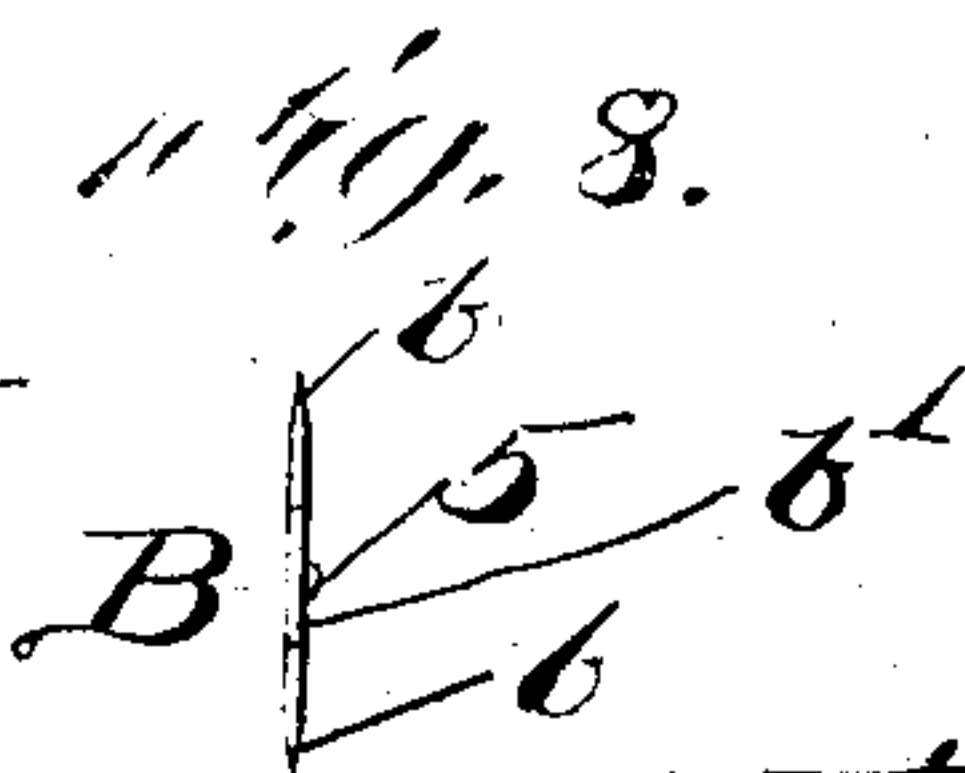
