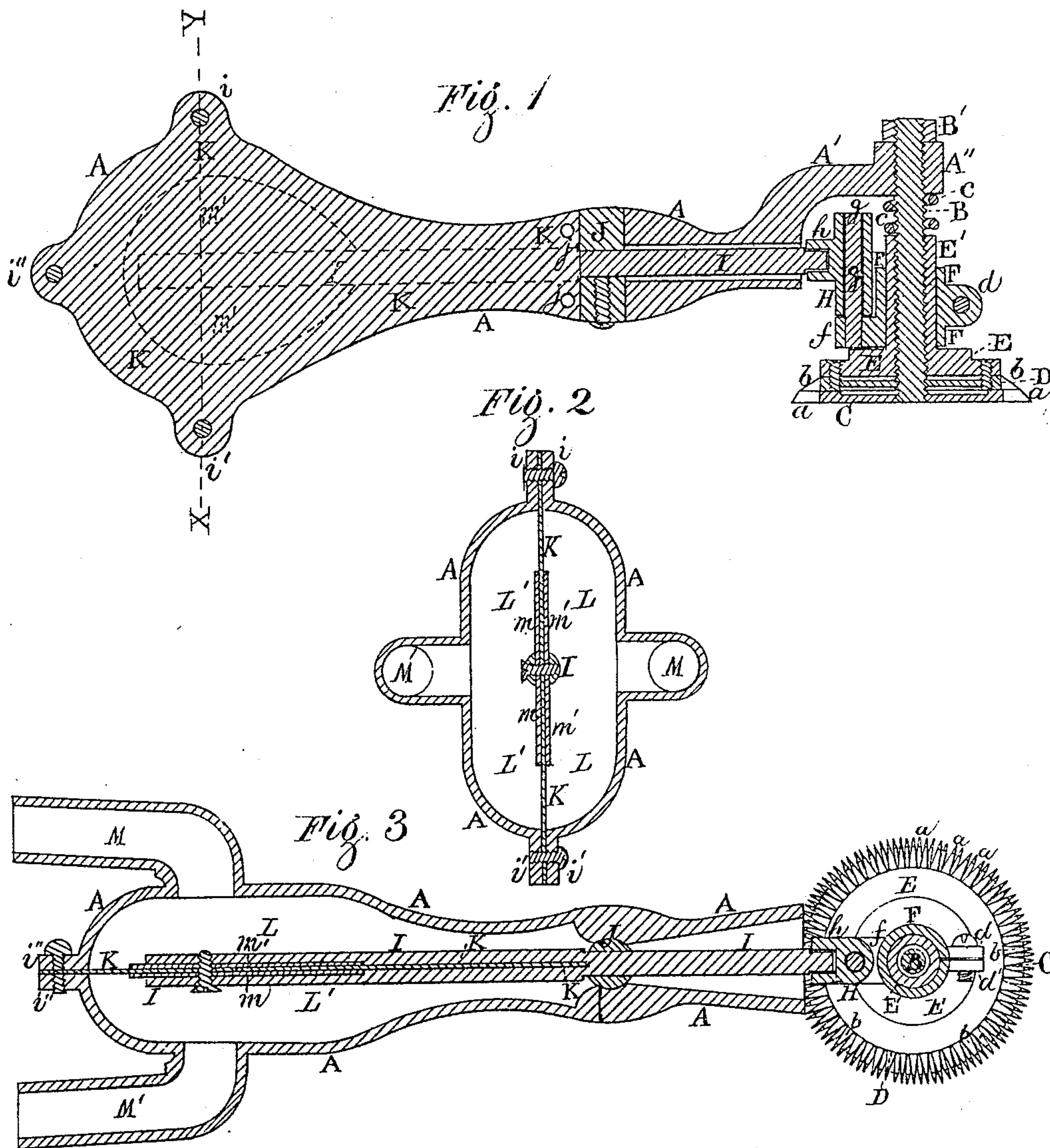


Patented Sept. 1, 1874.

