

No. 749,467.

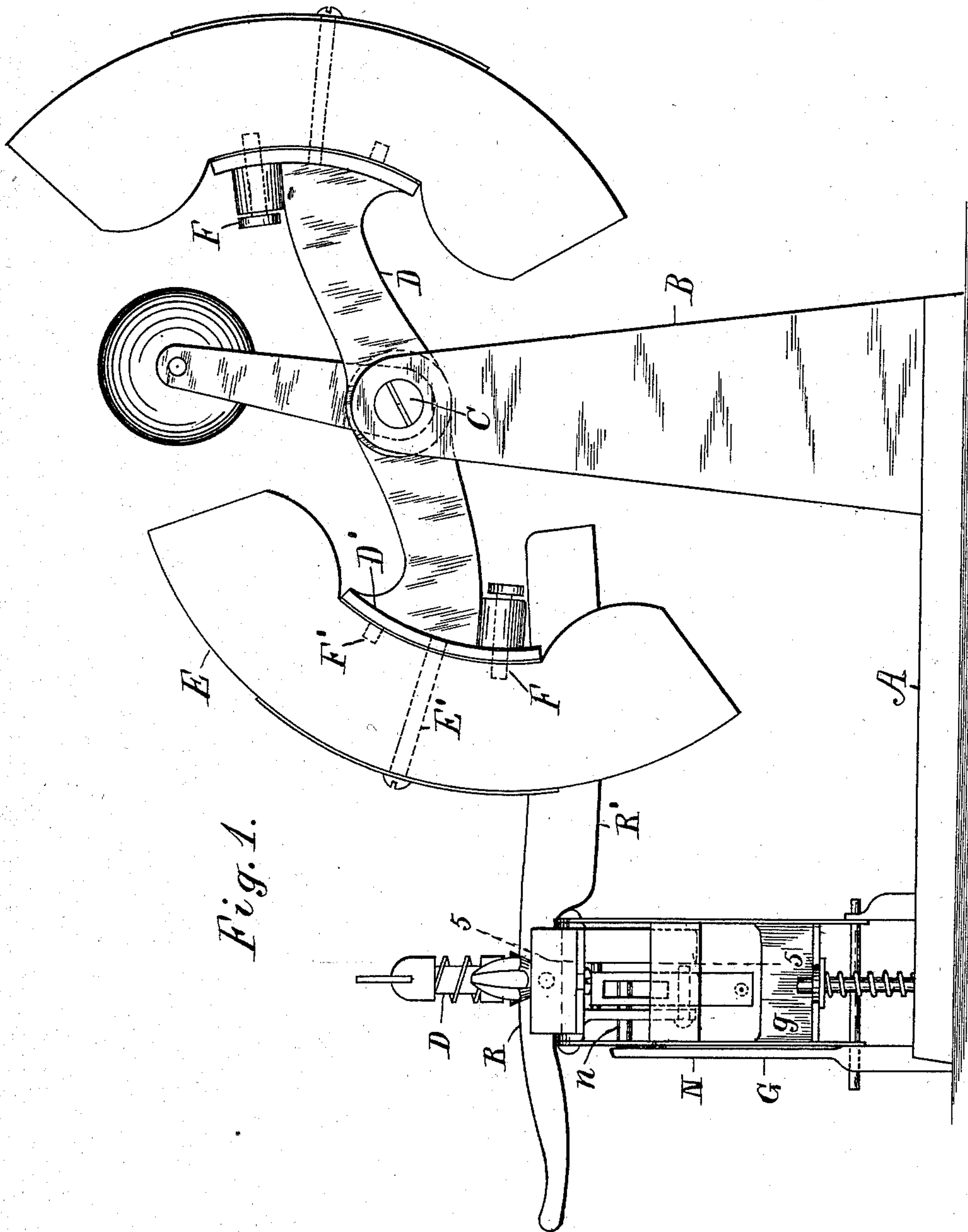
PATENTED JAN. 12, 1904.

H. WILCOX.
RAZOR STROPPING AND HONING MACHINE.

NO MODEL.

APPLICATION FILED MAR. 17, 1903.

3 SHEETS—SHEET 1.



Attest:
E. M. Smith
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Henry Wilcox