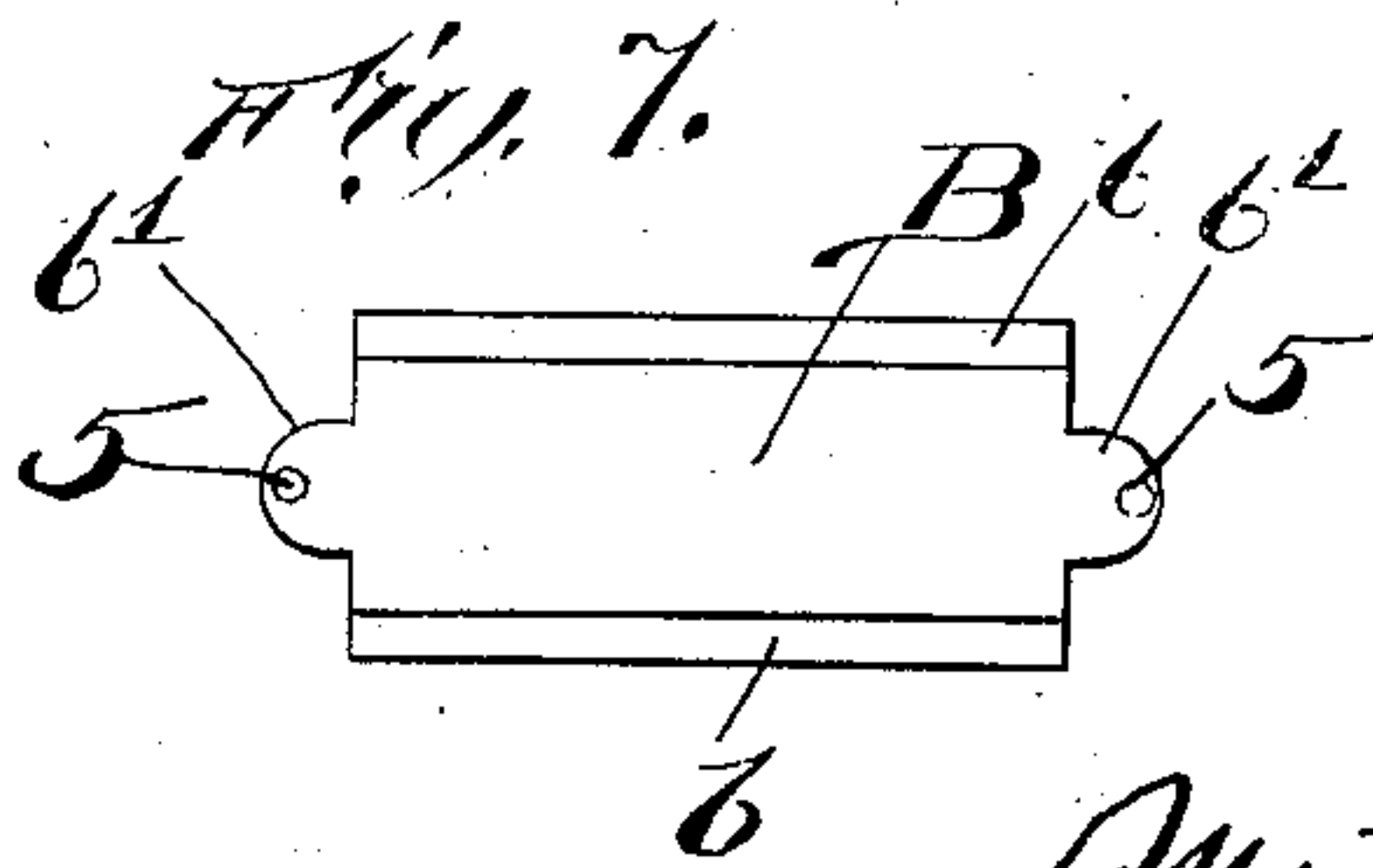
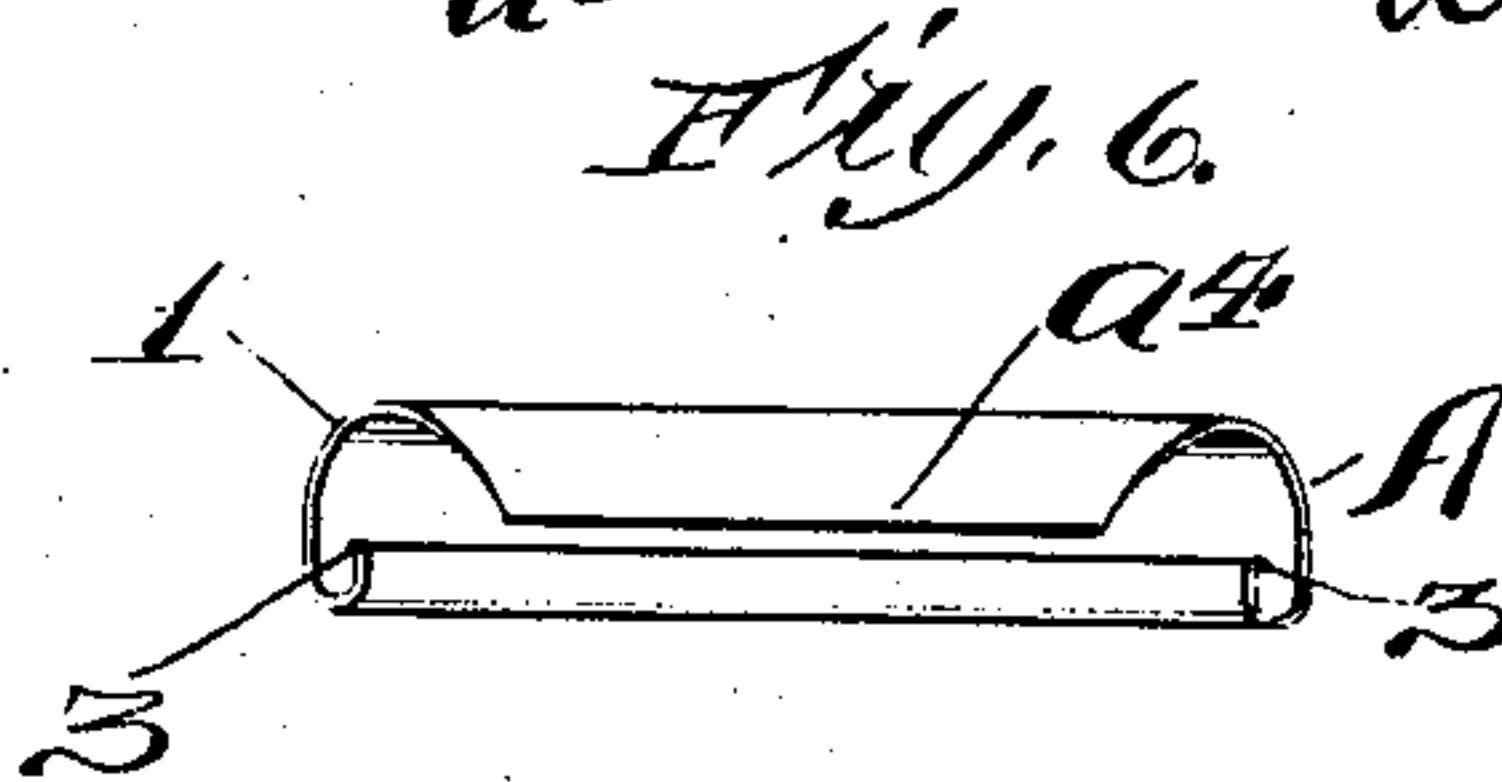
