(No Model.)

J. N. CHOATE.

PHOTOGRAPHIC RETOUCHER.

No. 548,956. Patented Oct. 29, 1895.

Fig. 1.

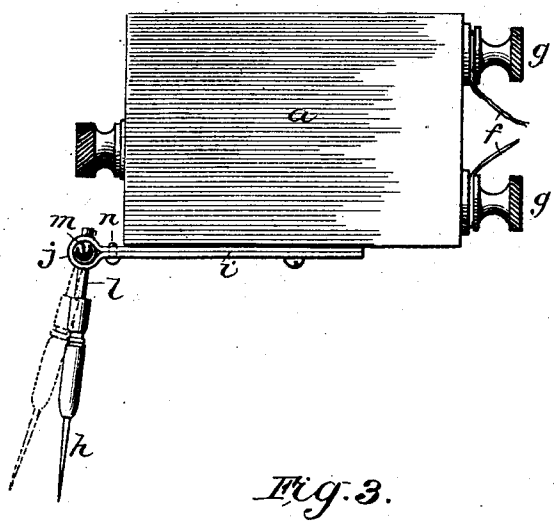


Fig. 2.

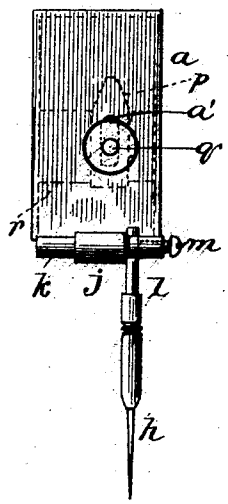


Fig. 3.

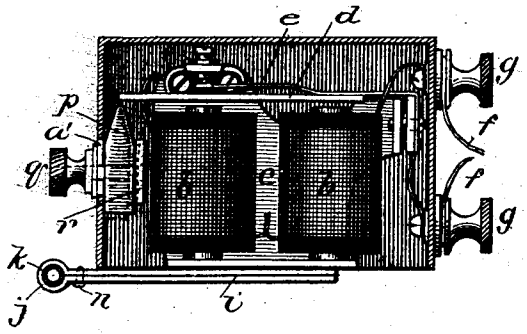


Fig. 4.

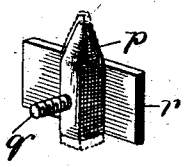
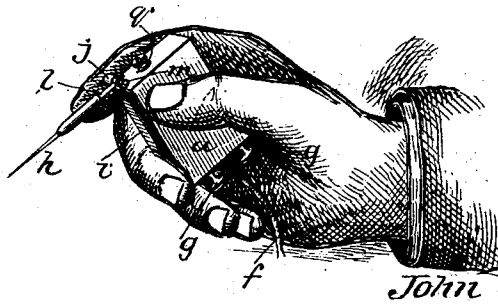


Fig. 5.



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PHOTOGRAPHIC RETOUCHER.

SPECIFICATION forming part of Letters Patent No. 548,956, dated October 29, 1895.

Application filed April 16, 1895. Serial No. 545,844. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. CHOATE, of Carlisle, in the county of Cumberland and State of Pennsylvania, have invented a new and Improved Apparatus for Retouching Photographic Negatives, of which the following is a specification.

According to one method of retouching photographic negatives which has come into vogue in recent years the pencil or stylus used for the purpose is attached to a small electric instrument or motor, which is held firmly in the hand while its armature delivers slight blows in rapid succession upon the spring-supported pencil, or else upon a fixed inelastic portion of the body of the instrument. In either case the object is to impart a certain vibration to the pencil independently of the natural movement of the operator's hand; but the result has not proved satisfactory, and I have therefore sought to devise a better instrument or apparatus for the purpose, which, after many experiments and tests, I have succeeded in producing.

I have devised two forms of an apparatus or instrument embodying my invention, one form being the subject of an application, Serial No. 528,158. The other form is hereinafter described and illustrated in accompanying drawings. In both forms the retouching pencil or stylus is held rigid or immovable while in use, so that it makes every movement of the body of the instrument due to vibration of the armature. This is a feature absolutely essential to the attainment of the desired degree of perfection in operation and artistic effect. I have provided an elastic or yielding contact of the armature with the body or frame of the instrument for the purpose of varying the power of stroke. I arrange a cushion or rubber block beneath the free end of the armature and provide means for expanding it to regulate the stroke or blow of the armature, and thereby vary the retouching effect. I further provide for adjustment of the pencil or stylus at different angles to the body of the instrument and for holding it fixed in different adjustments, as hereinafter described.

In the accompanying drawings, Figure 1 is a side view of my improved instrument or apparatus. Fig. 2 is an end view. Fig. 3 is a side view with the casing of the instrument in section. Fig. 4 is a detail perspective of the elastic block upon which the armature is or may be arranged to strike. Fig. 5 is a perspective view showing the instrument held in the hand of an operator as when in use.

The main portions of the motor or operative instrument, save the pencil or stylus, are inclosed in the narrow rectangular casing *a*, which may be conveniently grasped by and held in the hand. The electromagnets *b b* are secured to a rigid frame *c* and placed side by side, and the armature *d* is arranged above them in a well-known manner. The armature is provided with the usual spring-contact *e*, and battery-wires *f f* connect with the instrument as usual, being attached to screws or binding-posts *g g* on one end of the casing *a*.

