(No Model.)

J. A. HESS.

APPARATUS FOR GRINDING AND POLISHING METALS, &c.

No. 412,616. Patented Oct. 8, 1889.

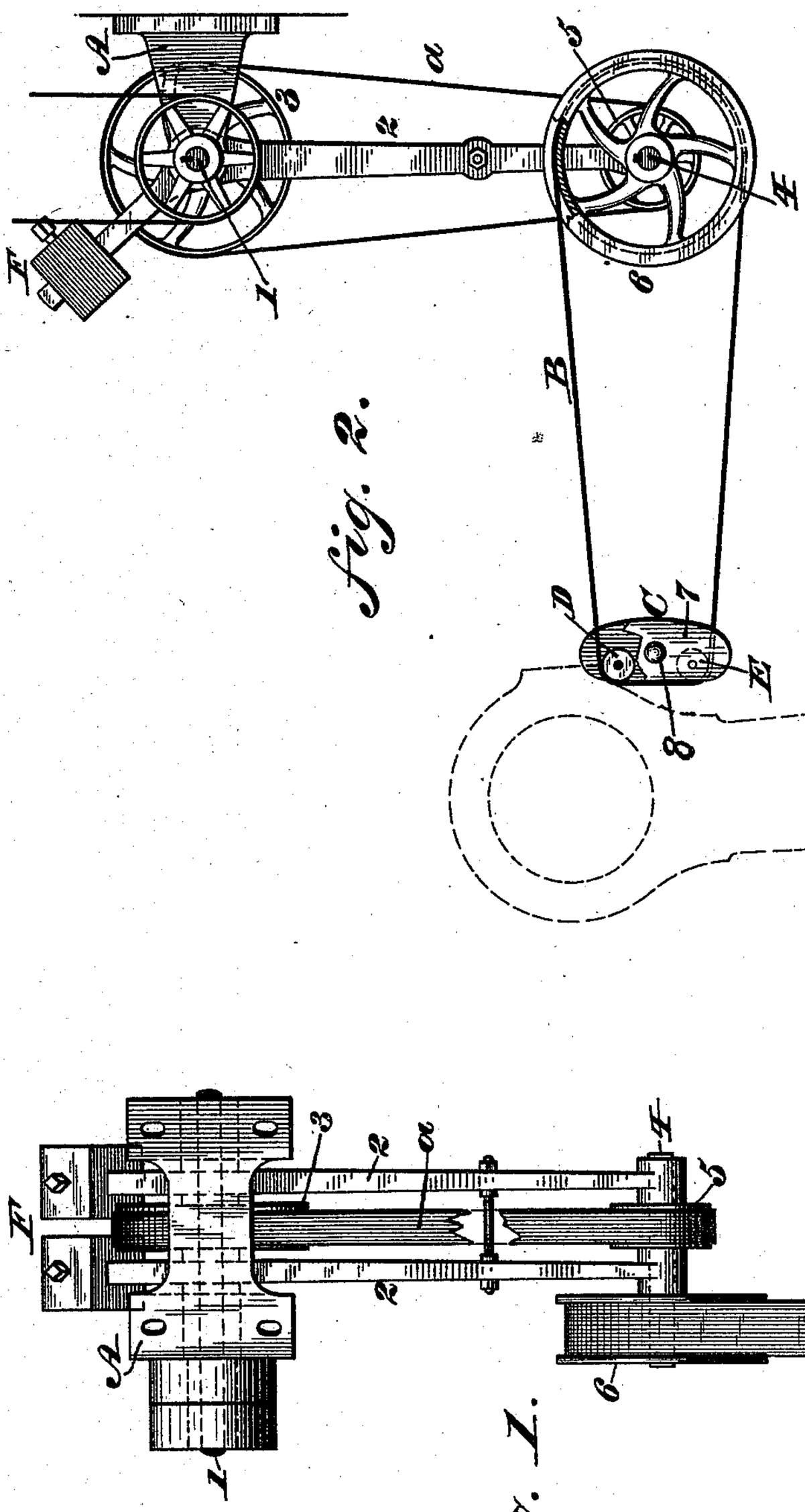

Fig. 2.