No. 154,603.



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Cannell & Wright.

4. In combination with a vibrating lever of tipping or shearing machine, a socket-stem, having socket-arm *h*, stem *g*, adjustable sleeve or clamp *F*, having lug *f*, stem *E*, lever-support *E*, cutters *C D*, stem *B*, and foot *A*, all arranged and operating



# UNITED STATES PATENT OFFICE.

LAVINAS B. HAMILTON AND CHARLES F. HARLOW, OF BOSTON, ASSIGNORS  
TO PHILANDER HARLOW, OF HYDE PARK, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR SHEARING ANIMALS.

Specification forming part of Letters Patent No. 154,603, dated September 1, 1874; application filed  
May 6, 1874.

*To all whom it may concern:*

Be it known that we, LAVINAS B. HAMILTON and CHARLES F. HARLOW, both of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Clipping or Shearing Machines, of which the following is a specification:

Figure 1 of the accompanying drawings is a central longitudinal vertical section. Fig. 2 is a transverse vertical section taken in line X Y, and Fig. 3 is a longitudinal horizontal section taken through center of handle of our improved clipping or shearing machine.

The present invention relates to certain new and useful improvements in that class of clipping or shearing machines operated by the alternate pressure and release of air. A portion of these improvements is, however, applicable to machines operated by any other method. The object of these improvements is mainly to provide a simple, economical, and effective method of vibrating the cutter or cutters of a clipping or shearing machine, and to so hold the support of a vibrating cutter as to allow it to be readily released to admit the turning of the cutter to carry any broken or injured tooth to the rear, to prevent its interference with the operation of the remaining perfect teeth; and to effect these ends, our invention consists mainly in a hollow metallic or other suitable handle, divided at its rear portion into two air-tight chambers by a central flexible partition or diaphragm, operated by the alternate admission and withdrawal, through tubes opening into said chambers, of air, so as to vibrate laterally a lever connected with the said diaphragm and actuate a cutter, in the desired manner, as will be hereinafter more fully explained. These improvements also consist in a split sleeve or clamp, arranged to support, so as to allow the turning of, a standard or socket, and to be readily adjusted to the stem of a cutter-support, to hold the same in position, or to be readily released therefrom, to allow the turning of the cutter to carry to the rear any injured or broken tooth, as will be duly explained.

In the drawings, A represents a hollow metallic or other suitable handle of a clipping or

shearing machine. This handle is at the rear of greater depth than the front, toward which it tapers in the curved form shown, or is otherwise shaped, to be conveniently held in the hand of the operator, and is formed at the front end with an upward and forward projecting arm, A', formed at the extremity with a screw-socket, A'', which receives and allows the turning of a vertical screw-stem, B, that connects at the bottom with (so as to hold) a metal disk or cutter, C, countersunk on its top, and formed around its edge with teeth *a*, beveled upward from their point to the point, and extending inward to the heel, of upper teeth, *b*, formed around and beveled upward from the edge of an upper metal disk or cutter, D, which is countersunk on the top and bottom; or the cutters may be otherwise formed and arranged, screwed or otherwise attached, so as to be readily released. E is a metal circular plate or cutter-support, formed with an upright screw-socket stem, B, which is provided, between the sockets A'' and E', with a spiral spring, *c*, that bears upon the stem B, to hold down the cutter D properly in place. The top of the stem B is provided with a screw-nut, B', that bears upon the top of the socket A'', and regulates the stem B, so as to tighten or loosen the lower cutter C from the upper cutter D. Surrounding the lower portion of the socket-stem E', above the top of the disk or plate E, is a split sleeve or cylindrical clamp, F, divided vertically on one side, and formed with screw-ears *d d'*, provided with a screw, for the purpose of tightening or loosening the clamp F to hold the stem E', or to allow its release to free the cutter-support E, so as to permit the turning and adjusting of the cutter D to carry back any injured tooth, and prevent its interference with the operation of the perfect teeth. The clamp F is formed on its inner side with a bottom annular lug, *f*, that receives and holds the end of a stem, *g*, on which turns an upright cylindrical standard or socket, H, that has a seat on the top of the lug *f*, and is formed with an inner extending arm, *h*, having an end socket that receives and allows the lateral play of the outer end of a lever, I, which extends within nearly to the end of the handle A, pass-



