No. 813,142. PATENTED FEB. 20, 1906.

C. H. J. DILG.

KNIFE CLEANING MACHINE.

APPLICATION FILED NOV. 25, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

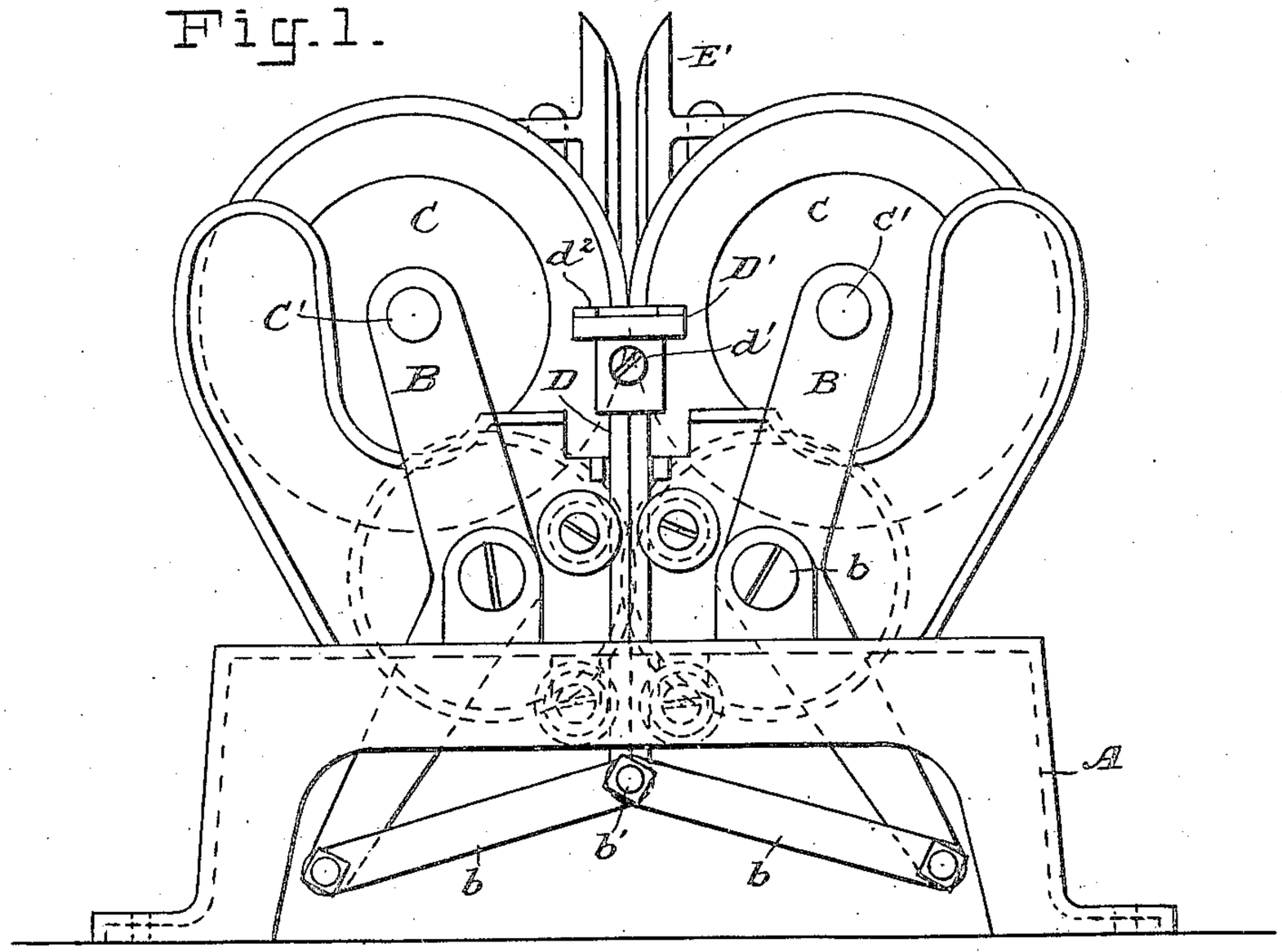


Fig. 13.

