

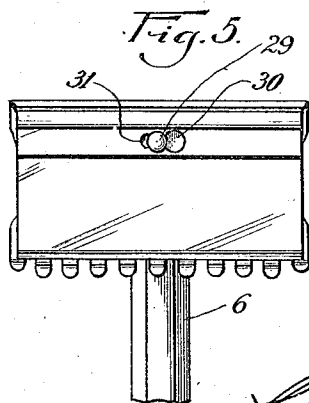
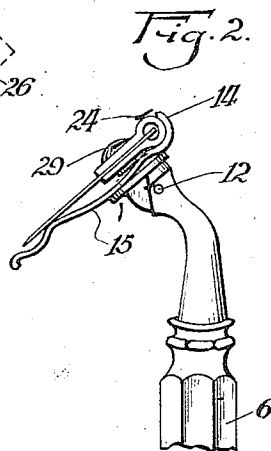
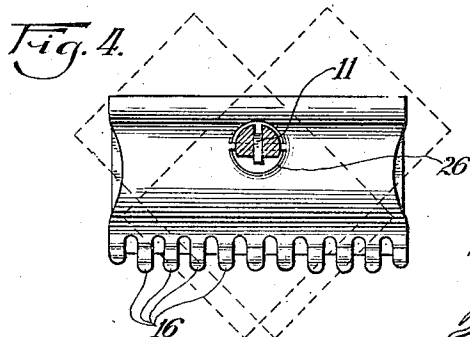
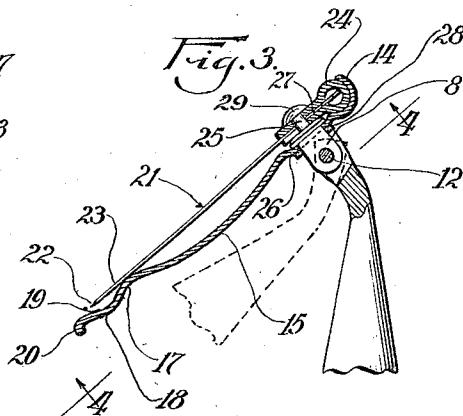
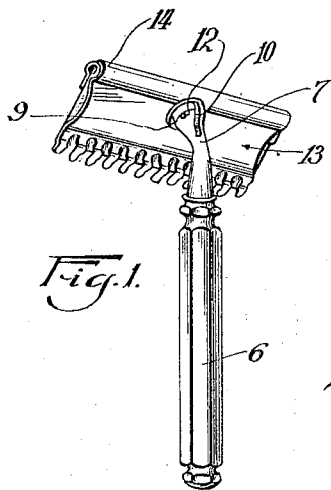
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C. E. CARPENTER

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SAFETY RAZOR AND THE LIKE

Filed May 11, 1922.



Inventor:  
Charles E. Carpenter  
By *[Signature]* Attys

## UNITED STATES PATENT OFFICE.

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## SAFETY RAZOR AND THE LIKE.

Application filed May 11, 1922. Serial No. 560,009.

*To all whom it may concern:*

Be it known that I, CHARLES E. CARPENTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety Razors and the like, of which the following is a specification.

This invention has to do with certain improvements in safety razors and the like. The invention has to do especially with improvements in the construction and arrangement of the guard and the means by which it is supported together with the blade.

In connection with the construction of the guard, one of the objects of the invention is to so form the guard that the teeth of the guard will not interfere with the proper cutting function of the edge of the blade throughout its entire length. In this connection, it may be stated that in previous constructions of safety razor guards with which I am familiar, the teeth of the guard have interfered with the proper cutting function of the edge of the blade immediately adjacent to them. One of the objects of the present invention is to overcome this difficulty by freely exposing the entire edge of the blade, so that the shaving will not be "streaky."

