

(No Model.)

C. M. PALMER.
ANIMAL SHEARS.

No. 520,331.

Patented May 22, 1894.

Fig. 1.

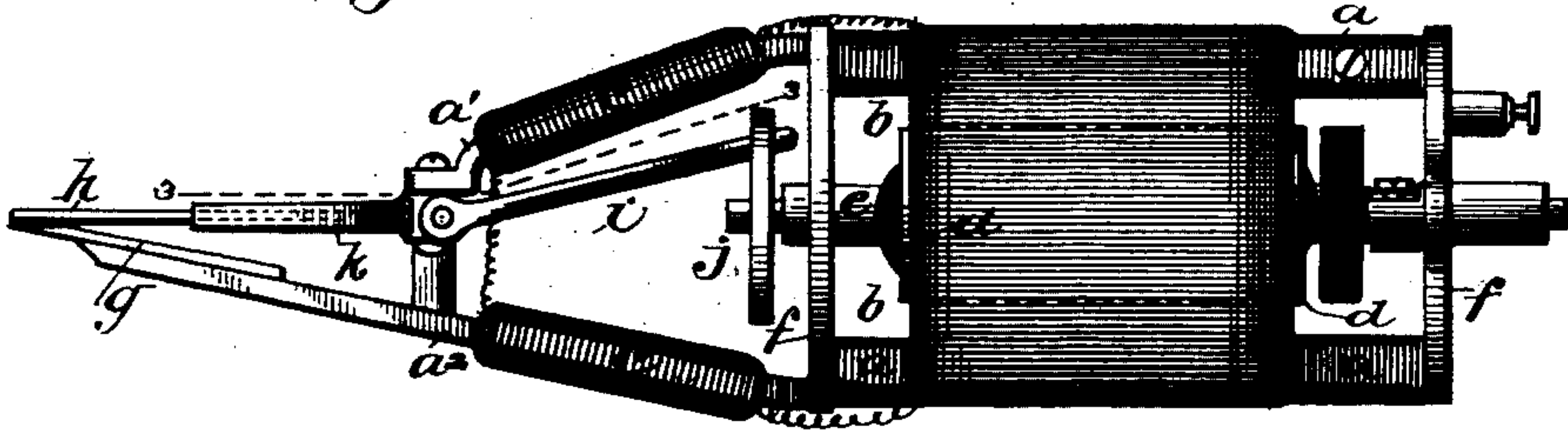


Fig. 2.