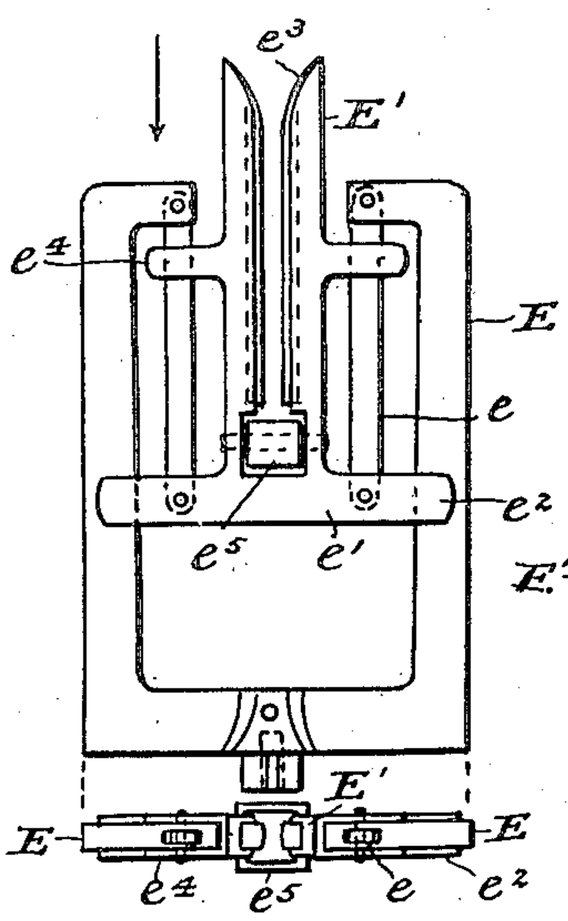


Fig. 10.

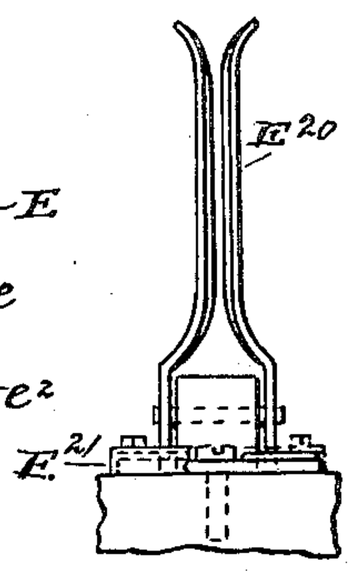


Fig. 11.

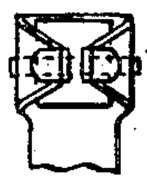


Fig. 12.

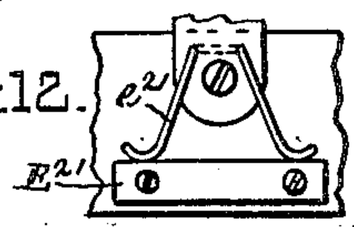
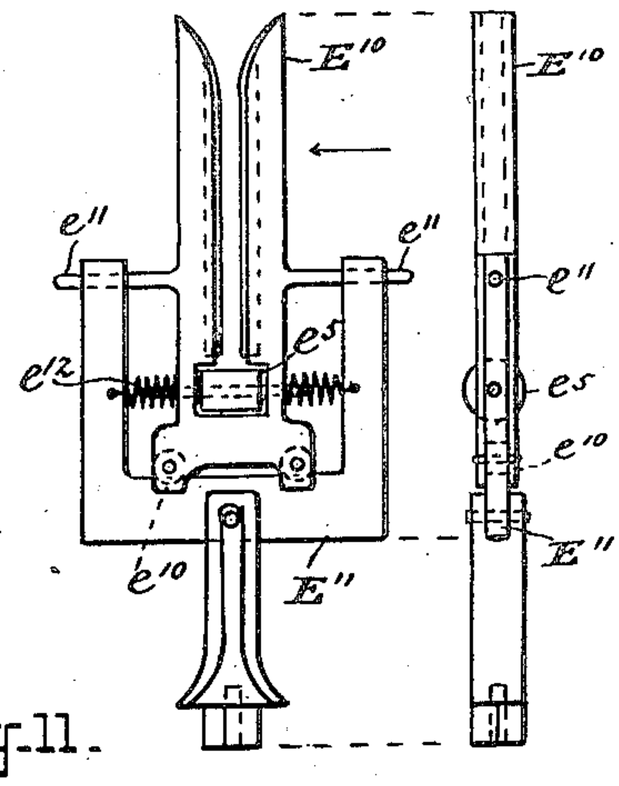


