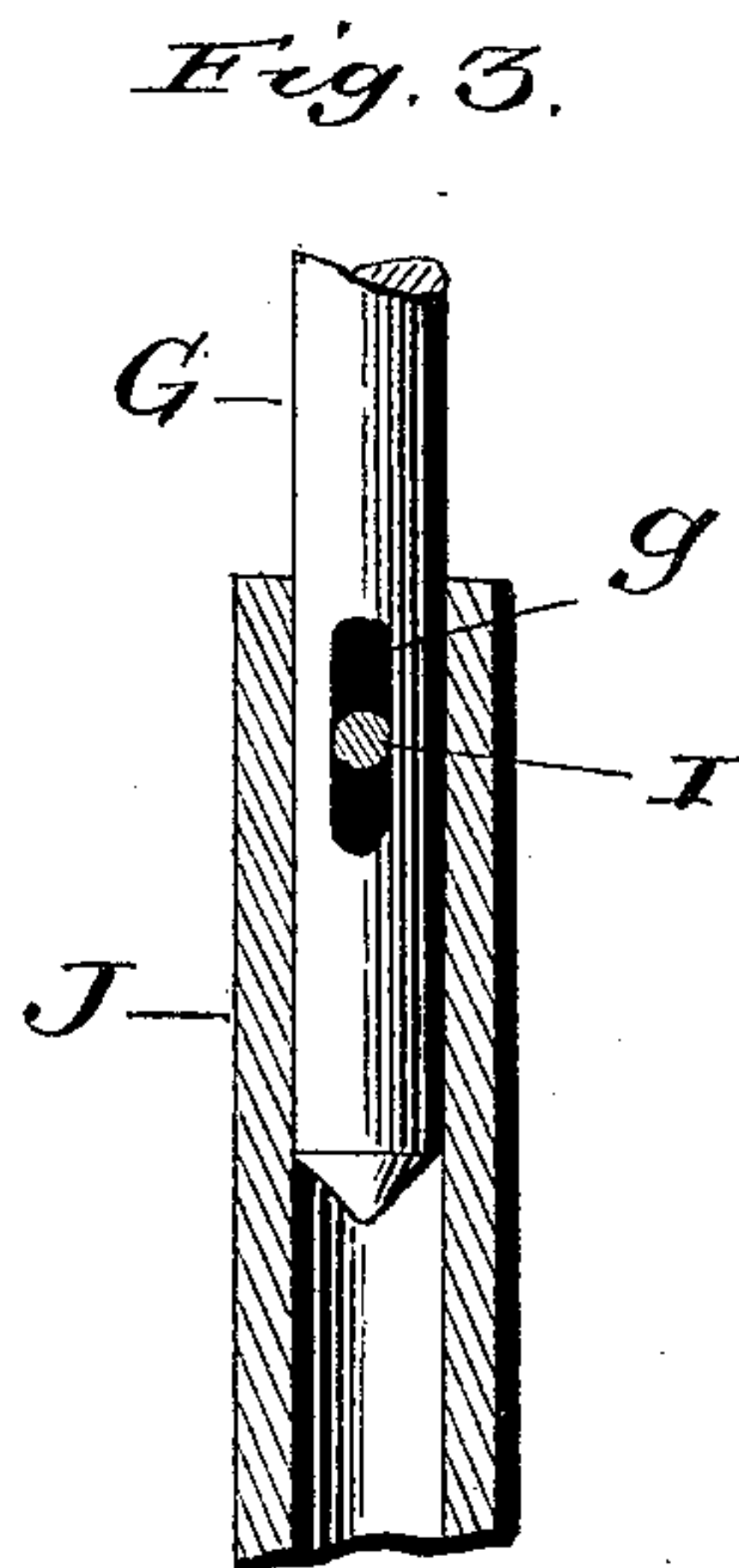
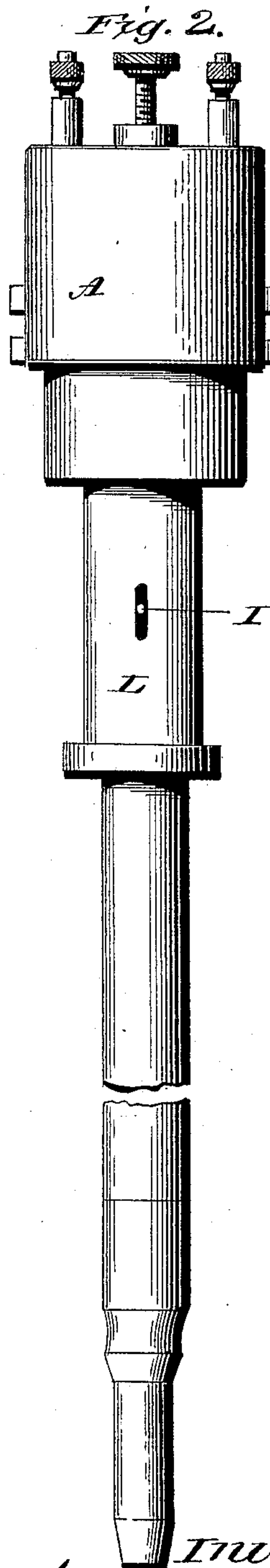
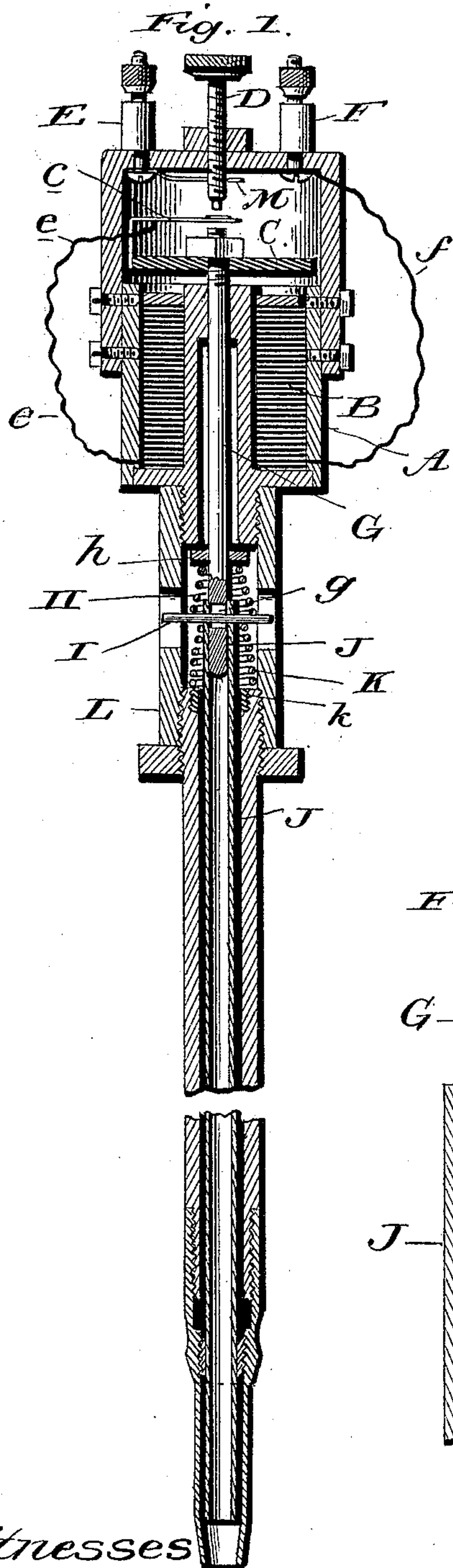