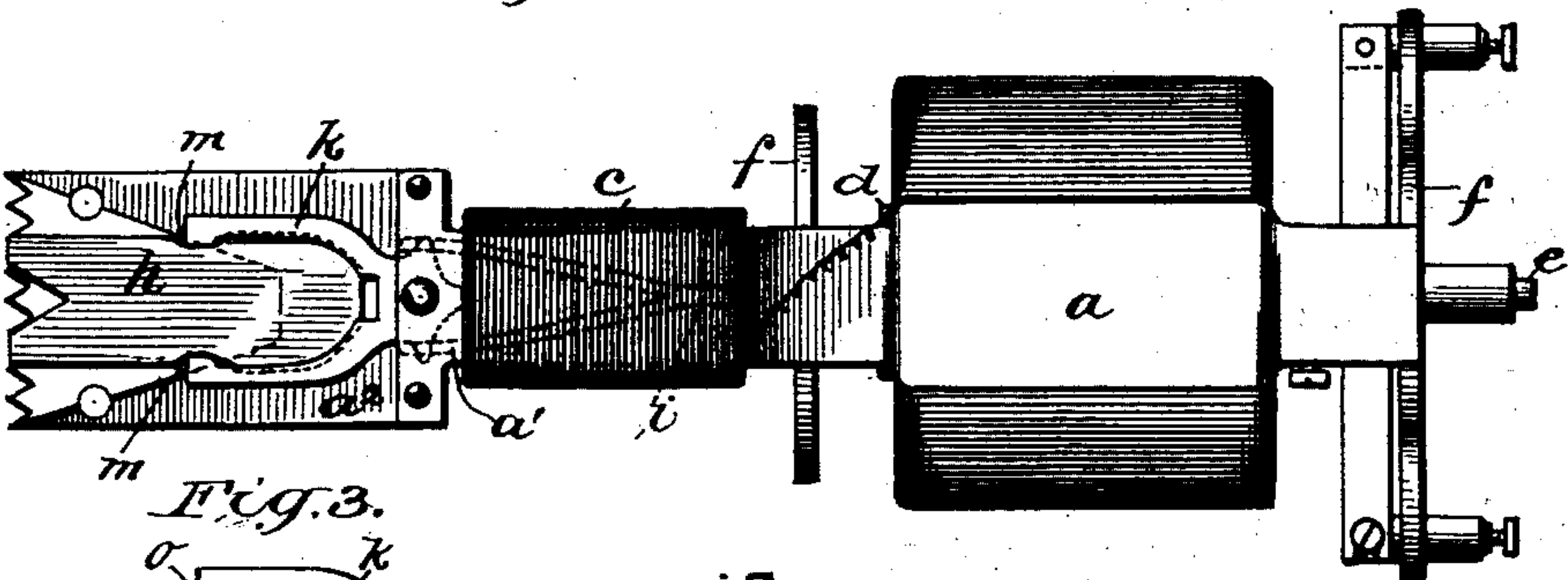


Fig. 3.

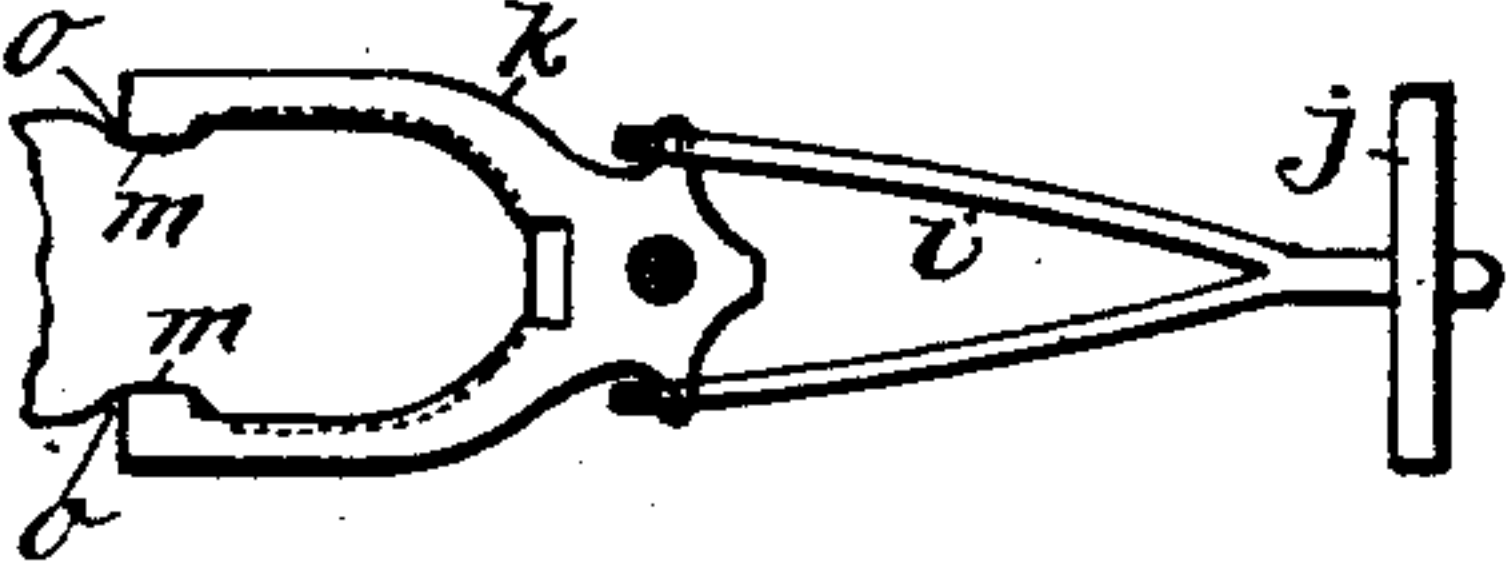


Fig. 4.