Another object of the invention is to provide a construction of safety razor holder such that it may be very conveniently used for shaving at an angle and also for shaving in different directions, the handle being adjustable with respect to the guard, so that the angle of the blade can be immediately shifted into whatever position momentarily suits the convenience of the user. In this connection, an object is to provide the handle itself with a bent or angular head piece on which the guard and blade are pivotally mounted; and more particularly in this connection, to form the head piece at an angle of approximately 45° with respect to the length of the handle.

Another object of the invention is to provide an arrangement such that the blade can be very easily inserted or removed with respect to the guard, and such that the act of turning the handle out into the working position will itself automatically lock the blade to the guard. In connection with the foregoing, it is a further object to provide an arrangement of guard and handle which can

be folded into a practically flat package of small size convenient for carrying in a traveler's kit.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

Referring to the drawing:

Figure 1 shows a perspective view of a handle and guard embodying the features of the present invention, looking up at the back side of the guard;

Fig. 2 shows a side elevation corresponding to Fig. 1;

Fig. 3 shows a cross section on greatly enlarged scale through the guard and through the blade and the upper portion of the handle. In this figure the handle is also shown in dotted lines in the position into which it may be turned to interlock the blade.

Fig. 4 shows a view taken on the line 4-4 of Fig. 3, looking in the direction of the arrows, but on somewhat smaller scale. In Fig. 4 I have also shown by dotted lines two other positions into which the guard and blade may be turned; and

Fig. 5 shows a front face view corresponding to Fig. 4.

The handle 6 is made of any material and shape convenient for manipulation. Its upper or head end 7 is turned over at an angle of approximately 40°-45°, as shown in Fig. 3 in particular. The extreme end 8 of the head is squared off at right angles to the axis of the head portion 7, but the lower corner 9 of the head portion 8 is cut away sharply, as shown particularly in Fig. 2.

The head portion is preferably slotted as shown at 10 to receive a pin plate 11 which is pivoted within the slot on the pin 12. Consequently, this pin plate 11 may be rocked in the slot. Examination of Figs. 2 and 3 in particular will show that the pin 12 is considerably closer to the lower cut away corner 9 than the top squared surface 8 for the purpose to be presently explained.

The guard 13 is preferably made of sheet metal such as sheet steel, nickel or silver plated. Its upper edge 14 is preferably curved forward; its central or body portion 15 is preferably bulged to the rear; and its lower edge is preferably provided with a series of guard teeth 16. These guard teeth

commence substantially at the point 17 where the bulged portion 15 terminates, and the teeth are then bent rearwardly, as shown at 18, so that the entire set of teeth together  
 5 provide a longitudinally extending depression or pocket 19, as clearly indicated in Fig. 3. The extreme lower ends 20 of the teeth are preferably enlarged or bent to the rear, as clearly shown in Fig. 3, so as to avoid any  
 10 possibility of cutting or injuring the face of the user.

The blade 21 sets immediately in front of the guard as clearly shown in Fig. 3, its lower edge 22 lying adjacent to the pocket  
 15 19. Nevertheless, the blade is supported immediately adjacent to the lower edge and at the point 23 where it rests against the lower portion 17 of the bulge 15 of the guard. The entire length of the cutting edge 22 is  
 20 therefore freely exposed, so that the cutting operation is most efficiently performed, but the lower ends 20 of the teeth 16 guide the movements of the cutting edge 22 with respect to the surface of the skin.

25 The upper edge of the blade rests against the curved socket portion 14 of the guard, or as in the construction shown in the figures, the upper portion of the blade is provided with a reinforcement 24 which rests in  
 30 the socket 14 and serves in effect as a pivotal or hinge support for the upper edge of the blade.

The pin plate 11 is provided with a pin 25 which reaches forwardly through a hole in  
 35 a depression 26 in the upper portion of the guard. A collar 27 is formed on the pin 26 just above the socket 26 to prevent the pin from drawing backwardly through the hole. A collar 28 surrounds the pin plate at the  
 40 back side of the depression 27 and receives the direct pressure from the head of the handle. The hole in the depression 26 is of substantial size as compared to the pin plate, so that a sufficient freedom of movement is  
 45 allowed to enable the pin plate to rotate or move in and out freely through the hole.