ing through or connecting with, so as to be turned by, a pivot, J, that is located a suitable distance from the forward end, and extends vertically through, so as to turn in, the handle A. The lever I is slotted or bifurcated, or otherwise arranged, from the pivot to its inner end, to receive, hold, or connect with a leather, rubber, or other flexible or suitable partition or diaphragm, K, which extends longitudinally as far as the pivot J through the center of the rear portion of the handle A; dividing the latter into two air-tight chambers, L L'. One side of the rear portion of the handle A forms the pivot J, in a separate piece from the other side, and each side, at the top, bottom, and rear, is formed with ears *i i'*, provided with screws, for holding or releasing the two sides, between which the edges of the partition or diaphragm K extend and are securely held. The sides of the handle, near the pivot J, are held or released by screws *j*, or otherwise, that extend through the edges of the partition K and sides of the handle, the interior of which sides is formed with screw-sockets to receive the screws. At the rear, on either side of the partition or diaphragm K, between it and the bifurcated interior sides of the lever I, is a thin tin or other suitable washer or plate, *m m'*, held by a screw or screws extending through the lever, or otherwise secured. The washers are curved in the shape shown by the dotted lines, Fig. 1, or otherwise formed and arranged, for the purpose of stiffening the partition, and effectually producing the desired action to the lever. The rear portion of the handle A is formed or provided on either side with tubes M M', that may be connected with any apparatus, or device, or arrangement of devices for admitting and withdrawing air alternately through the tubes into and from the handle on either side of the partition or diaphragm.

The operation of our invention is as follows: The tubes M M' being connected with any suitable apparatus or device, &c., for supplying and withdrawing air to and from the handle, as above mentioned, the air is first admitted in one of the chambers L or L' and withdrawn from the other, and vice versa. This action rapidly performed causes the diaphragm or partition K to be rapidly vibrated laterally,

thereby carrying to and fro laterally the lever I, which, engaging in the arm *h* of the socket H, carries the latter and the clamp F, connected by the stem *g*, with it, and holding the stem E' of the cutter-support E, thus vibrating the cutter D to and fro laterally over the stationary under cutter C, and producing the desired clipping or shearing movement.

In case of accident to any of the forward teeth of the cutter D, by unscrewing the clamp F the hold on the socket E' is released, and the cutter permitted to be readily turned to carry the injured tooth or teeth to the rear, out of the way of interfering with the operation of the perfect teeth.

Having thus described our improvements, what we claim as our invention, and desire to have secured to us by Letters Patent, is—

1. A cylindrical clamp or split sleeve, F, formed with screw-ears *d d'*, held together or released by a screw, in combination with the socket-stem of a cutter-support, E, and cutters C and D, substantially as and for the purpose described.

2. In a clipping-machine, the combination of the hollow handle A, diaphragm K, and vibrating lever I, the latter being actuated by compressed air or steam, and actuating the cutting mechanism, substantially as described, for the purpose specified.

3. In combination with the handle A, tubes M M', flexible partition or diaphragm K, and lever I, the washers *m m'*, all arranged and operating substantially as and for the purpose set forth.

4. In combination with a vibrating lever of a clipping or shearing machine, a socket-stem, H, having socket-arm *h*, stem *g*, adjustable split sleeve or clamp F, having lug *f*, stem E' of cutter-support E, cutters C D, stem B, and handle-socket A'', all arranged and operating substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

LAVINAS B. HAMILTON.  
CHARLES F. HARLOW.

Witnesses:

CARROLL D. WRIGHT,  
SAML. M. BARTON.