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H. Knight,

Shearing Horses.

No. 108,489. Patented Oct. 18. 1870.

Fig. 1.

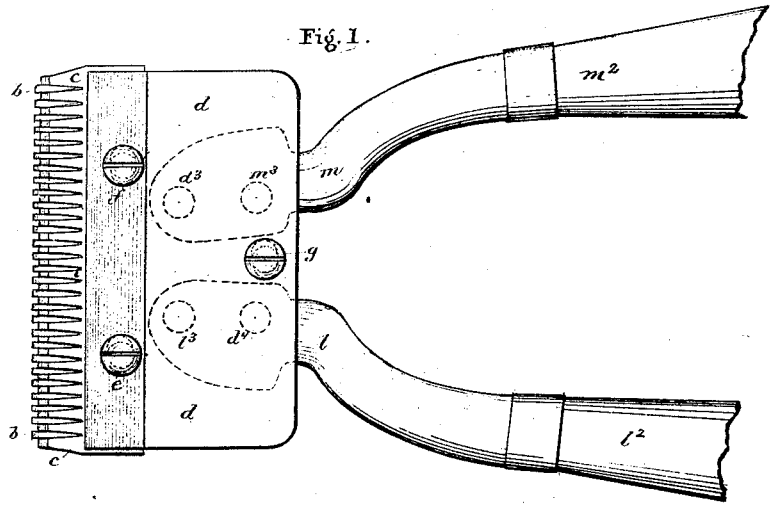


Fig. 2.

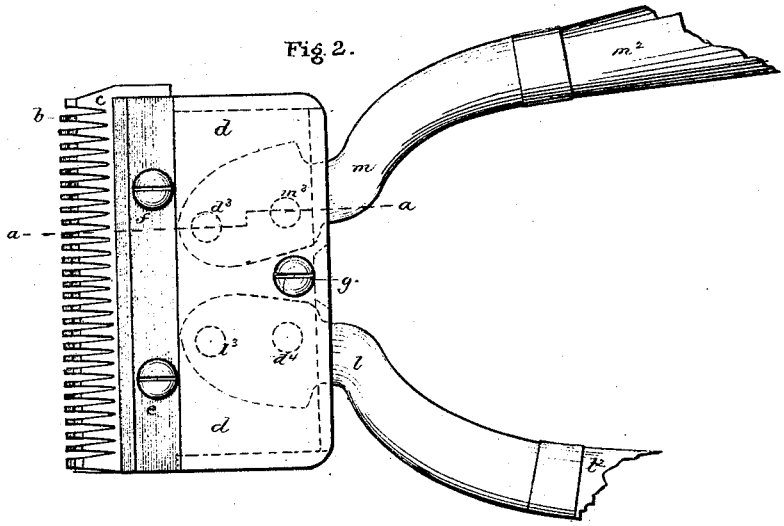
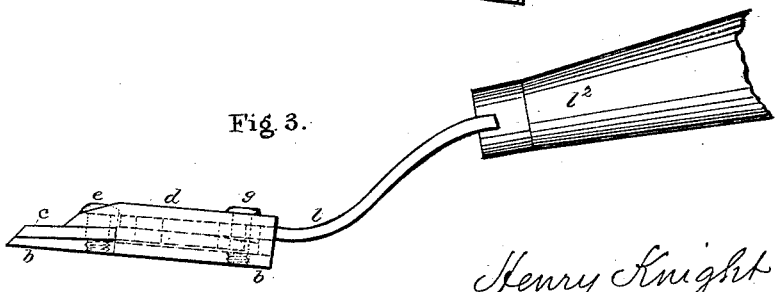


Fig. 3.



Witnesses
Theodore Munger.
Miner K. Kellogg.

Henry Knight
By his Attorney
Chas. F. Pansbury

3 Sheets, Sheet 2.

H. Knight,

Shearing Horses.

No. 108489. Patented Oct. 18. 1870.

Fig. 4.

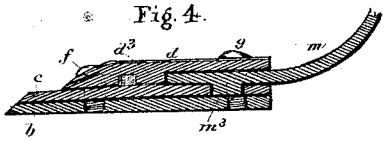


Fig. 5.

Fig. 6.

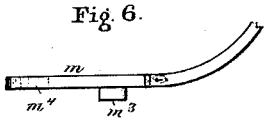


Fig. 7.

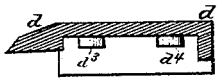


Fig. 8.