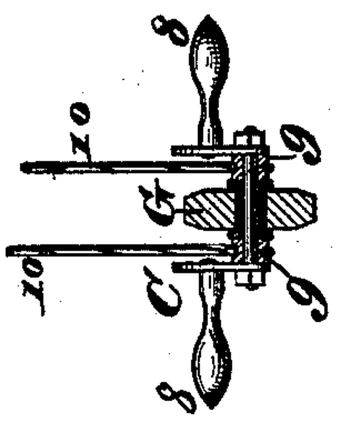

Fig. 3.

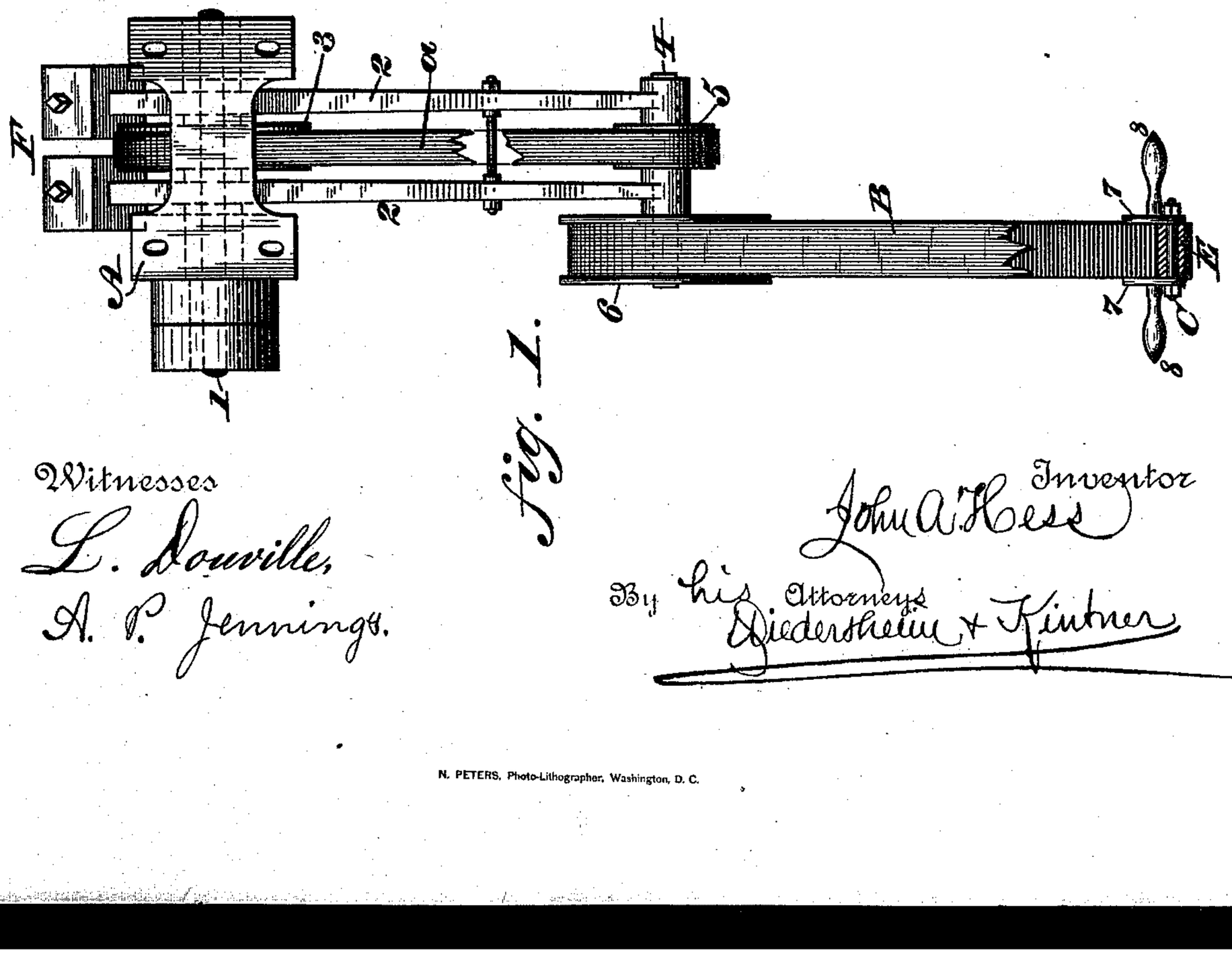

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN A. HESS, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR GRINDING AND POLISHING METALS, &c.

