M. B. BEHRMAN.

SAFETY RAZOR.

APPLICATION FILED MAY 28, 1921.

1,403,936.

Patented Jan. 17, 1922.

Fig. 1.

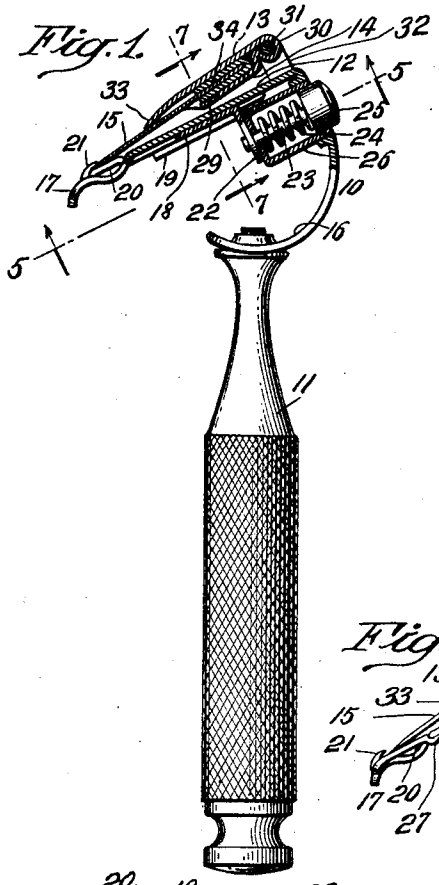


Fig. 3.

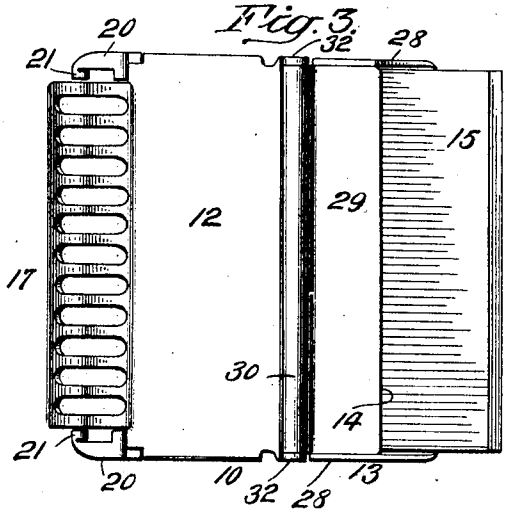


Fig. 4.

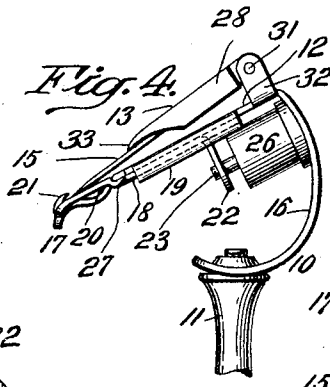


Fig. 5.

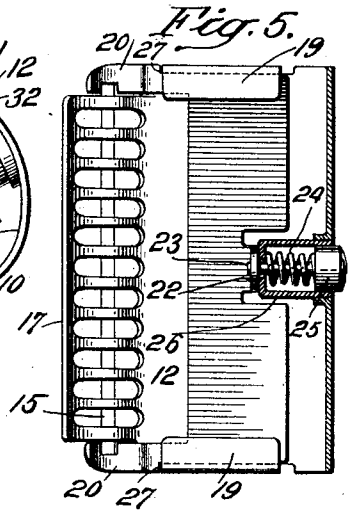


Fig. 2.

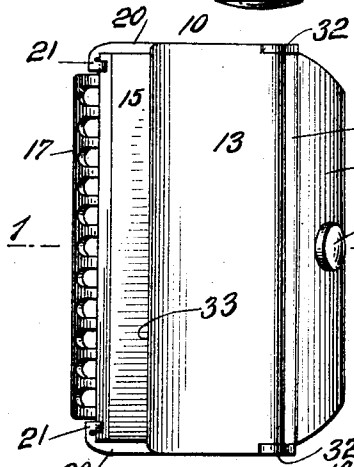


Fig. 6.

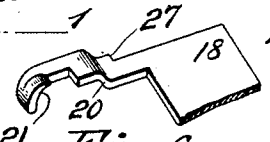


Fig. 8.