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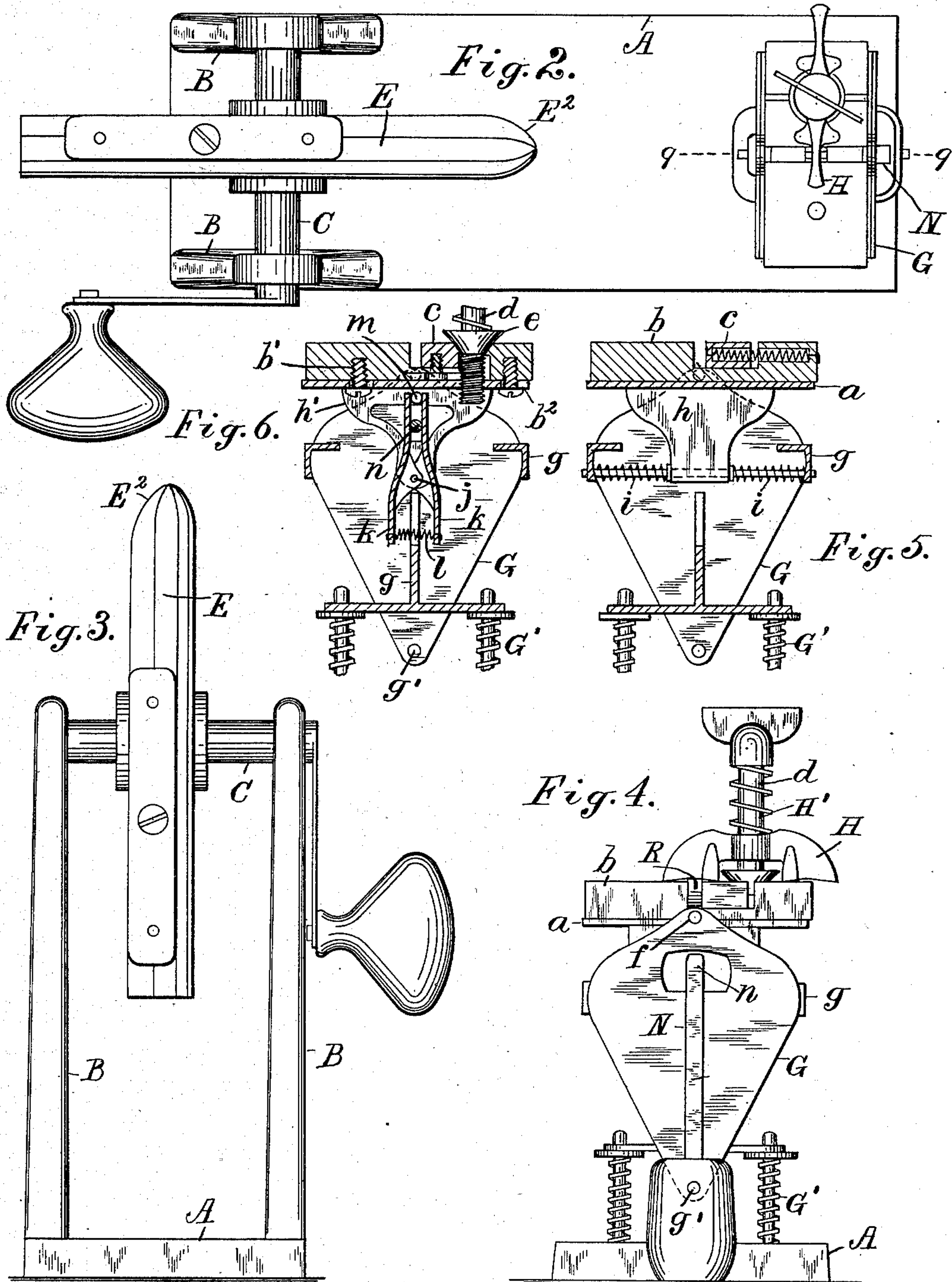
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3 SHEETS—SHEET 3.

Fig. 11.

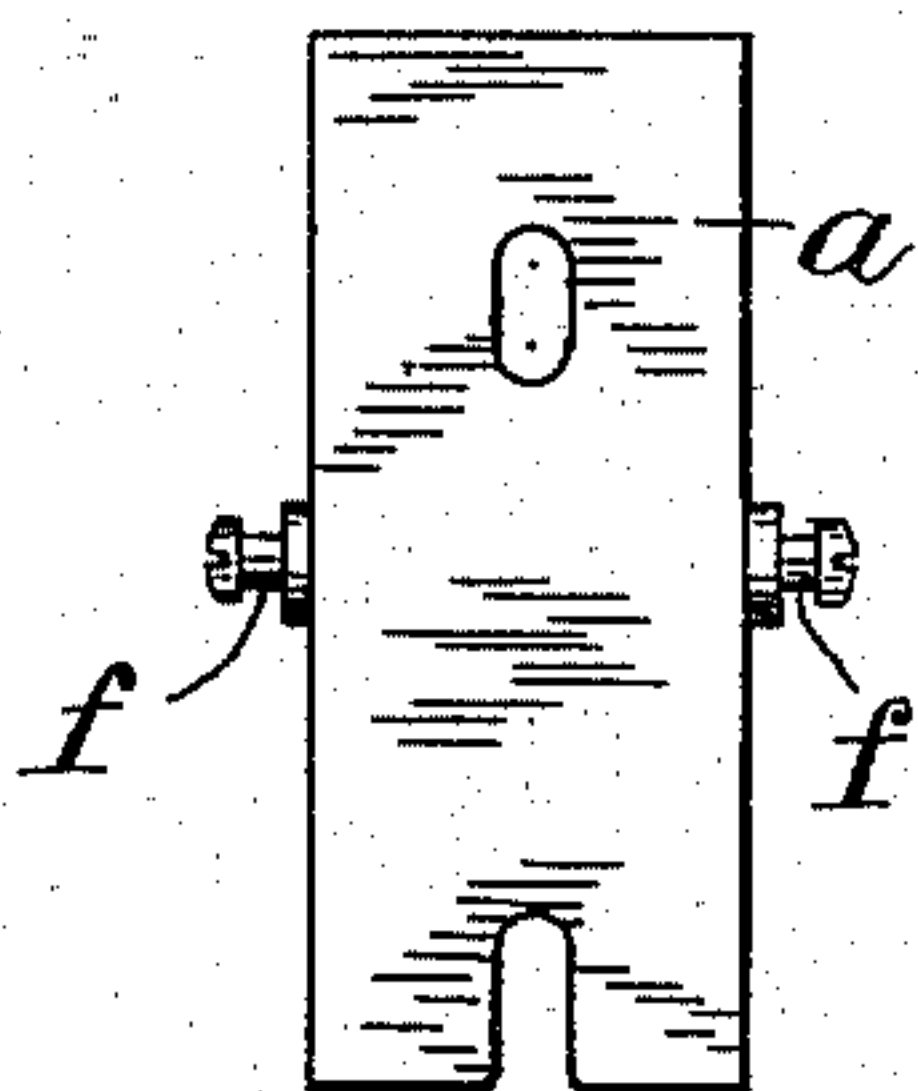


Fig. 12.