The retouching-pencil *h* is rigidly connected with the frame *c* of the instrument by means of a metal plate *i*, which is secured to the under side of the frame *c* substantially parallel to the armature *d*. Its free end projects beyond the casing *a*, and is doubled on itself to form a cylindrical socket *j* for receiving a like-shaped block *k*, in which the pencil-holder *l* is clamped by means of a screw *m*.

As shown in Figs. 1 and 2, the shank of the pencil-holder *l* passes through a transverse hole in the block *k*, and the clamp-screw *m* works in a threaded hole or bore in the outer end of the same, so that it is in contact with said shank. By adjusting the screw *m* the pencil may obviously be extended in length, as required. The block *k* is held by friction in the socket *j*, but may be manually rotated without difficulty in a direction lengthwise of the frame of the instrument for the purpose of placing the device at different angles, as shown by dotted lines in Fig. 1, as required for convenience of use or for producing different effects in retouching. For regulating the degree of friction of the block *k* in said socket the latter may be compressed more or less tightly thereon by means of the clamp-screw *n*, Fig. 1, which passes through the recurved end of the metal plate *i*. It is apparent that provision for these adjustments of the pencil has no effect upon its rigidity of attachment to the frame of the instrument.

Directly under the free end of the armature is arranged a cushion or elastic anvil *p*

for the same. It consists of an elongated and pointed piece of rubber, which is secured in vertical position between the front end of the casing *a* and the adjacent magnet *b*. The means for securing it in place and also for adjusting and expanding it as required are a screw *q* and nut *r*. The head of the screw *q* is on the outer side of the casing *a*, and its shank passes through a vertical slot *a'* in the latter, and also through a hole in the elastic block *p* and through the nut *r*. The latter abuts the sides of the casing *a*, and is thus prevented from rotation. The slot *a'* allows vertical adjustment of the cushion *p*, and by means of the screw and nut the cushion may be compressed more or less, and thus expanded, as shown by dotted lines in Figs. 3 and 4, as required to elongate it and bring its point nearer to or farther from the free end of the armature.

The instrument is used and adjusted as follows: For producing certain effects in retouching, the elastic block or cushion *p* is lowered to its lowest limit and the armature *d* thus allowed to vibrate entirely free—that is to say, without contact with the said block or any other portion of the frame of the instrument. The tension of the spring-armature and that of the spring-contact *e* are such and the strength of the battery-current is so regulated that the attractive force of the magnets is not sufficient to draw the armature into striking contact with the cores of the magnet. The vibration of the armature *d*, without contact with the pencil or frame, imparts to the whole instrument, and thus to the hand of the operator, a very slight tremulous movement, which enables a fine retouching effect to be produced, a stippling effect hitherto quite unattainable in point of delicacy and quality. This method of operation is therefore of great importance and constitutes a valuable part of my discovery or invention.

For varying the stippling effect the power of stroke must be varied, and this is attained by the provision of the elastic contact or anvil for the armature. Thus by adjusting the block *p* upward in a position that will enable its point to be lightly touched or struck by the armature a shorter and weaker vibration is imparted, which may be regulated to the greatest nicety by the expansion of the elastic block. In other words, the block having been set at the proper distance from the armature, then by turning the screw it will be compressed between the nut *r* and casing *a*, and thereby expanded, so that its point will be brought near enough to the armature to permit the latter to lightly touch it at each downward stroke. Thus the degree of compression and expansion of the elastic cushion regulates the power of stroke or blow and the consequent vibratory movement of the instrument and operator's hand, so that precisely such retouching effects may be produced as desired.

What I claim is—

1. In an instrument for retouching negatives, the combination, with the frame, of a pencil, or stylus, a holder for the latter, which is pivoted and adapted to swing in a direction parallel with the longitudinal axis of the instrument, and means for holding the pencil fixed at any angle to which it may be adjusted, substantially as shown and described.

2. The combination, with the body of a retouching instrument, of a pencil, or stylus, a device in which it is held adjustably, and a clamp for holding the same fixed when adjusted at different angles, as shown and described.

3. The combination, with the body of the retouching instrument, of the pencil or stylus, a device in which it is held, and a friction clamp for holding such device and permitting its rotation, as shown and described.

4. In an electric instrument for retouching photographic negatives, the combination with the body of the instrument and the vibrating armature, of a cushion or elastic block arranged beneath the free end of said armature, in position for contact when the latter makes its downstroke, as shown and described.

5. In an electric instrument for retouching photographic negatives, the combination with the body of the instrument and its vibrating armature, of a cushion or elastic block arranged beneath the free end of said armature, means for adjusting the block higher or lower, to vary its position relative to the armature and to limit the vibration of the latter as shown and described.

6. In an electric instrument for retouching photographic negatives, the combination, with the body of the instrument and its vibrating armature, of a cushion or elastic block arranged beneath the free end of said armature, a clamp-screw which is vertically adjustable toward or from the armature, a non-rotatable nut arranged on the inner side of the block and engaging the screw, as shown and described.

7. In an electric instrument for retouching photographic negatives, the combination, with the body of the instrument and its vibrating armature, of a cushion or elastic block arranged beneath the free end of said armature, means for compressing and thereby expanding the block for the purpose of varying the vibration of the armature, as shown and described.

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Witnesses:
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