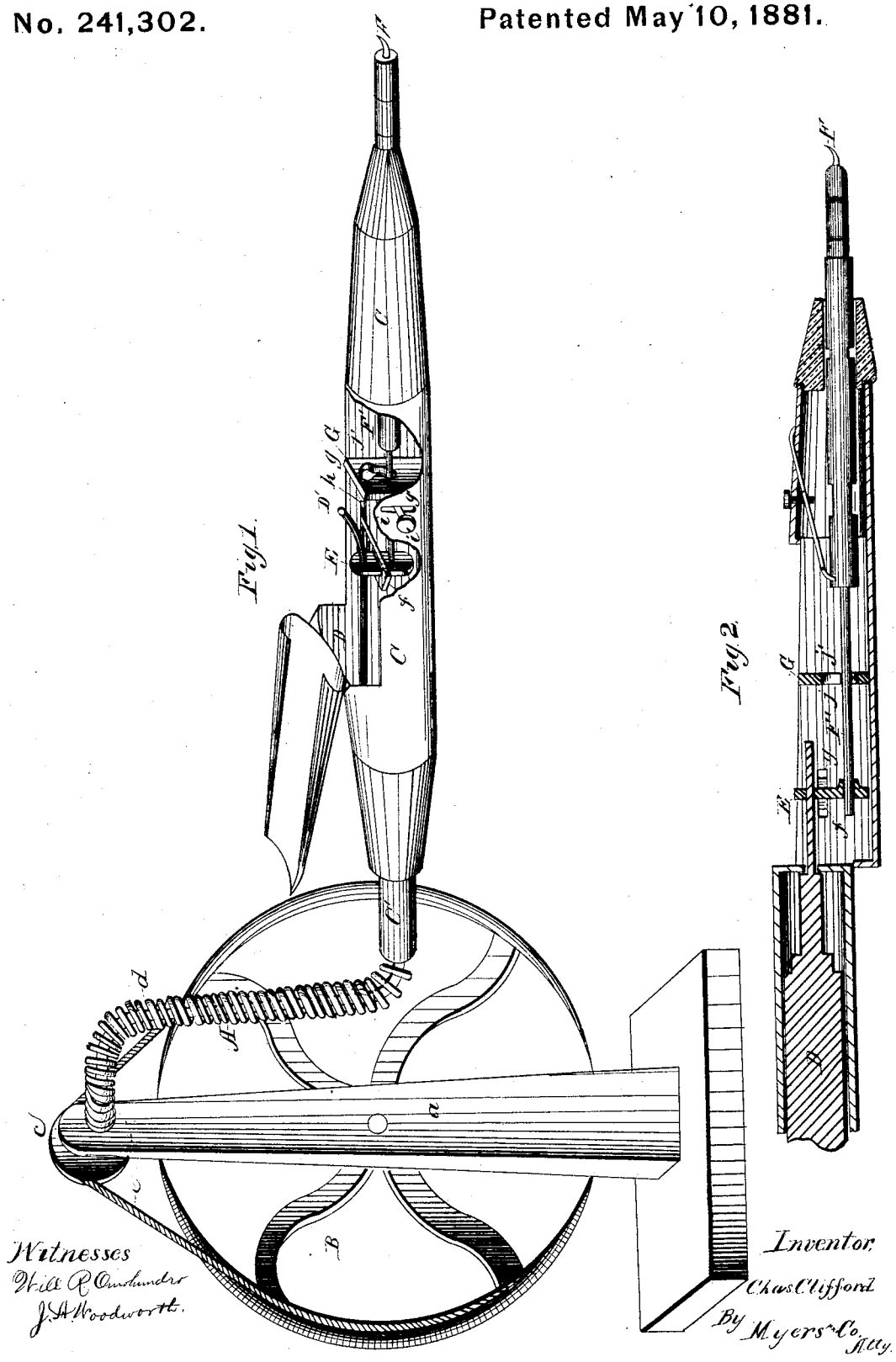
(No Model.)

C. CLIFFORD.

Photographers' Negative Retouching Machine.

No. 241,302. Patented May 10, 1881.