Fig. 14.



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3 SHEETS—SHEET 2.

Fig. 2.

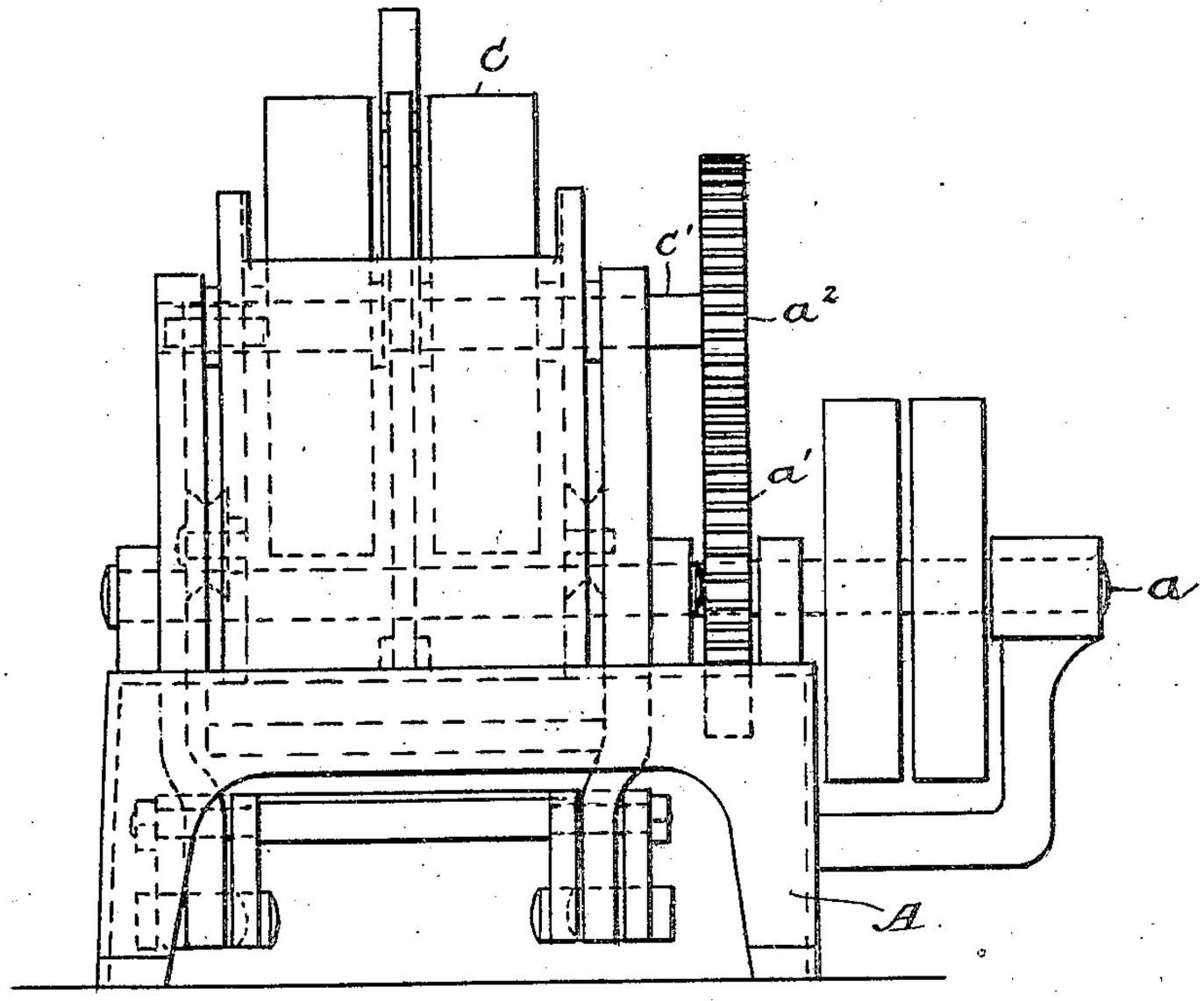


Fig. 8.

