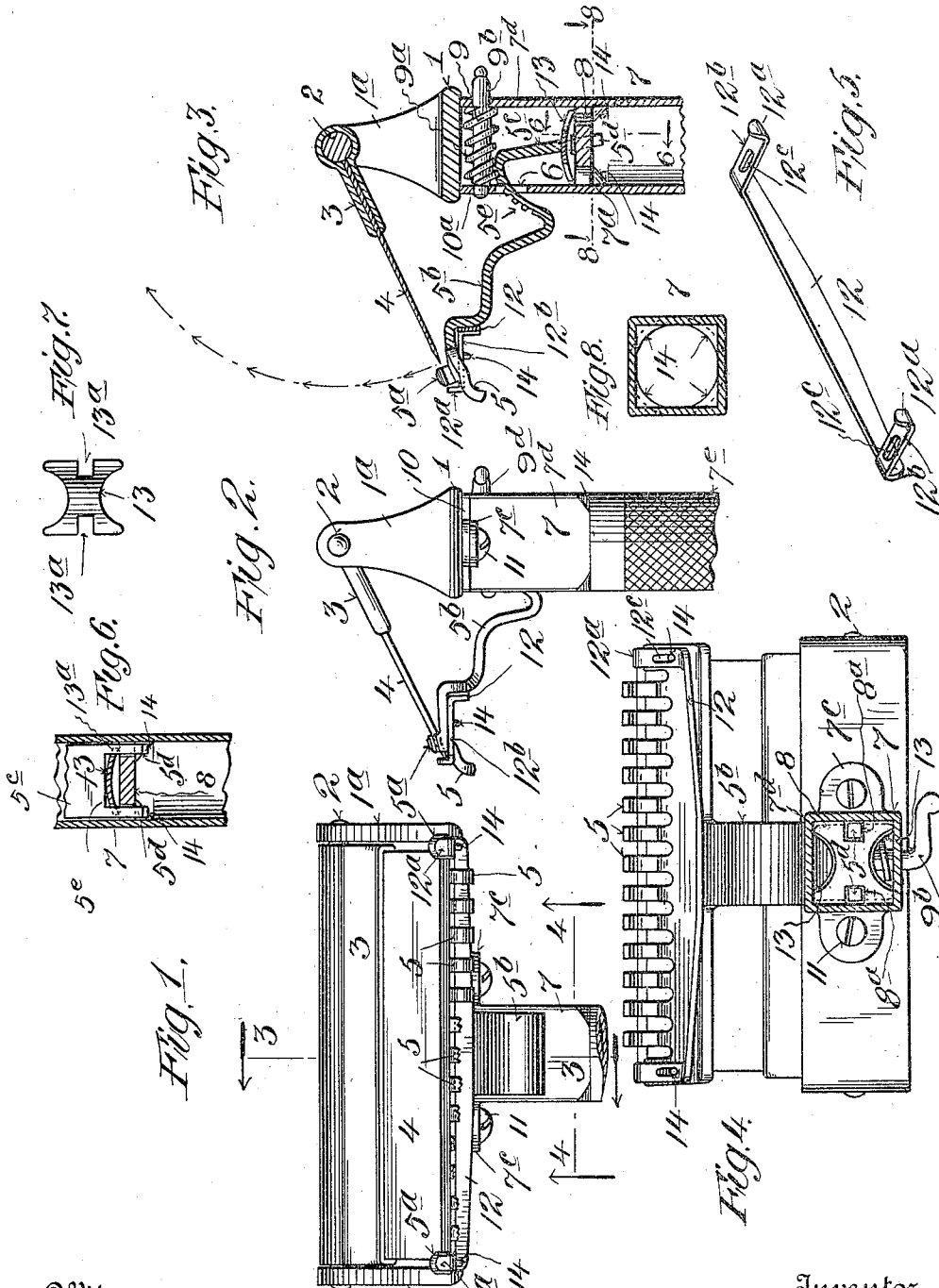


H. J. GAISMAN.
SAFETY RAZOR.
APPLICATION FILED NOV. 4, 1910.

1,022,732.