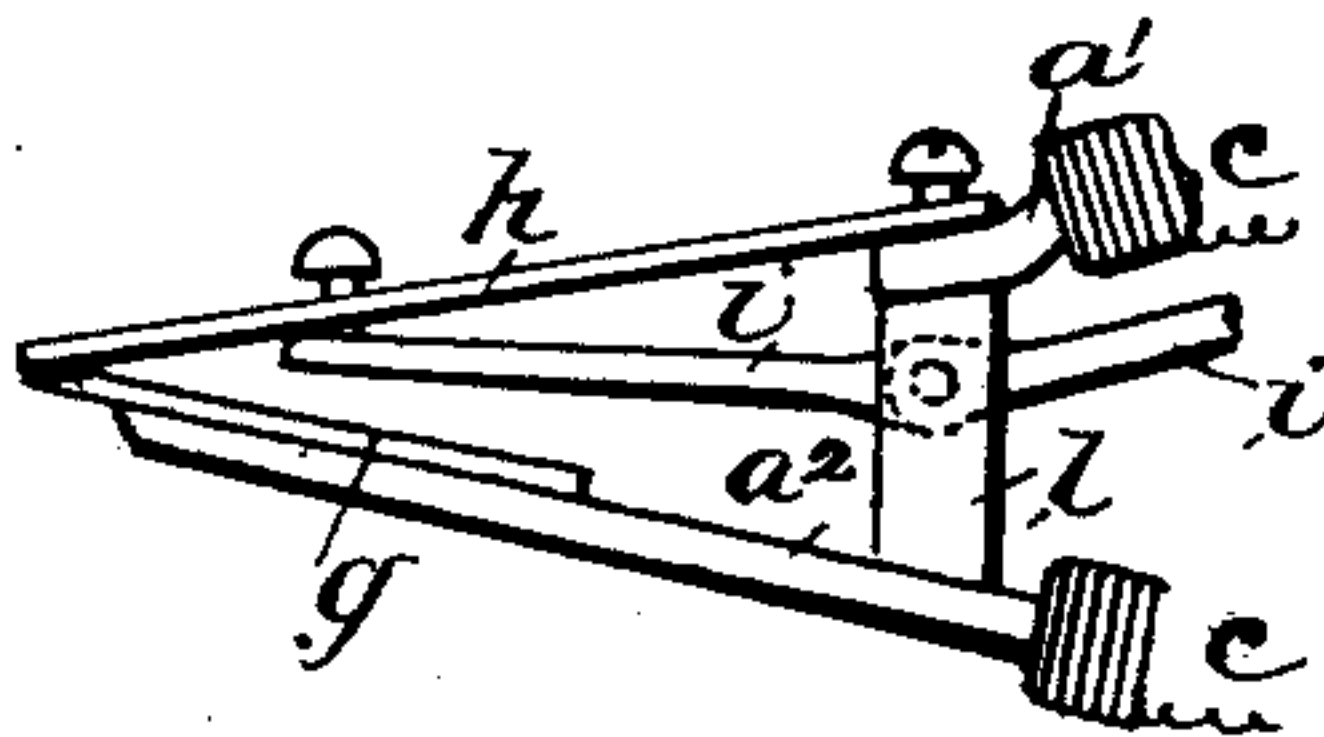


Fig. 5.