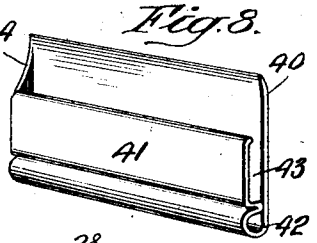
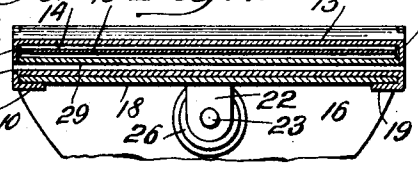


Fig. 7.



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SAFETY RAZOR.

1,403,936. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed May 28, 1921. Serial No. 473,256.

To all whom it may concern:

Be it known that I, MARCUS B. BEHRMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety Razors, of which the following is a specification.

The invention relates to safety-razors of the type employing a frame, handle and means for detachably receiving a safety razor blade of the Ever-Ready type, preferably, this character of blade being sharp at one edge and at its other edge having a head formed thereon by means of a folded piece of sheet metal.

My invention pertains more particularly to two features, one being the means for holding and positioning the razor blade and the other being a slidable plate mounted below the bed-plate of the main frame and having side arms to be pushed forwardly for releasing the blade from said bed-plate and retracted inwardly by means of a spring for engaging the front corners of the razor blade and holding the blade in firm position on said bed-plate.

One object of my invention is to provide a safety-razor constructed of few parts and mainly of sheet metal and having a cooperative relation assuring the correct operation of the several parts of the device. A further object of the invention is to provide a safety razor in which the blade may be very conveniently introduced and removed and which permits of the convenient and efficient securing of the blade in operative position. A further object of the invention is generally to improve safety-razor construction in respect to simplifying the same, lessening the cost of manufacture and increasing convenience in the manipulation and use of the device.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Fig. 1 is a vertical section through a safety-razor constructed in accordance with and embodying my invention, the section being taken on the dotted line 1—1 of Fig. 2;

Fig. 2 is a top view of the same;

Fig. 3 is a top view of the same with the cover-plate and blade holder shown in their full open position, or turned fully to the right from the closed or operative position in which said parts are shown in Fig. 1;

Fig. 4 is a side elevation, partly broken away, of the same, with the blade holder shown in closed position but released at the sharp edge of the blade so as to be turned to open position;

Fig. 5 is a section through the same, taken on the dotted line 5—5 of Fig. 1;

Fig. 6 is a detached perspective view of one end portion of the blade locking plate slidably mounted below the bed-plate of the main frame;

Fig. 7 is a sectional view through the safety-razor, taken on the dotted line 7—7 of Fig. 1, and

Fig. 8 is a detached perspective view of a combined cover-plate and blade-holder and illustrates a modified construction of the same from that shown in Figs. 1 to 7 inclusive.

In the drawings, 10 designates the general frame of the safety razor, 11 the usual handle therefor, 12 the bed-plate of said frame, and 13 a hinged cover-plate equipped on its lower side with a pocket 14 to receive the back portion of the blade 15, which may be of customary type, the blade shown being of the type commercially known as an Ever-Ready blade. The main frame 10 is formed with an upwardly and forwardly curved back member 16 adapted at its lower end to be secured upon the upper threaded end of the handle 11 in a customary manner. The bed-plate 12 is formed integrally with the back-member 16 and it inclines downwardly and forwardly, as shown in Fig. 1, and terminates at its forward edge in a guard 17.

Below the bed-plate 12 I provide a slidable frame or plate 18 which is mounted in guides 19 formed by turning the edges of the bed-plate 12 downwardly and under the body of said plate, as shown in Fig. 5, and said plate 18 has forwardly projecting arms 20 which lie at the outer ends of the guard 17 and afford seats for the end portions of the forward edge of the blade 15. The arms 20 are formed with return hook members 21 which, at the proper time, overlap the ends of the front edge of the blade (Fig. 2) and serve as catches to hold the blade down on the seats afforded by the arms 20.