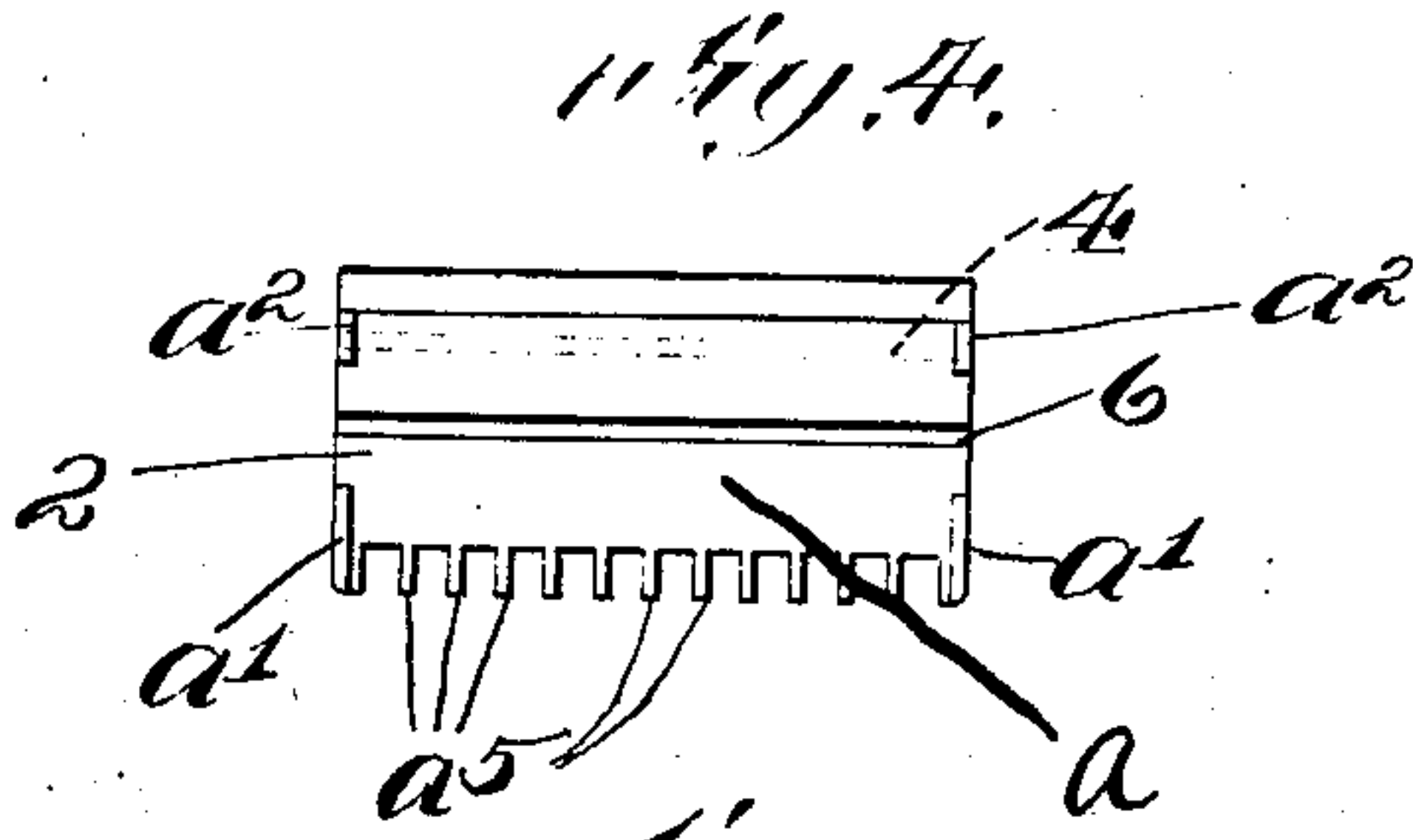
