

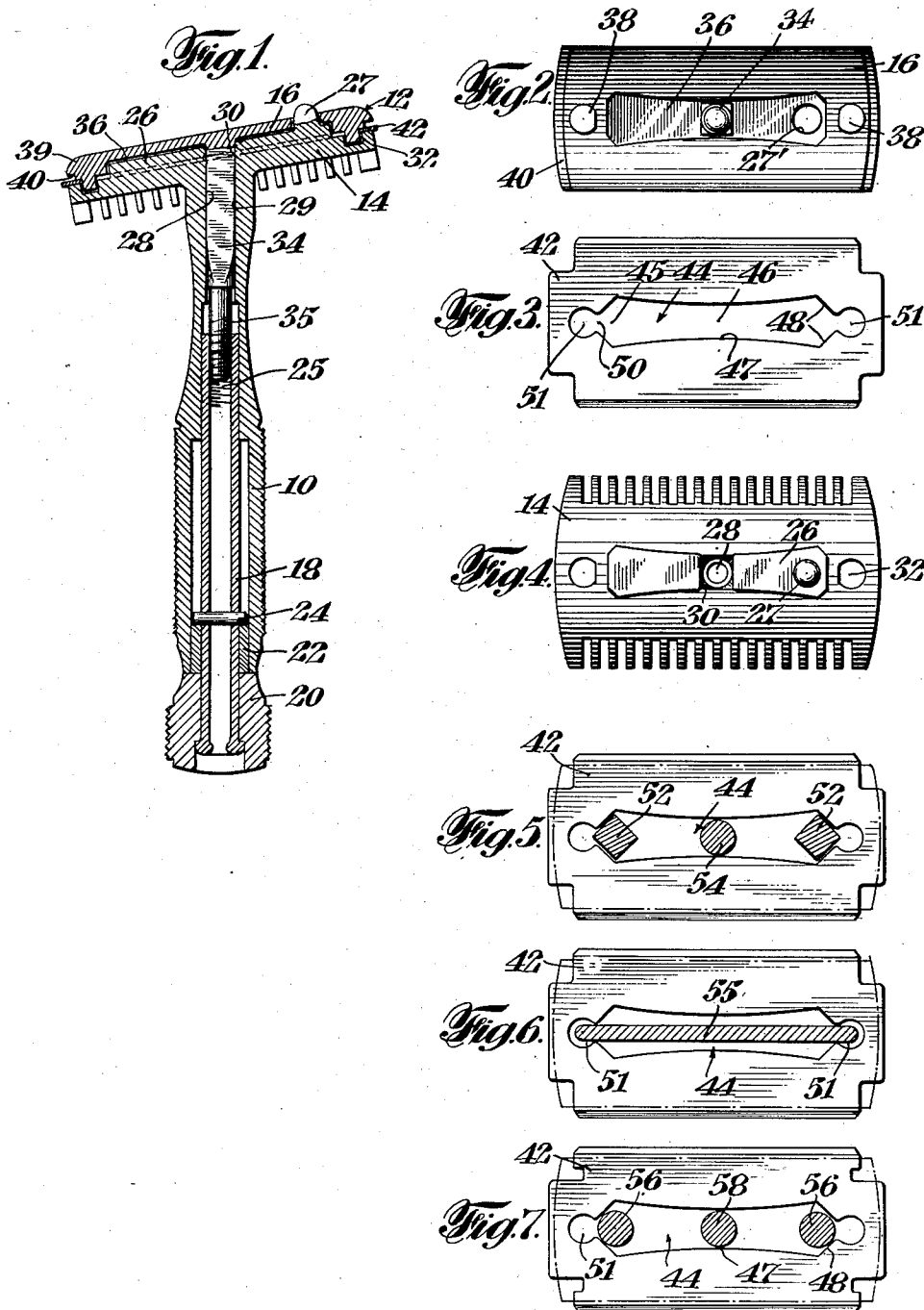
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H. R. SEGAL

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SAFETY RAZOR AND BLADE

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INVENTOR

H. R. Segal

BY

Townsend & Beekun

ATTORNEYS

UNITED STATES PATENT OFFICE

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SAFETY RAZOR AND BLADE

Hyman R. Segal, New York, N. Y.

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6 Claims. (Cl. 30—12)

This invention relates to improvements in safety razors and blades.

It is a primary object of the invention to provide a razor frame with a cooperating blade wherein the parts of the razor and blade will be properly guided during the assembling of the razor and wherein the blade will be securely and uniformly held in proper shaving position in the frame.