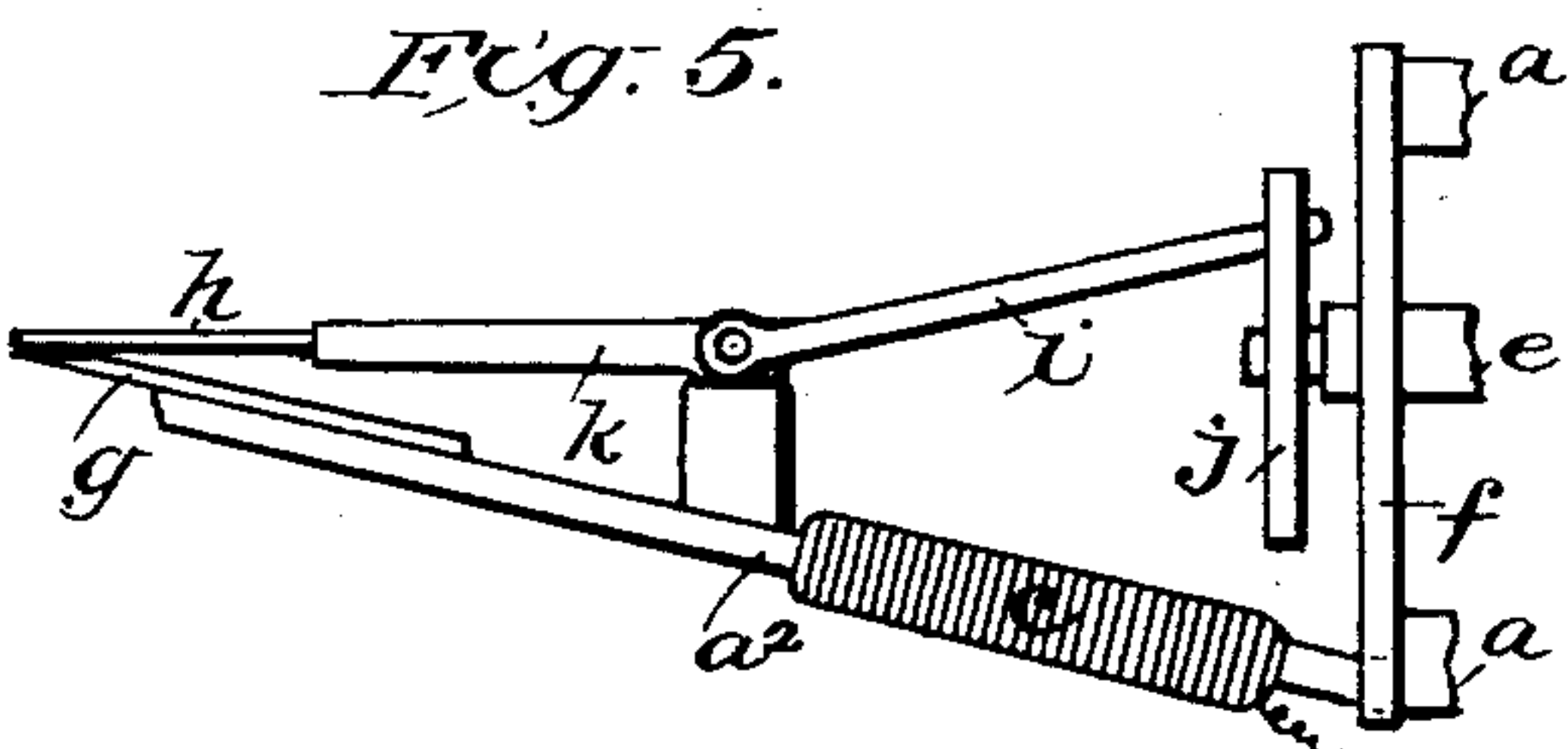
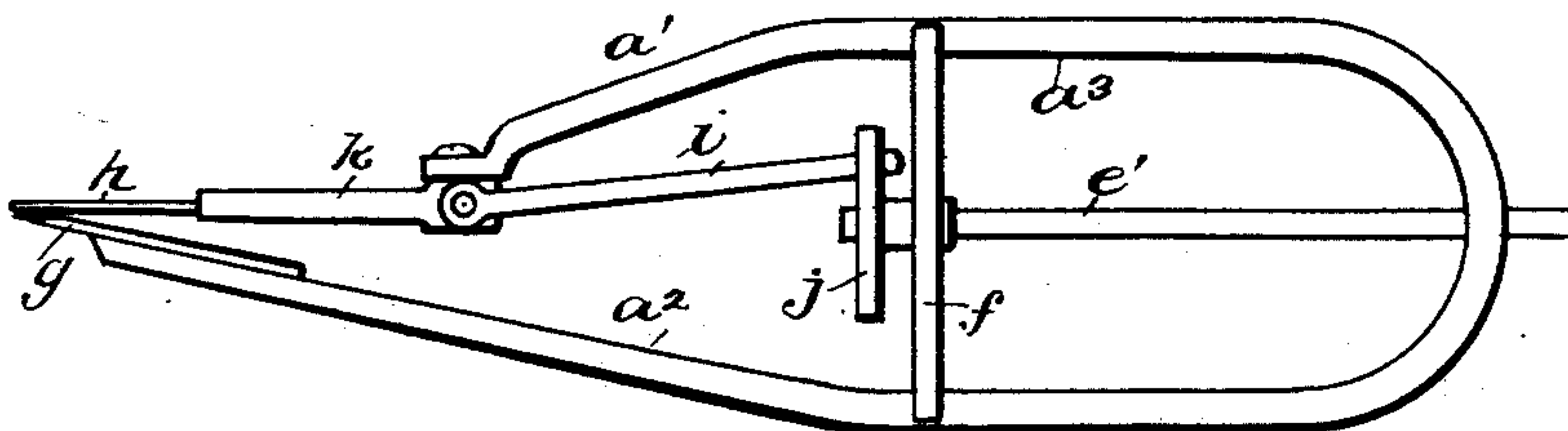


