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(71) Applicant: **WATTS JOHN ROBERT.**

(72) Inventor: **WATTS JOHN ROBERT ().**

(54) **SAFETY RAZOR**

(57) **Abstract:**

(54) **RASOIR DE SURETE**

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TO ALL WHOM IT MAY CONCERN:

Be it known that I, John Robert Watts,
a subject of the King of Great Britain, and a resident of
the City of Sheffield, England, have invented certain new
and useful improvements in

SAFETY RAZORS

of which the following is a specification:

This invention appertains to improvements in safety razors, and has for an object to provide an extremely simplified construction and arrangement of parts as to greatly facilitate the changing of blades without dismantling the entire holder as has heretofore and often been required for the purpose.

Another object of the invention is to provide a safety razor as hereinbefore characterized, which embodies a means whereby the blade holder proper of the razor may be readily and easily adjusted to a desired angular relation

with respect to the connected end of the handle portion, whereby the manipulation of the razor will be greatly facilitated and in a manner to assure of a more uniform shaving of the varying contours of the face and neck of the user.

Generally, according to the present invention the blade holder is provided with an arm or bracket adjacent to each end on one side supporting the handle pivot spindle and a blade clamping device extends through the holder and is operated by a nut or screw which is situated between the holder and the handle pivot spindle. In this manner, the arms or brackets, blade holder and handle pivot spindle provide a frame enclosing the operating nut or screw of the blade clamping device which, when the blade is of sufficient stiffness, as is preferred, to dispense with a backing, may comprise a T-headed bolt passing through a slot in the blade and tightened by a nut. The slot may be formed in the base of a circular recess in the blade to contain the bolt head and to limit or to prevent its projection beyond the blade surface. In order to facilitate the clamping of the blade and to adjust the amount of the clamping grip, the T-head of the bolt may be of spring material curved for its ends to bear on the blade before its central portions.

The nut operating the blade clamping device is preferably attached to the holder by means which allow rotary, but prevent axial, movement of the nut in relation to the holder. For this purpose, the nut may be provided with a hollow cylindrical axial extension passing through an aperture in the holder and upset in a recess surrounding the aperture. In this manner the nut is permanently attached to the holder and when rotated to loosen the blade, positively moves the bolt away from the holder, thus facilitating removal of the blade.

The ends of the arms carrying the handle pivot spindle may extend through the holder and form positioning pins for the blade.

The pivoted portion of the handle is preferably provided with a head or flange formed with bearing surfaces for the pivot spindle, the edges of the sleeve being formed with like bearing surfaces, both sets of which may be V-shaped to increase the clamping grip, or they may be roughened, notched, grooved or serrated for a like purpose. If desired, the contacting parts of the pivot spindle may be likewise roughened, notched, grooved or serrated.

The handle pivot spindle may be provided by parts of the arms or brackets sprung into the pivoted portion of the handle, or the arms and handle pivot spindle may be provided by one length of wire in which case the pivoted portion of the handle is conveniently formed with a lateral opening leading to bearing surfaces at one end of a longitudinal slot therein, the clamping sleeve covering the opening and slot in its operative position.

If desired, the handle clamping nut may comprise a sleeve-like portion containing a spring tending to move the clamping sleeve towards the handle pivot spindle so that a more gradual adjustment of the handle clamping may be effected.

When the blade is of substantial thickness, the holder is preferably recessed longitudinally to correspond with the shape of the blade and to bring its edges into the desired proximity to the guards or combs of the blade holder.

With the foregoing and other equally important objects and advantages in view, the invention resides in the certain new and useful combination, construction and arrange-

ment of parts as will be hereinafter more fully described, set forth in the appended claims, and illustrated in the accompanying drawings, in which:

Figure 1 is an elevation of a safety razor according to the present invention,

Figure 2 is a central longitudinal section of Figure 1, on the line 2--2,

Figure 3 is a plan of Figure 1,

Figure 4 is a detached view of the pivoted portion of the handle and its pivot spindle,

Figures 5, 6 and 7 are views similar to Figures 1, 2 and 3, illustrating a modification, and

Figure 8 is a detached view of the clamping sleeve.

