

No Model.)

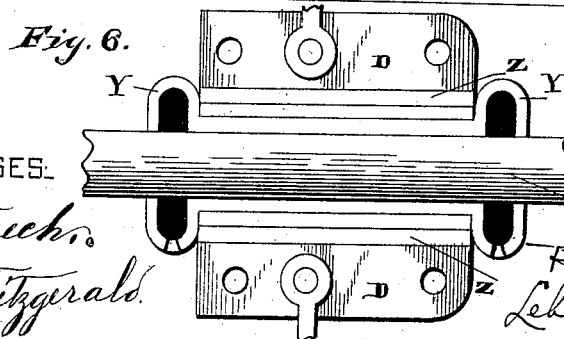
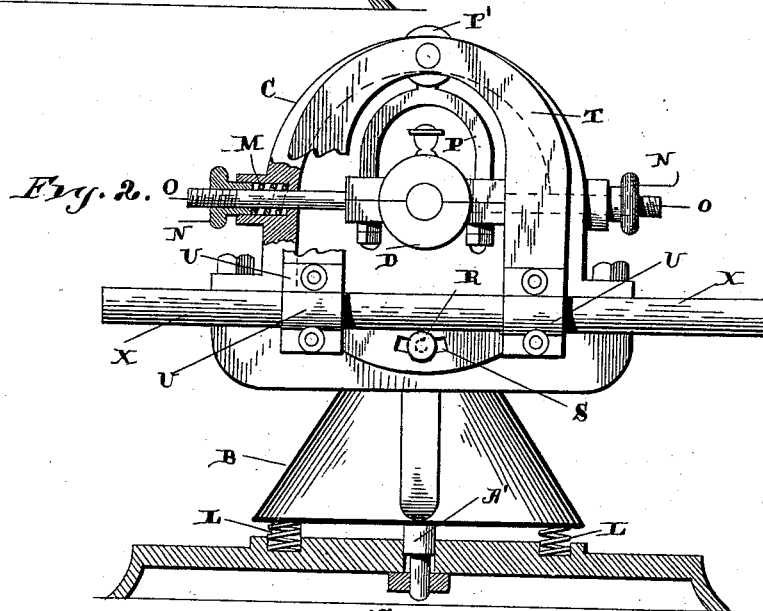
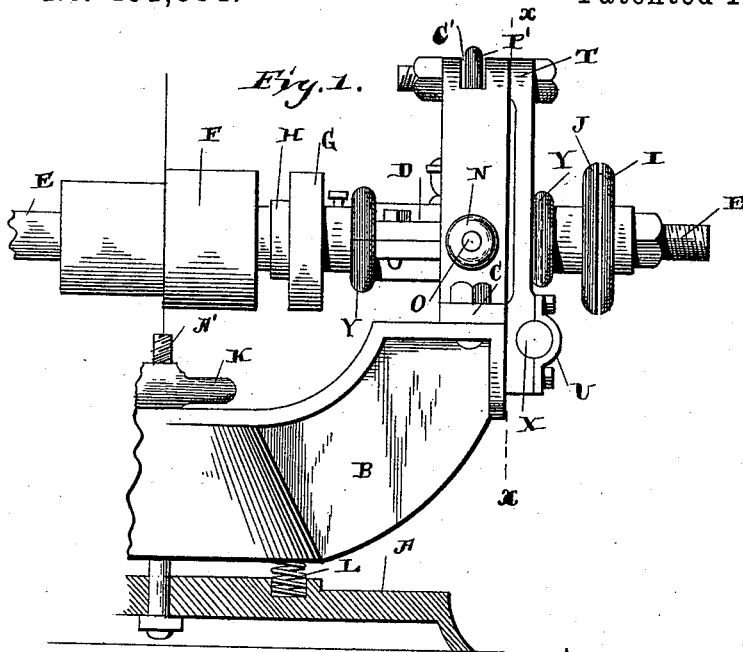
2 Sheets—Sheet 1.

C. HEATON.

SHAFT HANGER FOR GRINDING AND POLISHING MACHINES.

No. 491,884.

Patented Feb. 14, 1893.



WITNESSES:

Geo. C. Truett.

Col. A. Fitzgerald.

INVENTOR—
Chas. Heaton

By *Lehmann, Patterson & Nash*
attys.

(No Model.)