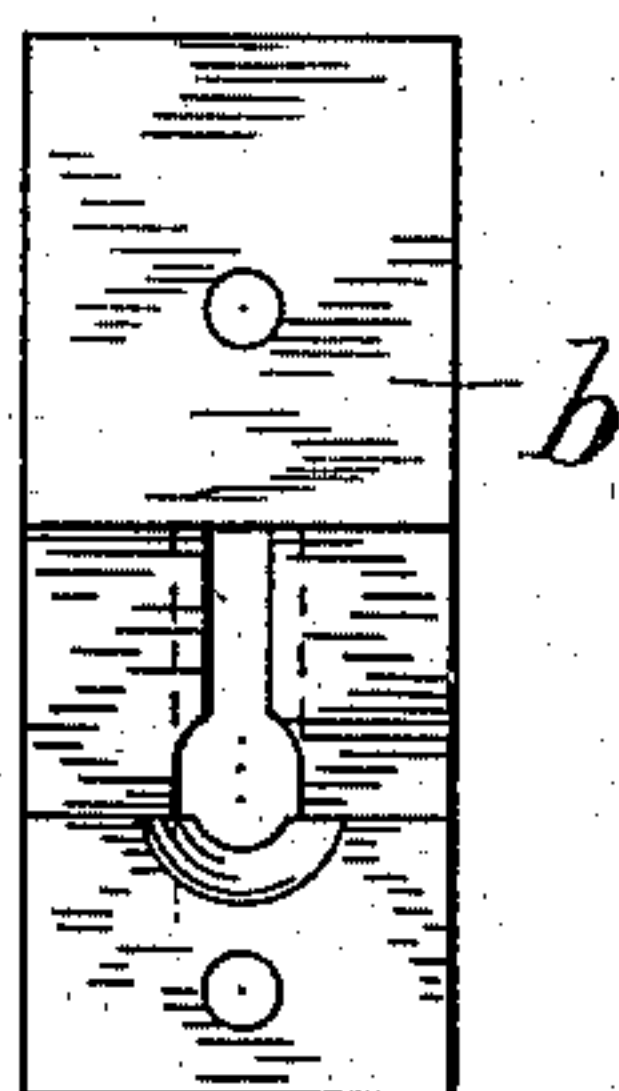


Fig. 13.



Fig. 15.

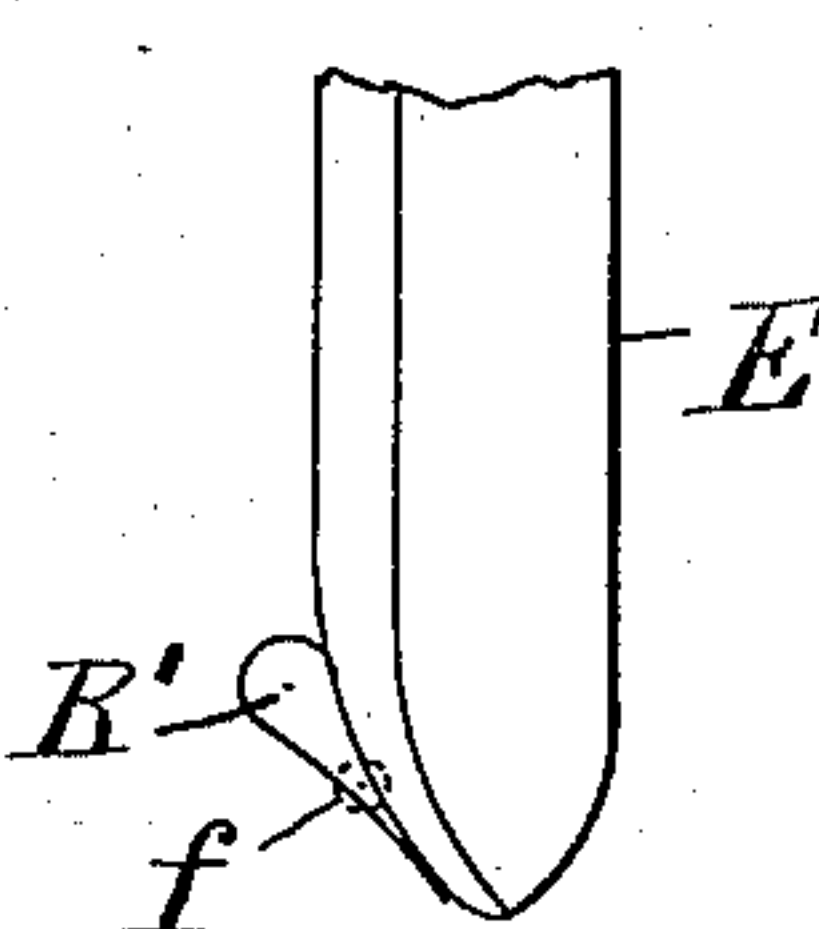


Fig. 14.

