

(No Model.)

G. G. CROWELL.
JOURNAL BEARING FOR EMERY GRINDING MACHINES.
No. 441,139. Patented Nov. 25, 1890.

FIG. 1

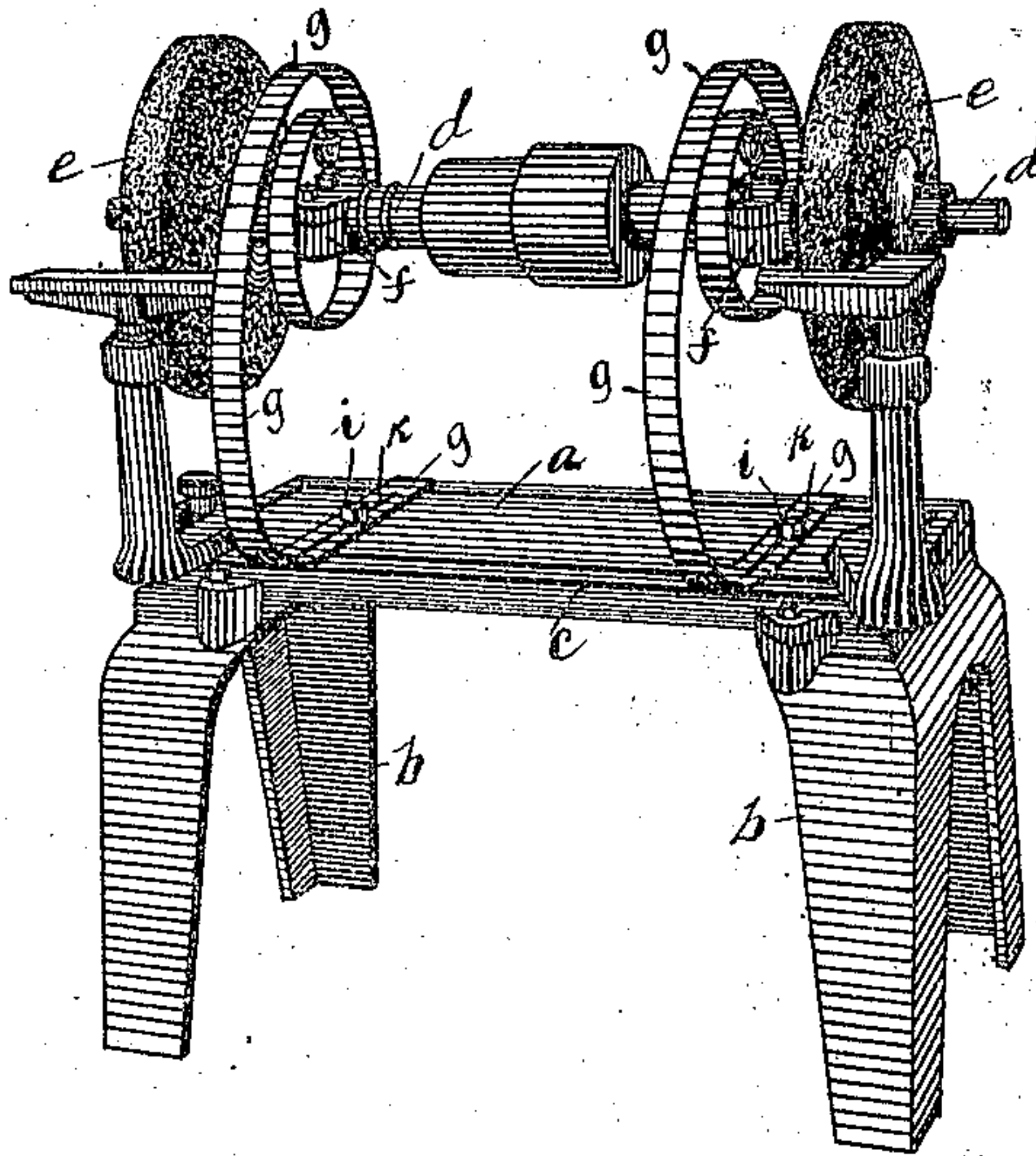
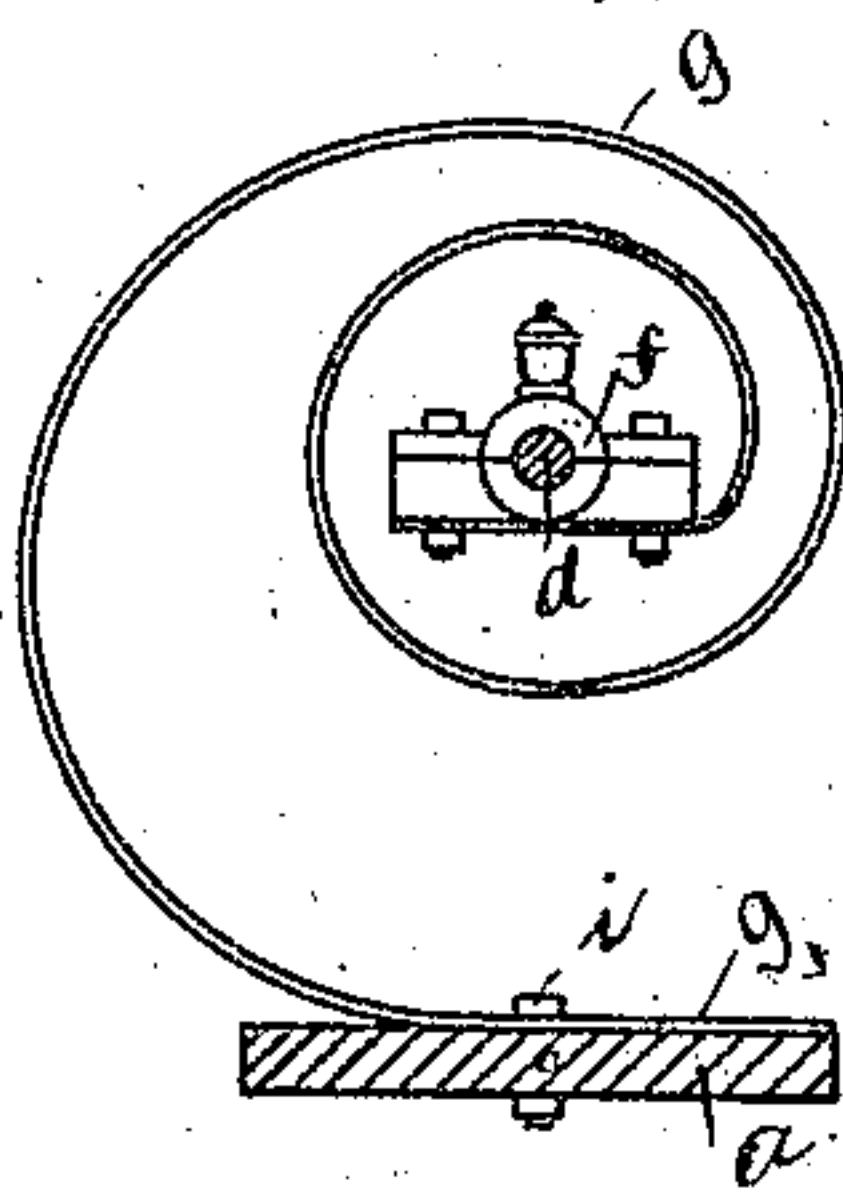