It is a further object to provide a two-edged blade which will be of substantially universal application in being applied to various types of razor frames which may be constructed.

The above and other objects of the invention will appear more fully from the following description when considered in connection with the drawing in which:

Fig. 1 is a longitudinal sectional view of one complete adaptation of my invention.

Fig. 2 is an inner face view of the clamping plate shown in Fig. 1.

Fig. 3 is a face view of the blade employed.

Fig. 4 is an outer face view of the guard illustrated in Fig. 1.

Figs. 5, 6 and 7 illustrate the application of the blade shown in Fig. 3 to razors having various types of projections.

The razor frame disclosed herein comprises a hollow handle 10 and a head indicated generally at 12, the latter being arranged obliquely with respect to the axis of the handle 10 and formed with a blade supporting guard 14 and a clamping plate 16 movable toward or from the guard. In the particular form of the invention illustrated herein the guard 14 is rigidly and inseparably attached to the handle 10 to provide a two-piece razor wherein only the clamping plate is separable from the guard and handle. It will be understood, however, that other constructions of razor frame may be used in connection with my present invention.

The handle 10 is provided with an internally threaded attachment sleeve 18 having a forced fit into the thumb nut 20 and peened over within the thumb nut so that these elements are permanently attached together. An attachment washer 22 is loosely received over the sleeve 18 to be rotatable thereon but is held against longitudinal movement between the thumb nut 20 and a transverse pin 24 passed through the sleeve 18. The washer 22 has a tight fit within the interior of the hollow handle 10 but this connection is not permanent in that the thumb nut, sleeve and washer 22 can be removed from the handle 10 if sufficient force is applied thereto. The inner end

of the sleeve 18 is internally screw-threaded as indicated at 25 for receiving the screw-threaded shank of the attachment plate.

The guard 14 which is obliquely arranged with respect to the handle 10 is formed with a longitudinally extending abutment 26 for receiving a blade over the same and anchoring the blade against longitudinal or lateral movement thereon. The guard is also formed with a pilot stud 27 placed only on one side of the axis of the razor for coaction with a corresponding opening in the clamping plate so that these elements will always be drawn to clamping position with the plate rotated to the proper angle with respect to the guard.

The central portions of the guard 14 and abutment 26 are provided with an opening 28 for receiving the attachment shank for the plate 16, the opening 28 having a squared section 29 and an outer tapered portion 30 leading to the squared portion to permit the plate to be rotated in finding its proper location. The guard is also formed with recesses 32 adjacent the outer ends thereof for receiving corresponding projections on the plate.

The plate 16 is provided with an attachment shank 34 rigidly connected to the plate, the main body of the shank 34 being squared or of other out-of-round construction corresponding to the cross-section of the opening 29, the inner end of the shank having a screw threaded portion 35 received with the screw threads 25. The inner face of the plate 16 is recessed at 36 for receiving the abutment 26. The plate also includes an opening 37 on one side of the axis of the shank 34 for pilot pin 27 on the guard. The lugs 38 projecting inwardly from the outer ends of the plates pass into the recesses 32 in the outer face of the guard, the projections 38 cooperating with the abutment 36 in spacing the blade received between the plate and guard. It is preferred to round the outer ends of the clamping plate as indicated at 39 so that no objectionable projections will be present. It is also preferred to remove a section of the material from the under face of the plate as indicated at 40 so that any of the small burrs which may develop on the under face of the plate will not contact with the blade and obstruct proper positioning of the same in the razor.

The blade indicated generally at 42 is formed with a slotted opening 44 corresponding to the shape of the abutment 26 and lugs 38. The opening is thus formed with the relatively wide outer portions 45 and the central narrower portions

46, the material forming the opening 44 being inwardly bowed as at 47 to provide the wider and narrower sections of the slot. The walls of the opening converge at 48 adjacent the wider portions 45 of the slot the converging walls 48 forming the reduced passages 50 leading to the terminal enlargements 51 at the ends of the slot. The section 46 of the slot 44 is preferably only of a width sufficient to snugly receive the shank 44. It will be observed that the abutment 26 on the guard corresponds with the main body portion of the slot 44 and that the projections 38 on the plate correspond with the terminal enlargements 51 of the slot as indicated in Figs. 2, 3 and 4.