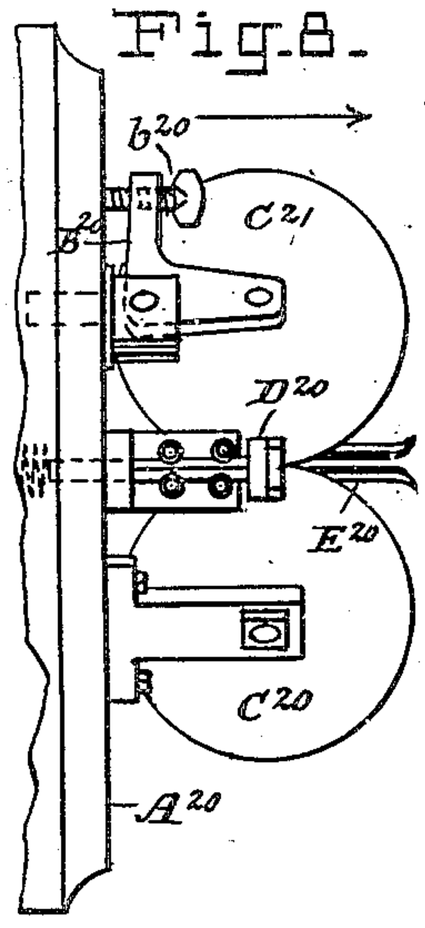


Fig. 7.