The front end of the pin 25 is provided with an enlarged head 29 as shown in Fig. 3; and the upper portion of the blade 21 or  
 50 of the reinforcement 24 is provided with an opening 30 of sufficient size to pass the head 29. This opening 30 communicates laterally with a slot 31 of smaller size, so that after the blade and the reinforcement have been  
 55 set into place, these parts can be shifted laterally in order to engage the head 29 on the slot 31.

The length of the pin 25 is such with respect to the shape and size of the head member 7 that when the head member is turned  
 60 down substantially into the dotted line position of Fig. 3, the pin plate is released to a sufficient extent to remove the pressure of the head 29 on the blade, and thus permit the  
 65 blade to be either inserted or removed with

facility. On the other hand, the proportioning is such that when the handle is turned out into the working position shown by the full lines of Fig. 3, the pin plate is  
 70 drawn back so as to draw the head 29 firmly against the blade; and by reason of the fact that the pressure of the head 29 is applied at a point intermediate between the socket 14 and the supporting point 17 on which the  
 75 lower portion of the blade rests, the blade will be deflected a slight amount by the pressure of the head 29, thus exerted on the blade. This deflection of the blade will in  
 80 itself cause its cutting edge 22 to deflect a slight distance away from the pocket 19 of the guard, so as to still further improve the clearance at that point.

Owing to the fact that the guard and blade are pivoted with respect to the head member, they can be turned into any convenient  
 85 position for the best shaving, as is clearly evident from Fig. 4.

When the parts are to be packed up into a small space, the guard and handle portions may be laid substantially flat together, and  
 90 the guard can be turned into position parallel to the handle so as to bring all of the parts into the smallest space possible.

While I have herein shown and described only a single embodiment of the features of  
 95 my present invention, still I do not limit myself to the same except as I may do so in the claims.

I claim:

1. A safety razor comprising in combination a handle having its end portion deflected at an angle of substantially 45° and bifurcated, a pin plate pivotally mounted within said bifurcated portion, the extreme  
 100 end of the bifurcated portion being formed at right angles to the axis thereof, and the lower corner of the bifurcated portion being cut away to provide a cam surface closer to the pivotal connection than the extreme end,  
 105 a pin projecting outwardly from the pin plate, a blade guard loosely mounted on said pin and capable of pivotal movement thereon, there being an enlarged head on the extreme end of the pin above the front face of the guard, the upper portion of the guard  
 110 being curved forwardly to provide a pivotal support for the upper edge of the blade and the body portion of the guard being deflected rearwardly with respect to the upper and lower portions of the guard, and the  
 120 lower portion of the guard constituting a support for the blade above the cutting edge thereof, the extreme lower edge of the guard being serrated to provide teeth, and said serrated portion being curved away from the  
 125 edge of the blade to provide a clearance at said edge, a blade seated against the guard and having in its upper portion a slot having an enlarged passage of size to pass the head of the pin, whereby the blade may be  
 130

set over the head of the pin and then shifted  
sidewise into position on the guard, and  
whereby when the handle is turned with re-  
spect to the guard to bring the extreme end  
of its bifurcated portion square against the  
face of the guard the pin is drawn rear-  
wardly with respect to the guard to thereby  
clamp the blade against the guard, sub-  
stantially as described.

