L. E. STURDEVANT.

BALANCED WHEEL HUB.

APPLICATION FILED DEC. 9, 1909.

966,617.

Patented Aug. 9, 1910.

Fig. 1

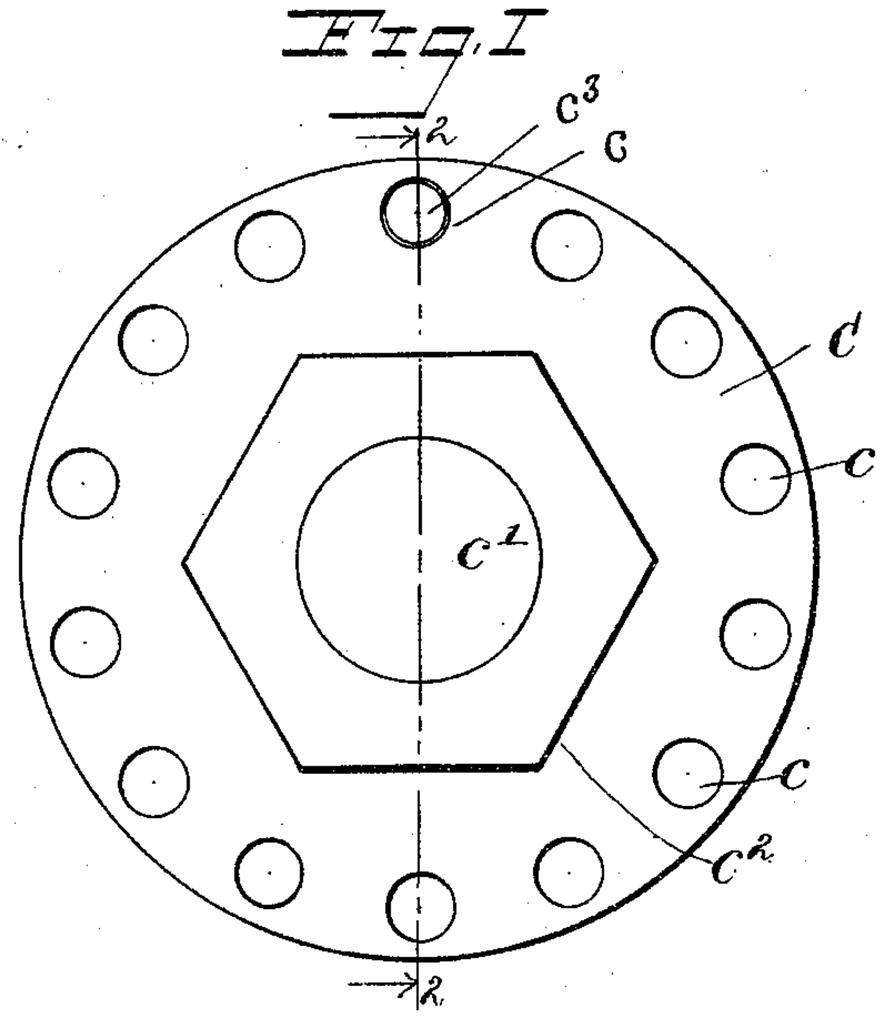
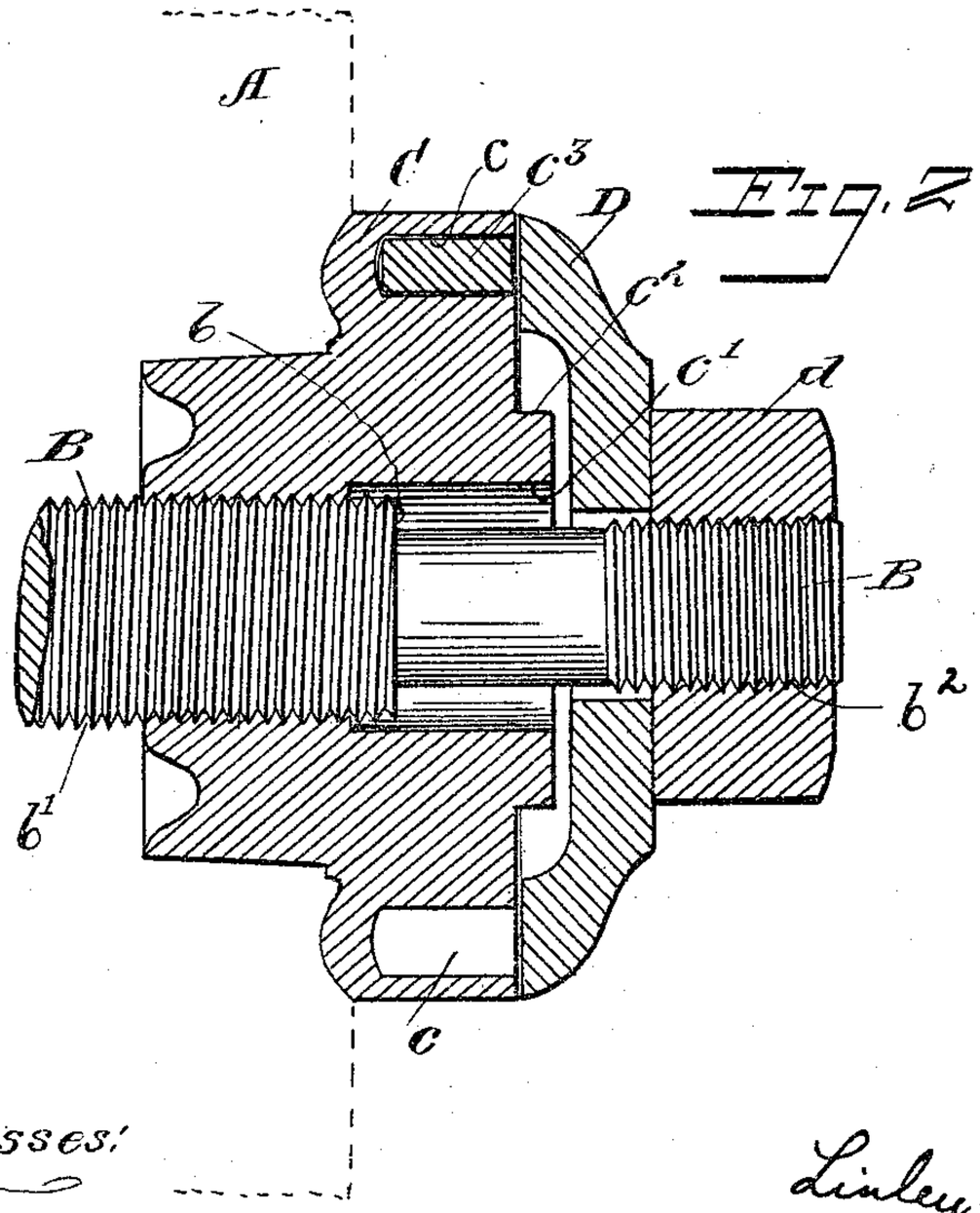