Referring to the drawings, wherein like characters of reference designate corresponding parts throughout the several views thereof, and more particularly to Figures 1 to 4, the embodiment of the invention, as shown therein by way of example, includes the blade 11 which is carried on one side of a holder 12 and on the other side of this holder an arm, bracket or the like, 13 is provided adjacent to each end. The handle is pivoted between the arms 13 and comprises a pivoted portion 14, a clamping sleeve 15 and a nut 16 (which may provide the handle proper) engaging a screwed length of the pivoted portion 14. The handle pivot spindle 17 is provided by the ends of the arms or brackets 13 sprung into suitable recesses in, or a hole through, the pivoted portion 14. The blade 11 may be double-edged, and may be of the wafer variety (in which case a clamping backing is used as hereinafter described). Preferably, however, the blade 11 is of sufficient stiffness to dispense with a backing. It is

clamped to its holder 12 by a screw device comprising a bolt 18 with a suitably shaped head 19 on the blade side and a nut 20 on the bolt situated between the holder 12 and the handle pivot spindle 17. The arms or brackets 13 are of sufficient length and distance apart to enable the nut 20 to be easily accessible.

The blade clamping bolt 18 is preferably a T-headed one, its head 19 passing through a slot 21 in the blade 11 and engaging it by a partial rotary movement as shown in Figure 3. Preferably, the head 19 is of spring material curved for its ends to bear on the blade 11 as shown in Figure 2 before its central portions. In this manner the amount of clamping grip exerted by the nut 20 may be more easily and better adjusted than when a rigid head is provided for the bolt 18, whilst any tendency for the bolt to rotate as the nut 20 is tightened will be prevented after the ends of the T-head come into contact with the blade.

The nut 20 is preferably rotatably attached to the holder 12 for which purpose it is provided with a hollow cylindrical axial extension 22 passing through an aperture in the holder 11 and upset as indicated at 23 in a recess surrounding the aperture. In this manner when the nut 20 is unscrewed the bolt head 19 will be positively moved away from the blade 11, thus considerably facilitating removal of the blade. The nut will also thus always be in the position illustrated and will not be liable to move towards the pivoted handle nor to limit the full range of movement of the latter. Further, the blade may be removed for cleaning, stropping or renewal purposes without detaching any other part, thereby not only facilitating the operation, but avoiding risk of damaging the blade edges of contact with other detachable parts.

The correct position of the blade 11 in relation to the guards or combs 24 carried by the holder 12 is ensured by positioning pins 25 engaging holes in the blade in the usual manner. These positioning pins 25 may be provided by the ends of the arms or brackets 13 passing through and upset on the holder 12 as clearly shown in Figures 2 and 5.

The pivoted portion 14 is provided with a head 26 or flange formed with bearing surfaces 27 (as shown in Figure 2) for the pivot spindle 17 and the edges of the clamping sleeve 15 are also formed with like bearing surfaces 28. Although these bearing surfaces 27 and 28 are illustrated in Figure 2 as conforming to the circular shape of the pivot spindle 17, they may be V-shaped if desired in order to increase the clamping grip of the handle on its spindle. They may also be roughened, notched, grooved or serrated for a like purpose. The contacting parts of the pivot spindle 17 may be similarly formed with notches, grooves or serrations to interlock with those of the bearing surfaces so that the handle 14, 16 may be rigidly clamped in various positions.

If desired the handle nut 16 may carry a spring in an annular space around the pivoted portion 14, the spring bearing upon an inwardly projecting part of the sleeve 15 and tending to move this sleeve towards the handle pivot spindle 17, so that a more gradual clamping pressure may be applied to the spindle 17.

Although the spring of the arms or brackets 13 may be relied upon to hold the pivot spindle 17 in engagement with the part 14, any desired form of spring-controlled journals may be fitted to the arms 13. This spring grip may be arranged to set up sufficient friction on the pivoted por-

tion 14 to maintain the handle in position at the desired angle with the holder 12.

