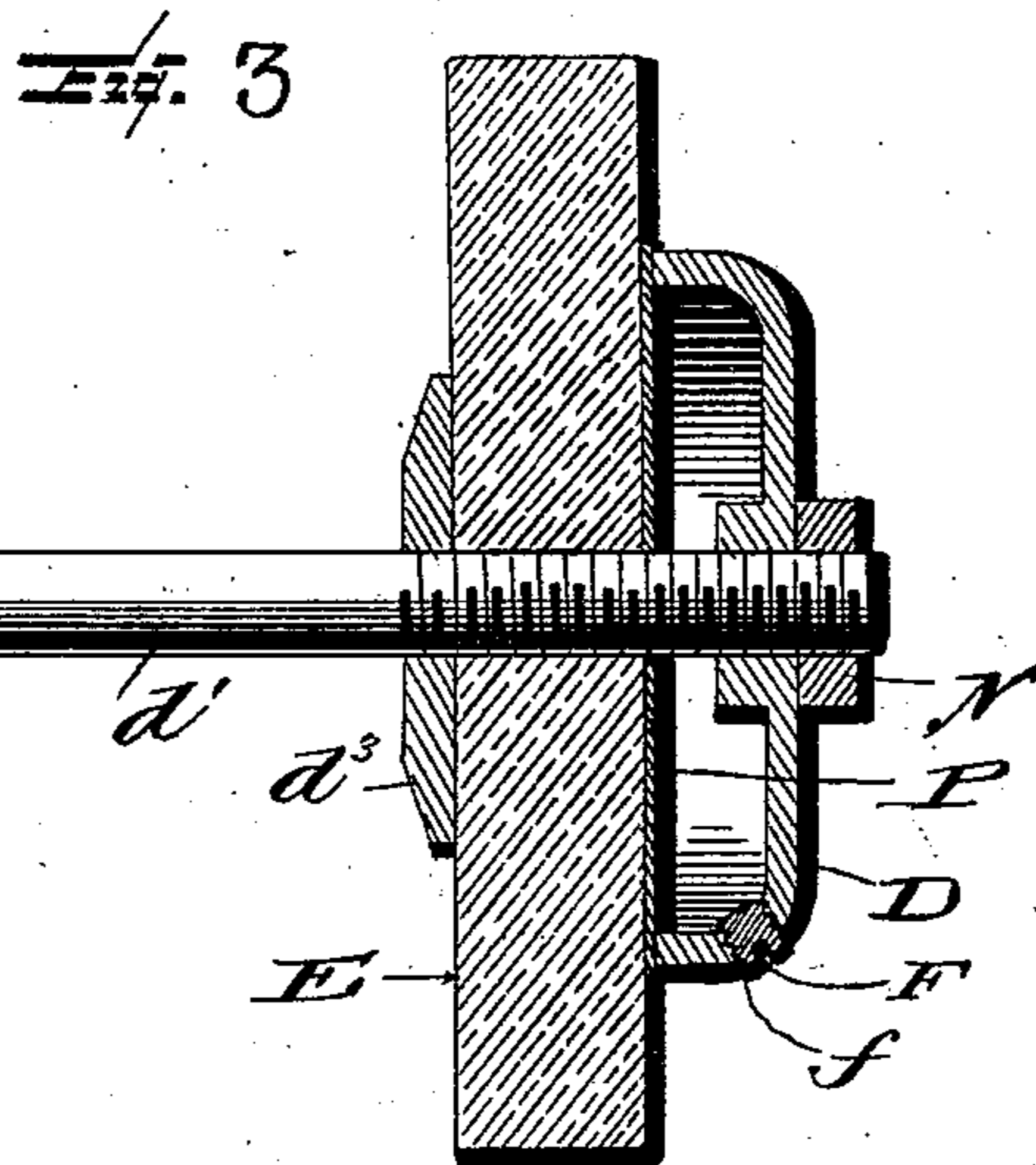
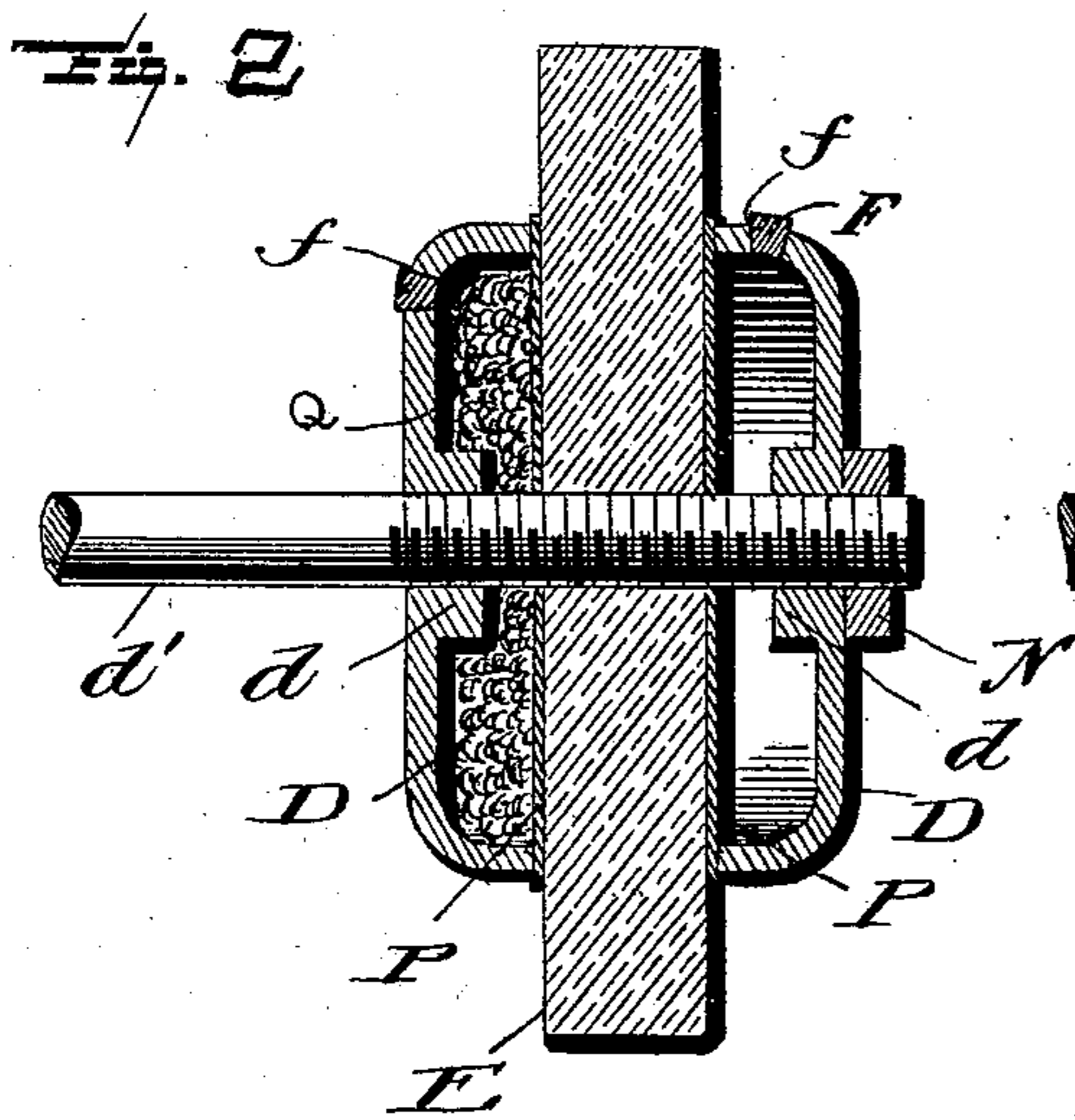
