

FRANK E. HIBBARD.

Improvement in Devices for Cutting Whalebone.

No. 121,520.

Patented Dec. 5, 1871.

Fig. 1.

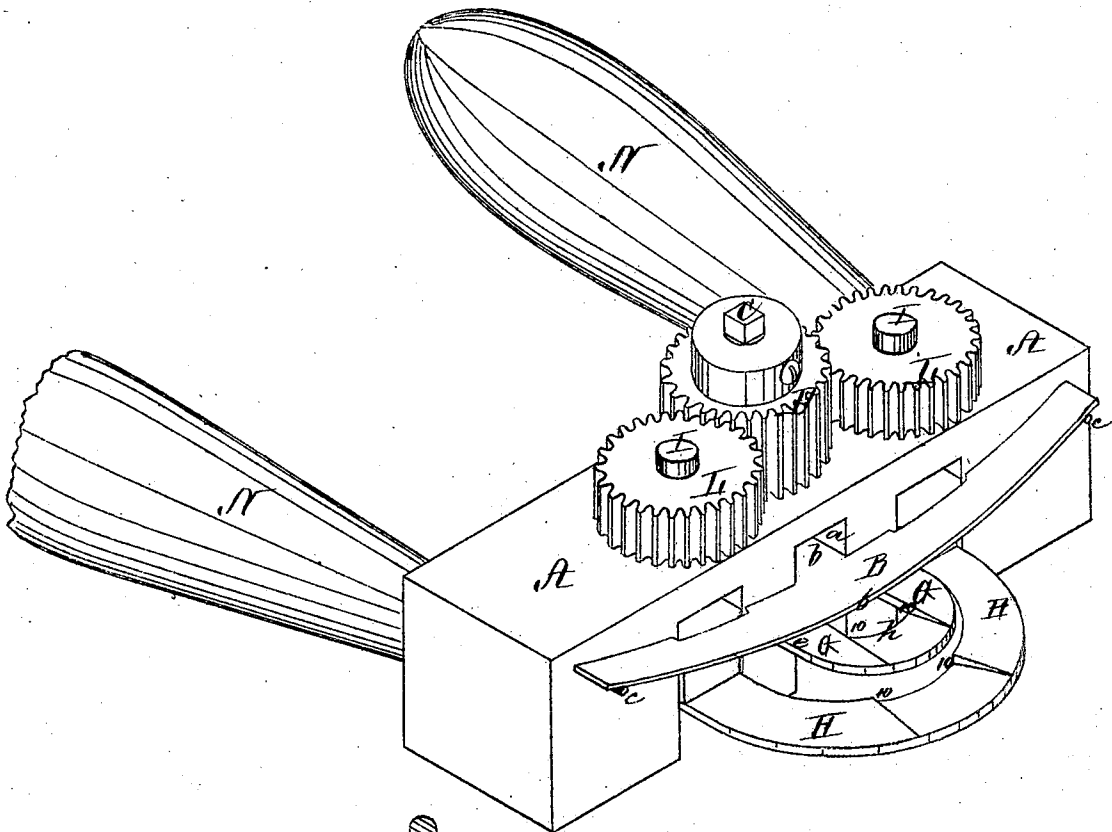
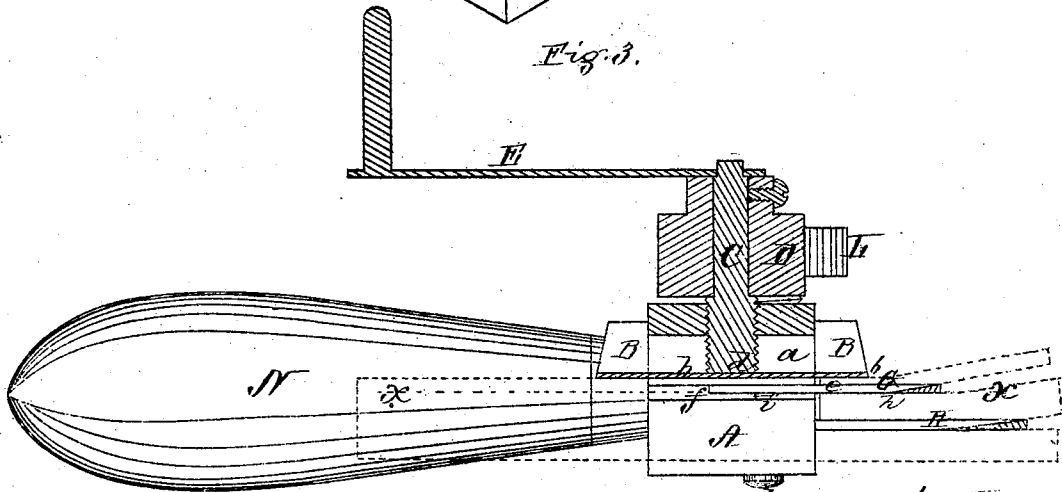


