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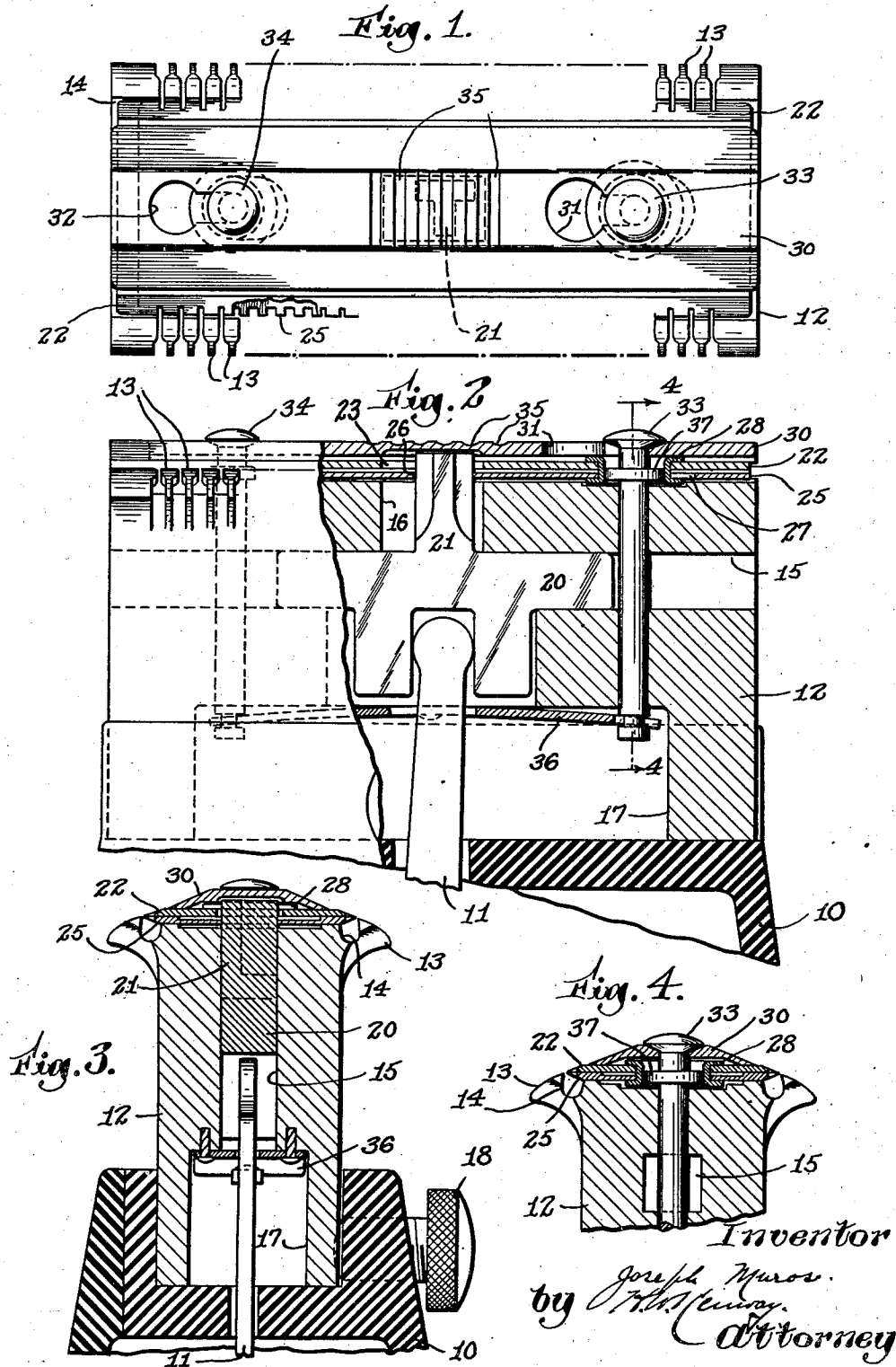
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2,107,207