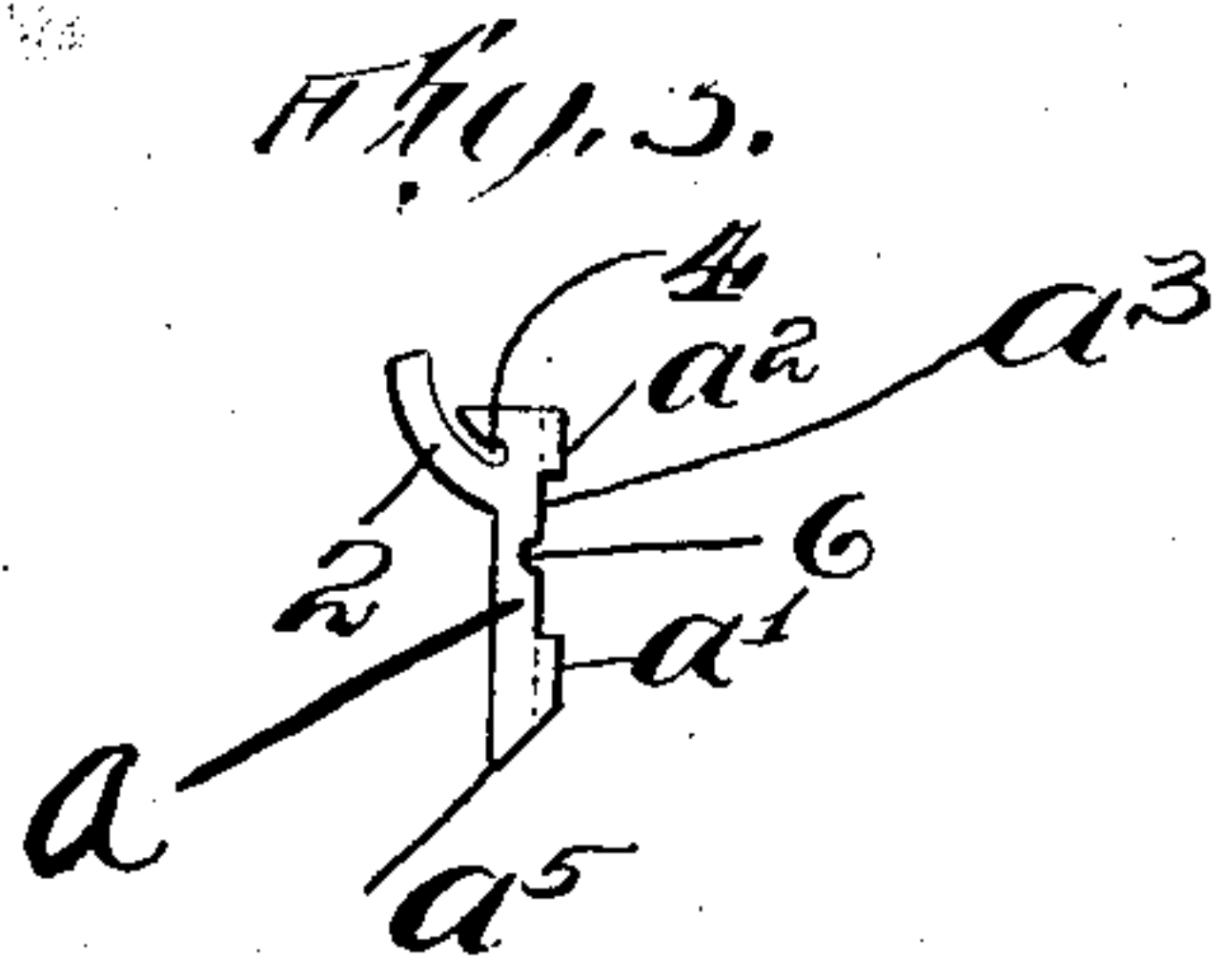
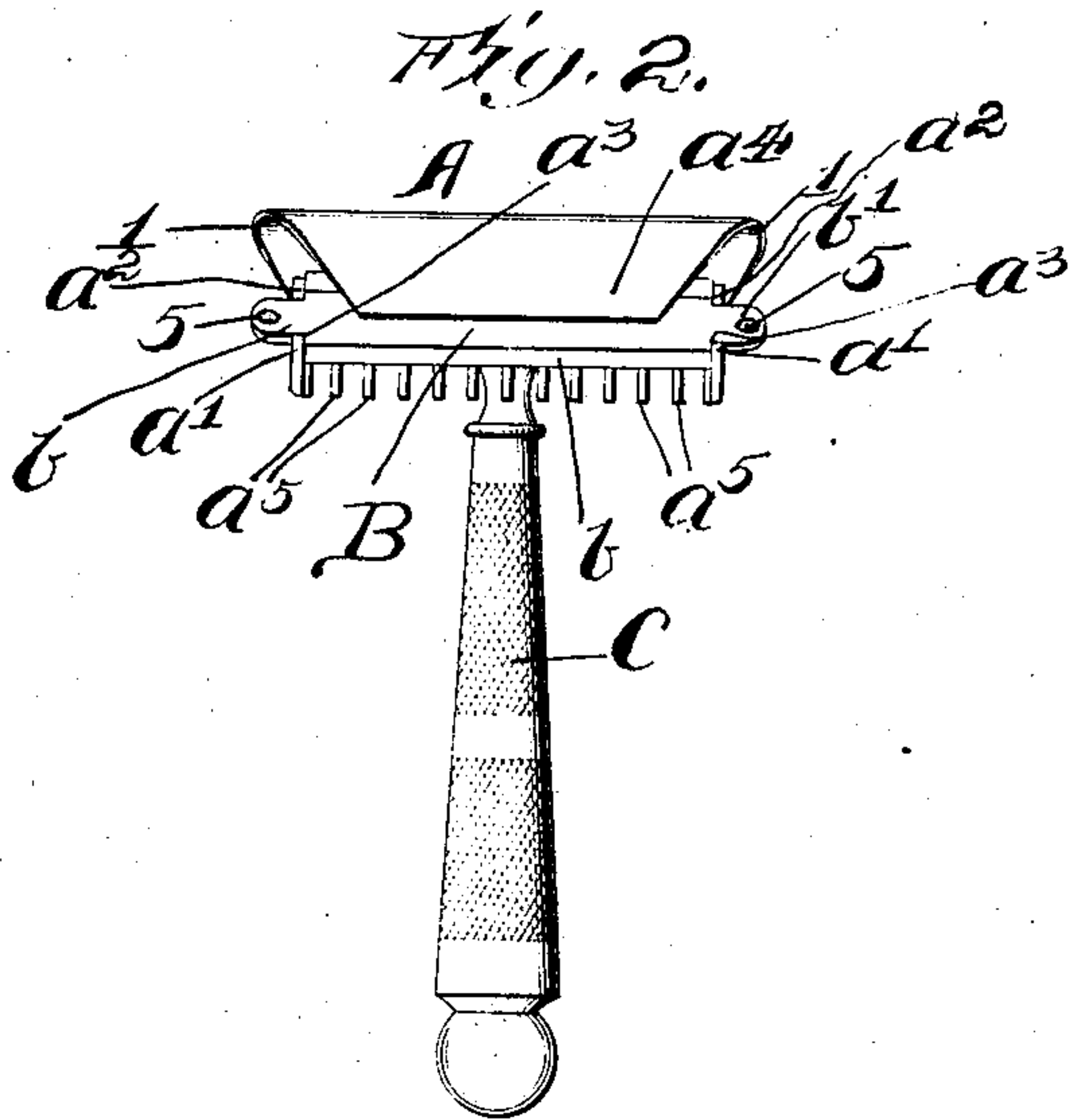