FIG. 2



WITNESSES:

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JOURNAL-BEARING FOR EMERY GRINDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 441,139, dated November 25, 1890.

Application filed September 25, 1889. Serial No. 325,084. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. CROWELL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Journal-Bearings for Emery Grinding-Machines, of which the following is a specification.

My invention relates to the improvement of that class of emery grinding or buffing machines wherein one or more emery or buffing wheels are mounted upon a shaft supported from a suitable frame and has particular relation to the means of supporting said shaft.

Heretofore it has been customary to support the grinding-wheel-carrying shaft in bearing-boxes upon the upper ends of rigid arms, which extend upwardly from the frame-top or bed-plate. This method of holding or supporting the shaft has features which in some classes of work are objectionable—for instance, in case the wheel should be of such unequal density as to throw it out of running balance from the inequality in weight or from the wearing away of the softer portions of the wheel, or from other causes. In case these imperfections exist and the ordinary rigid support for the shaft is used, many imperfections in the work will result, among which will be the production of an untrue surface on the article ground.

The objects of my invention are to overcome these imperfections, as will be hereinafter fully set forth.

Referring to the drawings, forming a part of this specification, Figure 1 is a view in perspective of an emery grinding-machine, and Fig. 2 is a view in cross-section of the wheel-shaft, showing the shaft-support in elevation.

Similar letters refer to similar parts throughout the several views.

My invention consists of volute springs arranged in the manner hereinafter specified to form supports for the wheel-shaft.

The main frame of the machine consists, as usual, of a suitable bed-plate *a*, and legs *b*. This bed-plate may be provided in the usual manner with slots *c*, which are formed therein in lines parallel with the sides and ends.

d represents the grinding-wheel shaft, which is supported longitudinally above the bed-plate and which carries in the usual manner one or more emery-wheels *e*. The shaft *d* at points on opposite sides of its center bears and runs in suitable metallic bearing-boxes *f*, which may be of the usual form. Each of these boxes is connected by bolts with one end of a volute spring *g*. The remaining and lower end of the volute spring is connected with the upper side of the bed-plate. This latter connection is preferably made by bolts *i*, made to pass through a longitudinal slot *h*, formed in the lower inturned end of the spring. The heads of these bolts serve to bind the spring firmly against the bed-plate.

The usual rigid shaft-supporting standards are omitted from the machine and the volute springs above described allowed to support, as shown, the shaft and its wheels. The tension of these springs is such as to normally hold the shaft in correct horizontal alignment with the bed-plate.

The usual form of adjustable rests for the support of the work to be ground or polished may be used in connection with the machine, the rests consisting of standards having inturned feet and pins or bolts extending downwardly from said feet through the bed-plate slot *c*.

In order to equalize the spring-power of the supports throughout their length, I may, if found necessary, thicken the lower portion of the springs or form strengthening or stiffening ribs thereon.

The spring-power of the supports may be varied by setting the bolts *i* at different points in the slot *h*.

The herein-described volute spring not only serves as a support for the shaft-boxes, but permits the shaft and boxes to vibrate sufficiently to equalize the force evolved by the emery or buff wheel in motion, causing said wheels and their shaft to run on their centers of gravity and at the same time afford a milder resistance to the force applied in grinding or buffing various articles. The spring character given by the volute springs to the shaft and the wheels thereon will result in the same degree of resistance offered by the wheel regardless of the angle or point

on the periphery of said wheels at which said force is applied.

Another object attained by the use of the spring herein shown and described lies in the
5 fact that in case one side of the wheel is being used or subjected to pressure the same resistance is offered at any point on said wheel side equidistant from any point on the periphery. It is obvious, however, that this
10 result might be obtained by surrounding the shaft with coiled springs and allowing the same to form lateral bearings for the wheels, or by other similar means.

I am aware of Patent No. 387,238, in which
15 volute springs are used to suspend shafting, and therefore do not claim, broadly, this construction.

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

In journal-bearings for emery grinding-machines, a frame, and a wheel-carrying shaft above said frame, volute springs rising from said frame, said springs supporting the shaft, as described, and having slots in their lower
25 end portions, and bolts passing through said slots and connecting the springs and frame, substantially as described.

GEO. G. CROWELL.

In presence of—

BARTON GRIFFITH,
JOHN FRAVEL.