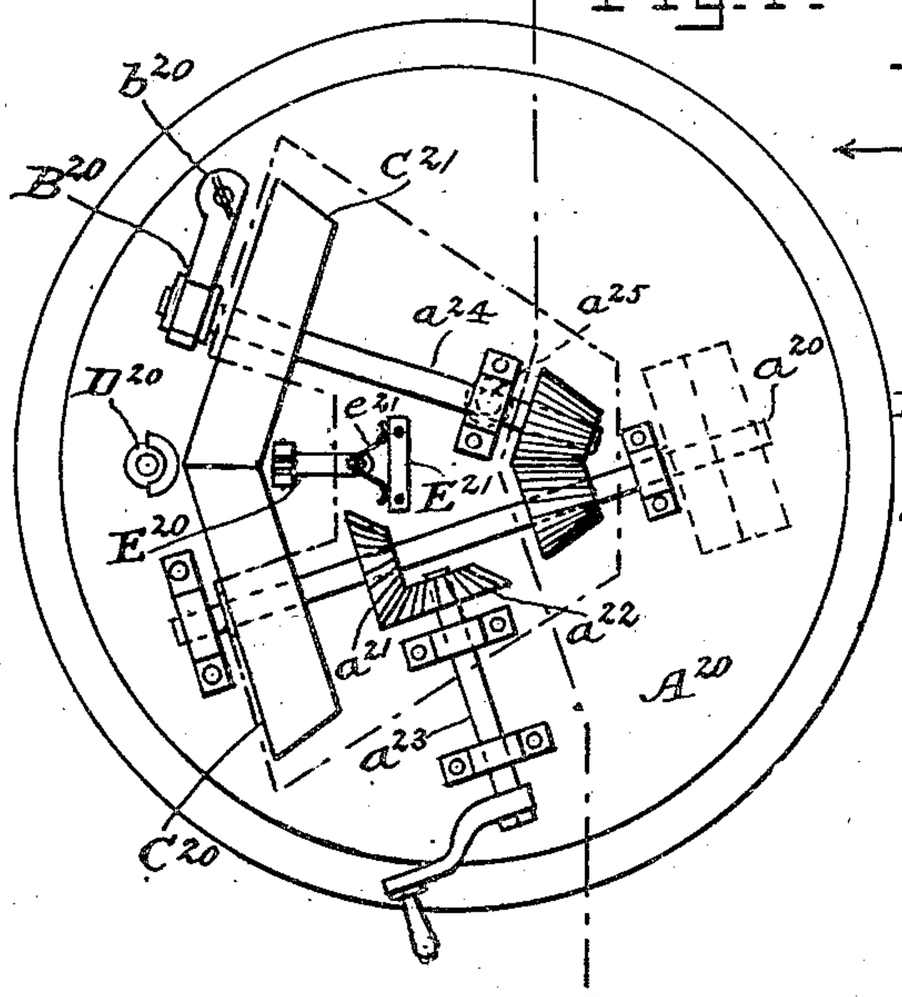
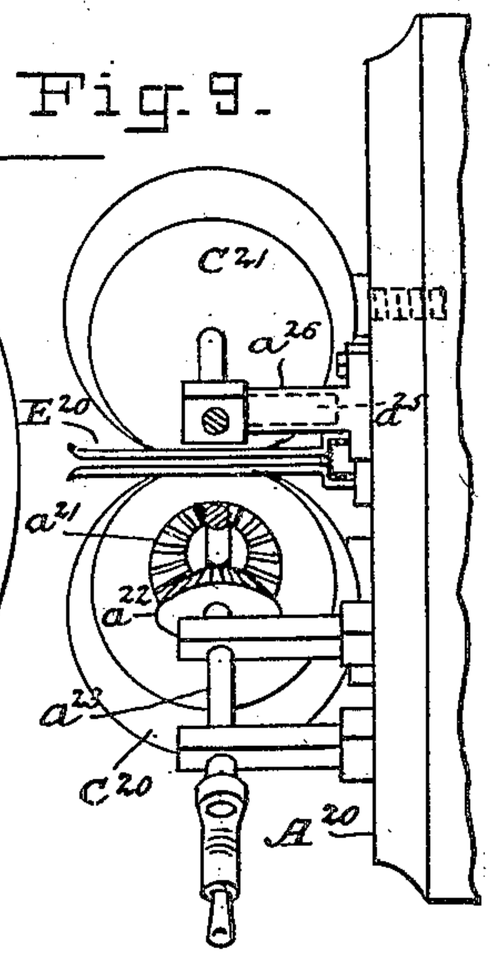


Fig. 9.



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3 SHEETS—SHEET 3.

Fig. 3.