In the modification illustrated in Figures 5, 6 7 and 8, the positioning pins 25, arms 13 and pivot spindle 17 are all provided by different portions of one length of wire or rod suitably bent or formed. In this case the pivoted portion 14 of the handle is formed with a lateral opening 29 leading to the bearing surface 27 which is formed at one end of a longitudinal slot 30 in the part 14 adjacent to its head 26. The pivot spindle 17 may thus pass through the lateral opening 29 and be brought to the bearing surface 27 by suitably moving the parts, after slackening the handle nut 16 and moving the sleeve 15 to expose the opening 29. The pivot spindle 17 may be retained in contact with the bearing surface 27 by the bearing surfaces 28 (Figure 8) on the edge of the clamping sleeve 15 when brought into the position shown in Figures 5 and 6 in which position the sleeve covers and closes the opening 29.

When the blade 11 is of substantial thickness, the holder 12 is preferably recessed longitudinally as shown in Figure 6 to correspond with the shape of the blade and to bring its edges into the desired proximity to the guards or combs 24 of the holder 12.

If desired the blade 11, when of sufficient thickness may be formed with a circular recess 31 (Figures 6 and 7) to receive the head 19 of the blade clamping bolt, the slot 21 being formed in the base of the recess 31. In this manner the projection of the head 19 above the surface of the blade 11 is reduced or such projection may be altogether avoided.

When a blade of the wafer variety is used it is

preferred to employ a backing plate to clamp it to the holder 11, the backing plate being provided with a screwed pin to be engaged by the nut 20.

By the employment of the invention with a stiff blade, the blade may be removed from the holder for cleaning, stropping or renewal, without detaching any other part, by merely loosening the blade clamping nut 20 and turning the bolt head 19 to register with the slot 21 in the blade. For ordinary use and maintenance, therefore, it will be unnecessary to separate the tool into more than two parts, the blade and the holder assembly.

Without further description, it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or its scope as claimed.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed, what is claimed is:

1. A safety razor comprising a handle, a blade holder carried at one end of said handle, a clamp member adapted to overlies a blade supported on the outer side of said holder, and securing means carried by said clamp member and adapted to engage beneath said holder to secure the blade in position.

2. A safety razor comprising a handle, a blade holder supported in spaced relation to and at one end of said handle, a clamp member adapted to overlies a blade supported on the outer side of said holder, and securing means carried by said clamp member and adapted to engage beneath said holder to secure the blade in position.

3. A safety razor comprising a handle, a blade holder supported from its opposite ends in spaced relation to and at one end of said handle, a clamp member adapted to overlies a blade supported on the outer side of said holder, and securing means carried by said clamp member and adapted to engage beneath said holder to secure the blade in position.

4. A safety razor comprising a handle, a blade holder at one end of said handle, a bracket carried by the said handle end and supporting said blade holder in position, a clamp means adapted to overlie a blade supported on the outer side of said holder, and securing means carried by said clamp member and adapted to engage beneath said holder to secure the blade in position.

5. A safety razor comprising a handle, a blade holder at one end of said handle, a bracket having spaced arms projecting beyond the said handle end and secured to the opposite ends of said holder, a clamp means adapted to overlie a blade supported on the outer side of said holder, and a securing means carried by said clamp member and adapted to engage beneath said holder between the said arms of the bracket to secure the blade in position.

6. A safety razor comprising a handle, a blade holder at one end of said handle, a bracket having spaced arms projecting beyond the said handle end and secured to the opposite ends of said holder, a clamp means adapted to overlie a blade supported on the outer side of said holder, a member carried by said clamp means and adapted to be passed through aligned openings formed in the blade and said holder, and securing means engageable with the inner end of said member for clamping engagement with the inner side of said holder and between said arms of the bracket.

7. A safety razor comprising a handle, a blade holder at one end of said handle, a bracket having spaced arms projecting beyond the said handle end and secured to the opposite ends of said holder, a resilient clamp means adapted to overlies a blade supported on the outer side of said holder, a member carried by said clamp means and adapted to be passed through aligned openings formed in the blade and said holder, and securing means engageable with the inner end of said member for clamping engagement with the inner side of said holder and between the said arms of the bracket.

8. A safety razor comprising a handle, a blade holder at one end of said handle, a bracket having spaced arms projecting beyond said handle end and secured to the opposite ends of said holder, a resilient clamp means adapted to overlies a blade supported on the outer side of said holder, securing means carried by said clamp member and adapted to engage beneath said holder between the arms of the bracket to secure the blade in position, and means for adjusting the bracket angularly with respect to said handle.