SHAVING IMPLEMENT

Filed May 19, 1936

2 Sheets-Sheet 1



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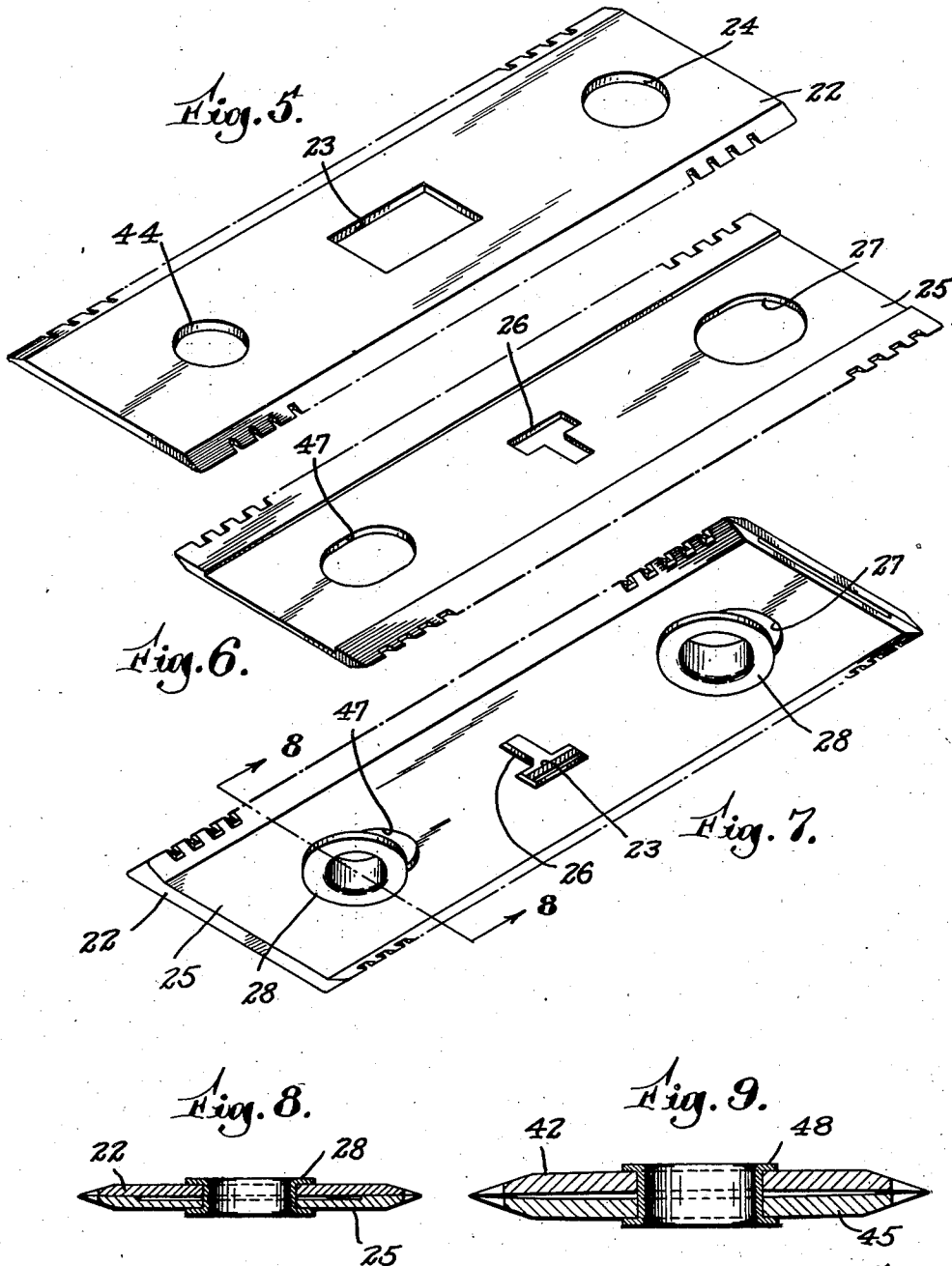
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2 Sheets-Sheet 2



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SHAVING IMPLEMENT

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8 Claims. (Cl. 30-43)

This invention relates to shaving implements of the type employing relatively movable shearing members and generally used without lather for shaving.