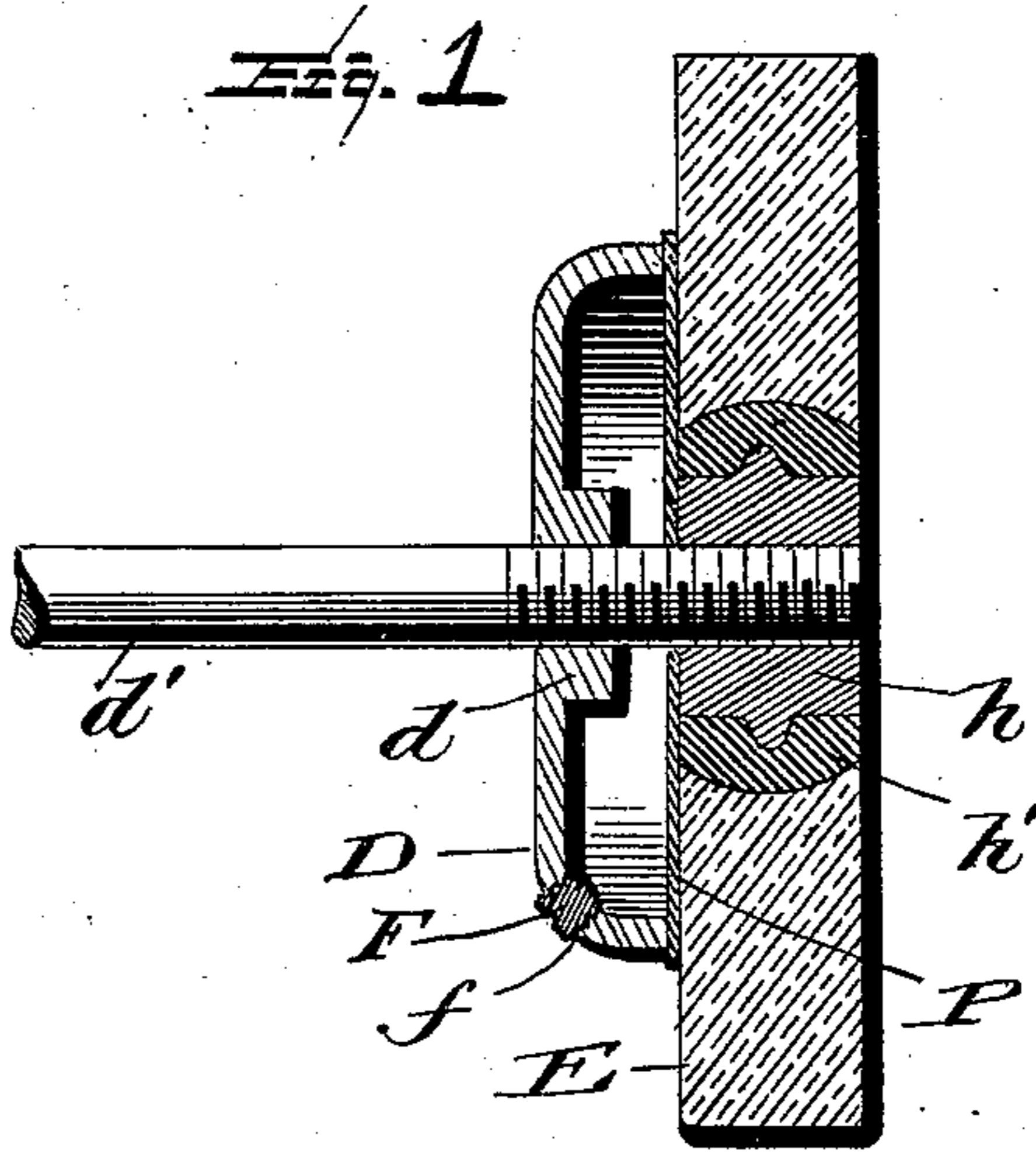