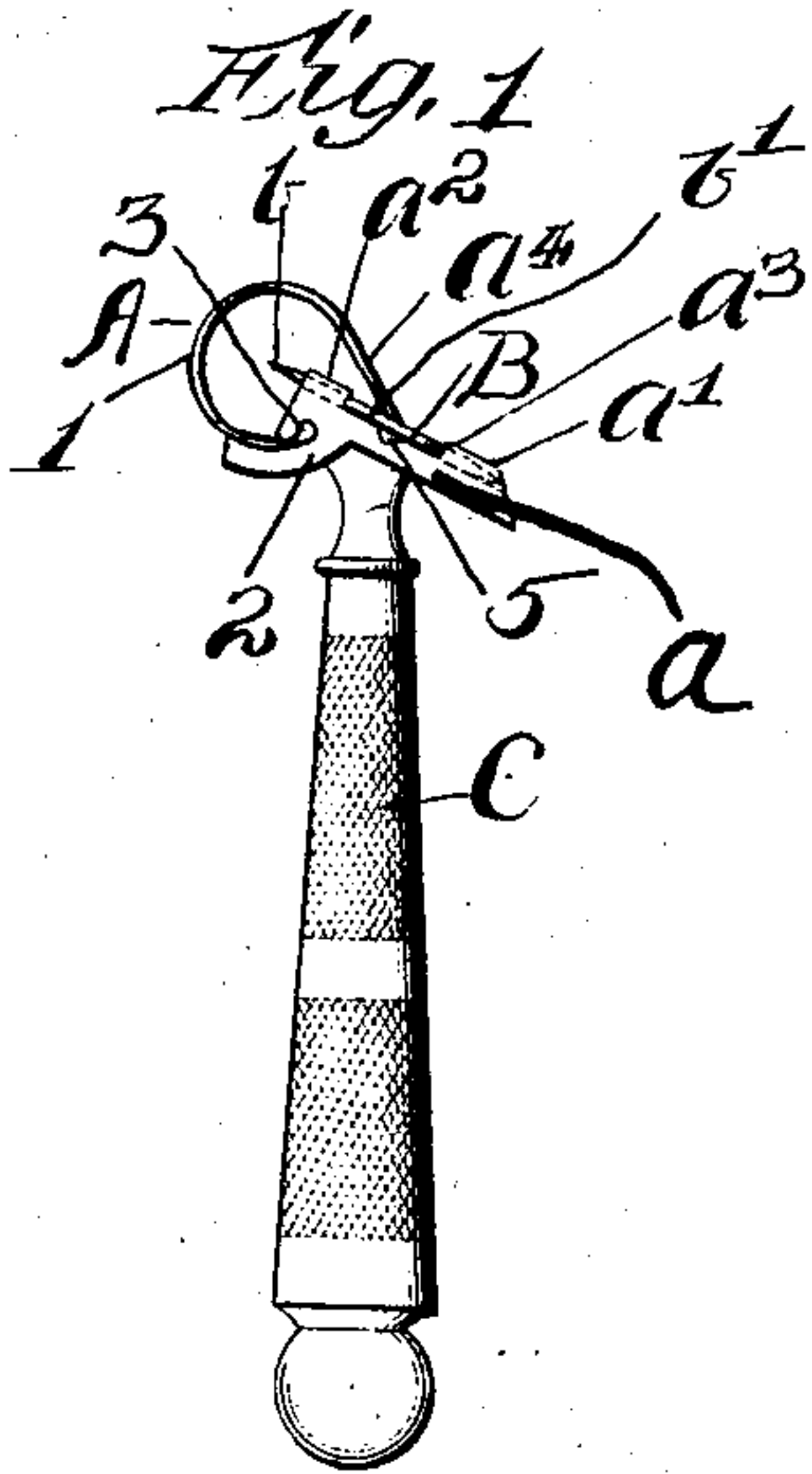