Fig. 2



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UNITED STATES PATENT OFFICE.

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BALANCED WHEEL-HUB.

966,617. Specification of Letters Patent. Patented Aug. 9, 1910.

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To all whom it may concern:

Be it known that I, LINLEY E. STURDEVANT, a citizen of the United States, and a resident of Binghamton, county of Broome, and State of New York, have invented a new and useful Improvement in Balanced Wheel-Hubs, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to means for balancing rotary tools.

The particular object of the invention is the provision of a device whereby the balance of emery wheels, rotary brushes, and the like may be accurately maintained. With this general object in view, I have provided a device which perfectly attains this object and yet may be simply constructed and economically manufactured, and at the same time eliminates all of the usual dangers incident to prior forms of such devices.

To the accomplishment of this and related ends said invention, then, consists of the means hereinafter fully described, and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a side elevation of a clamping plate entering into my construction; Fig. 2 is a vertical section on the line 2—2 in Fig. 1.

As has been indicated the device forming the subject matter of this invention is designed for use with such rotary tools as emery wheels, and in the drawing an emery wheel A is diagrammatically represented. The clamping mechanism in which the present invention particularly resides consists of duplicate parts, one set of such parts being disposed on each side of the wheel. The two sets of parts thus form a hub for the wheel, but as one set is merely a duplicate of the other, only one such set is illustrated.

In each of such sets, then, the emery wheel A is mounted upon the usual arbor B. The arbor B is threaded at b' to receive the clamping plate C which is screwed onto the arbor in the assembled condition of parts to securely clamp the wheel in place. The clamping plate C is provided in its outer face with a series of recesses c which are parallel to the axis of rotation, that is to the arbor; the recesses c are formed in a series which is arranged annularly near the periphery of the plate C. Weights c^3 are provided for insertion in the recesses c. The weights c^3 may be formed of any material, preferably of lead, but it is desirable that they be formed of one piece and of size such as to substantially fill one of the recesses c. The arbor B is shouldered at b and extends outwardly through an opening c' in the clamping plate C, the latter having a squared boss c^2 on its outer face by which it may be turned on to the arbor. A washer D is adapted to fit upon the outer end of the arbor B and to have its face close the recesses c in the face of the clamping plate C and to retain the weights c^3 in such recesses. A nut d is threaded upon the outer end b^2 of the arbor to securely lock the washer and the plate in position.

The operation and advantages of my device may now be understood. If the wheel is worn away so that it is no longer truly balanced upon the arbor, weights may be added or taken away from certain of the recesses in such manner as to restore a true balance. The balance of the wheel is, therefore, always obtainable by a mere adjustment of the weights which may obviously be easily and quickly performed. The recesses are disposed upon the lateral face of the clamping plate instead of upon the periphery thereof as has heretofore been done. All danger incidental to rapid rotation of the device and the consequent tendency of the weights to fly outwardly is thus obviated. The weights are made of such size that one weight practically fills one recess. No matter, then, how rapidly the device may be rotated, the weight always remains exactly in the place in which it is designed to be to maintain the balance. The common fault incident to filling recessed wheels with shot, in which the shot flies outwardly under the influence of centrifugal force and destroys the balance, is eliminated. The washer securely closes the recesses in the clamping plate and in turn is firmly locked by the usual nut. The expedient of closing the recesses and holding the weights therein by the washer entirely eliminates the faulty construction wherein

the recesses are closed by individual screws or in like manner, in which the screws or the like are easily jarred out of place.

My device then efficiently provides for the uniform maintenance of the balance of the wheel. The device by which I attain this object is one in which no shifting of the balance after it is once determined is possible. All liability of accident due to rapid rotation of the mechanism, with the consequent danger to the operator and loss of balance of the wheel, is eliminated. And lastly, all of these distinct advantages are obtained with the addition of no expense or complication in the manufacture of the completed device.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a device of the character described, the combination with a polishing wheel or the like, of a clamping member therefor, said member being provided on one face with recesses extending parallel to the axis of rotation of the member, and a washer adapted to simultaneously close all of said recesses.

2. In a device of the character described, the combination with a polishing wheel or the like, of a clamping member therefor, said member being provided on one face with recesses extending parallel to the axis of rotation of the member, said recesses being disposed annularly adjacent to the periphery of said member, and a washer adapted to simultaneously close all of said recesses.

3. In a device of the character described, the combination with a polishing wheel or the like, of a clamping member therefor, said member being provided on one face with recesses extending parallel to the axis of rotation of the member, one-piece weights removably disposed within and adapted to substantially fill the respective recesses, and a washer adapted to simultaneously close all of said recesses.

4. In a device of the character described, the combination with a polishing wheel or the like, of a clamping member therefor, said member being provided on one face with recesses extending parallel to the axis of rotation of the member, said recesses being disposed annularly adjacent to the periphery of said member, one-piece weights removably disposed within the respective recesses and adapted to substantially fill the respective recesses, and a washer adapted to close said recesses.

Signed by me this 14 day of Oct. 1909.

LINLEY E. STURDEVANT.

Attested by—

EDNA STURDEVANT,

EMMA HOXSIE.