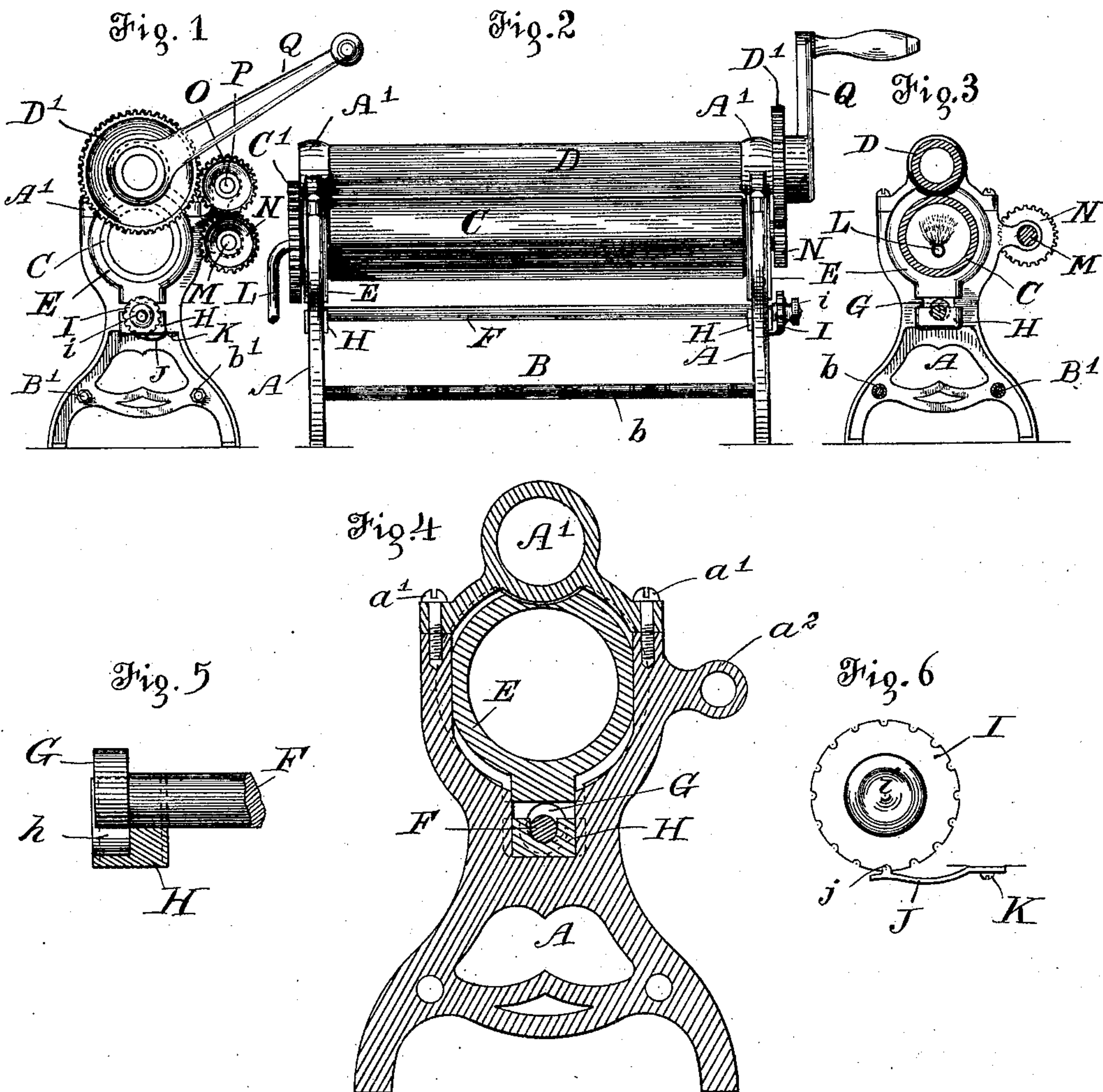


(No Model.)

W. G. C. KIMBALL.
PHOTOGRAPH BURNISHER.

No. 379,314.

Patented Mar. 13, 1888.



Witnesses.

Am. A. Cowley,
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Inventor.

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By his Attorney, J. B. Thurston.

UNITED STATES PATENT OFFICE.

WILLIS G. C. KIMBALL, OF CONCORD, NEW HAMPSHIRE.

PHOTOGRAPH-BURNISHER.

SPECIFICATION forming part of Letters Patent No. 379,314, dated March 13, 1888.

Application filed September 15, 1887. Serial No. 249,772. (No model.)

To all whom it may concern:

Be it known that I, WILLIS G. C. KIMBALL, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Photo-Burnishers, of which the following is a specification.

It is my object to provide a burnisher with improved means for producing the gloss and novel mechanism for adjusting the rolls relative to each other and for causing them to be equidistant at all points from each other.

The machine illustrated in the accompanying drawings and described in this specification, of which they form a part, shows the means by which I accomplish the desired results.

Corresponding letters indicate like parts.