No. 896,688.

PATENTED AUG. 18, 1908.

M. G. BUNNELL.
SAFETY RAZOR.

APPLICATION FILED AUG. 16, 1905.



Witnesses:
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UNITED STATES PATENT OFFICE.

MORTON G. BUNNELL, OF PORTER, INDIANA, ASSIGNOR TO JOSIAH CRATTY AND GEORGE C. MASTIN, OF CHICAGO, ILLINOIS.

SAFETY-RAZOR.

No. 896,688

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed August 16, 1905. Serial No. 274,494.

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States of America, and resident of Porter, Porter county, Indiana, have invented a certain new and useful Improvement in Safety-Razors, of which the following is a specification.

My invention relates to safety razors, and contemplates an improvement on the forms of razor shown in my prior application No. 263,715, filed June 5, 1905, and No. 266,881 filed June 24, 1905.

Objects of my present invention are to provide an improved construction and arrangement whereby the head of the blade-holder may consist of a casting suitably joined to the edge of a springy sheet-metal portion, the said springy metal portion being adapted to hold the blade firmly upon the flat seat or top surface of the said casting; to provide an improved construction and arrangement whereby a double-edged blade may be inserted endwise in the razor without danger of the blade slipping sideways and injuring one of its edges; to provide an improved construction and arrangement whereby the projecting end-portions of a double-edged blade can be more readily and firmly grasped by the thumb and forefinger, for the purpose of removing the blade from the blade-holding member; to provide the head or holder with a sliding connection for releasably uncovering the blade; and to provide certain details and features of improvement tending to increase the general efficiency and serviceability of a safety razor of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a safety razor embodying the principles of my invention. Fig. 2 is a front view of the same. Fig. 3 is an end view of one portion of the blade-holder. Fig. 4 is a plan view of the same. Fig. 5 is an end view of the spring clamping jaw. Fig. 6 is a front view of the same. Fig. 7 is a plan view of one of the blades. Fig. 8 is an end view of the same.

As thus illustrated, my invention comprises a combined guard and blade-holder A, a blade B, and handle C. The said combined guard and blade-holder can be formed of one

integral piece of metal 1, stamped and pressed or otherwise given the desired shape and construction, and a casting 2. As shown, the said combined blade-holder and guard constitutes the head of the razor, and is rigidly secured or united to the upper end of the handle C. Preferably, the said head or portion of the razor thus made in part of springy sheet metal is provided with a substantially flat and horizontal portion *a* adapted to serve as a seat or base upon which the blade B may rest flat-wise. At each end, the portion *a* is provided with upwardly projecting flanges or edge-portions *a'* and *a''*, the former being at the front and the latter at the rear of the razor. Consequently, the portions *a'* are separated from the portions *a''* by notches or recesses *a'''*.

At its rear, the head A is formed with an upwardly and forwardly projecting foot or springy clamping portion *a''''*, the same being adapted to reach upwardly and over and exert a yielding pressure upon the upper surface of the blade B. In this way, the said blade is held removably in place by springy pressure, the spring tension, however, being of such character that the blade can be readily removed. The edge 3 of the portion 1 is adapted to be inserted endwise and retained in the groove 4 in the portion 2. At its forward edge, the head A is provided with a guard having teeth *a''''''*, this guard being of any suitable known or approved formation,—that is, it may be of the usual toothed or comb-like character.