The blade 42 is primarily designed to be supported upon the head 12 of the razor described above. The blade, however, is of particular usefulness in being adapted for use on various types of safety razors which may be constructed. There is accordingly illustrated diagrammatically in Figs. 5 to 7 the application of the blade 42 to various styles of razors. The application of the blade 42 to the abutment of Figs. 2 to 4 comprised in part by the projection 26 on the guard and in part by the lugs 38 on the plate will be understood without further illustration. The two opposed projections serve to firmly anchor the blade whether it is applied first to either the guard or the plate and to doubly anchor the blade when the plate and guard are placed in the opposed relation in which they are normally used (see Fig. 1).

In Fig. 5 the blade 42 is shown as applied to a razor frame by having the squared or diamond shaped projections 52 and a substantially circular attachment lug 54. It will be observed that the slot 44 is received snugly over the anchoring projections 52 as well as over the attachment lug 54.

In Fig. 6 the blade 42 is shown as applied to a razor having an abutment in the form of a longitudinal bar 55.

In Fig. 7 there is illustrated a similar application of the blade 42 to a razor having circular anchoring projections 56 and a central circular attachment lug 58. When applied to this razor the lugs 56 are loosely received in the outer part of the wide portion 45 of the opening in the blade, the central narrower portion 46 of the blade being received snugly over the anchoring lug 58. The snugness of the slot 46 over the lug 58 is sufficient to prevent any objectionable looseness between the blade and the razor frame.

The advantages of the above razor will be apparent from the above description. The blade can be received upon the abutment formed on either the guard or plate and be held in position thereby while the razor is being assembled. The pilot lug 27 on the guard on one side only of the axis of the razor in conjunction with the corresponding opening in the plate not only guides the parts of the razor head into proper position but also advises the one who is using the razor as to the proper angular position of the plate on the guard. In this way the shank 34 may be rigidly formed on the plate 16 as there would be no tendency in use to rotate the plates 16 to the wrong angular position in assembling the razor. The squared shank 34 may or may not be employed and if employed the shank serves to further facilitate the placing of the plate on the guard in the proper angular position.

Any of the forms of blade disclosed herein contacts not only with the correspondingly shaped projections formed on the guard and plate but

also with various other styles of razors as indicated.

Having now described my invention, I claim:

1. In a safety razor, a guard, a hollow handle, the guard having a central non-circular opening extending therethrough and communicating with the handle, a clamping plate provided with an attachment shank having a portion of non-circular cross-section slidably engaging the opening in the guard and extending into the handle, anchoring means on the opposed faces of the guard and plate for anchoring a blade therebetween against relative longitudinal and lateral movements, said anchoring means comprising elongated interengaging recesses in the plate and projections on the guard arranged in axial alinement with and on opposite sides of the shank and opening, positioning means on the guard and plate comprising a pilot pin carried by one of said projections and a pin receiving opening in the plate intersecting one of the recesses therein, a rotary stem extending into the handle and having a threaded engagement at its inner end with the shank, a finger piece mounted upon the outer end of the stem and having a shoulder bearing against the inner end of the handle, a fastening pin extending diametrically through the stem within the hollow handle adjacent to the finger piece, and a bearing ring arranged upon the stem between the shoulder of the finger piece and said fastening pin, the stem being journaled for rotation in said ring and the ring being fitted with a press fit within the handle so as to be frictionally held from rotation therein while being longitudinally withdrawable from the handle with the stem under pressure thereon in the withdrawal movement of the stem.

2. In a safety razor, the combination of an oblong rectangular guard plate having a clamping face provided with a pair of central longitudinal projections to engage a slot in a blade and with recesses between its ends and the outer ends of said projections, a clamping plate provided with a coating clamping face formed with grooves to receive said projections and having blade slot engaging projections beyond the outer ends of said grooves to seat within the recesses in the guard plate, a hollow handle having a bearing bore therein and provided with a neck portion fixed to the guard plate, the said guard plate and neck portion of the handle being formed with an elongated angular bore intersecting at its outer end the space between the longitudinal projections and extending therefrom through said neck portion of the handle and intersecting at its inner end the bearing bore of the handle, an attaching shank carried by the clamping plate having an elongated angular body portion to slidably and non-rotatably engage the angular bore of the guard plate and neck of the handle and terminating at its inner end with a threaded circular portion, the clamping plate being provided at one side of its transverse center with a guide opening and the guard plate being provided with a pilot pin to project outwardly through said guide opening, and a stem journaled within the hollow handle and having a detachable threaded engagement with the threaded circular portion of the attaching shank.