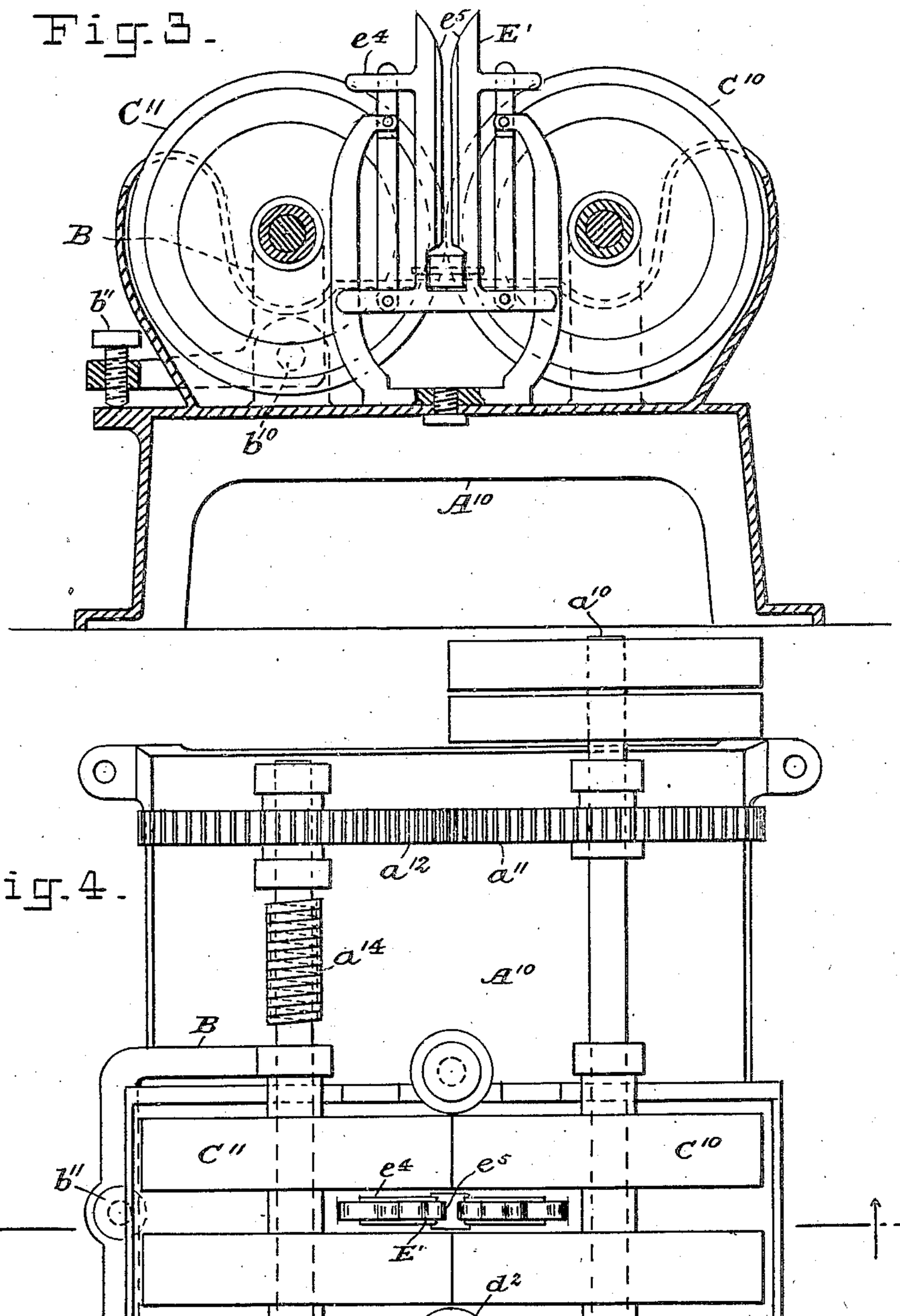

Fig. 4.

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES H. J. DILG, OF NEW YORK, N. Y.

KNIFE-CLEANING MACHINE.

No. 813,142. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed November 25, 1904. Serial No. 234,126.

To all whom it may concern:

Be it known that I, CHARLES H. J. DILG, a citizen of the United States of America, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Knife-Cleaning Machine, of which the following is a specification, the same being a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatuses for abrading or polishing purposes, and in particular to a machine for cleaning and polishing knives and like articles without any danger of injury to the blades or handles of the articles to be cleaned or polished or to the machine itself; and it has for its object the production of a machine that will work satisfactorily in the manner stated and which can be economically manufactured and which may be easily and rapidly operated.

With this object in view the invention consists in certain novel features of construction and combination and arrangement of parts, all of which will be hereinafter described, and specifically pointed out in the drawings, which accompany and form a part of this specification, and in which—

Figure 1 represents a side elevation of a machine constructed according to this invention. Fig. 2 is an end elevation of the same. Fig. 3 is a side elevation of another embodiment of the invention. Fig. 4 is a plan view of the same. Figs. 5 and 6 are views in detail of the knife-rest. Fig. 7 is a plan view, and Fig. 8 is a side elevation, of another machine constructed according to this invention. Fig. 9 is a side elevation opposite to that of Fig. 8 and is taken on the line 9 9, Fig. 7; and Figs. 10, 11, 12, 13, and 14 are views in detail of the knife-guide.

Like letters of reference indicate like parts in all the views.