The slidable plate 18 lies flat against the lower surface of the bed-plate 12, and at its

rear portion the plate 18 is bent downwardly to form an ear 22 to which is secured the forward end of a push rod 23 encompassed by a coiled spring 24 and having at its rear end a button-head 25 exposed through the main frame 10 and adapted to receive the pressure of the finger or thumb. When forward pressure is applied to the head 25, the rod 23 by its engagement with the ear 22 slides the plate 18 forwardly in a direction to carry the hooks 21 from engagement with the blade 15, this being the position of the parts shown in Fig. 4, in which it may be seen that the plate 18 has been slid forwardly for the purpose of releasing the hooks 21 from the blade 15 and allowing said blade to be turned upwardly toward the right with the cover-plate 13, or to the position in which said parts are shown in Fig. 3. I provide a tubular housing 26 for the pin or rod 23 and spring 24, as shown in Figs. 1 and 5, said housing at its forward or inner end serving as a guide for the pin or rod 23 and as a stop for the forward end of the spring 24, while at its rear end said housing serves as a guide for the head 25. The spring 24 is normally under compression holding the head 25 in its rear or exposed position shown in Fig. 1 and the hooks 21 in engagement with the extreme ends of the cutting edge of the blade 15 when said blade is in operative position. When pressure is applied against the head 25 in a direction to cause said head to compress the spring 24 against the forward end of the housing 26 and at the same time slide the plate 18 forwardly, said spring 24 becomes further compressed and upon pressure being released from the head 25 the spring will restore said head, rod 23 and plate 18 to their initial position shown in Figs. 1 and 5. The plate 18 is of substantial width and this width combined with the presence of the arms 20 compels an even sliding movement of said plate forwardly and rearwardly through the guides 19, it being my intention that the plate 18 shall be incapable of irregular or twisting action which might impair its utility or the efficiency of the device. The arms 20 are recessed at their outer edges where they move within the guides 19 and forwardly of said guides said arms are by reason of said recesses formed with stop shoulders 27, as shown in Figs. 5 and 6, which engage the forward ends of the guides 19 and prevent the spring 24 from sliding the plate 18 rearwardly to an undue extent.

The cover-plate 13 extends forwardly on the general lines of a covering shield and has depending end members 28 and a lower plate 29 which extends between said end members 28 and with the cover-plate 13 forms the pocket 14 for the blade 15. The cover-plate, end members 28 and bottom plate 29 are in one integral piece of sheet metal and at their adjoining rear end portions are bent to form a sleeve 30 through which a pin 31 is passed to serve as means, with said sleeve, for hinging the cover-plate 13 to the frame 10. The bed-plate 12 is at the ends of its rear edge formed with standards 32 which receive the ends of the pin 31 and serve to support said pin and the rear end of the cover-plate 13 suitably above the bed-plate 12, as shown in Fig. 4. The forward edge of the cover-plate 13 curves downwardly, as at 33, to engage the upper face of the blade 15. The blade 15 has along its rear edge a folded metal plate 34 which constitutes the usual head found on the back edge of known safety-razor blades. The head 34 fits within the pocket 14 formed between the plate 29 and the lower surface of the cover-plate 13 and said head is applied within said pocket at a time when the cover-plate 13 is turned upwardly from the bed-plate 12, said pocket then being entirely open at its front edge to receive the head 34. After the blade 15 has been applied to the cover-plate 13, said cover-plate and blade should be given their operative position shown in Fig. 1, and in order to position these parts pressure is applied against the button-head 25 to slide the plate 18, arms 20 and hooks 21 forwardly, and thereupon the cover-plate 13 and blade 15 are turned downwardly against the exposed portions of the arms 20 or to the position shown in Fig. 4, whereupon the pressure of the thumb against the head 25 is released and the spring 24 is permitted to retract the plate 18 and arms 20 and engage the hooks 21 over the ends of the cutting edge of the blade, or to the position shown in Fig. 1. When the parts have attained the relation just described the hooks 21 aided by the spring 24 will firmly hold the blade 15 in operative position and through said blade keep the cover-plate 13 in its downwardly closed position. The head 34 on the blade 15 has a broad engagement with the cover-plate 13 and plate 29 and the forward edge of the cover-plate, at 33, engages the face of the blade 15, and hence when the blade is in position for operation, both the blade and cover-plate become locked together and independent movement of either the cover-plate 13 or blade 15 is prevented.

In accordance with my invention I provide an easily constructed safety razor and one in which the parts are not only durable but have an efficient relation to and cooperation with one another. The plate 18 having the arms 20 and hooks 21 has an even direct forward and backward movement and is normally held in its rear position by the spring 24 which is enclosed within the housing 26. The button-head 25 serves as a conveniently located means for pressing the

plate 18 forwardly, and the plate 18 with all of its parts, less the housing 26, is in one integral piece of sheet metal. The main frame composed of the member 16 and bed-plate 12 are in one integral piece of sheet metal, and the cover-plate 13 and bottom-plate 29 forming the pocket for the razor blade and the sleeve for the pin 31 are in one integral piece of sheet metal. It will thus be seen that my safety-razor consists of few easily assembled and easily constructed parts.