In one aspect the invention consists in a detachable self-contained unit comprising a pair of blades having co-operating shearing surfaces and being connected in relatively movable relation. The blade members may take many forms in accordance with the design of the implement in which they are to be used, but as herein shown they are thin, elongated and provided with shearing teeth in their longitudinal edges. A unit of this character may be economically constructed using blade stock of the general character now employed for safety razor blades or perhaps somewhat thicker material. Such blades may be prepared and sharpened at comparatively little expense and the unit in which they are embodied may be discarded by the user when it has become dull in use in favor of a new or newly sharpened unit. This feature is of importance because in dry shaving implements as heretofore constructed the shearing surfaces have been formed in solid steel members which are expensive to manufacture and which require special grinding machinery. It is not practicable for the user either to replace or resharpen such members. The self-contained unit of the present invention, on the other hand, may be produced at such relatively low cost that the user can well afford to equip himself with a supply for use in replacement whenever dulling of the shearing edges becomes noticeable.

One satisfactory construction for maintaining the individual blades in assembled relation as a self-contained unit is herein shown though alternative constructions will be readily available. It is desirable to maintain the blades with some degree of face-to-face pressure or at least in firm surface contact in order to insure effective shearing action. To this end the two blades may be united by flanged fasteners, such as eyelets, in such manner as to cause slight initial spring in the resilient material of the blades. This may be brought about by providing one or both of the blades with an intermediate surface recess or by imparting a slightly bowed initial shape to the blades so that they tend to bear principally along their marginal edges in the zone of the shearing teeth.

If tubular fasteners are used to hold the blades together, these fasteners may be also utilized as blade-locating means in shaving implements, as for example, by designing them to interfit with

blade-locating studs or the like. As herein shown, the two blades are connected by a pair of spaced flanged eyelets. These eyelets fit snugly in one blade while they have a slot connection with the other blade permitting limited relative longitudinal motion of the two. By making the fasteners of different sizes they may be also utilized to insure the location of the unit in the implement always in a selected position.

The invention is herein shown as embodied in a double-edged implement effective when moved transversely in either direction across the face of the user, but it may obviously be advantageously embodied in an implement having a single operating face.

Other features of the invention relate more particularly to the mechanism for detachably securing the blade unit in operative position and in the mechanism for imparting rapid vibration to one blade of the unit while the other is held at rest.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings, in which:—

Fig. 1 is a plan view of the implement;

Fig. 2 is a view in side elevation partly in longitudinal section, the casing being broken away;

Fig. 3 is a corresponding view in central cross-section;

Fig. 4 is a fragmentary view in cross-section on the line 4—4 of Fig. 2;

Figs. 5 and 6 are views in perspective of the upper blade and the lower blade, respectively;

Fig. 7 is a view in perspective of the self-contained blade unit as seen from beneath;

Fig. 8 is a view in cross-section of the blade unit on the line 8—8 of Fig. 7; and

Fig. 9 is a similar view of a blade unit of modified construction.

The implement as herein illustrated includes a casing 10 which also serves as a handle and in which is enclosed a small motor, not shown, effective to oscillate the operating lever 11. Only the upper end of the casing and the parts mounted therein are shown in the drawings since the casing forms no part of the present invention. The casing is provided in its upper end with a rectangular socket in which is removably held an elongated substantially rectangular block 12, flanged at its opposite upper edges and slotted to present outwardly and oppositely directed series of guard teeth 13. The guard teeth are curved smoothly to engage the face of the user and serve

to direct the hairs into the shearing spaces of the implement. The teeth are also shouldered so that they serve to straighten bent-over hairs and present them in favorable position for shearing.

5 Extending longitudinally of the block, through the base of each series of guard teeth is a slot 14 which underlies the two shearing zones in the implement, as will be presently described. The block 12 is also provided with a longitudinal pas-

10 sage substantially square in cross-section, as best shown in Fig. 3, and with a vertical opening 16 which intersects the passage 15 and is shouldered at the upper surface thereof, that is, the upper portion of the opening 16 is substantially narrower

15 than the lower portion thereof. The block 12 is also provided with a large rectangular chamber 17 in its lower face. The block 12, with the parts carried thereby, is shaped to be received in the socket provided therefor in the end of the casing

20 and may be removably clamped in place by a thumb screw 18 which is threaded through one side of the socket and engages a depression in the outer wall of the block 12.