Fig. 3.



Witnesses,  
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W. J. Cambridge

Inventor,  
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Fig. 2.

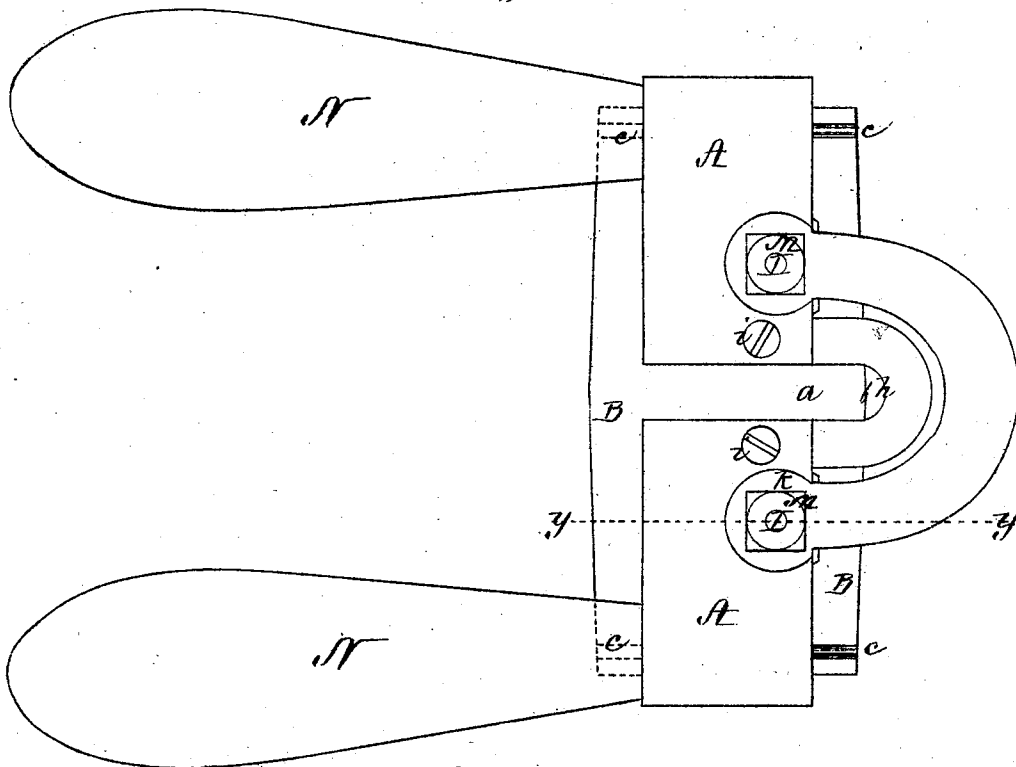


Fig. 4.