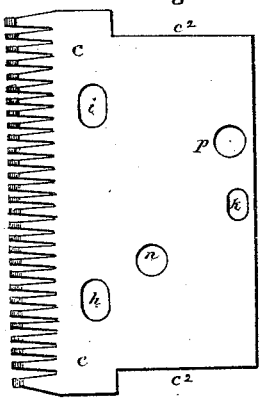


Fig. 9.

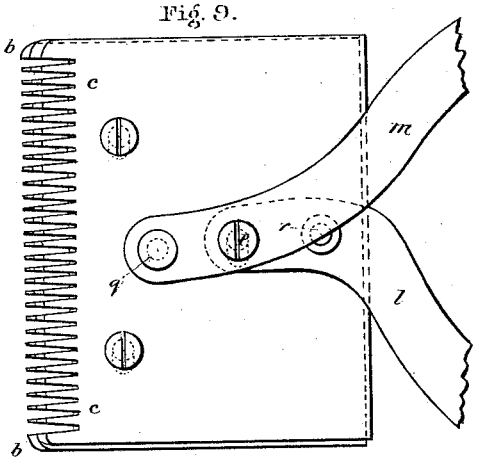
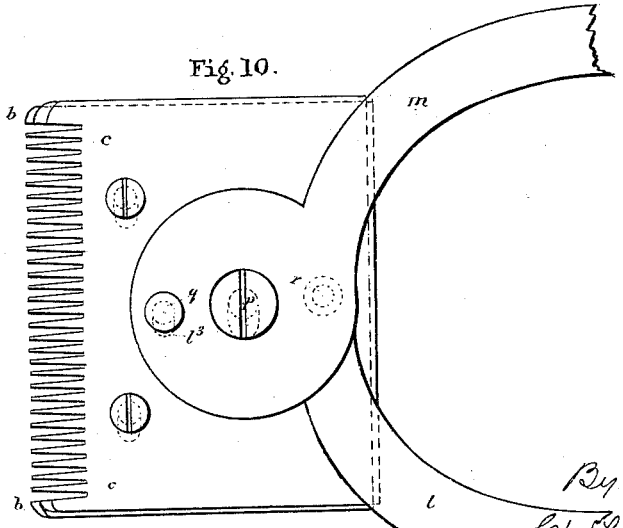


Fig. 10.



Witnesses
Theodore Smurgen
Minor K. Kellogg

Henry Knight
By his Attorney
Chas. F. Ransbury

H. Knight,

3. Sheets. Sheet. 3.

Shearing Horses.

No. 108,489. Patented Oct. 18. 1870.

Fig. 11.

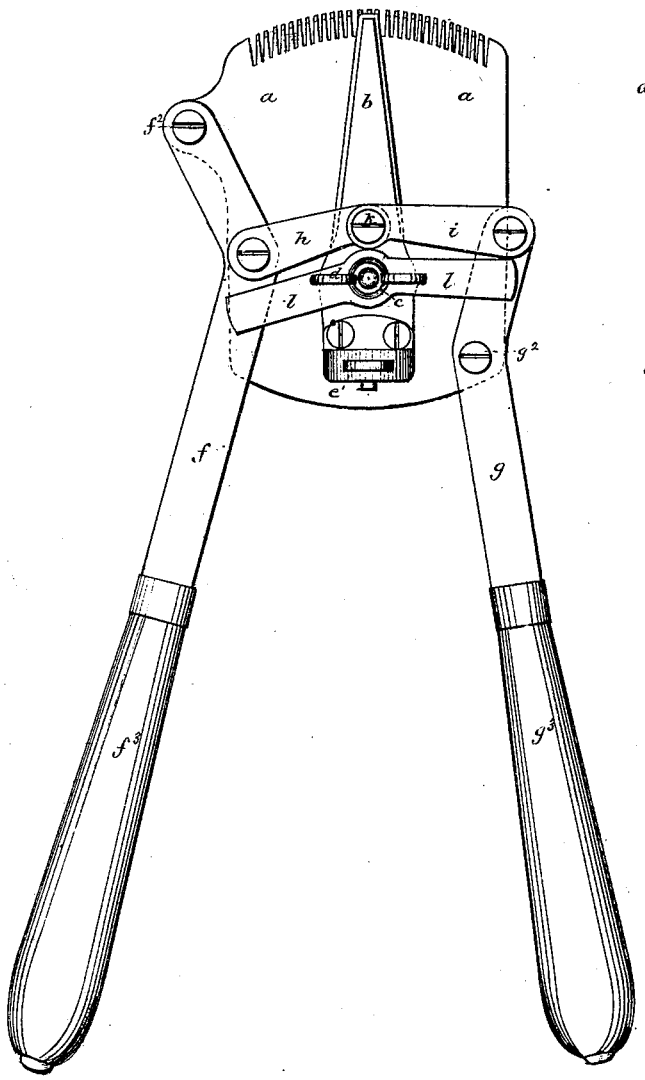
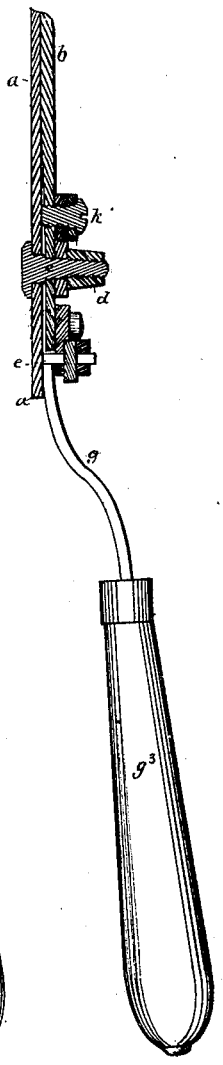