An operating slide 20 is mounted for reciprocation in the longitudinal passage 15 of the block. The slide is provided with a single upwardly directed operating arm 21 which is T-shaped in cross-section and serves as an operating connection between the slide 20 and the movable blade

30 of the implement, as will be presently described. The slide 20 is also provided with a pair of spaced downwardly extending arms which embrace the upper rounded end of the operating lever 11. The vertical opening 16 affords sufficient clearance to

35 permit the slide 20 to be reciprocated for the full amplitude of its stroke. When the block 12 is released and removed from its position in the casing 10 the upper end of the lever 11 merely slides out of engagement with the downwardly

40 extending arms of the slide 20 and this connection is readily re-established when the block is returned to its position.

The shearing unit of the implement herein shown comprises a pair of thin double-edged resilient blades oppositely bevelled at their longitudinal edges and assembled in a self-contained unit under continuous face-to-face pressure. The uppermost and stationary blade 22 of the unit,

45 as best shown in Fig. 5, is provided with a centrally-disposed rectangular opening 23 which, in the assembled implement, is located above the end of the upstanding operating arm 21 of the slide and supplies ample clearance so that the reciprocation of the slide has no effect on the

50 blade 22. The blade is provided with a circular aperture 24 near one end and with a corresponding but relatively smaller circular aperture 44 near its other end. Both its longitudinal edges are bevelled outwardly and downwardly and are

60 slotted or notched to provide transverse shearing edges.

The lower and movable blade 25 is of the same general shape and character although slightly shorter in length and provided with a longitudinal intermediate recessed zone in its upper face for the purpose of reducing the amount of frictional engagement between it and the stationary blade 22. The blade 25 is provided near one end

65 with an elliptical opening 27 and near the other end with a similar but relatively smaller elliptical opening 47. It is provided centrally with a T-shaped aperture 26 adapted to receive the upper arm 21 of the operating slide 20.

The two blades above-described are assembled

75 in a self-contained unit by means of a pair of

flanged eyelets 28 which are passed through the end apertures of the two blades and headed so as to hold them continuously under pressure. In passing through the circular apertures of the uppermost blade 22 the eyelets 28 make a close fit but in passing through the elliptical aperture 27 of the lower blade 25, the eyelets 28 are received with appreciable longitudinal clearance so that the lower blade 25 may be vibrated or reciprocated back and forth with reference to the uppermost stationary blade 22. As will be apparent in Fig. 8, the face of the recessed blade 25 provides a more or less resilient seat for the eyelet flange and there is sufficient spring in the blade 25 to develop constant resilient face-to-face pressure in the unit.

The self-contained blade unit is supported upon the upper face of the block 12 which for that purpose is longitudinally recessed to reduce friction between the said lower blade 25 and the upper face of the block 12. In uniting the co-operating blade members 22 and 25 the eyelets 28 may be clinched with sufficient intensity to spring slightly the relieved portion of the lower blade 25 and thus maintain the two continuously under yielding pressure. The pressure thus developed, however, is entirely self-contained in the unit.

The blade unit is retained in shaving position upon the block 12 by means of an elongated clamping plate 30 having a large key-hole aperture in the end corresponding to the large circular aperture 24 of the upper blade and a smaller key-hole aperture in a position corresponding to a smaller opening 44 in the same blade. The clamping plate 30 is removably held in clamping position by a pair of headed studs 33 and 34 of unequal diameter. These are connected at their lower ends to a single leaf spring 36 which is secured in place upon the roof of the chamber 17. The leaf spring is bowed to maintain a constant inward tension upon the studs 33 and 34 and the latter are mounted in the block 12 for limited longitudinal movement. The studs 33 and 34 are each provided with a circular collar 37 of such size as snugly to fill the inside of one or the other of the eyelets 28 and the head of each stud is tapered to a circumferential edge. The clamping plate 30 is provided centrally with a series of transverse corrugations 35 furnishing a roughened grip by which the clamping plate may be slipped longitudinally to engage or disengage its key-hole apertures from the studs 33 and 34.