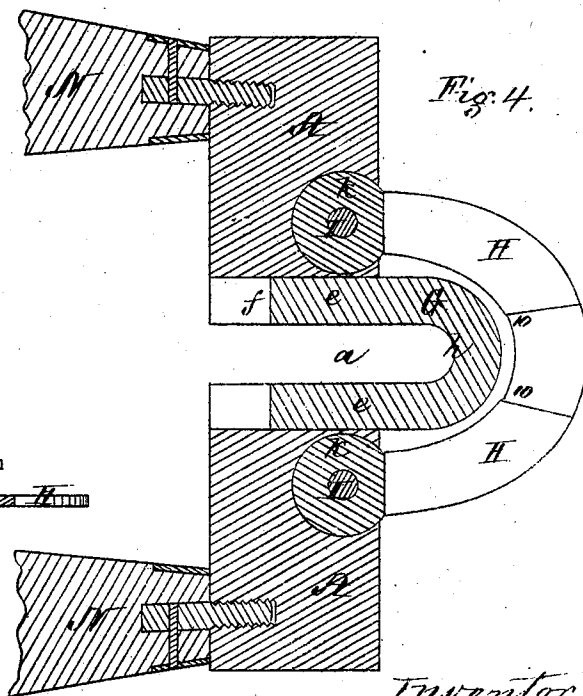
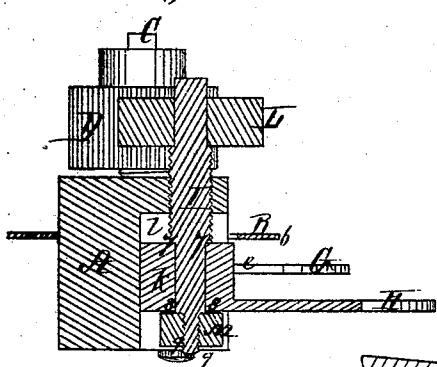


Fig. 5.



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# UNITED STATES PATENT OFFICE.

FRANK E. HIBBARD, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN DEVICES FOR CUTTING WHALEBONE.

Specification forming part of Letters Patent No. 121,520, dated December 5, 1871.

*To all whom it may concern:*

Be it known that I, FRANK E. HIBBARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Knives for Cutting Whalebone; of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view illustrating my invention. Fig. 2 is a plan of the under side of Fig. 1. Fig. 3 is a longitudinal section through the center of the same, showing in dotted lines the manner of cutting the whalebone into strips. Fig. 4 is a section on the line *x x* of Fig. 3. Fig. 5 is a section on the line *y y* of Fig. 2.

My invention consists in two or more knives made adjustable in such manner by right-and-left-handed screws that two or more strips of whalebone of the same or different widths may be cut at one operation, whereby I am enabled to perform a much greater amount of work in a given time than can be accomplished where the ordinary device provided with a single knife was employed. My invention also consists in giving the knife-edges a curved form, so that the enamel or exterior of the whalebone will be cut just previous to the grain or interior, whereby I avoid injuring the enamel and am enabled to produce a strip with a smoother edge than when a knife with a straight edge is employed.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A is a block of metal, of rectangular form, provided at its center with a rectangular opening, *a*, for the reception of the central portion *b* of a spring-plate, B, the front and back ends of which are of similar shape and extend nearly across the block in the direction of its length, resting on pins *c* projecting therefrom. Passing through the upper side of the block A and into its opening *a* is a right-handed screw-shaft C, the lower or inner end *d* of which bears against the central portion *b* of the spring B, the outer or upper end of the shaft being provided with a cog-wheel, D, by revolving which, by means of a crank, E, Fig. 3, fitting over the square end of the shaft, the outer edge *g* of the central portion of the spring is pressed down or allowed to yield or spring back, so as to approach or recede from the upper one G of a pair of knives, G H,

