No. 721,636. PATENTED FEB. 24, 1903.

L. PASSMORE.

GRINDING MACHINE.

APPLICATION FILED DEC. 4, 1902.

NO MODEL.

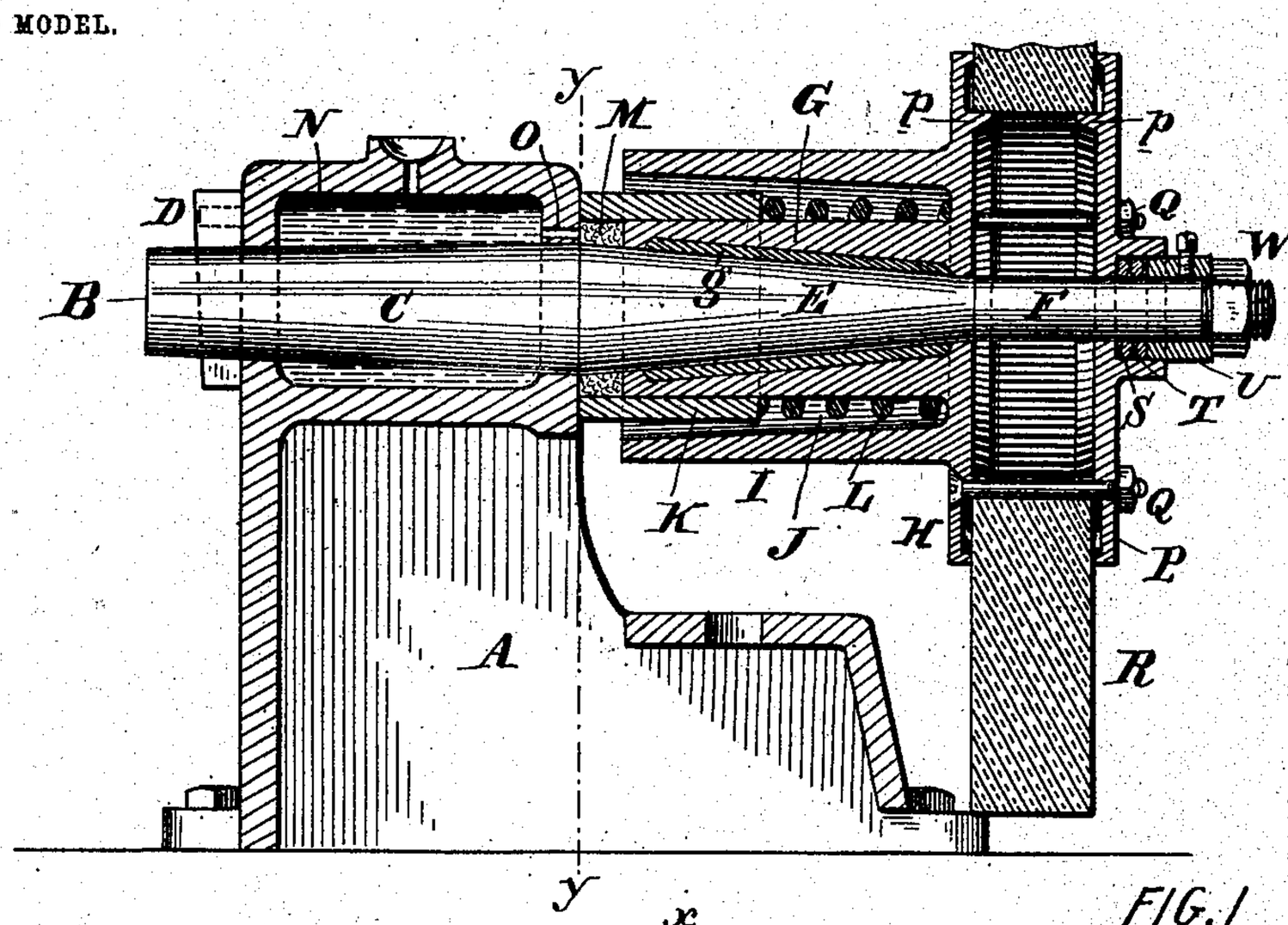

FIG. 1

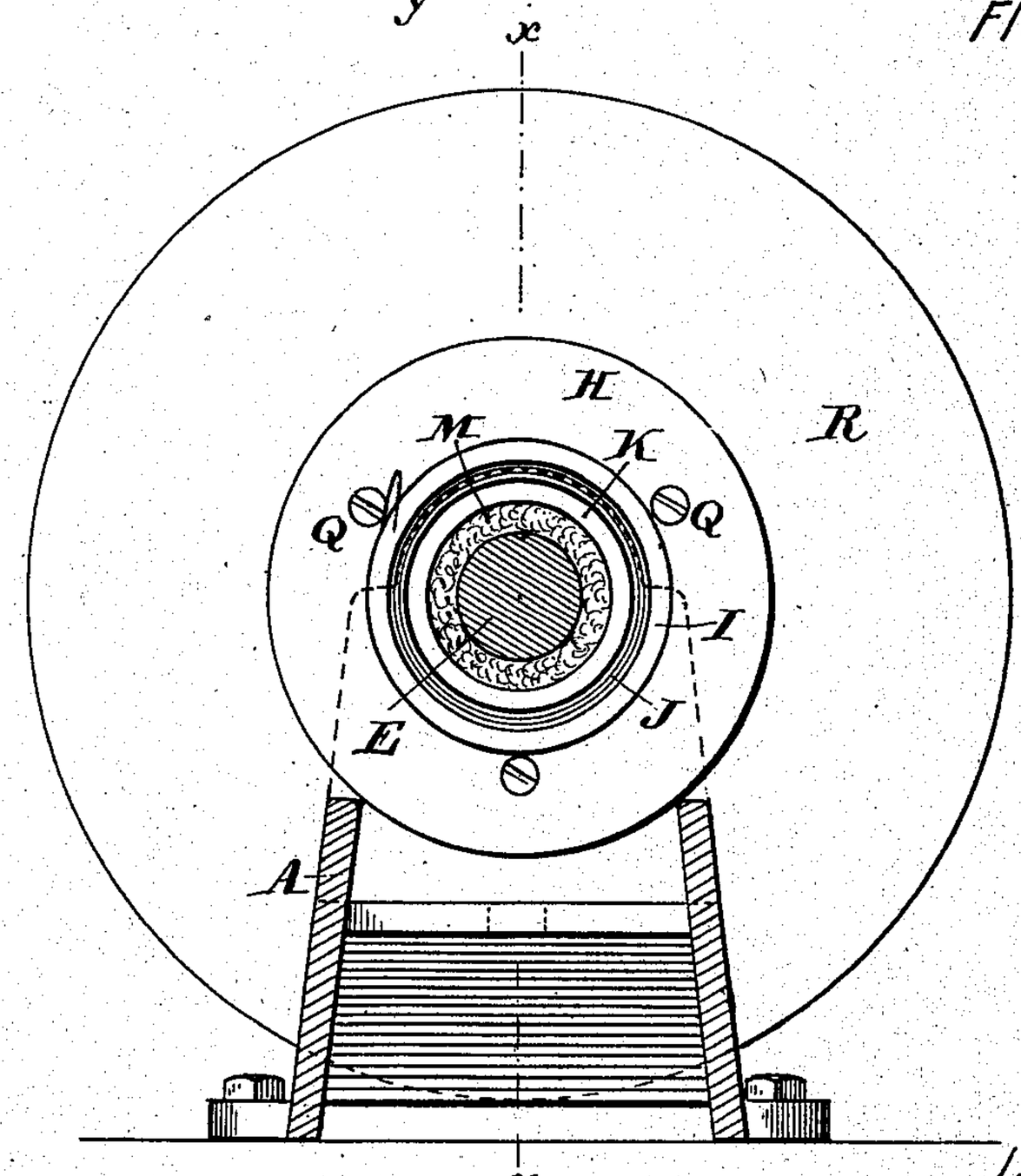

FIG. 2

Attest
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UNITED STATES PATENT OFFICE.

LEVIS PASSMORE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO KATE S. PASSMORE, OF PHILADELPHIA, PENNSYLVANIA.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 721,636, dated February 24, 1903.