9. A safety razor comprising a handle, a bracket carried at one end of said handle and having spaced arms projecting in parallel relation thereof, a blade holder carried at the ends of said arms, a clamp member for securing a blade on the outer side of said holder, a threaded shank carried by said clamp member and adapted to be engaged through aligned openings formed in the blade and said holder, a clamp nut at the inner end of said shank, and means for adjusting said holder angularly with respect to said handle.

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10. A safety razor comprising a handle, a bracket carried at one end of said handle and having spaced arms projecting in parallel relation therefrom, a blade holder carried at the ends of said arms, a clamp member for securing a double edged blade on the outer side of said holder, a threaded shank carried by said clamp member and adapted to be engaged through aligned openings formed in the blade and said holder, a clamp nut at the inner end of said shank, and means for adjusting said holder angularly to one side or the other of opposite sides of said handle.

11. A safety razor comprising a handle, a bracket at one end of said handle and having spaced arms projecting therefrom, a blade holder carried at the ends of said arms, a clamp member for securing a double edged blade on the outer side of said holder, a threaded shank carried by said clamp member and adapted to be engaged through aligned openings formed in the blade and said holder, a clamp nut at the inner end of said shank, and means for adjusting said holder angularly to one side or the other of opposite sides of said handle.

12. A safety razor comprising a tubular handle, a bracket detachably mounted on one end of said handle and having spaced arms projecting therefrom, a threaded shank carried by said bracket and engaged through the axial bore of said handle, a lock nut engaged on the threaded end of said shank, a blade holder carried at the ends of the said arms, a clamp member for securing a double edged blade on

the outer side of said holder, a threaded shank carried by said clamp member and adapted to be engaged through aligned openings formed in the blade and said holder, a clamp nut at the inner end of said last-named shank, and means for adjusting said holder angularly to one side or the other of opposite sides of said handle.

Safety Razor

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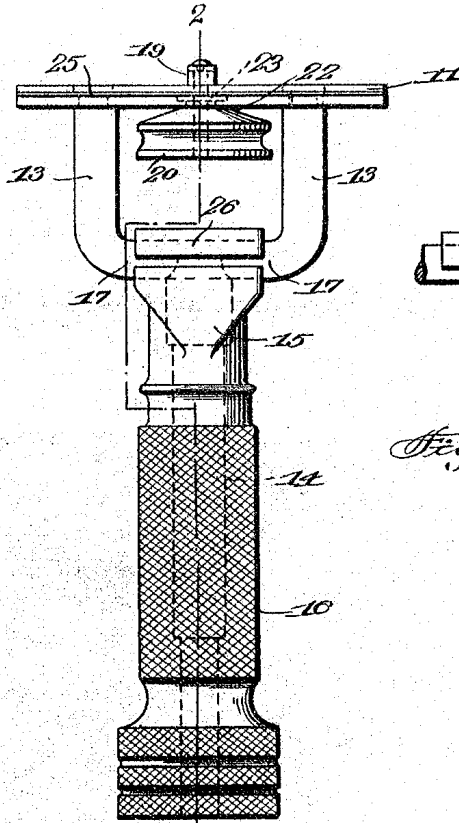


Fig. 1.

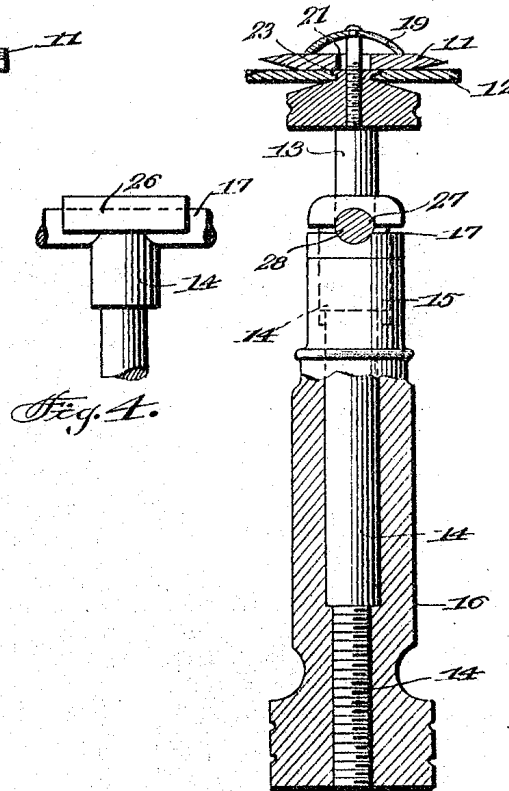


Fig. 2.