Referring particularly to the drawings, A denotes the frame of the machine, on which are mounted, on each side thereof, bell-crank levers B, pivoted at *b*, which levers serve to support at the upper and free ends thereof shafts C′, each of which preferably carries a pair of laterally-arranged cleaning-rolls C, which latter may be made of any suitable or desired material and of any size preferred. On each shaft C′ is mounted a gear-wheel a^2, which meshes with one gear-wheel *a′* of a pair of intermeshing gear-wheels, one of which is carried by the driving-shaft *a*.

To the lower ends of the levers B are attached links *b*, the other ends of which links are pivoted together, as at *b′*, and serve to support a knife-rest rod D. This rod is preferably square in cross-section and is constructed and arranged ordinarily to work in a roller-guide, as between the rollers *d*. At the top of the rod *d* is mounted a narrow cushioned knife-rest D′, the same being adjustably set upon the rod D by means of the set-screw *d′* in order to be revolubly or vertically adjusted and having a cushion d^2, narrow in width and convex in contour, extending approximately half-way around the top of the said knife-rest, which cushion serves both to support the knife-blade and to form an open space for the handle of the same in order to prevent the latter from being worn off on the back and becoming thereby marred or abraded. Upon the said knife-rest being depressed the rod D will be pushed downward, and the action of lowering the said knife-rest rod will cause the links *b* to be spread out, thereby forcing the lower ends of the levers B apart and causing the upper parts carrying the cleaning-rolls to approach and the latter to contact each other.

Between each pair of cleaning-rolls a self-adjusting knife-guide is placed. This knife-guide (shown in detail in Fig. 13) consists of a bifurcated frame E, from the opposing ends of which hang swinging bars *e*, to the lower ends of which is pivoted a cross-arm *e′*, having bifurcated extremities e^2 to straddle the frame E on each side. Two vertical guide-arms E′ rise from the center of the cross-arm *e′*, thus forming a slot, which is preferably lined with leather, fiber, or other suitable material, which is inserted in a recess formed in each of the opposite faces of the slot or recessed portion, as at e^3. Each of the guide-arms E′ has a bifurcated arm e^4 to straddle one of the swinging bars *e*, and at the bottom of the slot a roller e^5 is located, on which the back of the knife may rest. Ordinarily the arms e^4 are made long enough to extend somewhat over the cleaning-rolls, as shown in Fig. 3, in order to prevent the knife-blade through the inadvertence of the operator from coming in con-

tact with the upper portions of the cleaning-rolls. This self-adjusting guide for the knifee-blade is held in its normal median position by gravity, and it will accommodate itself to any irregularity or variation in position or size of the cleaning-roll—as, for example, that caused by uneven wear.

In Figs. 3 and 4 a two-gear-wheel machine provided with a spring-shaft is shown. On the frame A^{10} a pair of cleaning-rolls C^{10} are supported by stationary posts, and the other pair of rolls C^{11} are supported by the upper arm of a bell-crank lever B^{10}, pivoted at b^{10}. The lower arm of the lever B^{10} is provided with an adjusting-screw b^{11}, working on the frame A^{10}, and by the manipulation of the said screw the rolls C^{11} may be caused to approach toward or recede from the rolls C^{10}. A driving-shaft a^{10} carries a gear-wheel a^{11}, which meshes with a gear a^{12}, mounted on the frame or base-plate. The shafts of the gear-wheel a^{12} and the cleaning-rolls C^{11} are connected by means of a flexible or yielding shaft a^{14}.

The machine just described is also furnished with a self-adjusting knife-guide like the one before described and accommodates itself to the change of position of the rolls C^{11}, caused by the manipulation of the screw b^{11}.

If preferred, the self-adjusting knife-blade guide may be constructed and arranged as shown in Fig. 14, where the guide-arms E^{10} have rollers e^{10}, which work in the frame E^{11}, and also two rods e^{11}, which work in orifices in the sides of the said frame. In this case the self-adjusting knife-blade guide is held in its normal median position by means of oppositely-disposed springs e^{12}.