Figure 1 represents an end view of my machine; Fig. 2, a side elevation; Fig. 3, a cross-section; Fig. 4, an enlarged vertical section of one of the standards, having a bearing for each roll and the shaft by which the lower roll is adjusted vertically in their proper positions. Fig. 5 is an enlarged sectional elevation of a portion of the shaft, one of its end bearings, and one of the cams by which the lower roll is adjusted; and Fig. 6 is an enlarged elevation of the notched wheel and spring-pawl for controlling the adjusting-shaft and its cams.

Suitable uprights or standards, A, may be cast in any ornamental design and separated and supported by braces B. In the drawings these braces comprise a rod, B', which should be headed at one end, but which may have a nut, b', threaded to either or both ends, in lieu of a head, and a tube, b, cut the proper length to separate said standards the required distance, the said rods B' passing through both standards and the tubes and firmly secured by the nuts b'. Both rolls C D, I prefer to form hollow, in order to prevent the moisture from accumulating upon their surfaces while being heated. The lower or burnishing roll, C, is mounted in adjustable bearings E, each of which rests upon a cam, G, formed integral with or secured upon a shaft, F, carried in bearings H, resting within a slot, a, formed for the purpose in the standards A. The bearings H are grooved at h, in order that the cams G may ro-

tate without contact therewith. One end of the shaft F projects far enough beyond the standard A to receive or carry a notched or serrated wheel, I, which is rigidly secured thereon and may be rotated by a crank; or a knob, i, may be formed thereon for moving by one's fingers.

A spring-pawl, J, may be secured by a screw, K, to some convenient part of the standard A, and its free end be bent hooking, or the projection j formed thereon, to engage the serrations i on the periphery of the wheel I. By this means the lower or burnishing roll is raised or lowered and set at any desired distance from the feed-roll, the latter being mounted in bearings A', secured by screws a' to the standards A.

In this class of machines it is necessary that the burnishing-roll C should revolve either faster or slower than the photograph upon which it operates, and as the photograph is passed along by the feed-roll D, having a knurled or draw-filed surface, it is obvious that the said burnishing-roll C must revolve at a different rate of speed than does the feed-roll. Heretofore this has been accomplished by the use of different-sized gears for transmitting power or motion from one to the other roll. In my improved machine I accomplish the same result with gears of equal diameter by forming the rolls C D of unequal diameter. As I prefer to heat the burnishing-roll internally by gas or otherwise, it is preferable to form the said burnishing-roll C the larger of the two, as by this means more room is afforded for the gas-burner L, by which said roll is heated. The said burner L may be attached outside of the roll C to some convenient part of the machine, or to the stand or table upon which it rests.

A gear-shaft, M, is mounted in the projecting ear a² of each of the standards A, and carries a spur-gear, N, near either end, one of which meshes with a spur-gear, C', mounted on the burnishing-roll, and the other with an intermediate gear, O, mounted on a stud, P, secured for this purpose in the standard A, the said gear O meshing with the gear D' of the feed-roll D.

A crank, Q, may be mounted either upon

the shaft M or the journal of the feed-roll D, the latter being shown in the drawings.

An important advantage which my improved machine has over others is that the use of spiral
5 springs between the feed and burnishing roll bearings for the purpose of raising the former or separating one from the other is avoided by the herein-described mechanism for raising the
10 burnishing-roll instead, the laws of gravity being utilized for separating the said rolls, and a positive movement, consisting of cams for bringing them together, thus dispensing with the use of springs, which are apt in time to become stiff or "set" and not capable of per-
15 forming their work.

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

1. In a photo-burnisher, the combination,
20 with the feed-roll, of a hollow adjustable internally-heated burnishing-roll of larger diameter than said feed-roll, the former located above the latter, gearing whereby their complete revolutions are made in unison, and suitable standards and bearings, arranged substan-
25 tially as and for the purpose set forth.

2. In a photo-burnisher, a feed-roll mounted in stationary bearings, a burnishing-roll mounted in adjustable bearings, one of said rolls be-
30 ing of larger diameter than the other, gearing

whereby their complete revolutions are made in unison, mechanism comprising a revolving shaft, and cams or eccentrics for adjusting said burnishing-roll in a plane parallel with the feed-roll, and suitable standards and bearings, 35 all substantially for the purpose described.

3. In a photo-burnisher, the combination of a feed-roll, a hollow burnishing-roll of larger diameter than said feed-roll, gearing by which said rolls revolve equal one with the other, 40 mechanism comprising a shaft and eccentrics for adjusting said burnishing-roll in a plane parallel with the feed-roll, an operating-crank, and suitable supporting standards, all substantially for the purpose set forth. 45

4. The combination of a feed-roll, a hollow internally-heated vertically-adjustable burnishing-roll of larger diameter than said feed-roll, gears for revolving said rolls equal one with the other, mechanism for adjusting said 50 burnishing-roll in a plane parallel with said feed-roll, an operating-crank, and suitable supporting standards, all constructed and operating substantially for the purpose set forth.

In testimony whereof I affix my signature in 55 presence of two witnesses.

WILLIS G. C. KIMBALL.

Witnesses:

J. B. THURSTON,
WM. M. CHASE.