Patented Apr. 9, 1912.



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UNITED STATES PATENT OFFICE.

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SAFETY-RAZOR.

1,022,732.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed November 4, 1910. Serial No. 590,611.

To all whom it may concern:

Be it known that I, HENRY J. GAISMAN, a citizen of the United States, and resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Razors, of which the following is a specification.

My invention relates to improvements in safety razors, and has for its object to permit the blade edge to project more or less over the guard within limits as desired for producing a close or coarse shave, and generally to improve the razor.

My invention comprises novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a face view of a safety razor embodying my improvements, the handle and part of the guard being partly broken away; Fig. 2 is an edge view thereof; Fig. 3 is a central section substantially on the line 3, 3, in Fig. 1; Fig. 4 is an underside view of the razor partly in section on the line 4, 4, in Fig. 1; Fig. 5 is a detail of the resilient blade engaging lugs or stops; Fig. 6 is a detail sectional view substantially on the plane of the line 6, 6, in Fig. 3; Fig. 7 is a detail of the spring plate 13, and Fig. 8 is a section on the line 8, 8, of Fig. 3, looking in the direction of the arrows.

Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates a suitable support, such as a frame, shown provided with uprights 1^a spaced apart and supporting a rod or shaft 2, said rod or shaft carrying a suitable blade holder 3, the parts described being so spaced that if desired a strop may be passed through the frame beneath the blade for sharpening the edge of the blade. The blade 4 is adapted to coact with a suitable guard 5 which may be of any suitable or well known construction, said guard being shown provided with comb-teeth and with lugs or hooks 5^a adapted to engage the blade to retain it in shaving position with respect to the guard. Said lugs or hooks 5^a are shown located so that the portion of the blade adjacent to its cutting edge may slide between the adjacent part of the guard and said lugs or hooks, for which purpose said

lugs or hooks are shown located at the ends of the guard to receive the ends of the blade.

So far as my present improvements with respect to the guard are concerned, the blade supporting parts and the guard, as well as the means for supporting and operating the guard, may be of any well known or desired construction wherein the guard is movable with respect to the blade support. In the example illustrated in the accompanying drawings I have shown a blade support and guard, and means for operating the guard, substantially the same as that set forth in my application for patent on safety razor, filed May 3, 1910, Serial No. 559,174, wherein, and in the accompanying drawings, the means for operating the guard are as follows: The guard 5 is provided with an extension 5^b projecting in the direction substantially transversely beneath support 1. Extension 5^b is shown suitably shaped so as to pass through an opening 6 in the downwardly extending projection 7, (serving as a handle) that is suitably attached to support or frame 1. The inner portion of extension 5^b, within the projection or handle 7, is shown provided with a downwardly disposed branch 5^c that is pivotally carried by the projection or handle 7. To properly and yet detachably pivotally support branch 5^c the same is shown provided with one or more projections 5^d, serving as pivots, that are movably supported in plate or piece 8 fitted within projection or handle 7, and said plate being provided with corresponding openings 8^a receiving projections 5^d, whereby the guard is pivotally supported for adjustment with respect to the blade. Plate 8 may be retained within projection or handle 7 by any suitable means, such as by being pushed against shoulder or stop 7^a and retained frictionally. One or more shoulders or stops 7^a may be provided, which may be done by suitably pressing the metal of projection or handle 7 inwardly at 14 where the upper portion 7^d of projection or handle 7 is shown squared above the tubular portion 7^e.