Fig. 12.



Witnesses
Theodore Mungen.
Minor K. Kellogg

Henry Knight
By his Attorney
Chas. F. Bansbury

United States Patent Office.

HENRY KNIGHT, OF RYDE, ISLE OF WIGHT, ENGLAND.

Letters Patent No. 108,489, dated October 18, 1870. Antedated Oct. 7/70.

IMPROVEMENT IN INSTRUMENTS FOR CLIPPING OR SHEARING HORSES, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom these presents shall come:

I, HENRY KNIGHT, of Ryde, Isle of Wight, in the county of Southampton, importer of Italian sculptures, send greeting, and hereby declare that I have made a new and useful invention of "Improvements in Instruments or Apparatus for Clipping Horses and other animals," for which I have obtained of the British government Letters Patent dated July 21, 1869, No. 2,217; now, know ye, that I, the said HENRY KNIGHT, do hereby declare the nature of the said invention, and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof; that is to say—

My invention consists of the improvements hereinafter described in constructing and arranging the parts of instruments or apparatus for clipping horses and other animals.

The said instruments, as ordinarily constructed, consist essentially of a flat plate of metal, one edge of which is provided with teeth arranged like the teeth of a comb.

This plate, when the instrument is used, rests upon the skin of the horse, the hairs to be clipped or cut off standing up between the teeth.

Upon the said toothed plate a cutting-plate or series of cutters work, the said cutting-plate or cutters being furnished with teeth similar to those of the toothed plate, and cutting off the hairs against the edges of the teeth of the said toothed plate.

A reciprocating motion is given to the cutting-plate in the ways hereinafter described, and its teeth are thereby made alternately to cover and slide across the teeth of the toothed plate, by which motion the hairs are cut by an action similar to that of shears.

According to my improvements, I give the required reciprocating motion to the cutting-plate by the following arrangement of parts:

To the frame or case of the instrument two levers are jointed, the said levers being terminated by handles, by which the instrument is held and worked. By opening and closing the said levers, after the manner of opening and closing the handles of a pair of shears, the required reciprocating motion is given to the cutting-plate.

The said levers are connected to the case and cutting-plate in the following manner:

One of the levers, which I will call the right-hand lever, is jointed to the case near its end, and at about an inch distant from the said joint, and between it and the handle is a fixed pin on the said lever, which pin engages in a hole in the cutting-plate.

The other or left-hand lever is jointed to the case, and has a fixed pin, which engages in another hole in the cutting-plate, but the relative positions of the said pin and joint in the left-hand lever are the reverse of those in the right-hand lever; that is, in the left-hand lever, the pin is near the end of the lever and the joint, about an inch distant therefrom, and between the said pin and the handle.

By opening and closing these levers by their handles, the pins engaging with the cutting-plate move in the same directions, and the said plate is consequently carried across the toothed plate in one direction when the handles of the instrument are opened, and in the opposite direction when the handles of the instrument are closed.

By this arrangement extreme steadiness and facility in use of the instrument are secured, as the pressure being exerted by both hands is the same in amount and opposite in direction, and consequently while great power of moving the cutting-plate is secured, there is no tendency to motion in the instrument as a whole.

Where the instrument is held in the hand by one handle, I make the said handle capable of adjustment by a screw or otherwise, so as to be able to incline it at any required angle to the case of the instrument.