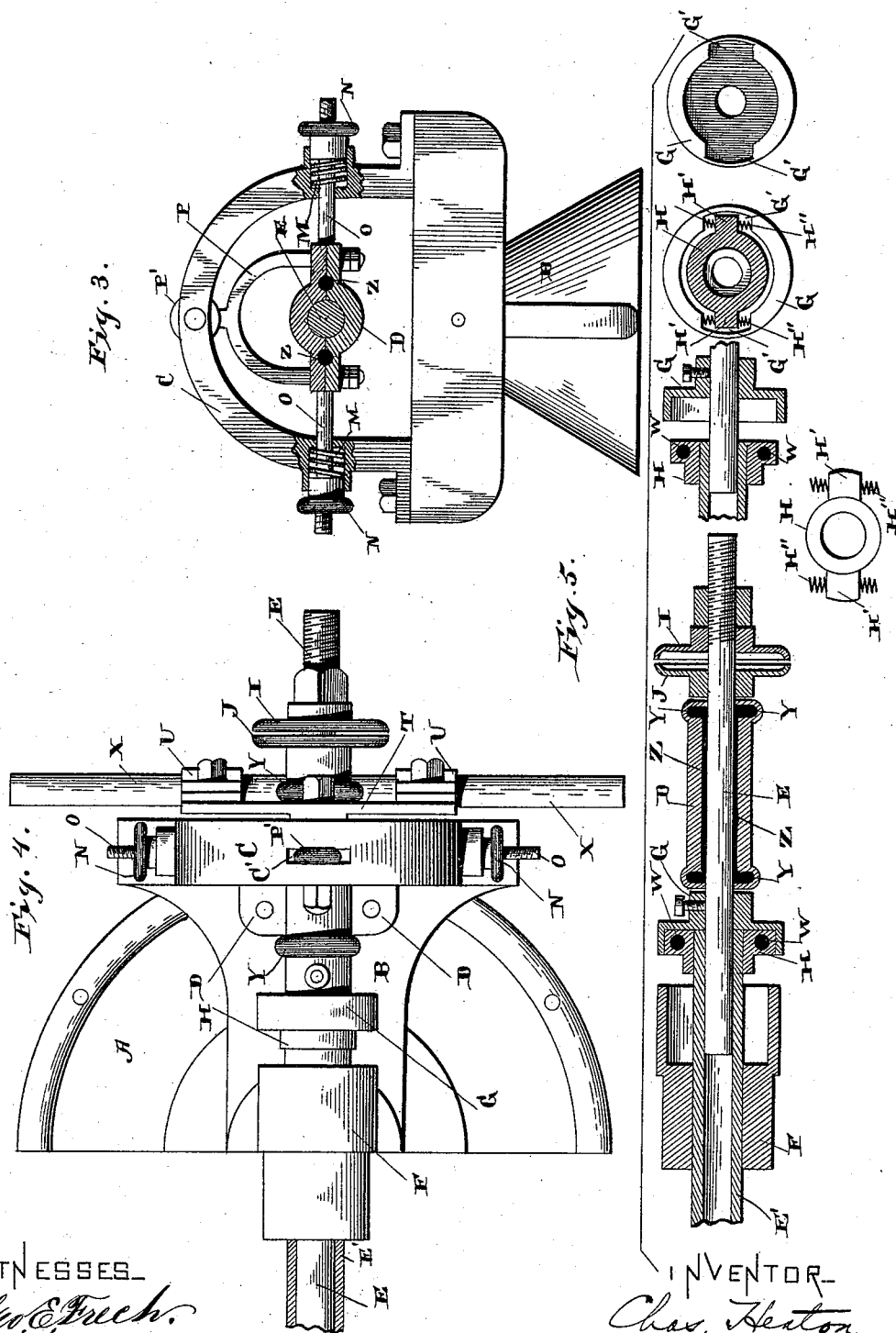
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UNITED STATES PATENT OFFICE.

CHARLES HEATON, OF PHILADELPHIA, PENNSYLVANIA.

SHAFT-HANGER FOR GRINDING AND POLISHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 491,884, dated February 14, 1893.

Application filed August 16, 1890. Serial No. 362,251. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HEATON, a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Shaft-Hangers for Grinding and Polishing Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in shaft hangers for grinding and polishing machines,—and it consists in the novel combination and arrangement of parts which will be fully described hereinafter and more particularly referred to in the claims.

The object of my invention is to so construct the frame which supports the bearings of the machine that they will be afforded a vertically yielding movement and also to suspend the bearings within the frame in such a manner as to allow lateral play against suitably arranged cushion springs.

A further object is to mount the driving pulley upon the shaft in such a manner that it will have a slight concentric movement thereon independently of the clutch which secures it to the shaft.

Referring to the accompanying drawings,—Figure 1, is a side elevation of one half of my improved machine. Fig. 2, is an end view of the same, shown partly in section. Fig. 3, is a vertical cross sectional view on the line $x-x$, of Fig. 1. Fig. 4, is a plan view. Fig. 5, is a view showing the several parts of the driving shaft and wheel detached, a portion of the frame being shown in section. Fig. 6, is a plan view of the shaft and its bearing, the upper portion of the latter being removed.

A indicates the base of the machine and B a bearing frame which is secured thereto by means of the bolt A' upon which it moves vertically, the adjustment being accomplished by means of the screw wheel K at the upper end of said bolt, forcing the frame downward against the springs L interposed between it and the base A. The latter act as cushions and yield to any sudden vertical pressure or jar of the frame B. The bearings for both ends of the driving shaft or spindle are alike

so that in the description thereof only one will be referred to.