(No Model.)

J. H. KING.  
GRINDING WHEEL.

No. 533,958.

Patented Feb. 12, 1895.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JACOB H. KING, OF PIQUA, OHIO.

## GRINDING-WHEEL.

SPECIFICATION forming part of Letters Patent No. 533,958, dated February 12, 1895.

Application filed February 23, 1894. Serial No. 501,188. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB H. KING, a citizen of the United States, and a resident of Piqua, Miami county, State of Ohio, have invented certain new and useful Improvements in Grinding-Wheels; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to grinding and polishing, and more especially to the abrading materials and tools used therein; and the object of the same is to produce an improved hub for a grinding wheel, and an improved moistening device for keeping the wheel wet during grinding.

To this end the invention consists in the construction set forth below, and illustrated in the accompanying drawings, wherein—

Figure 1 is a section through the grinding wheel and its hub, showing one manner of attaching said hub to the driving shaft and of connecting the hub with the wheel, and this view also shows a section of the moistener. Fig. 2 is a section through the grinding wheel without the hub, and through two moisteners—showing how they can be applied to said wheel. Fig. 3 is a section without the hub—the driving shaft here being extended through the wheel and carrying a moistener on its outer end.

Referring to the said drawings, the letter E designates a grinding wheel which may be of natural stone, emery, or any other suitable grinding composition or medium—the ordinary emery wheel of commerce being preferred; and  $d'$  is the driving shaft or arbor upon which this wheel is mounted. The connection between the wheel and shaft may be any that will answer the purpose; but as I intend to use this wheel for grinding harvester knives where perhaps as much weight will be thrown on one face of the wheel as on one edge, I preferably employ a collar  $d^3$  of some considerable size secured strongly to the shaft and resting firmly against one face of the wheel so as to prevent the latter from becoming loose under the strain brought to bear upon it.