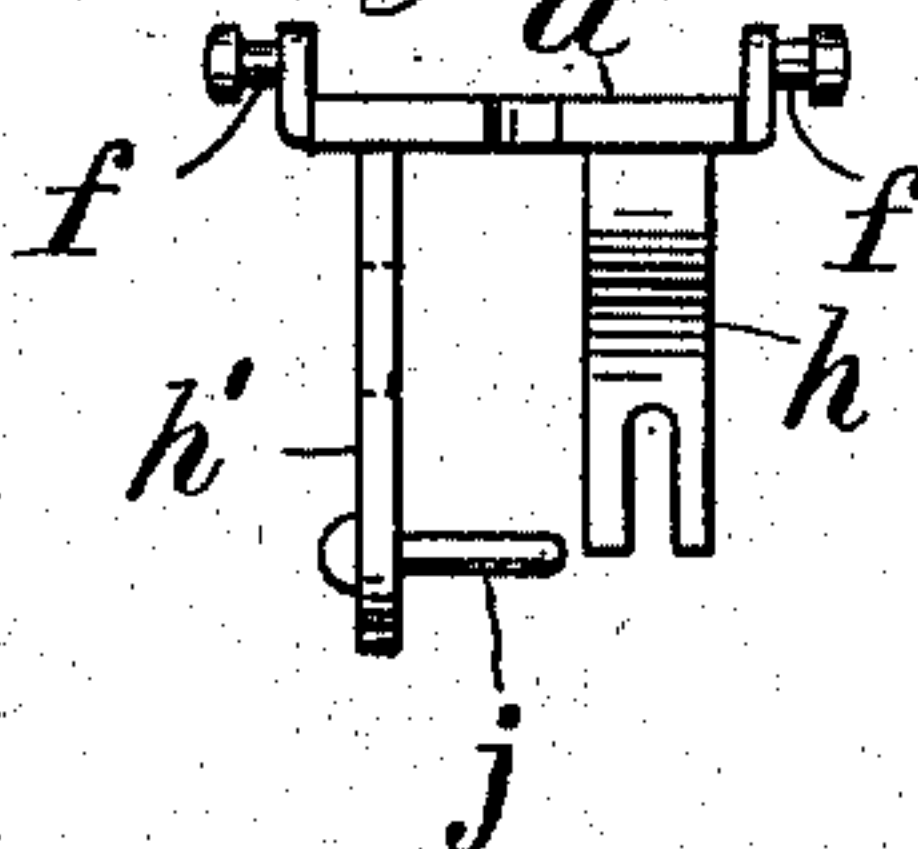


Fig. 10.

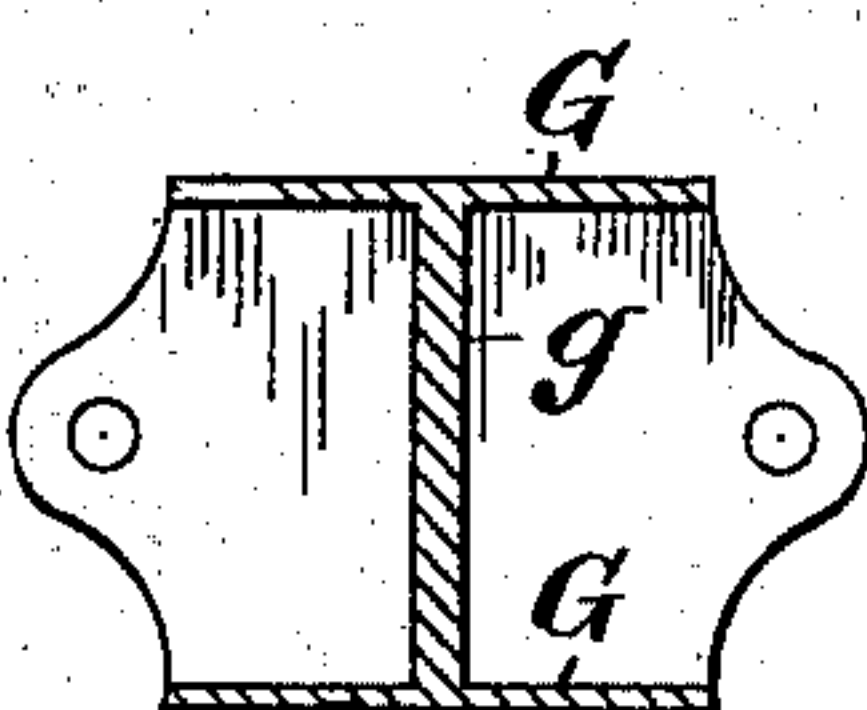


Fig. 9.