Fig. 6.



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CHESTER M. PALMER, OF LAMARTINE, WISCONSIN, ASSIGNOR OF ONE-THIRD
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ANIMAL-SHEARS.

SPECIFICATION forming part of Letters Patent No. 520,331, dated May 22, 1894.

Application filed May 6, 1893. Serial No. 473,257. (No model.)

To all whom it may concern:

Be it known that I, CHESTER M. PALMER, of Lamartine, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Animal-Shears, of which the following is a specification.

This invention is an improvement in the class of power-operated animal clippers, or shears, more especially such as are provided with an electro-motor attachment adapted to reciprocate, or vibrate, a movable knife, or cutter, in working contact with a fixed and toothed cutter.

My invention has for its object to improve the cutting attachment, or cutting devices proper, whereby they will operate more uniformly and effectively. To this end, I connect the cutters proper with an electro-magnet or permanent magnet so that they are thus rendered magnetic and attracted and held in close working contact without the aid of springs or other supplementary devices.

In the accompanying drawings, Figure 1 is a side view of my invention in its preferred form. Fig. 2 is a plan view of the same. Fig. 3 is a horizontal section, on line 3—3 of Fig. 1. Fig. 4 is a side view of a modification. Fig. 5 is a side view of another modification. Fig. 6 is a side view of a third modification, in which the magnet frame is a permanent magnet.

Referring, in the first instance, to the form of invention illustrated in Figs. 1, 2, 3, *a* indicates a soft-iron frame whose hollow cylindrical portion, *b*, and extensions, *a*², are wound with an electric-circuit wire, thus forming the field magnet of an electric motor. An armature, *d*, of the Siemens or other preferred type, is arranged to revolve within the field magnet *a*, *b*, and its shaft, *e*, is journaled centrally in the heads, *f*, of the magnet frame, as shown. The toothed, steel guard, or fixed cutter, *g*, is detachably secured to the lower polar extension, *a*², and the movable, or vibrating, cutter, *h*, is pivoted to the underside of the other extension, *a*¹, the said parts *a*¹, *a*², being bent and inclined toward each other at an angle of forty degrees, or thereabout. The movable cutter, *h*, is vibrated by means of a pitman, *i*, whose rear end has a loose connection, eccentrically, with a disk, or crank, *j*, fixed on the