In Fig. 1 I have shown one mode of constructing and mounting the grinding wheel E

although I make no claim to this feature. The counter-shaft or arbor  $d'$  is screw-threaded at its outer end. A socket piece  $h$  of suitable metal with radial prongs is seated in a central aperture of the grinding wheel and secured therein preferably by the use of some soft metal melted, poured, and hardened around the socket piece, as shown at  $h'$ , this being accomplished with lead, Babbitt metal, brimstone, or any other suitable metal or composition capable of holding the block or socket piece permanently in the wheel; or, if desired, the block or socket piece may be formed in the wheel, when the same is made of emery or similar composition, so as to be located permanently therein. This block or socket piece is internally screw-threaded to correspond with the screw-threaded end of the shaft, and is screwed thereon, the shaft terminating just short of the outer face of the grinding wheel.

My improved moistener consists of a comparatively thick collar D hollowed out on its inner side so as to present a cup-shaped face adjacent the stone and preferably having an integral hub  $d$  which may take onto the screw-threads of the shaft  $d'$ . At one point in the cup is an aperture  $f$  which may be threaded so as to receive a threaded plug F, or it may be smooth and a cork substituted for the plug.

The letter P designates a sheet of paste-board, fabric, or similar somewhat porous material, or it may be a piece of imporous material provided with a number of fine perforations. This sheet is disk-shaped with a hole at its center which is passed over the shaft, and it is of sufficient size to lie flat against the face of the grinding wheel and be clamped there by the annular edge of the cup D. In use, the plug F is removed and the chamber within the cup filled with water or other moistening liquid, after which the plug is replaced to close the chamber and the wheel is adjusted more or less closely toward the edges of the cup so as to more or less indent the edges of the disk and regulate the size of its pores. Thereafter the rotation of the wheel causes the liquid within the cup to be thrown outward by centrifugal force, and it percolates through the disk and moistens the entire adjacent face of the stone—even

running over onto the outer edge thereof, as will be understood. From time to time the cup can be refilled as found necessary. It will be seen in Fig. 1 that I have employed  
 5 the hub *h* above described and that the cup *D* holds the grinding stone rigidly at right angles to the length of the shaft.

In Fig. 2 I have shown two of the said moisteners as applied to the wheel, and here  
 10 the hub *h* above described is omitted. The shaft *d'* is simply carried through a hole in the center of the wheel and through and beyond the hub *d* of the outer cup, and a nut *N* is applied to the threaded outer end of the  
 15 shaft to clamp the parts in position. However, the hub *h* can be used in the wheel if desired. Except in the case of large grinding wheels, I do not consider this construction as useful as those elsewhere shown, because both  
 20 faces of the wheel are covered to a certain extent by the cups and are therefore not useful for grinding purposes.

In Fig. 3 I have shown a slightly different arrangement wherein a collar *d<sup>3</sup>* is employed  
 25 and the moistener is on the outer side of the wheel opposite the collar. The latter may be made quite small so as not to interfere with grinding against the inner face of the wheel, and the moistener as large as necessary. In  
 30 this view I have omitted the hub *h* within the wheel, but it is obvious that it may be used if desired.

Considerable change may be made in the specific details of construction without departing from the principle of my invention.  
 35 I have shown three methods or modes of mounting the wheel and of using the collar or the moistener, or both. It will be understood, however, that the moistener may be  
 40 used without the collar and singly or in duplicate as shown. With such exceptions as

are necessary the materials may be varied to a considerable extent, and the sizes, proportions, and exact shapes of parts are immaterial.

It will be obvious that the cup *D* might contain a sponge, waste, or other absorbent material or packing as indicated at *Q* for holding the liquid.

What is claimed as new is—

1. In a grinding wheel, the combination with a shaft, a wheel mounted thereon, and means for adjusting the wheel longitudinally on the shaft; of a moistener consisting of a collar having a dished or cup-shaped open  
 55 face adjacent the wheel and a closed bottom remote from the wheel, means for filling the cup with moistening liquid, and a porous disk mounted on the shaft adjacent the wheel and clamped against the wheel by the edges of  
 60 the cup, as and for the purpose set forth.

2. In a grinding wheel, the combination with a shaft, and a wheel mounted thereon; of a moistener movable longitudinally on said shaft and consisting of a collar having a  
 65 dished or cup-shaped open face adjacent the wheel and a closed bottom remote from the wheel, a removable packing within the cup susceptible of retaining a moistening liquid, a porous disk clamped between the edges of  
 70 the cup and the contiguous face of the wheel, a filling orifice in the cup, and means for clamping and holding the cup and wheel in position, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 20th day of  
 75 February, A. D. 1894.

JACOB H. KING.

Witnesses:

S. S. MCKINNEY,  
 S. W. MCWILLIAMS.