As shown, the blade B is provided with parallel sharpened edges *b*, and also with projecting end-portions or tangs *b'*. When the blade is adjusted in place, these lugs or tangs *b'* accurately fit the recesses or notches *a'''*; and it will also be understood that the blade is preferably of such a length that it accurately fits the space between the flanges or edge-portions at opposite ends of the seat or base *a*. Furthermore, the parts are so relatively formed and so proportioned, that the blade is held in place with one of its edges properly positioned along the guard having the usual or suitably formed teeth *a''''''*. With this arrangement, one of the lugs or tangs *b'* can be conveniently grasped by the thumb and forefinger, and by a slight upward pressure, just sufficient to slightly flex the springy foot or clamping portion *a''''*, the end

of the blade thus grasped can be lifted above the flanges a^1 and a^2 at one end of the razor-head. When thus slightly displaced from its normal position, the blade can then obviously be readily withdrawn from under the springy foot or clamping portion a^4 . Also, with this construction, the blades can be readily inserted in place, it being only necessary to grasp the blade at one end and then insert its other end under this springy portion a^4 , and to then shove the blade along until its two end-portions snap into place under the pressure of the said spring portion. When a blade is being inserted or removed, the projection 5 on the end of the blade engages the groove 6 and thereby prevents lateral displacement. In other words, these small rounded projections slide in the groove—one at a time, of course, depending on which way the blade is moving—and thus guide the blade into and out of place in the holder. The groove 6 may be found useful or advantageous in other ways. Obviously, the construction is such that the blade is removable independently of all other parts, and in such a way that the removal is accomplished without even manipulating any other parts of the structure—that is to say, the blade is removable and insertible by simply holding the handle C in one hand and grasping one end of the blade with the other hand. In fact, the entire razor comprises but two relatively removable members,—to-wit, the combined handle and blade-holder and guard, the same being all in one part, and the blade, which latter is, of course, in one piece. The blade when removed leaves the holder without movable parts—that is, parts which must be adjusted when the blade is replaced, and the blade alone is removed. After the blade is withdrawn, there are no other portions to be taken apart or to be moved or manipulated in any manner whatsoever. Consequently, owing to the extreme simplicity of the razor, it can be cheaply manufactured, and can be easily taken care of.

Notwithstanding the extreme simplicity of the structure, the razor is, I find, thoroughly effective, and satisfactory for the purpose for which it is intended. Of course, the spring jaw l can be made removable from the casting, but this is not necessary as far as the use of the razor and the removal and insertion of the blade is concerned—at least, not when the tangs or handles b^1 are used or made long enough. Obviously, however, if such is for any reason desirable, the spring jaw l can be removed before removing the blade. Also, the blade can be inserted in place, and the spring jaw can then be inserted to hold the blade upon its seat. I do not, therefore, limit myself to the exact construction shown and described.

It will be seen that the portion a^4 provides

overhanging portions which bear upon the top of the blade to prevent the latter from rising. The lugs a^1 and a^2 provide upstanding portions which hold the blade against edge-wise displacement in any direction. The said overhanging means or portions can be located in any suitable manner, and upon any suitable portions of the holder, as, for example, upon a rearward extension of the holder. The said upstanding and overhanging portions are comprised in the instrumentalities for holding the blade fixed from displacement upon the holder. It is by relative movement between these retaining instrumentalities that the blade is releasably uncovered, leaving it free to drop or be lifted out of the holder. The said upstanding lugs or portions are disposed in position to engage the corners, or substantially at the corners of the rectangular blade, the holder being also substantially rectangular in form. A sliding connection is provided by which the relative movement between the retaining instrumentalities in a horizontal direction is effected for the purpose of releasably uncovering the blade. By movement in a horizontal direction, I mean a movement in the plane of the blade, or substantially in the plane thereof, or in a plane substantially parallel therewith. As shown, the retaining instrumentalities comprise overhanging portions which are adapted to slide in a direction parallel with the length of the blade, but this may be varied without departing from the spirit of my invention. The edge 3 is slidably mounted, and when moved causes the overhanging means to releasably uncover the blade. It will be seen that the overhanging portions provided by the spring member a^4 are all integrally connected or joined together, inasmuch as the said member is composed of an integral piece of sheet metal; but this may also be varied without departing from the spirit of my invention.

What I claim as my invention is:

1. A safety razor comprising a blade-holding member composed of a casting provided with a blade seat, a sheet-metal spring having one edge-portion suitably secured to the rear edge of said casting, a double-edged blade held down in place on said seat by the free end-portion of said spring, and a handle joined to the underside of said casting, said member having separated end lugs engaging the ends of the blade to prevent sidewise or endwise displacement thereof from under said spring, said lugs permitting raising of the blade against the tension of the spring.
2. A safety razor comprising a blade-holding member provided with a blade seat having a longitudinal groove therein, a double-edged blade having its end-portions provided with projections adapted to engage and slide in said groove, when the blade is inserted or withdrawn in an endwise direction, and a

spring for holding the blade in place, said member having separated end lugs engaging the ends of the blade to prevent sidewise or endwise displacement thereof from under said spring, said lugs permitting raising of the blade against the tension of the spring.

