We, HARRY BECKHAM RANDOLPH, a British Subject, and THE WILKINSON SWORD COMPANY LIMITED, a British Company, both of 53, Pall Mall, London, S.W. 1, do hereby declare the nature of this invention to be as follows:

This invention comprises improvements in or relating to safety razors. It is an object of the invention to provide a safety razor of the self-stropping type with which stropping can be accomplished more effectively than in the usual type of such razors and in which in particular the pressure of the blade upon the strop is both adequate and uniform, the possibility of the blade accidentally cutting the strop is reduced to a minimum and it is possible effectively to strop razor blades of the solid hollow-ground type as distinct from wafer blades.

According to the present invention a safety razor comprises in combination a carriage having cross-bars for engaging the upper and under sides of a razor strop, a blade holder pivoted thereon about an axis separate from said cross-bars, an operating pinion on the blade holder, a pinion-actuating member movably mounted on the carriage and carrying gear teeth to engage the said pinion, a handle operatively connected to said pinion-actuating member, a blade guard mounted upon one of the aforesaid parts, and means for locking the handle, the pinion-actuating member and carriage when desired with the blade in shoving position relatively to the guard.

The described construction secures that the carriage frictionally engages the strop on both sides and the blade carrier is rotated to reverse it at the ends of the stropping movement by a direct connection with the handle through the pinion-operating member independently of any movement of the carriage relatively to the strop. This involves movement of the handle relatively to the carriage, but the means for locking the parts permits the whole to be properly clamped into shoving position. The described mechanism is found to be highly effective in preventing any cutting of the strop and, moreover, ensures a better pressure of the blade upon the strop since the whole of the frictional drag of the carriage on the strop is utilised to force the blade edge into engagement.

Preferably the pinion-actuating member takes the form of a lever pivoted upon the carriage and pivotally engaged with the handle.

The locking means may conveniently take the form of a bolt which can be projected from the end of the handle into engagement with the underside of the carriage.

The guard is best mounted upon the carriage itself and may conveniently be slidable relatively to the carriage under the influence of a spring which tends to draw the guard up to the razor edge and grip it.

The following is a description by way of example of one form of safety razor in accordance with this invention:

The razor comprises a rectangular carriage made of sheet metal having two upstanding longitudinal ribs along each longitudinal edge and upwardly bent sections at its ends. The upstanding ribs are for engaging the underside of a strop. Across the space between the upstanding ends of the carriage there extends a central bar for engaging the upper side of a strop so that the strop may be threaded over one of the longitudinal ribs, under the central bar and out over the other said rib.

Above the central bar there extends between the ends of the carriage a pivoted blade carrier on the axis of which at one end is a pinion. The blade carrier comprises a spindle and a blade clip. The blade clip is made of spring metal and is bent around the spindle and extends therefrom to form two clipping edges for the upper and underside of the blade.

A guard is mounted upon the underside of the carriage and extends forwardly therefrom to a position such that the blade can be brought into operative relation with it in one extreme position of its movement. The guard is slidably mounted relatively to the carriage and a spring serves to retract it towards the edge of the blade. Two little nibs at
the extreme corners of the guard are bent
backwardly and form notches to receive
the edge corners of the blade and when
the guard is in operative position the
blade is gripped between the nibs and
the guard and rotation of the blade carrier
is prevented. At the back of the blade
carrier the guard extends rearwardly to
form a thumb-piece by pressing upon
which its hold upon the blade can be
released. A pinion-operating member is
provided in the form of a lever, pivoted
about the axis of the central cross-bar on
the carriage. The lever is pierced with
a slot which embraces the pinion and the
slot has, on the side above the pinion,
internal teeth to mesh therewith. The
lever extends downwardly through a slot
in the carriage to the underside thereof.
and is bent laterally toward the centre of
the razor. Here it is pivoted to a handle
for the razor. A complementary link,
similar to the bent portion of the lever,
extends from the other side of the handle
to the end of the carriage and is pivoted
thereeto.
The handle carries a bolt which can be
projected axially from its end adjacent to
the carriage into engagement with the
underside thereof. The bolt is projected
by a screw action from the knob at the
other end of the handle.
In operation, for stopping, the parts
are released by first withdrawing the bolt
and then pressing upon the guard to re-
lease it from the blade. Thereafter the
strop is threaded through the carrier and
the parts are reciprocated upon the strop
by working the handle to and fro.
Dated this 12th day of January, 1928.
BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London,
E.C. 1,

COMPLETE SPECIFICATION.