As already noted the blades 22 and 25 are assembled with their bevelled edges superposed and converging at each side to a common edge and with the large circular recess 24 of one blade registering with the large elliptical aperture 27 of the other. This will bring the rectangular clearance aperture 23 uppermost in the unit. The unit is designed to be supported upon the upper flat face of the block 12, or upon the longitudinal lands formed therein at each side of an intermediate recessed zone. Proper location of the unit is insured because the stud 33, which is of the larger diameter, can pass only through the apertures 24 and 27 of the larger dimensions in the blades. If the unit is presented the wrong end around the stud 33 cannot pass through the smaller apertures 44 and 47 of the blade unit and the unit cannot, therefore, be reversed end-for-end upon its seat. On the other hand, the unit is prevented from being presented with its wrong face uppermost by reason of the T-shaped aperture in the blade 25 which must be properly presented to register with the T-shaped arm 21.

Coming now to the clamping plate 30 the same conditions maintain, that is to say, this plate can be presented only with the large key-hole slot 31 in registration with the large stud 33. When the unit is properly presented the collar 37 of the stud 33 and the corresponding collar of the stud 34 exactly fill the two eyelets 28, thus accurately positioning the unit and holding the uppermost blade 22 in stationary position. The clamping plate 30 may now be placed over the stud heads and slipped toward the left as seen in Figs. 1 and 2, thus forcing the tapered heads above the slot of the key-hole apertures 31 and 32, resiliently lifting the studs against the action of the spring 36 and engaging the uppermost flanges of the eyelets 28 thus locking the blade unit in operative position.

The blade unit may be released for purposes of replacement or cleaning by slipping the clamping plate 30 toward the right, so as to release it by bringing the circular part of the key-hole apertures 31 and 32 into registration with the studs 33 and 34.

In using the implement above-described the lower blade 25 is set in rapid vibration and the implement is moved transversely in either direction from the face of the user. The guard teeth 13 thereupon act to direct the hairs to the edge of the blade unit, straightening those which are bent over and presenting them in the opening between the shearing teeth of the upper stationary blade 22. When they reach this position they are at once sheared off with a minimum of stubble by the relative movement of the shearing teeth of the lower vibratory blade 25. Meanwhile, the skin of the user is prevented by the guard teeth from reaching a position in which it might be damaged by the movement of the lower blade.

A slightly modified form of blade unit is suggested in Fig. 9 where the two resilient blades 42 and 45 are normally given a slight transverse concavity so that they make contact with each other only in their longitudinal marginal zones. The eyelets 48 in this case, are set so as to spring the blades slightly and maintain them continuously in resilient contact.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a shaving implement, a self-contained unit comprising a pair of elongated blades connected by flanged fasteners under face-to-face pressure, one of the blades being slotted for movement relative to the other.

2. In a shaving implement, a self-contained unit comprising a pair of elongated blades of substantially equal width having co-operating shearing surfaces and being recessed for clearance in an intermediate zone, and flanged fasteners for connecting the blades for relative movement under yielding face-to-face pressure.

3. In a shaving implement, a self-contained unit comprising a pair of resilient blades having co-operating shearing surfaces in their outer edges, being spaced from each other in an intermediate zone and held in resilient contact in areas including said shearing surfaces, and fasteners extending through said blades and connecting them for relative movement with respect to each other.

4. In a shaving implement, a self-contained unit comprising a pair of thin resilient blades having co-operating shearing surfaces in their outer edges, one blade having spaced circular perforations and the other elongated perforations, and flanged fasteners inserted in said perforations to unite the blades for relative movement.

5. A shaving implement comprising a self-contained unit including connected co-operating shearing blades, a support therefor, a detachable clamp for retaining the unit on the support, guard teeth on the support, and a member operatively connected to one blade and arranged to clear the other.

6. A shaving implement comprising a pair of superposed blades having co-operating shearing surfaces, a support for said blades having projections thereon, and hollow fasteners connecting said blades for relative movement and arranged to be themselves held stationary by said projections.

7. In a shaving implement, a self-contained readily detachable unit comprising a pair of elongated blades connected for relative movement in face-to-face engagement, the unit having blade-connecting means presenting locating apertures of respectively different sizes in its opposite ends.

8. A shaving implement comprising a pair of elongated blades having co-operating shearing surfaces and tubular fasteners connecting them in movable relation as a self-contained unit, and a carrier having a relieved surface for supporting the movable blade of the pair, means for engaging said tubular fasteners to hold one blade at rest, and means for vibrating the movable blade.

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