N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES CLIFFORD, OF NEWTON, IOWA.

PHOTOGRAPHER'S NEGATIVE-RETOUCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 241,302, dated May 10, 1881.

Application filed September 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CLIFFORD, a citizen of the United States, residing at Newton, in the county of Jasper and State of Iowa, have invented certain new and useful Improvements in Photographers' Negative-Retouching Machines; and I do hereby declare the following to be 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a perspective view, partly broken away, of my improved machine for retouching negatives; and Fig. 2 is a longitudinal section, partly in side view, of the same.

This invention relates to improvements in apparatus for retouching negatives, and is capable of imparting motions to the pencil to obtain a smooth surface, a stippled dotted surface, and hatched lines, of light or heavy grade touch; and it consists of a shaft with one end connected to an adjusting device, which, in turn, is connected to a shaft attached to the pencil, said shaft passing through a slotted and apertured adjusting device, substantially as hereinafter more fully set forth.

In the accompanying drawings, A indicates a flexible tube, with one end secured in the upper end of an upright, *a*, serving as a bearing for a shaft, *b*, carrying a pulley, *c*. This pulley, to whose shaft is connected a flexible shaft, *d*, inclosed within the tube A, is driven by a belt, *e*, passed around a large speed-wheel, B, hung upon the side of the upright *a*.

C is a case with a tubular extension, C′, to which is connected one end of the flexible tube A.

D is a shaft located in the case C, connected to the flexible shaft *d*, and with one end curved or slightly bent out of a direct line, as at D′, and inserted into or through the upper end of an adjusting device in the form of an oblong plate, E, secured and adjustable in position by an arm, *f*, reaching through a slot, *g*, in the case, and provided with a nut, *h*, on the outside of the case. The set-nut and its arm or screw *f* permit the shortening and lengthening of the stroke of the shaft with the pencil, hereinafter described, by moving the arm in the required direction in its slot.

F is the pencil, reaching out at its pointed or forward end through the tapering end of the case C, provided thereat with a rubber section to produce a yielding surface of contact at that point. The opposite end of the pencil is connected to the lower end of the plate or device E by a shaft or stem, F′, passed through an adjusting device, G. This device G has an arm or screw, *g′*, reaching through a vertical slot, *i*, in the case C, and having an adjusting-nut, *i′*, to permit of the vertical adjustment of the device G. The latter has a curved slot, *j*, extending in the direction of its length, and at one end of said slot an aperture or circular opening, *j′*. When the stem or shaft F′ is adjusted in the slot of the device G, and the device or plate E is adjusted upon the bent portion D′ of the shaft D, an oscillatory motion is imparted to the pencil. This motion permits the pencil to impart to the negative what is known as a "stippled" dotted surface and "hatched" lines, which may be of light or heavy grade of touch by accordingly adjusting the device E with the pencil to affect the degree of stroke of the pencil. When the device E is moved back off the bent portion of the shaft D, and the shaft F′ of the pencil F is adjusted to play in the aperture *j′*, the pencil is adapted to impart to the negative what is known as a "smooth surface."

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

1. In a machine for retouching negatives, the combination, with the shaft D, connected to the operating flexible shaft *d*, and pencil F, having the stem or shaft F′, of the adjusting device E, having an arm or screw, *f*, with a nut, *h*, and slotted case C, substantially as and for the purpose set forth.

2. In a machine for retouching negatives, the combination, with the shaft D, pencil F, with its stem or shaft F′, connected to shaft D, of the adjusting device G, with a curved slot, *j*, and its adjusting-arm or screw and nut *g′ i′*,

and case C, having slot *i*, substantially as and for the purpose specified.

3. In a machine for retouching negatives, the combination, with the shaft D, pencil F, with its stem or shaft F′, connected to the shaft D, of the adjusting device G, with a curved slot, *j*, and a circular aperture, *j′*, and its adjusting-arm or screw and nut *g′ i′*, and case C, having slot *i*, substantially as and for the purpose set forth.

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

CHARLES CLIFFORD.

Witnesses:

J. J. MITCHELL,

J. C. AYDELOTT.