Improvements in or relating to Safety Razors.

We, HARRY B E C K E R a m R A N D O L P H , a
British Subject, and T H E W I L K E N S O N
Sword Company Limited, a British Com-
pany, both of 55, Pall Mall, London,
S.W. 1, do hereby declare the nature of
this invention and in what manner the
same is to be performed, to be particularly
described and ascertained in and by the
following statement:

This invention comprises improvements
in or relating to safety razors. It is an
object of the invention to provide a safety
razor of the self-stropping type with
which stopping can be accomplished more
effectively than in the usual type of such
razors and in which in particular the pres-
sure of the blade upon the strop is both
adequate and uniform, the possibility of
the blade accidentally cutting the strop is
reduced to a minimum and it is possible
effectively to strop razor blades of the solid
hollow-ground type as distinct from wafer
blades.

It has previously been proposed to con-
struct a safety razor in which a carriage
was provided to run upon the strop, a
blade holder was pivoted thereon and a
handle, also pivoted to the carriage, car-
rried an externally toothed segment for
rotating the blade holder, means being
provided to lock the handle to the carriage
when the blade holder was in shaving
position, or to release it for operating the
blade holder to reverse the blade when
stropping.

According to the present invention a
safety razor comprises in combination a
strop-engaging carriage, a blade holder
pivotcd thereon, an actuating pinion on
the blade holder, a pinion-actuating lever
pivotcd upon the carriage which lever
carries on one side of its pivot an inter-
nally toothed sector to engage the pinion
and on the other side of its pivot is ex-
tended to provide an operating-arm, a
handle operatively connected to said oper-
atmg-arm, a guard for the blade upon
the carriage and means to lock the handle
relatively to the lever and carriage when
the blade is in operative shaving relation
to the guard, and to release the handle
relatively to both these parts for strop-
ning.

We are aware of British Patent No.
289,263 and make no claim to anything
described or claimed therein.

The described mechanism is found to
be highly effective in preventing any cut-
ting of the strop and, moreover, ensures a
good pressure of the blade upon the strop
since the whole of the frictional drag of
the carriage on the strop is utilised to
force the blade edge into engagement.
The locking means may conveniently
take the form of a bolt which can be pro-
jected from the end of the handle into
engagement with the underside of the
carriage.

The guard is best mounted upon the
carriage itself and may conveniently be
slidable relatively to the carriage under
the influence of a spring which tends to
draw the guard up to the razor edge and grip it. The guard may be of either the comb or the roller type.

The following is a description by way of example of one form of safety razor in accordance with this invention, the razor being described with reference to the accompanying drawing in which:—

Figure 1 is a side elevation of the razor,

Figure 2 is an elevation looking from the back,

Figure 3 is a plan, and

Figure 4 is a section upon the line 4, 4 of Figure 2, but with the parts in stopping position.

Figure 5 is a detail showing a modification.

The razor comprises a rectangular carriage 11 made of sheet metal having two upstanding longitudinal ribs (forming cross-bars) 12, 13 along each longitudinal edge and upwardly bent sections 14 at its ends. The upstanding ribs 12, 13 are for engaging the underside of a stop (shown in chain lines, Figure 4). Across the space between the upstanding ends 14 of the carriage there extends a central cross-bar 15 for engaging the upper side of a stop so that the stop may be threaded over one of the longitudinal ribs 12, under the central bar 15 and out over the other said rib 13.