Application filed December 4, 1902. Serial No. 133,827. (No model.)

To all whom it may concern:

Be it known that I, LEVIS PASSMORE, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Grinding-Machines, of which the following is a specification.

My invention has reference to grinding-machines; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a simple and inexpensive construction especially adapted for emery and other grinding-machines in which the grinding element is required to be revolved at a high speed.

More particularly my invention has for its objects the employment of a construction which will overcome any tendency of the grinding-wheel to revolve out of true alinement and to accomplish this result in an inexpensive manner, so that the various grinding-machines in a works may be installed as independent elements, each one running at its own required speed.

In carrying out my invention I provide a pedestal with a fixed horizontal bearing having a conical portion, and combined therewith I employ a bearing furnished with a band-wheel and a clamping part for the emery or other grinding wheel. In connection with the above features I also employ a suitable adjusting device for the support of the grind stone or wheel at its extreme outer end with capacity of adjustment to compensate for wear for the purpose of steadying the operation of the grind stone or wheel during rotation. I further prefer to employ a special means of oiling, comprehending the provision of an oil-well in the pedestal communicating by means of a duct to the conical bearing, the regulation of the oil being preferably secured by a packing of cotton or other soft material held in position by an adjustable gland revolving with the bearing and pulley.

My invention also comprehends other details of construction, which, together with the above features, will be better understood by reference to the drawings, in which—

Figure 1 is a longitudinal sectional elevation of an emery grinding-machine embodying my improvements on line *x x* of Fig. 2, and Fig. 2 is a transverse sectional elevation of the same on line *y y* of Fig. 1.

Heretofore it has been customary in emery grinders to employ a revolving spindle, to each end of which is clamped an emery-wheel. The objection to this is its expense, liability to wear, lack of adjustment, and the operation of two emery-wheels of different diameters and adapted for different work at the same speeds. This latter difficulty is the almost inevitable result of using machines of the character at present in use, because manufacturers invariably employ emery-wheels of different diameters upon the two ends of the spindle. In my invention only one emery-wheel is employed with any one machine, and this is so combined with the supporting-spindle that all wear is readily taken up, so that the wheel runs very true, and hence overcomes the liability of accidental rupture of the wheel and the consequent danger to the operator of being struck by the flying pieces.

Referring more specifically to the construction illustrated, A is the pedestal, adapted to be bolted upon any support, such as a bench. Fitted to this pedestal is a fixed shaft B, the same being secured in position by a tapered butt C, adjusted to a corresponding aperture in the pedestal and drawn into rigid connection by a slot and key D. The projecting part of the shaft B next to the pedestal A is made conical, as at E, and the extreme end F, which is within the grinding-wheel proper, is made of uniform diameter or cylindrical. Journaled upon the conical bearing part E is a sleeve G, constituting a bearing-surface, which is babbitted, as at *g*. This conical sleeve G is secured at the outer end to a vertical flange or disk H, to which is also secured a pulley-flange I. This construction constitutes, in effect, a pulley journaled upon the conical bearing E and having the vertical flange H. The annular emery-wheel R is clamped between the flange H and an outer disk P by means of bolts Q, and said disk is loosely journaled upon the cylindrical part F of the shaft B. The annular emery-wheel is centralized in the flange H and the disk P by means of the annular projecting flanges or lugs *p*. The center portion of the disk P is

provided with an outwardly-directed annular recess S, which is filled with packing T, such as cotton and plumbago. This makes a tight packing and is clamped in said recesses S by a cylindrical flange U, forced inward under the action of a nut W, screwed upon the end of the shaft B. By means of this nut W the conical sleeve G may be adjusted upon the conical bearing E of the shaft B, so as to compensate for all wear, and any slight wear which may come upon the central part of the disk P will be taken up by the packing T therein, so that the said disk is steadied upon the outer end of the shaft B.