At 9 is a worm or screw carried by support 1, and shown suitably journaled upon projection or handle 7 and meshing with threads 5^e suitably formed on or applied to the appropriate part of extension 5^b. Threads 5^e are shown formed on a suitably curved part of extension 5^b that is substan-

tially on a circle described around the pivotal point of branch 5^c, and worm 9 is properly shaped to mesh with threads 5^e during movement of arm 5^b, as by shaping worm 9 in a substantially concave manner, as at 9^a, so as to remain in mesh with threads 5^e as the latter move. For convenience in applying and supporting worm 9 the same may be journaled in a plate 10 having a depending lug or wall 10^a provided with an opening or bearing for the adjacent pivotal end of worm 9, and the upper end of projection or handle 7 is provided with a bearing receiving the adjacent pivotal part 9^b of said worm, whereby said worm is journaled to rotate in mesh with the complemental teeth 5^e. Plate 10 may be clamped between the base or support 1 and projection or handle 7 by screws 11 passing through lugs 7^c of said handle and meshing in threads in frame 1.

By rotating the worm in one direction the guard will be moved outwardly to release the blade, and by adjusting the blade to the guard and rotating the worm in the required direction, the guard will be drawn toward the blade edge, so that the latter will be adjusted and retained in shaving position with respect to the guard, and by rotating the worm more or less the blade edge will be caused to project more or less forwardly with respect to the guard.

Since the parts above described are illustrated and described in my aforesaid application Serial No. 559,174, except the construction of the handle with its shoulders or stops 7^a and 14, the same are not herein specifically claimed, but are set forth herein to illustrate suitable means for carrying my present invention into effect.

In addition to the foregoing I have shown means to maintain the teeth 5^e of extension 5^b in relatively close mesh with the worm 9. To this end I provide a resilient or spring plate 13 adapted to rest upon plate or piece 8 and provided with the recesses or openings 13^a to receive projections 5^d of branch 5^c, said plate bearing under the lower portion 5^e of branch 5^c. The spring 13, in bow-form, thus normally presses the branch 5^c upwardly, permitting teeth 5^e to work freely in the worm, keeping said parts in relatively close relation and taking up wear that may occur between said teeth and worm.

In accordance with my present invention I provide resilient or spring-acting stops or lugs upon the guard to engage the blade edge, whereby to retain the blade projected more or less substantially over the guard and to effect adjustment for a close or coarse shave, as desired. To this end I have shown a spring-like piece 12 extending along the guard and provided with stops or lugs 12^a, which project upwardly in front of the blade edge near its corners, the piece 12 being at-

tached at about its central portion to the guard by any suitable means, such as by solder, a rivet or the like.

I have shown piece 12 as provided with outwardly projecting arms 12^b carrying the stops or lugs 12^a, said arms being shown provided with slots 12^c receiving pins or projections 14 carried by the guard frame. The complemental parts 12^c and 14 aid in retaining the arms 12^b in proper position, permit freedom of movement of said arms relatively to the guard frame, and limit the action of the spring stops 12^a. The arrangement of the parts is such that the stops or lugs 12^a are normally maintained inwardly relatively to the guard, and when the guard is moved or drawn toward the blade, stops 12^a will contact the blade edge and piece 12 will bend more or less, thus serving to retain the blade in desired adjusted position upon the guard, providing adjustment for a coarse or close shave, according to how much the guard is adjusted with respect to the blade, the lugs or hooks 5^a retaining the blade upon the guard. The worm 9 and teeth 5^e serve as a positive force to overcome the normal tension of the spring-stops 12. The arrangement is such that when the guard is moved or pushed outwardly the blade edge will be free from all of the lugs and stops; and when the guard is moved inwardly or toward the blade edge the latter will first slide under the lugs 5^a, and then contact with the stops 12^a, and then the guard will slide under the blade more or less according to adjustment of the guard.

My invention is not limited to the details of construction set forth, as the same may be varied, within the scope of the appended claims, without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and stops movable on the guard for engaging the blade to permit movement of the guard while said stops engage the blade.

2. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and stops movable on the guard for engaging the blade, to permit movement of the guard while said stops engage the blade, the guard also being provided with lugs to retain the blade upon the guard.

3. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with stops to en-

gage the blade to permit movement of the guard while said stops engage the blade.

4. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with stops to engage the blade to permit movement of the guard while said stops engage the blade, the guard also being provided with lugs to retain the blade upon the guard.

5. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with arms having stops to engage the blade to permit movement of the guard while said stops engage the blade.

6. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with arms having stops to engage the blade, to permit movement of the guard while said stops engage the blade, said arms and the guard being provided with complementary slots and projections.

7. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with arms having stops to engage the blade, to permit movement of the guard while said stops engage the blade, said guard being provided with hooks at its ends to overlie the ends of the blade.

8. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece carried by the guard for separate movement and provided with arms having stops to engage the blade, to permit movement of the guard while said stops engage the blade, said arms and the guard being provided with complementary slots and projections, said guard being provided with hooks to retain the blade upon the guard.

9. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece secured to the guard and provided at its ends with outwardly projecting arms movable separately from the guard and having upturned stops to engage the blade edge to permit movement of the guard while said stops engage the blade.

10. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to a blade, and a spring-like piece secured to the guard and provided at its ends with outwardly projecting arms movable separately from the guard and having upturned stops to engage the blade edge, to permit movement of the guard while said stops engage the blade, said guard having hooks at its ends to receive the ends of the blade.

11. A safety razor comprising a blade, support, a guard, means for movably supporting the guard, stops movable on the guard for engaging the blade, to permit movement of the guard while said stops engage the blade; a worm, and complementary means connected with the guard for operation by the worm for positively forcing said movable stops against a blade edge.

12. A safety razor comprising a blade support provided with a projection or handle, a guard provided with an extension pivotally carried by said projection or handle, a worm, complementary means on the extension to coact with said worm, and a spring maintaining said worm and complementary means in mesh.

13. A safety razor comprising a blade support provided with a projection or handle, a guard provided with an extension passing into said handle, a plate pivotally supporting said extension, a worm, complementary means on the extension coacting with the worm, and a spring interposed between said plate and said extension normally maintaining said worm and complementary means in mesh.

14. A safety razor comprising a blade support provided with a projection or handle, a guard provided with an extension passing through an opening in the handle, said extension having a branch located within said projection or handle, a plate in the handle provided with an opening, said branch having a projection movably retained in said opening, a spring upon the first named plate bearing upwardly against said branch, a worm, and complementary means on the extension meshing with said worm, said spring maintaining said complementary means and worm in mesh.

15. A safety razor comprising a blade support provided with a projection or handle, a guard provided with an extension passing through an opening in the handle, said extension having a branch located within said projection or handle, a plate in the handle provided with spaced openings, said branch having spaced projections received in said openings, a spring supported by said plate and extending in the space between the projections of said branch and bearing against the lower part of the latter,

a worm, and complementary means on the extension coacting with the worm, said spring maintaining said complementary means and worm in mesh.

- 5 16. A safety razor comprising a blade support provided with a projection or handle, a guard provided with an extension passing through an opening in the handle, said extension having a branch located
10 within said projection or handle, a plate in the handle provided with spaced openings, said branch having spaced projections received in said openings, a spring supported by said plate and having spaced openings
15 receiving the projections of said branch and bearing against the lower part of the latter, a worm, and complementary means on said extension coacting with the worm, said spring maintaining said complementary
20 means and worm in mesh.

17. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to the blade, stops movable on the guard for engaging the blade, to
25 permit movement of the guard while said stops engage the blade, and complementary means between said stops and the guard to

control the movement of said stops relatively to the guard.

18. A safety razor comprising a blade support, a guard, means for movably supporting the guard, means for adjusting the guard with respect to the blade, a spring-like piece carried by the guard and provided with arms having stops to engage the
30 blade, to permit movement of the guard while said stops engage the blade, and complementary means between said arms and guard limiting the action of said arms relatively to the guard. 35 40

19. A safety razor comprising a blade support provided with a handle, said handle having shoulders pressed inwardly from the metal thereof, a guard provided with an
45 extension, a plate within the handle bearing against said shoulders, means for pivotally supporting said extension by said plate, and means for operating the guard.

Signed at New York city, in the county of New York, and State of New York, this 2nd day of November A. D. 1910.

HENRY J. GAISMAN.

Witnesses:

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J. OBSTLER.