Above the central bar 15 there extends between the ends of the carriage a pivoted blade carrier on the axis of which at one end is a pinion 17. The blade carrier comprises a spindle 16 and a blade clip 18. The blade clip is made of spring metal and is bent around the spindle and extends therefrom to form two clipping edges for the upper and underside of the blade 19.

A guard 20 is mounted upon the underside of the carriage and extends forwardly therefrom to a position such that the blade can be brought into operative relation with it in one extreme position of its movement. The guard 20 is slidably mounted relatively to the carriage and a spring 21 serves to retract it towards the edge of the blade. Two little ribs 22 at the extreme corners of the guard are bent backwardly and form notches to receive the edge corners of the blade 19 and when the guard is in operative position the blade is gripped between the ribs and the guard and rotation of the blade carrier 16—18 is prevented.

The guard 20 is not wholly in one piece but comprises a comb or roller portion 23 having a shank 24 which slides in grooves cut in the main portion of the guard 20. The shank 24 extends to the rear of the razor and engages an adjusting screw 25 the threaded part of which enters a screwed hole in a lug 26 turned down from the back of the main portion of the guard 20. By this means the comb may be adjusted forward or back to expose the blade edge to the requisite degree.

The screw 25 forms also a thumb-piece by pressing upon which the hold of the guard upon the blade can be released.

A pinion-operating member is provided in the form of a lever 27, pivoted about the axis of the central cross-bar on the carriage. The lever 27 is pierced with a slot 28 which embraces the pinion 17 and the slot 28 has, on the side above the pinion 17, internal teeth 29 to mesh therewith. The lever 17 extends downwardly through a slot 30 in the carriage 11, to the underside thereof, and is bent laterally toward the centre of the razor. Here it is pivoted to a handle 31 for the razor. A complementary link 32, similar to the bent portion of the lever, extends from the other side of the handle 31 to the end of the carriage and is pivoted thereto.

The handle 31 carries a bolt 33 which can be projected axially from its end adjacent to the carriage into engagement with the underside thereof (see dotted lines, Figure 1). The bolt 31 is projected by a screw action from a knob 34 at the other end of the handle. To effect this the knob 34 is secured to a key-blade 35 which enters a slot in a nut-36 on the back of the bolt 33.

In operation, for stopping, the parts are released by first withdrawing the bolt 33 and then pressing upon the screw 25 to release the guard 20 from the blade 19. Thereafter the strop is threaded through the carrier as shown in Figure 4. and the parts are reciprocated upon the strop by working the handle 31 to and fro.

In the modification shown in Figure 5, the blade carrier clip 18 instead of being fixed firmly upon its spindle 16 is made oval where it embraces the spindle. The spindle 16 is flattened in the centre at 40 and the blade clip 18 is indented to fit the flat on the spindle. This construction allows the blade to cant laterally upon the spindle 16 while still being held by it to rotate with it about its axis. Thus the blade can yield to irregularities of the strop if such exist. The cross-bars 12, 13 and 15 may if desired be constituted by rollers.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A safety razor comprising in combination a strop-engaging carriage, a blade holder pivoted thereon, an actuating pinion on the blade holder, a pinion-
actuating lever pivoted upon the carriage which lever carries on one side of its pivot an internally toothed sector to engage the pinion and on the other side of its pivot is extended to provide an operating-arm, a handle operatively connected to said operating-arm, a guard for the blade upon the carriage and means to lock the handle relatively to the lever and carriage when the blade is in operative shaving relation to the guard, and to release the handle relatively to both these parts for stropping.

2. A safety razor as claimed in Claim 1 wherein the locking means take the form of a bolt which can be projected from the end of the handle into engagement with the underside of the carriage.

3. A safety razor as claimed in Claim 1 or Claim 2 wherein the guard is mounted upon the carriage and is slidable relatively to the carriage under the influence of a spring which tends to draw the guard up to the razor edge and grip it.

4. A safety razor substantially as described with reference to and illustrated in the accompanying drawing.

Dated this 6th day of June, 1929.

BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London, E.C. 1,