the parts to make the cone revolve. It will be noticed that the wheels D and G, being held together by a spring, will always be in contact when the at-

tachment is in use, notwithstanding what angle the two shafts B' and E may assume in relation to each other. This I regard as an important feature of my invention, for the reason that to properly grind a cone it is necessary to allow considerable play between the shafts N and E and also between the shafts E and B'. Another reason why this yielding contact between these two wheels is desirable is that all emery-shaft wheels are not the same length or are the emery-wheels the same in diameter, and for that reason the two shafts E and B' vary greatly in their relative positions, and without this yielding contact the attachment could not be applied to any emery-wheel mechanism, and every attachment would have to be different in size to correspond with the different makes of emery-wheels.

As the wheel D is placed on one end of the emery-wheel shaft and the cone to be ground is located adjacent the other end of the shaft and it being necessary to provide means for rotating the cone and the cone must be so supported that it can be readily moved to or from the emery-wheel, it is necessary and essential that there must be used flexible gearing connected with the wheel D for rotating the cone. It is also essential that the shaft carrying the cone must be a shaft mounted on a slidable but rigid standard of some kind, so that the cone can be properly guided to the emery-wheel. By supporting the shaft carrying the cone on a standard the shaft is supported, and the operator can use both hands to move the cone to the emery-wheel. As it requires some skill and attention to hold the cone to the emery-wheel not only in the proper position, but also with the proper pressure, it is quite necessary that the operator should have the use of both of his hands.

By positioning the pivotal point of the arm E'' directly under the concave portion D' of the friction-wheel D, as shown in dotted lines, Fig. 1, the wheel G can be moved to any desired angle in relation to the wheel D and their point of contact be practically the same.

By unscrewing the nut F''' the attachment can be removed and the emery-wheel used without it for other kind of work, if so desired. The post F, carrying the arm E'', and post E' can be made adjustable in height, if desired.

I am aware that many minor changes can be made in the construction and arrangement of parts without in the least departing from the nature and principles of my invention.

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

1. In a work-holding attachment for emery-wheels, the combination with a gear-wheel on the emery-wheel shaft, of a movable shaft E extending at an angle to the emery-wheel shaft having one end pivotally secured to a fixed support, the fixed support being located adjacent the wheel on the emery-wheel shaft, a gear-wheel on that end of the shaft coact-



ing with the gear-wheel on the emery-wheel shaft, a spring for positively holding the two wheels together and at any angle that the two shafts may assume in relation to each other, 5 a slidable standard, a shaft N carried by the standard, at an angle to the other shafts, the shaft E having one end pivoted to the standard, coacting gear-wheels on the ends of the shafts E and N, springs for holding the wheels 10 together, the wheel on the shaft E being splined thereon, and a work-holder on the opposite end of the shaft N.

2. In a work-holding attachment for emery-wheels, the combination with a slidable standard adapted to be moved over a suitable support, a shaft mounted thereon, a work-holder on one end of the shaft, a frictional gear-wheel on the opposite end of the shaft provided with an annular groove, a shaft E having one end pivoted to the slidable standard, a frictional gear-wheel splined thereon coacting with the gear-wheel on the other shaft, and bearing in the annular groove thereof, a spring for holding the two gear-wheels together, the opposite end of the shaft E adapted to be pivotally supported on a suitable support, and a gear-wheel on the end of the shaft adapted to be revolved by the emery-wheel shaft. 25

3. In a work-holding attachment for emery-wheels, the combination with a gear-wheel on the end of the emery-wheel shaft provided with a concave surface, an arm pivoted to a suitable support under the gear-wheel, its pivotal point being directly under the concave portion of the gear-wheel, a post extending from the arm and pivoted thereto, a shaft hav- 35

ing one end mounted thereon, a gear-wheel on the end of the shaft adapted to coact with the gear-wheel on the emery-wheel shaft, 40 means for holding the wheels together, a slidable standard, a work-holding shaft journaled thereon, and flexible gearing connecting the two shafts together.

4. In a work-holding attachment for grinding-wheels, the combination with a gear-wheel on the end of the grinding-wheel shaft, the gear-wheel being on the end opposite from the grinding-wheel, of a slidable standard adapted to be moved over a suitable support adjacent the grinding-wheel, a shaft journaled thereon, a work-holder on one end of the shaft, and flexible gearing connecting the other end of the shaft with the gear-wheel on the end of the grinding-wheel shaft. 50

5. In a work-holding attachment for grinding-wheels, the combination with a gear-wheel on the end of the grinding-wheel shaft, the gear-wheel being on the end opposite from the grinding-wheel, of a slidable standard adapted to be moved over a suitable support adjacent the grinding-wheel, a shaft journaled thereon, a work-holder on the outer end of the shaft, a gear-wheel mounted adjacent the gear-wheel on the end of the grinding-wheel shaft and 65 meshing therewith and flexible gearing connecting this gear-wheel and the inner end of the shaft carrying the work-holder.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

GEORGE L. JONES.

Witnesses:

WM. DU VAL BROWN,  
W. A. THORNBURG.