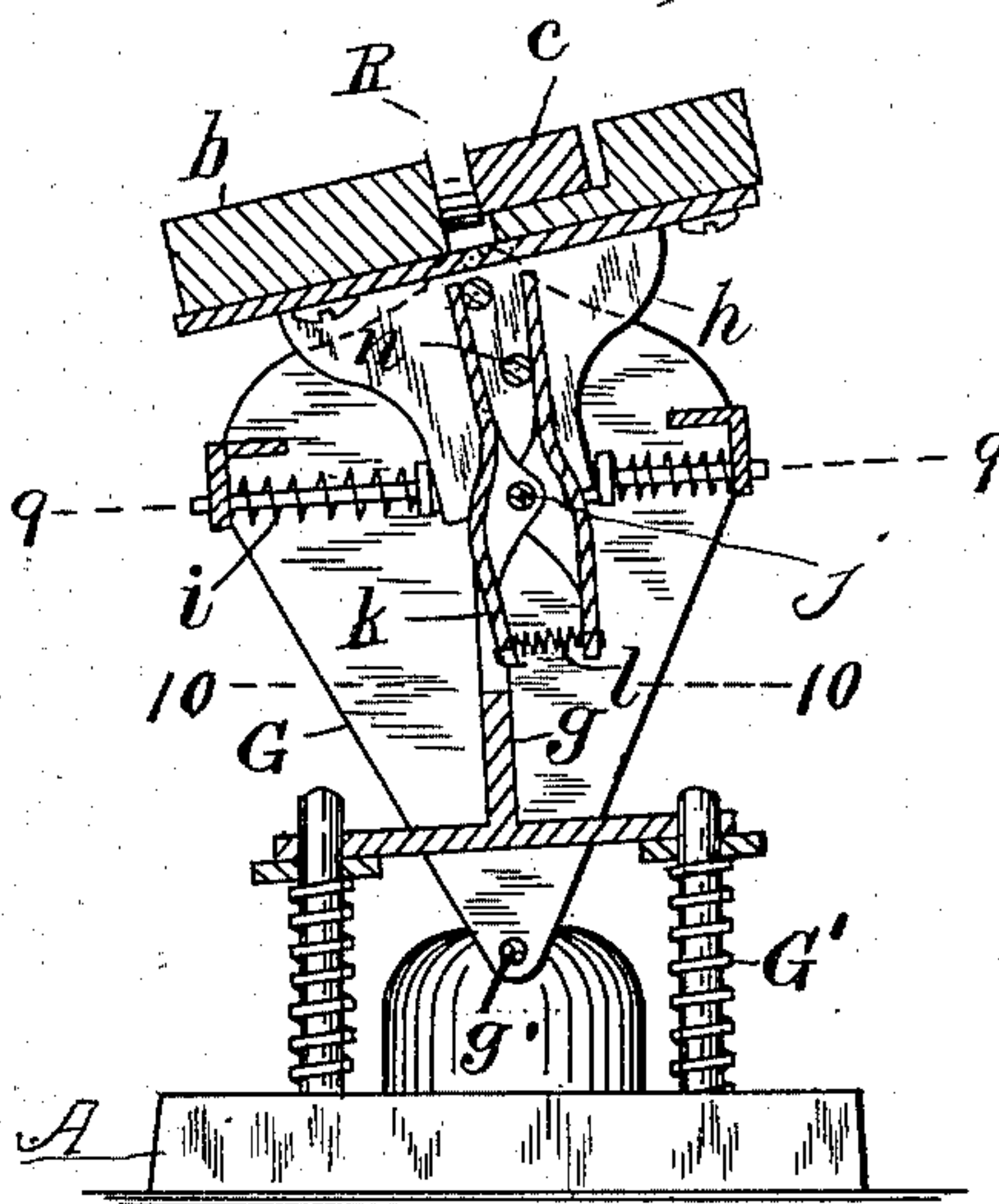
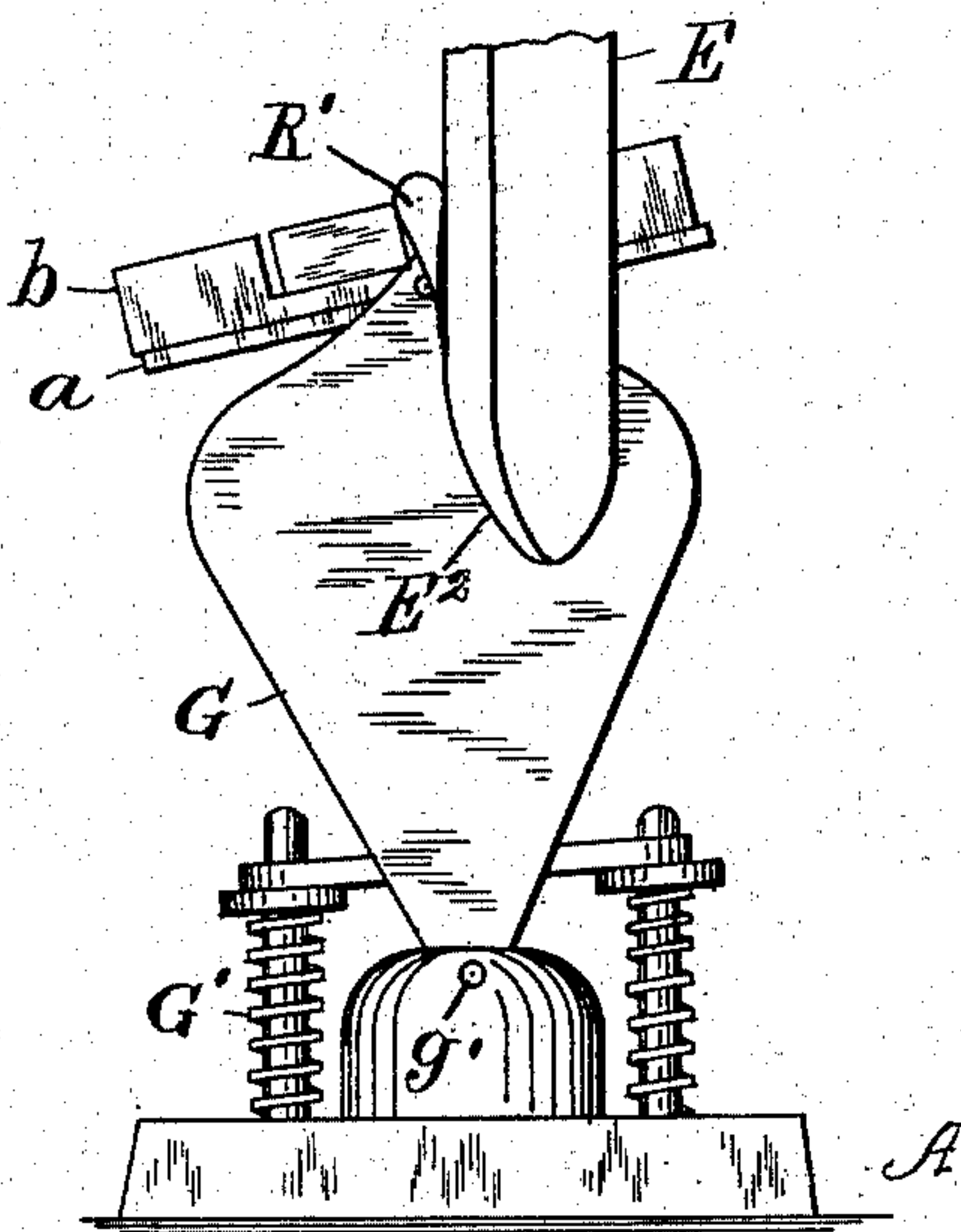