front end of the armature shaft, *e*, while its front end is split or forked, thus forming spring jaws whose free ends are provided with holes to adapt them to engage projections of the holder, *k*, of the cutter *h*. The pitman forms thus a jointed and flexible extension of the said cutter, *h*, which is thereby converted into a lever of the first class, having a central fulcrum on the terminal of one of the magnet poles. The rear end of the pitman, *i*, revolves with the disk *j*, while the cutter, *h*, is caused to vibrate, or reciprocate, laterally.

It is apparent that, upon the electric motor composed of the field magnet *a*, *a*¹, *a*², and armature *d*, being in circuit with a battery, dynamo, or other source of electromotive force, three effects will follow: first, the armature will be revolved, thereby vibrating the cutter, *h*; second, that the forward extensions *a*¹, *a*², of the field magnet frame will be highly polarized, inductively; and third, that both the fixed cutter, or guard, *g*, and the movable cutter, *h*, will be similarly polarized, inductively, and thus rendered mutually-magnetically attractive, and thereby held in close contact so long as the electric circuit remains intact. By this means, I am able to dispense with a spring for holding the cutters *g*, *h*, together, and the contact is practically superior and preferable to that maintained by a spring or other mechanical means.

In the modified form of the invention shown in Fig. 4, the front ends of the frame extensions *a*¹, *a*², are secured to and connected by a block, *l*, of some metal—such as brass—which is incapable of magnetization, and the movable cutter, *h*, is pivoted to the upper frame extension, *a*¹, while the pitman, *i*, is formed of two parts, instead of one as in the preferred form, and is pivoted in a slot in the aforesaid block, *l*, the forward portion of the same being attached to the under side of the cutter, *h*, near its front end. It is apparent that, by this arrangement of parts, the same operation will result as by use of the preferred form of the invention.

In Fig. 5, I illustrate a modified construction and arrangement of the clipper, in which the cutters are connected with but one pole of an electro magnet. Thus one (*a*¹) of the polar extensions and its coil *c*, are dispensed

with, and the vibrating cutter h , is pivoted on a boss or block fixed on the lower extension a^2 , which lies in the electrical circuit as before, and is consequently polarized whenever the current passes, whereby the fixed cutter becomes magnetic and attracts the movable cutter.

In the modified form of the invention shown in Fig. 6, the frame, a^3 , is a permanent U magnet, and the fixed and movable cutters are attached to its respective poles, substantially as in the case of the preferred form already described; and, in place of the cutter, h , being vibrated by a revolving armature, it is connected with a shaft e , operated by any suitable mechanical means. It will be perceived, that the same result, to-wit: the magnetic attraction of the two cutters, would exist if the U frame be non-magnetic, and the lower, or fixed, cutter converted into a permanent magnet. The movable cutter proper, h , is held detachably in a spring clamp k (Fig. 3) to which the pitman i , is pivoted as before described, and which is itself pivoted to the polar extension, a' . Such holder k , is a forked steel plate, and its spring jaws are provided with inward projections m , at their forward ends, which take into corresponding depressions, or notches, o , in the cutter. The said

projections, m , are grooved to receive the edges of the cutter, and the tail of the latter also enters grooves in the holder, so that the cutter is held firmly when inserted in place. It may be easily detached however by pulling it forward, the spring jaws then yielding and sliding out of the notches in the cutter, as will be readily understood.

What I claim is—

1. A hair clipper or animal shears, one of whose cutters is adapted to vibrate across the toothed edge of the other, and both being magnetically and oppositely polarized to cause them to maintain close working contact as specified.

2. In a hair clipper or animal shears, the combination with a magnet forming part of the frame or handle, of cutters which are attached to the separated poles of the magnet and thus oppositely polarized inductively, one of said cutters being adapted to vibrate across the toothed edge of the other and means for producing such vibration, as shown and described.

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Witnesses:

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