Projecting upward from the end of the frame B is the arched support C having a slot C' in its upper end as shown. Depending in the arched support is the arch shaped hanger P having a projection P' which is pivoted in the slot C' of the arched support C, and secured between the lower ends of the hanger is the horizontal shaft bearing D made in section, as shown.

Projecting from opposite sides of the bearing D are the rods O which extend through openings in the arms of the arched support C. The outer ends of the rods are screw threaded, and placed thereon are the adjusting nuts N. The outer ends of the openings in the arms of the arched support C are reamed out or enlarged for the reception of the coiled springs M which encircle the rods O, being held in place by the nuts N upon which they exert outward pressure. Thus it will be seen that the hanger P being pivoted at its upper end is afforded a vibratory movement against either of the springs M, and thus enabled to yield to a sudden lateral jar.

The construction of the bearing D in the manner shown, is to accomplish an effective exclusion of all grit or dirt, and to this end longitudinal grooves Z are formed on the adjacent face of the bearing sections D and semicircular spaces y in the ends thereof, and in these spaces and the above mentioned grooves Z packing is placed.

E designates the main driving shaft which is journaled in the bearing D. A portion of this shaft is made tubular as shown at E', and into the end of the tubular portion projects the solid portion of the shafting. Arranged on the tubular portion E' near its end is the pulley F, around which the belt, not shown, passes that transmits motion to the shaft. It often occurs that the joints of the belt sections are unevenly laced and with the belt running at a very high rate of speed, it has been found that these irregular and uneven portions of the belt jar the pulley greatly in passing around it and often cause it to break. To avoid this difficulty a yielding connection or clutch is employed for the tubular portion

E' with the main shaft E. This construction consists of the flanged collar G which is secured to the shaft E adjacent the bearing D and in its flanged face adjacent the pulley F, are formed the recesses G'. The end of the tubular shaft E' fits within the collar G, and secured thereto is the head or ring H, having projections H' which extend into the spaces G' of the collar G''. These projections H' are narrower than the spaces and hence are afforded a movement therein.

Between the opposite sides of the projections H' and the walls of the space G' are placed the spiral springs H''. As the collar G and head H are the only means of connection between the hollow shaft section E' and the shaft E, it will be seen that when the pulley F experiences a heavy jolt or shock from the unevenness from the belt passing around it but the springs H'' will relieve the main shaft therefrom and will thus avoid the jar which would have been communicated to it directly had there not been a compensating connection between the two sections of the shaft.

A work holding bar X is supported across the end of the machine by the hanger T which is pivotally secured to the outer side of the arched support. The hanger T is provided at its lower side with the slot S through which extends a set screw R and by turning the hanger T upon its pivot the bar X may be adjusted to any desired angle in relation to the outer end of the shaft E and secured in that position by the screw R.

When, from fractional contact, the ends of the bearing D, of the end of the collar G wears allowing longitudinal movement of the shaft within the bearing D the same may be arrested and the bearing tightened by loosening the set screw which secures the collar G to the shaft and pushing the latter to the tubular portion of the shaft, thus arresting all lost motion.

Upon the outer end of the shaft E are placed the circular clamping plates I and J the former being secured to the shaft while the latter moves longitudinally thereon. These plates are for the purpose of grasping and securely holding an emery wheel, not shown. The latter may be of any size or shape desired.

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

1. The combination of a frame, an arched support C, an arched shaped hanger P pivoted in said support, a bearing supported by the hanger, a shaft journaled in said bearing and rod projecting from opposite sides of the bearing through the respective sides of the arched support, substantially as shown and described.

2. The combination of a frame, an arched support thereon, a hanger pivoted in said support, a bearing supported by the hanger, a shaft journaled in the hanger, rods projecting from opposite sides of the bearing and through the respective sides of the said support, and springs confined between the said support sides and the outer ends of the rods, substantially as shown and described.

3. The combination of a vertically yielding frame, arched support C having a slot in its inner upper end, an arch shaped hanger having a projection which is pivotally secured in the slot of the frame, a bearing supported by the said hanger, a shaft journaled in the bearing, rods projecting from opposite sides of the bearing and extending through openings in the respective sides of the arched support C, the said openings being enlarged at their outer ends, springs confined in the said enlarged portions of the openings and stops on the outer ends of the rods against which the said springs bear, substantially as shown and described.

4. The combination of a frame B, a shaft E journaled therein, a flanged collar G secured to the shaft, the flange of the same being formed with recesses G', a tubular shaft section adapted to fit over the first named shaft, a head secured to the end of the tubular shaft section and which fits within the said flanged collar, lateral projections on the periphery of said head and which extend into the recesses of the flanged collar, and springs between the adjacent sides of the said projections and the walls of the said recesses, substantially as shown and described.

CHAS. HEATON.

Witnesses:

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J. EMORY BYRAM.