SPECIFICATION forming part of Letters Patent No. 412,616, dated October 8, 1889.

Application filed October 27, 1888. Serial No. 289,289. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. HESS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Grinding and Polishing Metals, &c., which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an implement embodying a roller which is located within an endless grinding or polishing belt, to which latter motion is imparted, whereby the portion of the belt in contact with said roller may be conveniently and effectively presented to the article to be ground or polished and held against the same.

It also consists of means whereby the belt may be advanced, returned, raised, and lowered, as will be hereinafter set forth.

Figure 1 represents a partial rear view and partial section of an apparatus for grinding and polishing metal embodying my invention. Fig. 2 represents a partial side elevation and partial vertical section thereof. Fig. 3 represents a section of a modification.

Similar letters and numerals of reference denote corresponding parts in the several figures.

Referring to the drawings, A represents a hanger or bracket on which is mounted the shaft 1, from which freely depends the swinging frame or arms 2, and to which is keyed or otherwise secured a pulley 3, power being applied to said shaft in any suitable manner. Mounted in the lower end of the frame or arms 2 is a shaft 4, to which are keyed or otherwise secured pulleys 5 and 6. Passing around the pulleys 3 and 5 is a belt or band *a*, whereby power may be communicated to said pulley 5.

B represents an endless belt having a grinding or polishing surface or formed of grinding and polishing material, the same passing around the pulley 6, and when in normal position depends freely from said pulley, as will be seen in Fig. 1.

C represents what may be termed a "hand implement," consisting of a roller D, which is mounted on plates 7, to which handles 8 are attached for convenience of operation, said plates being suitably connected and carrying another roller E, which is parallel with the roller D. The two rollers D E are formed of soft rubber or other suitable elastic or flexible material and rotate freely on their shafts or axes or may rotate with the same.

The implement is placed within the belt B, opposite to the pulley 6, and when service of the apparatus is required said implement is manipulated so as to draw the belt taut around the rollers D E and advanced to the article to be ground or polished, as in Fig. 2. It will be seen that as the belt is running it may be pressed against said article and worked around and over the surface of the same, and so reach depressions, swells, shoulders, curves, &c., existing on said surface, it being noticed that the rollers D E yield and in a measure flatten against the inner face of the belt, whereby the outer face thereof at a coincident place is properly presented to the article, thus effectively accomplishing the work, it being seen that by proper handling of the implement C the belt may be advanced, raised, and lowered, and owing to a counterbalance F on the shaft 1 the belt and connected parts on the swinging frame 2 may return to their normal position, causing the working part of the belt to recede from the article operated upon.

In Fig. 3 the rollers are substituted by a grinding or polishing wheel G, whose shaft carries pulleys 9, around which pass belts or bands 10, to which motion is imparted from the pulley 6. The plates which form the bearing for the shaft of the wheel G are provided with handles, so that the wheel may be presented to the article to be ground or polished, its rotation being accomplished by the belts 10, and may be advanced, raised, and lowered similar to the endless belt B, the return of the same being accomplished by the counter-balance F, as in previous cases.

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

1. An apparatus for grinding and polishing metal, consisting of a bracket with rotary shaft having pulleys thereon, balanced arms pivotally mounted on said shaft, a shaft journaled in the lower end of said arms and having pulleys thereon, a hand implement with rollers thereon, a belt connecting one of the

bracket-shaft pulleys with one of the pulleys on the shaft in the lower end of the arms, and a grinding and polishing belt connecting one of the arm-shaft pulleys with the rollers of the hand implement, said parts being combined substantially as and for the purpose set forth.

2. In an apparatus for grinding and polishing metal, balanced arms mounted on a rotary shaft and having at their lower ends a rotary shaft with pulley carrying a grinding and polishing belt, substantially as and for the purpose set forth.

3. In an apparatus for grinding and polishing metal, a rotary shaft with pulley, a hand implement with yielding rollers, and a grinding and polishing belt connected with said pulley and rollers, said parts being combined substantially as and for the purpose set forth.

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