To secure proper oiling of the bearing E, I employ the following construction: The pedestal A is made with an oil-chamber N, adapted to receive oil. The oil may flow from this chamber through a small aperture O into a space between the face of the pedestal and the end of the conical sleeve G, and it is preferably received by a packing of cotton or other absorbent material M. This absorbent material is retained in position by means of an adjustable gland K, which telescopes the pulley-hub G and is pressed outward by a spring L, contained within the chamber J, between the pulley-flange and the conical bearing part or hub G. In this manner the outer end of the gland K revolves against the surface of the pedestal and confines the absorbent packing M and oil. The oil received by the packing M slowly works its way into a groove V, extending along the upper surface of the conical bearing E, and is thereby delivered throughout the length of said bearing. It will be seen that by this construction a very positive and accurate bearing for the revolving emery grind-wheel is secured, and the strain of the belt upon the wheel is directly above the bushing, so as to make the wear as uniform as possible. No appreciable wear comes upon the disk P, the said part being designed for the purpose of clamping the emery-wheel in position and steadying it at the outer end, as well as holding the part G in position upon its shaft, and therefore I do not confine myself to the particular construction of this part, as it is evident that it may be very materially modified.

While I prefer the construction shown, I do not confine myself to the minor details, as they may be varied within reasonable conditions without departing from the spirit of the invention.

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

1. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a grinding-wheel secured to and rotating with the pulley, and means for holding the pulley-bearing in position upon the shaft.

2. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a sleeve carried by the pulley and pressing against the pedestal to form an annular chamber between it and the shaft, absorbent packing arranged in said annular chamber for containing oil, a grinding-wheel secured to and rotating with the pulley, and means for holding the pulley-bearing in position upon the shaft.

3. In a grinding-machine, the combination of a pedestal or base having an oil-well, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a sleeve carried by the pulley and pressing against the pedestal to form an annular chamber between it and the shaft, absorbent packing arranged in said annular chamber, means for supplying oil to said chamber from the oil-well in the pedestal, a grinding-wheel secured to and rotating with the pulley, and means for holding the pulley-bearing in position upon the shaft.

4. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a sleeve carried by the pulley and pressing against the pedestal to form an annular chamber between it and the shaft, a spring carried by the pulley for forcing said sleeve against the pedestal with an elastic pressure, absorbent packing arranged in said annular chamber, means for supplying oil to said chamber, a grinding-wheel secured to and rotating with the pulley, and means for holding the pulley-bearing in position upon the shaft.

5. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a grinding-wheel secured to and rotating with the pulley, and means for holding the pulley-bearing in position upon the shaft consisting of an adjustable nut screwed upon the end of the fixed shaft.

6. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a grinding-wheel secured to and rotating with the pulley, an outer disk secured to the pulley and grinding-wheel journaled upon the shaft and having a central recess, a packing in the recess, means for compressing the packing of the recess upon the shaft, and means for holding the pulley-bearing in position upon the shaft.

7. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion, a pulley having a conical bearing fitting said shaft, a grinding-wheel secured to and rotating with the pulley, and means for adjusting the pulley-bearing longitudinally upon the shaft to compensate for wear.

8. In a grinding-machine, the combination

of a pedestal or base, a laterally-extending fixed shaft having a conical portion adjacent to the pedestal and a cylindrical end, a pulley having a conical bearing adapted to the conical portion of the shaft and also having a vertical flange, a disk journaled upon the cylindrical portion of the shaft, an annular grinding-wheel clamped in position between the flange and disk, clamping-bolts for holding the flange and disk upon the wheel, and means secured upon the end of the shaft for holding the pulley upon its conical bearing.

9. In a grinding-machine, the combination of a pedestal or base, a laterally-extending fixed shaft having a conical portion adjacent to the pedestal and a cylindrical end, a pulley having a conical bearing adapted to the conical portion of the shaft and also having a vertical flange, a disk journaled upon the cylindrical portion of the shaft, an annular grinding-wheel clamped in position between the flange and disk, clamping-bolts for holding the flange and disk upon the wheel, means for compensating for wear between the disk and shaft consisting of an expansible packing, and means secured upon the end of the shaft for holding the pulley upon its conical bearing and the packing in expanded condition.

In testimony of which invention I have hereunto set my hand.

LEVIS PASSMORE.

Witnesses:
ERNEST HOWARD HUNTER,
R. M. KELLY.