Although I have only described my improvements in their application to clipping instruments, in which the cutting is effected by cutters consisting of two serrated plates, yet my said improvements may be applied to clipping instruments having other kinds of cutters.

Having explained the nature of my invention, I will proceed to describe with reference to the accompanying drawing the manner in which the same is to be performed.

Figures 1 and 2 represent plans of an instrument or apparatus for clipping horses and other animals, constructed and arranged according to my invention;

Figure 3 is a side elevation of the same; and

Figure 4 is a section of the same, taken through the line *a a*, fig. 2.

Figures 5, 6, 7, and 8 are parts of the same, as hereinafter explained.

The same letters of reference indicate the same parts in figs. 1, 2, 3, 4, 5, 6, 7, and 8.

b is the flat serrated plate of the instrument, which rests upon the skin of the animal during the clipping operation.

c is the toothed cutting or movable plate; and

d is the frame or case of the instrument, between which case and the back plate *b*, the cutting-plate *c* works.

The cutting-plate *c* is shown separately in elevation in fig. 8, and the frame or case *d* is shown separately in vertical section in fig. 7.

The case *d* is fixed to the back serrated plate *b* by means of the screw-pins *e f g*, which pass through the holes or slots *h i k* (see fig. 8) in the cutting-plate *c*.

The sliding motion of the said plate *c* is limited by the shoulders c^2 of the said plate abutting against the case *d*.

To the frame or case *d* two levers, *l m*, are jointed in the manner hereinafter explained.

These levers are terminated by the handles l^2 m^2, by which the instrument is held and worked

The acting end of the lever *l* is shown separately in fig. 5, and the acting end of the lever *m* is shown separately in fig. 6.

The end of each of the levers *l m* is provided with a fixed pin and a hole. In the lever *l* the pin is marked l^3, and the hole l^4, and in the lever *m* the pin is marked m^3, and the hole m^4.

In the inner side of the frame or case *d*, pins d^3 d^4 are made or fixed, which pins correspond in position to the holes m^4 l^4 in the levers *l m*.

The said levers *l m* are connected to the case *d* and movable cutting-plate *c* in the following manner:

The lever *l* is jointed to the case *d* by the pin d^4 on the said case taking into the hole l^4, near the handle part of the said lever *l*; and the said lever *l* is connected to the cutting-plate *c* by the pin l^3 on the said lever taking into the hole *n* (see fig. 8) in the said plate *c*.

The lever *m* is jointed to the case *d* by the pin d^3, near the top edge of the case, taking into the hole m^4 in the top of the lever *m*; and the said lever *m* is connected to the cutting-plate *c* by the pin m^3 taking into the hole *p*, (see fig. 8,) near the bottom edge of the said cutting-plate *c*.

The manner in which the pin on the case engages with the lever, and the pin on the lever engages with the cutting-plate, will be readily seen by referring to the section, fig. 4.

By an examination of the drawing, it will be seen that the relative positions of the joint-pin d^4, upon which the lever *l* turns, and the pin l^3, by which the said lever is connected with the cutting-plate, are the reverse of those of the other lever *m*, that is to say, the joint-pin d^4 of the lever *l* is between the pin l^3 and the handle l^2, while the joint-pin d^3 of the lever *m* is at the end of the said lever *m*.

The result of this arrangement is that when the levers *l m* are moved toward each other the connecting-pins l^3 m^3 of the said levers are both made to move in the same direction, that is, in the direction indicated by the arrow in fig. 2, and carry with them the cutting-plate *c*; and when the said levers *l m* are opened from each other the said connecting-pins l^3 m^3 of the levers are both made to move in the same direction, but in a direction contrary to that indicated by the arrow in fig. 2, and carry with them the cutting-plate *c*.

By thus opening and closing the said levers *l m* by their handles l^2 m^2, after the manner of working a pair of shears, a reciprocating motion is communicated to the cutting-plate *c*, and the said cutting-plate is carried across the fixed toothed plate *b*, and the clipping effected between the teeth of the said movable cutting-plate and fixed cutting-plate.

In fig. 2 the cutting-plate *c* is represented at the end of its stroke, and in fig. 1 at the middle of its stroke.

Figure 9 represents a modification of the last described arrangement of my invention.

In this modification the levers *l m*, by which the cutting-plate is worked, are jointed to the back, or fixed serrated plate *b*, by the same center *p*, and the lever *l* is connected, by a pin at *r*, to the cutting-plate *c*, below the joint *p*, and the end of the lever *m* is connected, by a pin at *q*, to the cutting-plate *c*, above the said joint *p*.