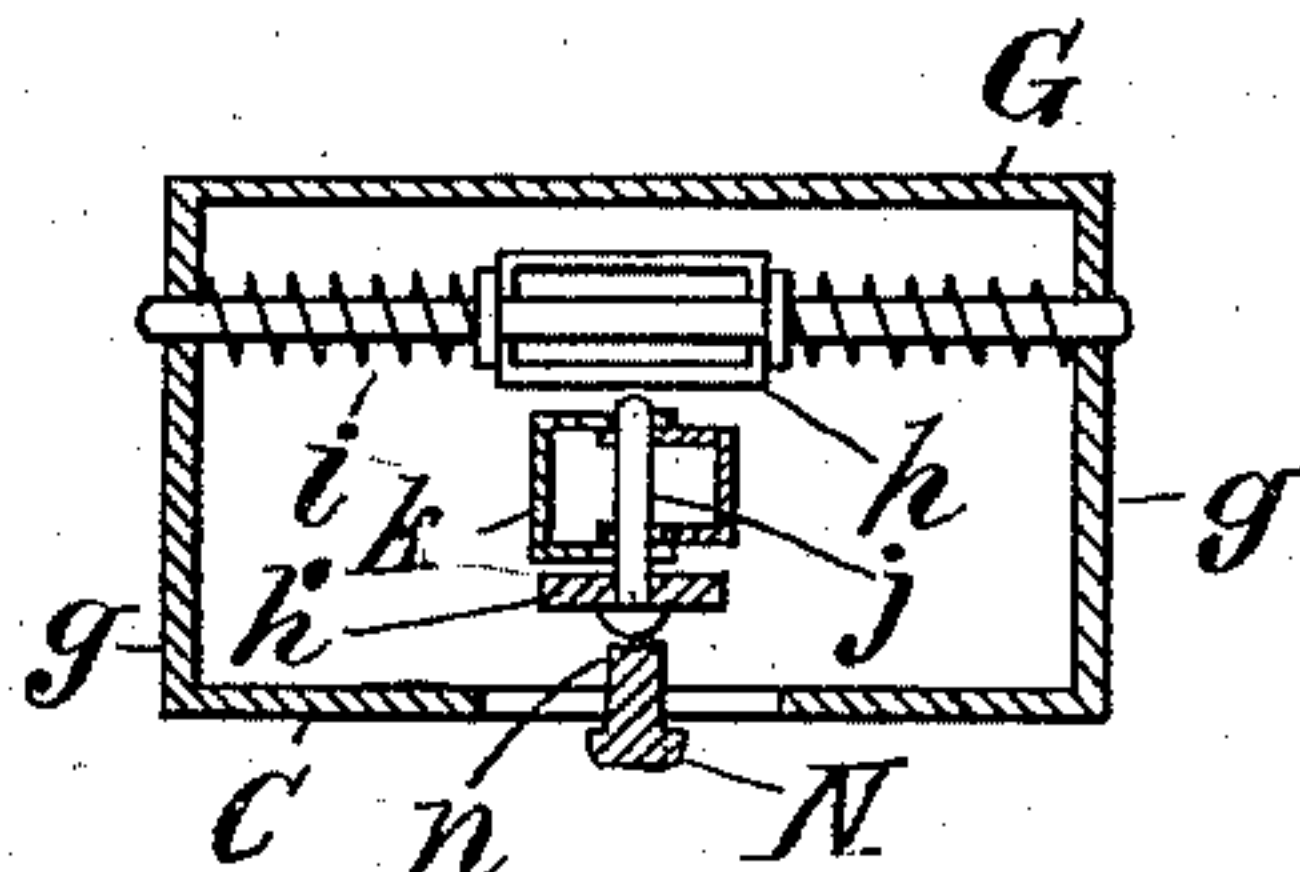