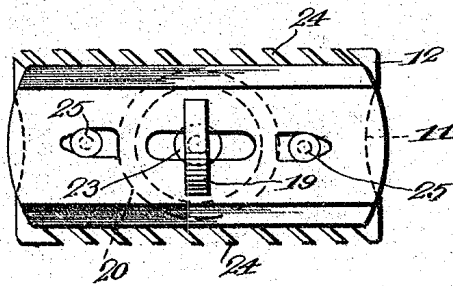


Fig. 3.

WITNESSES

Joe. R. Kamin
E. A. Handsley

Certified to be the drawings referred to
in the specification hereunto annexed.

New York, Mar. 8, 1929

INVENTOR

John Robert Watts

BY

Munroe

ATTORNEYS

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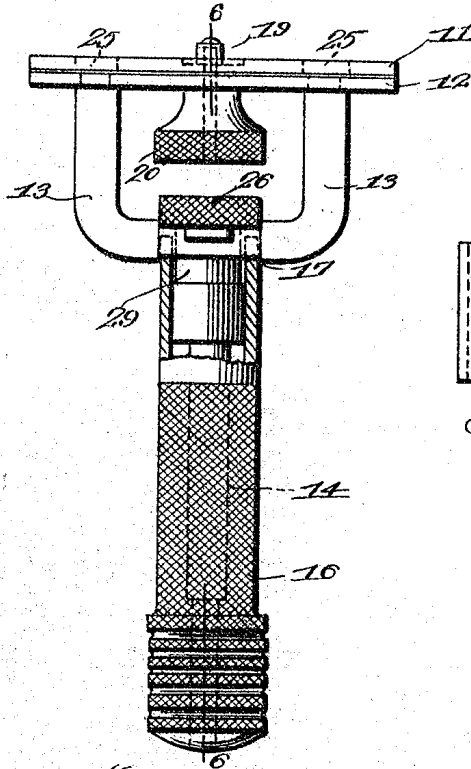


Fig. 5.

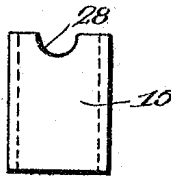


Fig. 8.

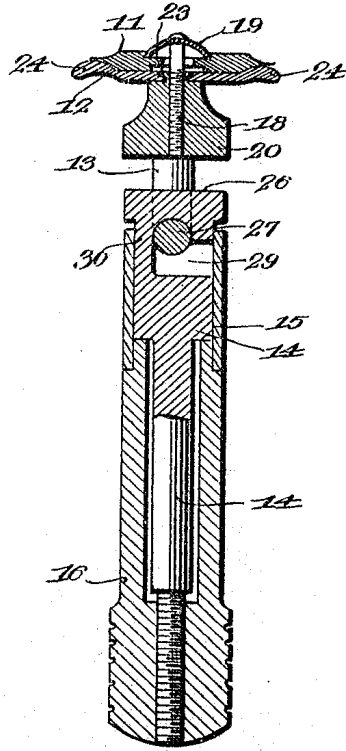


Fig. 6.

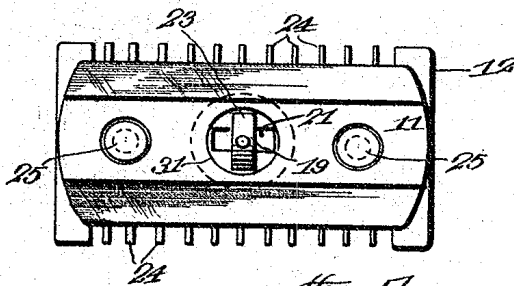


Fig. 7.

WITNESSES

Certified to be the drawings referred to
in the specification hereunto annexed.

New York, Mar. 8, 1929

INVENTOR

John Robert Watts

BY

Mumford

ATTORNEYS