The action of this arrangement is the same as that of the arrangement described, that is to say, on opening and closing the levers *l m* by their handles l^2 m^2 the connecting-pins *q r* move in the same direction as the levers are turned upon their joint *p*, and give the required reciprocating motion to the cutting-plate *c*.

The center or joint *p* is riveted to the back serrated plate *b*, and, if required, the upper part of the instrument may be covered by a case, but the said case is not necessary.

The cutting-plate *c* is provided with the required slots to permit it to slide upon the pins which connect it to the back-plate *b*.

Figure 10 represents the same arrangement of jointing as in fig. 9, excepting that the end of each of the levers *l m* has a circular plate fixed to it, or made in one piece therewith, to which plates the connecting-pins *q r* are attached, the said circular plates being similar to those of an ordinary rule-joint.

The circular plate of the lever *l* has a slot, l^3, in it, to permit of the motion of the pin *q* of the other lever *m*.

The joint and connecting-pins in this arrangement are marked with the same letters as corresponding parts in fig. 9.

Figure 11 represents in front elevation, and Figure 12 in section, a clipping instrument, constructed according to my invention, provided with a single cutting-plate, turning on a center, instead of the rectilinear reciprocating compound cutting-plate previously described.

The same letters indicate the same parts in figs. 11 and 12.

a is the serrated fixed plate, and

b is the single cutting-plate, turning on the fixed pin or center *c*, secured to the back serrated plate *a*.

The pin or center *c* is fixed to the plate *a*, and the cutting-plate *b* adjusted against the said plate *a* by means of the thumb-screw or nut *d*, screwing on the end of the pin, as represented.

The tail end of the cutting-plate *b* is furnished with an anti-friction roller, *e*, which bears upon the plate *a*, and reduces the friction between the two plates on the working of the instrument.

The teeth of the serrated plate *a* are made parallel to one another, instead of being struck from the center on which the cutting-plate *b* turns, as is usual in clipping instruments with single cutters.

A reciprocating motion through about a quarter of a circle is given to the said cutting-plate *b* by means of the levers *f g*, the ends of which levers are jointed to the serrated plate *a*.

The lever *f* is jointed at f^2, near the top of one side of the plate *a*, and the lever *g* is jointed at g^2, near the bottom of the other side of the plate *a*.

These levers are connected to the cutting-plate *b* by means of the links *h i*, jointed to the cutting-plate at *k*.

When the levers *f g* are opened and closed by grasping their handles f^3 g^3, the jointed ends of the said levers are made to move in the same direction, and through the links *h i* communicate a reciprocating motion through about a quarter of a circle to the cutting-plate *b*.

The levers work under the cross-bar *l*, fixed by the thumb-screw or nut *d*, whereby the motion of the said levers is made steady.

Having now described the nature of my invention, and the manner in which the same is to be performed, I wish it to be understood that I do not limit myself to the precise details herein described and illustrated, as the same may be varied without departing from the nature of my invention; but

I claim as my invention of improvements in instruments or apparatus for clipping horses and other animals—

1. The arrangements or combinations of parts here-

inbefore described and illustrated in figs. 1 to 8, both inclusive, of the accompanying drawing, and the modifications represented in figs. 9, 10, 11, and 12, for giving a reciprocating motion to the movable cutting-plate or cutter of the said instruments or apparatus; that is to say, the combination of levers and the method of connecting them to the said cutting-plate or cutter and case, or fixed cutting-plate of the instrument respectively, so that by opening the handles affixed to the said levers the movable cutting-plate or cutter is moved in one direction on the fixed cutting-plate, and by closing the said handles a reciprocating motion of the said movable cutting-plate or cutter is produced in the opposite direction, the act of clipping being thus performed by working the handles of the instrument in a manner similar to that by which a pair of ordinary shears are worked, substantially as described and illustrated.

2. The cutting-plates, having the shape shown in figs. 8, 10, 11, and 12, and provided with the slots *h i* and the blocks c^2 *p* and c^2 *n*, as and for the purpose specified.

The above specification of my said invention signed and witnessed at Ryde, in the Isle of Wight, in England, this 23d day of September, A. D. 1869.

Witnesses: HENRY KNIGHT.

THOMAS WHITE,
Solicitor, of No. 13 *Cross street, in the borough of Ryde, in the Isle of Wight.*

JOHN MORRANT,
Grocer, of No. 53 *Union street, in the same borough.*