the spring-plate B serving as a gauge to regulate the width of the strip to be cut by the knife G. The stock *e* of this knife G is bifurcated, and is free to slide in slits *f*, cut in the block A, and leading into the opening *a*, by which construction the knife-edge *h* may be adjusted horizontally to the position required relative to the edge *g* of the spring-gauge, to allow the strips of whalebone to pass through without obstructing the space between the gauge and the knife G; and when properly adjusted it is held securely in place by screws *i*, which are clamped against the stock of the knife. (See Figs. 2 and 3.) The knife H is larger than that, G, and of a similar form, except its lower ends *k*, which are enlarged and rounded, as seen in Figs. 2, 4, and 5, and fit into correspondingly-shaped recesses *l*, formed in the under side of the block A. Each end *k* of this knife H is secured in the following manner to a left-hand screw-shaft, I, having its outer or upper end provided with a gear, L, which meshes into and is driven by the central gear D. Each screw-shaft I passes through the upper part of the block A into the recess *l*, and through one of the enlarged rounded ends *k* of the stock of the knife H, the portion of the shaft from 7 to 8 passing through said end *k* being smooth and cylindrical to enable it to fit snugly thereon, while the portion of the shaft from 8 to 9 below and outside the smooth portion is provided with a screw-thread, and is of a less diameter than the smooth portion, thereby forming a shoulder, 8, against which a screw-nut, M, is turned. The portion of the shaft I passing through the block A and extending to the smooth portion is provided with a screw-thread, and is of larger diameter, thereby forming a shoulder, 7, between which and the shoulder 8 the knife is securely held, so that the enlarged ends *k* will not be liable to slip, but will simultaneously have a positive motion forward or back, as the shafts I are made to revolve in one direction or the other. The edges of these knives are of the form seen in Fig. 1, being curved between the shoulders 10 of the blades.

The object of this curvature is to insure the enamel being penetrated slightly in advance of the end of the grain or interior of the whalebone, by which means I am enabled to smoothly cut the material on a straight line without injury to the enamel, which could not be done were the ordinary knife having a straight edge employed.

N N are the handles, which screw into the block A, and by which the operator draws it with its knives through the slab of whalebone, when secured in a vise, to produce the strips of the widths required. Where bone for dresses, corsets, &c., is required, after the knife H and spring-gauge B are adjusted into their proper position by turning the middle gear in the right direction to produce the strips of the desired width, either both of the same width, or one wider than the other, it will not become necessary to readjust the knife and gauge after every operation of cutting two strips; but where bone for whip-stock is to be cut it is necessary to regulate the distances between the spring-gauge B and knife G, and between the two knives G H after each operation of cutting two strips because it is essential in whip-stock to employ bone of a square form at its "butt;" and as the thickness of the slab of whalebone increases from its edge, so also must the width of the strip increase sufficiently to be equal to its thickness. These distances are regulated by applying the crank to the central screw-shaft C, which directly changes the distance between the spring-gauge and knife G, and indirectly through the gear L changes the distance between the two knives G H, the same relative distance between the spring-gauge B and knife G and that between the two knives G H always being preserved. When, however, the said relative distance is to be changed it is simply necessary to remove the central gear D from its shaft and turn the several shafts independently by hand till the requisite change is

effected. More than two strips could be cut at one operation by increasing the number of knives and multiplying the gear for adjusting them.

It will be seen from the foregoing that I derive two important advantages from the employment of two or more curved knives simultaneously, viz., I am enabled to cut as many strips at one operation as I have knives, while the enamel of the strips is not unevenly fractured or in any wise injured, whereby a considerable saving is effected in the labor, and more satisfactory results obtained than where a single knife with a straight edge was employed, as heretofore.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a whalebone cutting-machine two or more knives G H in combination with the spring C, as set forth.

2. In a whalebone cutting-machine one or more knives, G H, having a curved cutting-edge, constructed as described, for the purpose set forth.

3. The knife G, in combination with the knife H operated by the screw-shafts I, and the spring-gauge B operated by the screw-shaft C, and the block A, substantially in the manner and for the purpose described.

Witness my hand this 10th day of October, 1871.

FRANK E. HIBBARD.

Witnesses:

N. W. STEARNS,

W. J. CAMBRIDGE.

(176)