Fig. 7.

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UNITED STATES PATENT OFFICE.

HENRY WILCOX, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
WILLIAM D. DONOVAN, OF NEWARK, NEW JERSEY.

RAZOR STROPPING AND HONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 749,467, dated January 12, 1904.

Application filed March 17, 1903. Serial No. 148,168. (No model.)

To all whom it may concern:

Be it known that I, HENRY WILCOX, a citizen of the United States, residing at 22 Court street, Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Razor Stropping and Honing Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to furnish a means of supporting the razor so that strops or honing-blocks may be moved alternately at opposite sides of the razor and force the razor out of its normal central position and the razor when thus forced aside adapt itself automatically to the plane of the block. This object is achieved by clamping the razor-shank in a vise which has a pivot adjacent to the bottom of the shank extended into the cheeks of a carrier, upon which the vise is elastically held by suitable springs. The carrier in turn is pivoted upon the bed-plate of the machine and held elastically in an upright central position by balanced springs. By the rocking of the carrier upon its pivot the entire vise may be pushed sidewise when the block first contacts with the razor, the front corner of the block being beveled to produce a gradual contact. The carrier may not only be pushed aside, but the vise is also tipped upon the carrier by such contact, the springs which center the vise upon the carrier being made relatively weak to permit such tipping freely. Owing to the location of the vise-pivot immediately below the shank of the razor-blade, the contact of the block operates when it passes the center of such pivot to press upon the lower part and edge of the blade and turn the blade into the plane of the block. To press the edge of the blade with the desired force against the block to produce the sharpening effect, supplemental spring-arms are pivoted upon a bracket extended downward from the vise within the cheeks of the carrier, and a standard fixed upon the bed-plate carries a stud fitted between the ends of such spring-arms, so that at the time the razor is turned into the plane of the block one of the spring-arms is moved from its normal position by the adjustment of the

vise and resists the movement of the vise with the force required to press the razor against the block.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a side elevation of the apparatus with a razor in the vise. Fig. 2 is a plan of the same. Fig. 3 is an end elevation of the sharpening devices and their bearings. Fig. 4 is an end elevation of the razor-carrying devices. Fig. 5 is a vertical section of the same on line 5 5 in Fig. 1. Fig. 6 is a vertical section of the same at the center of the width of the carrier with the parts in their central position. Fig. 7 is a similar section with the parts tipped to the left. Fig. 8 is a view of the vise and carrier upon the side next the sharpening-block, the razor being shown in the vise and a portion of one of the blocks in contact therewith. Fig. 9 is a section on line 9 9 in Fig. 7. Fig. 9^a is a section on line 9 9 in Fig. 2. Fig. 10 is a section on line 10 10 in Fig. 7. Fig. 11 is a plan of the base of the vise; Fig. 12, a plan of the long jaw of the vise; Fig. 13, a plan of the short jaw of the vise, and Fig. 14 an end view of the vise with the brackets projecting from its base. Fig. 15 shows the razor-blade in the position to which it is first tipped by the sharpening-block, a portion of which is shown in contact therewith.

A designates the bed-plate of the apparatus; B, uprights upon the same, carrying crank-shaft C, from which two arms D project to carry the sharpening-blocks E. The arms are shown with curved end plates D', with a pivot E extended outwardly from the center thereof and the block fitted to turn upon the pivot, the block being sharpened symmetrically at each side of the pivot-hole. A locking-pin F is provided upon the plate D' to lock the block, which is provided with holes F' in suitable position to hold the opposite faces of the block in the plane of its rotation. The locking-pin is in practice provided with a spring to hold it pressed normally into the holes F'; but such spring does not show in the drawings, as it would be concealed in the socket in which the locking-pin is movable. Either side of the

block may thus be instantly turned to contact with the razor-blade. The arms hold the blocks a little at one side of the center line in which the razor is primarily held in the vise, and the forward ends of the blocks are formed with a bevel E^2 , which enables the block to gradually pass the blade and turn it into the plane of the block. The carrier is formed of two cheeks G , connected by tie-bars g and mounted upon the base by pivot g' , and has two springs G' , applied to hold it normally in an upright position. The vise is formed with bed a , having a long jaw b fitted to slide thereon and held in place by screws b' , fitted to slots b^2 . A notch is formed extending from the middle of the jaw b a suitable distance in its upper face to admit the short jaw c , the opposed faces of the jaws serving to grip the shank R of the razor-blade R' .

A thumb-screw d is tapped into the base a between the adjacent ends of the jaws b and c , which ends are flared upwardly and outwardly to receive a cone e upon the thumb-screw, which operates to press the jaws in opposite directions and bring the clamping-faces toward one another upon the razor-shank.

A follower H is fitted to the shank of the thumb-screw above the cone e and pressed normally downward by a spring H' , and it has wings, either of which is adapted to press upon the top of the razor-shank to hold it down firmly on the base, as shown in Fig. 4. The base a is formed with upwardly-projecting ears a' , containing pivot-holes close to the bottom of the razor-shank, and these holes receive the pivots f at the top of the carrier, and thus support the vise movably at a point considerably above the edge of the razor-blade, as shown in Fig. 8.

Brackets h are shown extended downward from the vise-base a between the cheeks G , and springs i , of relatively little strength, connect the opposite sides of the bracket with the tie-bars G' upon the cheeks to hold the vise normally level and central upon the carrier. An additional bracket h' is attached to the opposite edge of the vise and projects downward between the cheeks to carry a pivot j , upon which are hinged spring-arms k , sufficiently separated at the bottom to receive an expansion-spring l . The arms extend above the pivot and are pressed by the spring upon opposite sides of a pin m , which is attached to the arm h' . With such construction the arms would simply be carried (without changing their tension or relation to the bracket) into any position to which the bracket was moved by the tipping of the vise upon its pivot f ; but by means of a fixed stud n the arms are made to operate, as shown in Fig. 7, when the vise is brought to the position shown in Fig. 8, where the side of the razor-blade lies in the plane of the sharpening-block.

The stud n is carried by a fixed standard N , which is attached to the bed-plate, as shown

in Figs. 1 and 4, and held rigidly between the spring-arms intermediate to their pivot and the pin n , as shown in Figs. 6 and 7.

The bracket h' , which carries the swing-arms and the pin m , swings as the vise turns upon the pivots f , (the same as the bracket h where shown in Fig. 7.) When the carrier is swung sidewise, as shown in Fig. 7, the pin m upon the bracket h' carries one of the spring-arms laterally, while the other is held by the stud n , and thus compresses the spring l between the bottoms of the spring-arms. The compression of this spring resists the turning of the bracket h' and tends to press the edge of the razor-blade against the block E , as shown in Fig. 8.