3. A safety razor comprising a blade-holding member provided with a blade seat having a longitudinal groove therein, a double-edged blade provided with a projection adapted to engage and slide in said groove, when the blade is inserted or withdrawn in an endwise direction, and a spring for holding the blade in place, said member having separated end lugs engaging the ends of the blade to prevent sidewise or endwise displacement thereof from under said spring, said lugs permitting raising of the blade against the tension of the spring.

4. In a safety razor, a blade, a holder provided with means for engaging the ends of the blade to prevent edgewise displacement of the same in any direction, a guard, a member adapted to bear upon the top of the blade to hold the same in place, and a guide-way for said member disposed lengthwise of the holder, said member thereby slidable on the holder in a direction parallel with the cutting edge of the blade.

5. In a safety razor, a blade, a holder provided with means for engaging the ends of the blade to prevent edgewise displacement of the same in all directions, a guard, a groove in the rear of said holder, and a spring jaw slidable endwise in said groove and bearing upon said blade.

6. In a safety razor, a double edged blade, a holder provided with means for engaging edges of said blade to prevent displacement of the same in any direction in the plane thereof, a guard, a member inclosing the rear edge of the blade and bearing upon the same to hold it in place, and a guide-way for said member disposed lengthwise of the holder, said member thereby slidable on the holder in a direction parallel with the cutting edge of the blade.

7. In a safety razor, a double edged blade, a holder provided with end lugs engaging the ends of the blade to prevent edgewise displacement of the same in all directions, a groove extending along the rear edge of said holder, a guard at the forward edge of the holder, a handle on the underside of said holder, and a springy sheet metal member slidable endwise in said groove and bearing upon said blade.

8. In a safety razor, a double edged blade, a holder provided with a guard at its front edge and a longitudinal groove at its rear edge, a spring clamp inserted in said groove and bearing upon the blade, means on said holder for engaging the ends of the blade to hold the same against edgewise displacement in any direction, and a handle on said holder.

9. A safety razor comprising a double-edged rectangular blade, a handle, a guard for the cutting edge in use, and a rectangular holder provided with retaining instrumentalities including means engaging the four outer corners of said blade to hold the same against edgewise displacement in any direction, overhanging portions for preventing the blade from rising, and a sliding connection permitting the overhanging portions to releasably uncover the blade, while the blade remains at rest relative to the holder and handle.

10. A safety razor comprising a double-edged rectangular blade, a handle, a guard for the cutting edge in use, and a rectangular holder provided with retaining instrumentalities including lugs at the four corners of the holder and blade for holding the latter fixed from displacement upon the former, and a sliding connection in the holder for releasably uncovering the blade, while the blade remains at rest relative to the holder and handle.

11. A safety razor comprising a double-edged rectangular blade, a handle, a guard for the cutting edge in use, and a rectangular holder provided with retaining instrumentalities including means engaging the front and rear and end edges of the blade to hold the same against edgewise displacement in any direction, means overhanging the blade to prevent the same from rising, and a sliding connection in the holder for permitting the overhanging means to releasably uncover the blade, while the blade remains at rest relative to the holder and handle.

12. A safety razor comprising a rectangular double-edged blade, a handle, a guard for the cutting edge in use, and a rectangular holder provided with retaining instrumentalities including spaced and upstanding end portions and overhanging portions for holding the blade fixed from displacement upon the holder, having provisions for sliding one or more of said portions horizontally and relative to the blade to releasably uncover the blade, while the blade remains at rest relative to the holder and handle, and means for holding said sliding means to motion in a direct line.

13. A safety razor comprising a rectangular double-edged blade, a handle, a guard for the cutting edge in use, and a rectangular holder provided with retaining instrumentalities for holding the blade fixed from displacement upon the holder, and a sliding connection in the holder for releasably uncovering the blade, while the blade remains at rest relative to the holder and handle.

14. In a safety razor, a rectangular double edged blade, a blade seat, a handle on which the said seat is mounted, retaining instrumentalities comprising means for overhanging the blade and means for engaging the

edges at the corners of the same to prevent displacement thereof in any direction, the blade seat being rectangular, a guard for the cutting edge of the blade, and a sliding connection between the blade holder and the blade overhanging means to uncover the blade.

Signed by me at Chicago Ills. this 5th day of August 1905.

MORTON G. BUNNELL.

Witnesses:

SARAH LEWIS,
ALBERT SAUSER.