3. In a safety razor, the combination of an oblong rectangular guard plate having a clamping face provided with a pair of central longitudinal projections to engage a slot in a blade and with recesses between its ends and the outer ends of

said projections, a clamping plate provided with a
coacting clamping face formed with grooves to
receive said projections and having blade slot en-
gaging projections beyond the outer ends of said
5 grooves to seat within the recesses in the guard
plate, a hollow handle having a bearing bore
therein and provided with a neck portion fixed to
the guard plate, the said guard plate and neck
10 portion of the handle being formed with an elon-
gated angular bore intersecting at its outer end
the space between the longitudinal projections
and extending therefrom through said neck por-
tion of the handle and intersecting at its inner
15 end the bearing bore of the handle, an attaching
shank carried by the clamping plate having an
elongated angular body portion to slidably and non-
rotatably engage the angular bore of the guard
plate and neck of the handle and terminating at
20 its inner end with a threaded circular portion, the
clamping plate being provided at one side of its
transverse center with a guide opening and the
guard plate being provided with a pilot pin to pro-
ject outwardly through said guide opening, a
25 bearing sleeve having a tight friction fit in the
outer end of the stem, and a stem journaled for
rotation at its outer end in said bearing sleeve
and at its inner end in the bore of the handle
and having a detachable threaded engagement at
30 its said inner end with the circular portion of the
attaching shank, said stem having means holding
the bearing sleeve against longitudinal sliding
movement thereon.

4. In a safety razor, a guard plate, a clamping
plate, said clamping plates each having on each
35 side of its transverse center two pairs of coacting
blade positioning projections and recesses, and
the clamping plate being provided on one side
only of its transverse center with a guide open-
ing and the guard plate with a similarly arranged
40 coacting pilot pin to extend outward through said
opening, a hollow handle fixed to the guard plate,
an attaching shank on the clamping plate slid-
ably and non-rotatably engaging the guard plate
and handle, and a stem rotatably mounted in
45 the handle and having a detachable, threaded
engagement with the shank.

5. In a safety razor, a guard, a hollow handle,
the guard having a central non-circular opening
extending therethrough and communicating with
50 the handle, a clamping plate provided with an
attachment shank having a portion of non-cir-
cular cross-section slidably engaging the opening
in the guard and extending into the handle, an-
choring means on the opposed faces of the guard
55 and plate for anchoring a blade therebetween

against relative longitudinal and lateral move-
ments, positioning means on the guard and plate
comprising a pilot pin carried by one of said pro-
jections and a pin receiving opening in the plate
5 intersecting one of the recesses therein, a rotary
stem extending into the handle and having a
threaded engagement at its inner end with the
shank, a finger piece mounted upon the outer end
of the stem and having a shoulder bearing against
10 the inner end of the handle, a fastening pin ex-
tending diametrically through the stem within
the hollow handle adjacent to the finger piece,
and a bearing ring arranged upon the stem be-
tween the shoulder of the finger piece and said
15 fastening pin, the stem being journaled for rota-
tion in said ring and the ring being fitted with a
press fit within the handle so as to be frictionally
held from rotation therein while being longitudi-
nally withdrawable from the handle with the
20 stem under pressure thereon in the withdrawal
movement of the stem.

6. In a safety razor, a guard, a hollow handle,
the guard having a central non-circular opening
extending therethrough and communicating with
the handle, a clamping plate provided with an
25 attachment shank having a portion of non-cir-
cular cross-section slidably engaging the opening
in the guard and extending into the handle, an-
choring means on the opposed faces of the guard
and plate for anchoring a blade therebetween
30 against relative longitudinal and lateral move-
ments, said anchoring means comprising elon-
gated interengaging recesses in the plate and pro-
jections on the guard arranged in axial alinement
with and on opposite sides of the shank and open-
35 ing, positioning means on the guard and plate
comprising a pilot pin carried by one of said pro-
jections and a pin receiving opening in the plate
intersecting one of the recesses therein, a rotary
stem extending into the handle and having a
40 threaded engagement at its inner end with the
shank, a finger piece mounted upon the outer
end of the stem and bearing against the inner
end of the handle, and a bearing ring mounted
upon the stem adjacent to the finger piece, the
45 stem being journaled for rotation in said ring
and the ring being held from longitudinal move-
ment on the stem and fitted with a press fit with-
in the handle so as to be frictionally held from
rotation therein to adapt the stem to rotate inde-
50 pendently thereof while being longitudinally with-
drawable from the handle with the stem under
pressure thereon in the withdrawal movement of
the stem.

HYMAN R. SEGAL.

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