As the thickness of razor-blades varies, the angle at which they must be turned to lie flat upon the block E is necessarily varied in the operation of the machine.

The pivoting of the vise upon the carrier and the pivoting of the carrier upon the base permits the block to throw the razor to one side, as shown in Fig. 15, while the provision of the spring-arms k , with the bracket beneath the vise and the stationary stud n , enables the vise after the block E has passed its pivot F to assume any position which the razor-blade requires to lie flat upon the side of the block E . The springs which actuate the different parts are so proportioned that the springs i yield most readily, the springs l yield next, and the springs G' are most rigid, so that when the block first strikes the razor-blade, as shown in Fig. 15, the effect is rather to tip the vise than to tip the carrier, and this turns the razor in an excessive degree, which is afterward rectified by the further movement of the block and the action of the arms k and spring l .

Experience with this apparatus has shown that all the parts coöperate to set the razor rapidly and accurately into the required relation to the block, so that the two blocks may follow one another as rapidly as desired in their operation upon the opposite sides of the blade.

The blocks are shown with a polishing-pad or leather surface fitted to the beveled end E^2 ; but the blocks may be faced with a suitable material for honing the razor. By covering both sides of the block with such a polishing or honing material the durability of the block is greatly increased. By pivoting the blocks upon the ends of the arms D either of their sides may be instantaneously adjusted for operation upon the razor-blade.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In a razor-sharpening machine, a razor-holding vise, a carrier pivoted to the base of the vise, springs supporting the vise upon the carrier, a pivot connecting the carrier with a bed-plate, and springs supporting the carrier upon the bed-plate, and sharpening-blocks

mounted to wipe alternately past opposite sides of the razor-blade, and beveled upon the front corner, the whole arranged and operated to tip the razor-blade excessively until the block passes the pivot, the razor-blade then adjusting itself automatically to the plane of the block.

2. In a razor-sharpening machine, a razor-holding vise, a pivot connecting the carrier with the vise at the bottom of the razor-shank, a pivot connecting the carrier with a bed-plate, springs applied to the vise and carrier to hold them normally in a central position, supplemental spring-arms carried by the vise, and a fixed stud operating when such arms are moved with the vise to produce an additional resistance to such movement, and sharpening-blocks mounted to wipe alternately past opposite sides of the razor-blade and beveled upon the front corner, whereby the razor-blade is moved alternately at opposite sides of its central position and adapts itself to the plane of the sharpening-block, and has its edge pressed against such block by the supplemental spring-arms.

3. In a razor-sharpening-machine, a vise having a base supported upon a carrier, jaws fitted movably upon the top of the base, and having opposed faces as set forth, a thumb-screw inserted in the base and having a cone fitted to such flaring seats to press the jaws simultaneously in opposite directions.

4. In a razor-sharpening machine, a vise having a base supported upon a carrier, jaws fitted movably upon the top of the base with faces adapted to clamp the razor-shank, the jaws having adjacent to such faces opposed seats flaring as set forth, a thumb-screw inserted in the base and having cone fitted to such flaring seats, and a spring-follower upon the thumb-screw to press upon the back of the razor-shank.

5. In a razor-sharpening machine, a vise having a base supported upon a carrier and provided with screw-slots, the jaw secured upon the base by screws in said slots and having at the middle a face to clamp the razor-shank, and near the opposite end a flaring seat as set forth, the jaw movable upon the jaw with face to clamp the razor-shank and having flaring surface opposed to that upon the jaw, the thumb-screw tapped into the base and having cone fitted to the flaring seats.

6. A razor-sharpening machine having the bed-plate, the carrier having the cheeks pivoted thereon and held elastically in a central position as set forth, a vise connected to the

carrier by pivot at the bottom of the razor-shank, and having bracket projected downward between the cheeks and provided with the opposed springs, and also having the bracket projected downward between the cheeks, the supplemental jaws pivoted together and to said bracket, and having spring to press their lower ends apart, and the standard having the stud fitted between the upper parts of the spring-arms, whereby the vise may move bodily from each side of the center line and tip at any required angle during the stropping of the razor-blade upon opposite sides.

7. A razor-sharpening machine for supporting the razor-blade, a crank-shaft with two arms, blocks provided respectively upon their opposite sides with abrading and polishing surfaces and carried by the arms past the opposite faces of the razor-blade, the blocks being fitted rotatably upon the ends of the arms to present either side of the block at pleasure to the razor-blade, whereby the opposite sides of the block may be presented at pleasure to the razor-blade.

8. A razor-sharpening machine having means for supporting the razor-blade, a crank-shaft with two arms having outwardly-projecting pivots upon their ends, sharpening-blocks mounted at the middle to turn upon said pivots, and means for locking the blocks when adjusted, in the plane of rotation.

9. In a razor-stropping machine, the combination, with a bed-plate and suitable bearings, a crank-shaft and two arms having blocks mounted rotatably upon their ends to present either side of the block at pleasure to the razor-blade, and the ends of the block beveled as set forth, of a vise to hold the shank of the razor-blade, a vise-carrier with pivotal connection to the vise at the bottom of said shank, a pivot connecting the carrier with the bed-plate of the machine, means for holding the carrier elastically in its central position, and means for holding the vise elastically in a central position upon the carrier, whereby each may assume a different angle from the other, and the razor-blade adjust itself automatically to the sharpening-blocks.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY WILCOX.

Witnesses:

L. LEE,

THOMAS S. CRANE.