In the machine shown in Figs. 7, 8, and 9 a shaft a^{20} is mounted on stationary posts rising from the base-plate A^{20}. This shaft carries a cleaning-roll C^{20} and also preferably has a bevel gear-wheel a^{21}, which meshes with the bevel gear-wheel a^{22} of a manually-actuated shaft a^{23}. A shaft a^{24} has a swivel-bearing at one end of the same, consisting of a rod a^{25}, mounted in a post a^{26}. The other extremity of the shaft a^{24} is carried by one end of a bell-crank lever B^{20}, the other end of which lever is raised and lowered from the base A^{20} by means of the adjusting-screw b^{20}. The shaft a^{24} carries a cleaning-roll C^{21}, and in front of the same is placed a knife-rest D^{20}. Behind the cleaning-rolls is pivoted at e^{20} a self-adjusting knife-blade guide E^{20}. The said guide is kept in a normal median position by means of the spring-fingers e^{21}, which bear on opposite sides of the guide against a post E^{21} of the base-plate A^{20}. By means of the above construction the polishing-roll has not only a lateral or horizontal adjustment, but also a vertical one as well, the latter being in the arc of a circle.

As it is evident that many changes in the construction, form, proportion, and relative arrangement of parts might be resorted to without departing from the spirit and scope of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described, but that such changes and equivalents may be substituted therefor, and that

What I claim as my invention is—

1. In a machine of the class described, a polishing-roll, in combination with a guide having jaws or members, and means for sustaining the latter so as to move relatively laterally and to hold the article to be treated in a relatively vertical position during said lateral movement and to be moved by the said article to accommodate and adjust itself to any variation of the said roll.

2. In a machine of the character described, a polishing-roll, in combination with a guide having jaws or members, and means for sustaining the latter so as to move relatively laterally and to hold the article to be treated in a relatively vertical position during said lateral movement, the said jaws or members having a slot or recessed portion formed in each of the opposite faces of the same.

3. In a machine of the character described, a polishing-roll, in combination with a guide having jaws or members, and means for sustaining the latter so as to move relatively laterally and to hold the article to be treated in a relatively vertical position during said lateral movement, the said jaws or members having lateral arms or extensions.

4. In a machine of the character described, a polishing-roll, and means for adjusting the position of the same, in combination with a relatively laterally movable guide for the article to be treated, and with means to hold the said guide in a normal median position.

5. In a machine of the character described, a polishing-roll, and means for actuating the same, in combination with a rest rotatable for purposes of adjustment, and means for locking the same in its different adjusted positions so as to present different portions of its face to the article to be treated.

6. In a machine of the character described, a polishing-roll, and means for actuating the same, in combination with a rest and means for adjusting the same either revolubly or vertically.

7. In a machine of the character described, a rest for the article to be treated, provided with an elevation located at the edge of the said rest and lying intermediate the face of the said rest and the said article.

8. In a machine of the character described, a movable rest for an article to be treated, and a roller to guide the movement of the said rest.

9. In a machine of the character described,

a polishing-roll, and means for actuating the same, in combination with a rest for an article to be treated, and a roller to guide the movement of the said rest, and means for adjusting the rest either revolubly or vertically.

10. In a machine of the character described, a cleaning device consisting of two rotatable parts, and means to rotate the same, and flexible or yielding means intermediate the rotating means and the cleaning device to permit the relative positions of the faces of the said cleaning device to be changed at will.

11. In a machine of the character described, a polishing-roll, and means to sustain the same in a rotatory relation and provided with a bearing swiveling or turning so that the said roll may be adjusted either horizontally or laterally or in a vertical direction at will.

12. In a machine of the character described, a polishing-roll, in combination with an oscillatable guide having fixed members to permit the article to be treated to pass freely between the same and to accommodate and adjust itself to any variation of the position of the said article.

13. In a machine of the character described, a polishing-roll, in combination with a guide having jaws or members, and means for sustaining the latter so as to move relatively laterally and to hold the article to be treated in a relatively vertical position during said lateral movement, the said guide having means to prevent the article to be treated from being inserted in the machine alongside or exterior of the said guide.

In testimony of the foregoing specification I do hereby sign the same, in the city of New York, county and State of New York, this 7th day of November, 1904.

CHAS. H. J. DILG.

Witnesses:

OTTO TH. FRIDLUND

GEORGE BAMMANN.