(No Model.)

C. M. SAVAGE.
ELECTRICAL RETOUCHER.

No. 528,564.

Patented Nov. 6, 1894.



Witnesses
L. C. Hills
A. L. Hough

Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES MEAD SAVAGE, OF WARREN, PENNSYLVANIA.

ELECTRICAL RETOUCHER.

SPECIFICATION forming part of Letters Patent No. 528,564, dated November 6, 1894.

Application filed March 17, 1894. Serial No. 504,076. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MEAD SAVAGE, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Retouchers; and I do 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in electrical retouching devices, in which a single coil magnet incased in a cylinder, acts on an armature, having connection with a tube adapted to impart a reciprocating movement to a stippling point for fine retouching work.

The invention consists further in constructing the tube which holds the lead or other point for retouching, with a pin rigidly secured to its inner end which works in a slot in or near the end of a sliding rod, which is attached to the armature, and by this construction the reciprocating movement imparted to the lead point, is reduced to a minimum, thus producing a gentle vibrating of the point against the surface of a negative to be retouched, which is a desideratum, in producing suitable results.

To these ends and to such others as the invention may pertain, the same consists in the novel construction, combination and adaptation of the parts as will be hereinafter more fully described, and specifically defined in the accompanying drawings, which form a part of this specification.

I clearly illustrate my invention in the accompanying drawings, which with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1, is a longitudinal sectional view of my improved retoucher. Fig. 2 is an elevation of the retoucher, and Fig. 3, a detail of the inner end of the tube carrying the lead, and the sliding rod connected to the armature.

Reference now being had to the details of the drawings by letter, A, represents a cyl-

inder surrounding an electro magnet B; C, an armature, and *c* a platinum contact spring; D, a regulating thumb screw; E and F, binding posts; *e* and *f*, coiled wires forming an electrical connection to the magnet, and G is a sliding rod connected at one end to the armature, the other having a slot *g*, and about the said rod is a collar *h* against which a coiled spring H, bears, its other end bearing against a pin I, securely attached in the end of the tube J, the said pin arranged so as to work in the slot in the end of the sliding rod.

K is a second coiled spring bearing against a shoulder *k* on the inner wall of the outer casing L, its other end bearing against the pin I.

The construction and operation of my retoucher will be readily understood.

The current of electricity being conducted to one of the binding posts, has connection through said post, conductor M, adjusting screw to the contact spring thence to the electro-magnet and so on to the other binding post, thus completing the circuit. The helix becoming magnetized attracts the armature, breaks the connection at the contact spring, the sliding rod strikes the pin carried in the end of the tube carrying the lead point, one edge of the slot abuts against said pin, imparting a gentle motion to the retouching point, the springs bearing against the sliding rod and the tube return the armature to a contact relation with the post D, and a circuit is once more made, and the same reciprocating movement repeated making a rapid series of vibrations at the point of the retouching lead. By this construction of holding the lead in a tube, which is separated from the sliding rod, motion being imparted in the manner described, it will be readily seen that a very gentle vibrating effect is obtained at the stippling point, which will admit of more satisfactory work in retouching a negative, whereas a stronger vibration, as in retouchers now used, the point of the lead is quite apt to make opaque spots.

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

In an electrical retoucher for negatives, the combination of the electro magnet B, armature C, rod G, secured to said armature, and

having an aperture *g*, near its free end, and adapted to telescope within a hollow shaft J, having a pin I secured in an aperture near its upper end, its free end adapted to engage
5 a stippling point, coiled spring K bearing against a shoulder *k* and the under side of the pin, a coiled spring H bearing against a shoulder *h*, and the upper side of the pin, a stippling motion being imparted to the point

by means of a succession of blows delivered 10 on the pin by the upper edge of the slot *g*, as and for the purpose set forth

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

CHAS. MEAD SAVAGE.

Witnesses:

HATTIE B. CHENEY,

W. H. ALLEN.