2. A safety razor comprising in combina-  
tion a handle having its end portion def-  
lected at an angle and bifurcated, a pin  
plate pivotally mounted within said bifur-  
cated portion, the extreme end of the bifur-  
cated portion being formed at right angles  
to the axis thereof, and the lower corner  
of the bifurcated portion being cut away  
to provide a cam surface closer to the pivotal  
connection than the extreme end, a pin pro-  
jecting outwardly from the pin plate, a  
blade guard loosely mounted on said pin  
and capable of pivotal movement thereon,  
there being an enlarged head on the ex-  
treme end of the pin above the front face  
of the guard, the body portion of the guard  
being deflected rearwardly with respect to  
the upper and lower portions of the guard,  
and the lower portion of the guard consti-  
tuting a support for the blade above the  
cutting edge thereof, the extreme lower edge  
of the guard being serrated to provide teeth,  
a blade seated against the guard and having  
in its upper portion a slot having an en-  
larged passage of size to pass the head of  
the pin, whereby the blade may be set over  
the head of the pin and then shifted sidewise  
into position on the guard, and whereby  
when the handle is turned with respect to  
the guard to bring the extreme end of its  
bifurcated portion square against the back  
face of the guard the pin is drawn rear-  
wardly with respect to the guard to thereby  
clamp the blade against the guard, substan-  
tially as described.

3. A safety razor comprising in combina-  
tion a handle having its end portion deflec-  
ted at an angle and bifurcated, a pin plate  
pivotally mounted within said bifurcated  
portion, the extreme end of the bifurcated  
portion being formed at right angles to the  
axis thereof, and the lower corner of the  
bifurcated portion being cut away to pro-  
vide a cam surface closer to the pivotal con-  
nection than the extreme end, a pin project-  
ing outwardly from the pin plate, a blade  
guard loosely mounted on said pin and capa-  
ble of pivotal movement thereon, there being  
an enlarged head on the extreme end of the  
pin above the front face of the guard, the  
lower portion of the guard constituting a  
support for the blade above the cutting edge  
thereof, a blade seated against the guard  
and having in its upper portion a slot hav-  
ing an enlarged passage of size to pass the

head of the pin, whereby the blade may be  
set over the head of the pin and then shifted  
sidewise into position on the guard, and  
whereby when the handle is turned with re-  
spect to the guard to bring the extreme end  
of its bifurcated portion square against the  
back face of the guard the pin is drawn  
rearwardly with respect to the guard to  
thereby clamp the blade against the guard,  
substantially as described.

4. A safety razor comprising in combina-  
tion a handle having its end portion deflec-  
ted at an angle and bifurcated, a pin plate  
pivotally mounted within said bifurcated  
portion, the extreme end of the bifurcated  
portion being formed at right angles to the  
axis thereof, and the lower corner of the  
bifurcated portion being cut away to pro-  
vide a cam surface closer to the pivotal con-  
nection than the extreme end, a pin project-  
ing outwardly from the pin plate, a blade  
guard loosely mounted on said pin and capa-  
ble of pivotal movement thereon, there be-  
ing an enlarged head on the extreme end of  
the pin above the front face of the guard,  
a blade seated against the guard and hav-  
ing in its upper portion a slot having an en-  
larged passage of size to pass the head of  
the pin, whereby the blade may be set over  
the head of the pin and then shifted side-  
wise into position on the guard, and where-  
by when the handle is turned with respect  
to the guard to bring the extreme end of its  
bifurcated portion square against the back  
face of the guard the pin is drawn rear-  
wardly with respect to the guard to there-  
by clamp the blade against the guard, sub-  
stantially as described.

5. A safety razor comprising in combina-  
tion a handle having its end portion extend-  
ed at an angle and bifurcated, a pin plate  
pivotally mounted within said bifurcated  
portion, the extreme end of the bifurcated  
portion being formed at right angles to the  
axis thereof, a pin projecting outwardly  
from the pin plate, a blade guard loosely  
mounted on said pin and capable of pivotal  
movement thereon, there being an enlarged  
head on the extreme end of the pin above  
the front face of the guard, a blade seated  
against the guard and having in its upper  
portion a slot having an enlarged passage  
of size to pass the head of the pin, whereby  
the blade may be set over the head of the  
pin and then shifted sidewise into position  
on the guard, and whereby when the handle  
is turned with respect to the guard to bring  
the extreme end of its bifurcated portion  
square against the back face of the guard  
the pin is drawn rearwardly with respect to  
the guard to thereby clamp the blade against  
the guard, substantially as described.

CHARLES E. CARPENTER.