In the construction shown in Figs. 1 to 7 inclusive, the pocket 14 is formed with closed ends and the head on the blade 15 is inserted edgewise along its length into said pocket. In Fig. 8 I illustrate a modified construction in which I number the cover-plate, this being a modification, 40, the bottom plate 41, the sleeve 42 and the pocket for the blade 43. In the construction shown in Fig. 8 the pocket 43 has a closed end 44 and an open end, and the head of the blade 15 will be inserted endwise through said open end of the pocket and up against the closed end thereof. The difference in the construction between the parts shown in Figs. 1 and 2 and that shown in Fig. 8 resides in the provision of the open end for the pocket to receive the blade endwise instead of requiring, as in Figs. 1, 3 and 4, an edgewise insertion of the head of the blade into the pocket therefor.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A safety-razor comprising a main frame affording a bed-plate having at its forward edge a guard, a handle for said frame, a slidable plate mounted below said bed-plate and having side arms whose forward portions lie at the outer sides of said guard and afford seats for the ends of the cutting edge of a safety razor blade and also have return hooks to engage said blade, a spring for normally holding said slidable plate in its rear position with said hooks in engagement with the blade, a thumb-piece for pushing said slidable plate forwardly in opposition to said spring for freeing said hooks from said blade, a hinged holder above said bed-plate for the blade, and a blade held at its back edge in said holder and adapted to engage at its forward edge said seats.

2. A safety-razor comprising a main frame affording a bed-plate having at its forward edge a guard, a handle for said frame, a slidable plate mounted below said bed-plate and having side arms whose forward portions lie at the outer sides of said guard and afford seats for the ends of the cutting edge of a safety razor blade and also have return hooks to engage said blade, a spring for normally holding said slidable plate in its rear position with said hooks in engagement with the blade, a thumb-piece for pushing said slidable plate forwardly in opposition to said spring for freeing said hooks from said blade, a combined cover-plate and blade holder above said bed-plate comprising a forwardly extending top or cover member and a lower pocket forming member below the rear portion of said top member, means hinging said combined cover plate and blade holder above the rear portion of said bed-plate, and a blade detachably held at its back edge in and by said pocket and adapted to engage at its forward edge to said seats, guard and hooks.

3. A safety-razor comprising a main frame forming a bed-plate having at its forward edge a guard and its sides turned under to form supports and guides, a handle connected with said frame, a slidable plate mounted below said bed-plate in said guides and having side arms whose forward portions lie at the outer sides of said guard and afford seats for the ends of the cutting edge of a safety razor blade and also have return hooks to engage said blade, said arms also having stop shoulders to engage the edges of the bed-plate and arrest said slidable plate against undue backward movement, a spring for normally holding said slidable plate in its rear position with said hooks in engagement with the blade, a thumb-piece for pushing said slidable plate forwardly in opposition to said spring for freeing said hooks from said blade, a hinged holder above said bed-plate for the blade, and a blade held at its back edge in said holder and adapted to engage at its forward edge said seats.

4. A safety-razor comprising a main frame affording a bed-plate having at its forward edge a guard, a handle for said frame, a slidable plate mounted below said bed-plate and having side arms whose forward portions lie at the outer sides of said guard and afford seats for the ends of the cutting edge of a safety razor blade and also have return hooks to engage said blade, a housing secured to said main frame below said bed-plate and open at its rear end, a spring in said housing, a rod extending through said spring and the front end of said housing and secured to said slidable plate for imparting movement to the same, said rod having on its rear end a push-head guided in and exposed beyond said housing and serving as a stop for said spring, and said spring normally holding said slidable plate in its rear position with said hook in engagement with the blade, a hinged blade-holder above said bed-plate and a blade detachably held at its back edge in said holder and adapted to engage at its forward edge said seats.

5. A safety-razor comprising a main frame forming a bed-plate having at its

forward edge a guard and at its rear edge a downwardly extending handle receiving member, a slidable plate mounted below said bed-plate and having at its forward end, side arms which project forwardly of the body of the slidable plate and lie at the outer sides of said guard and present raised seats for the ends of the cutting edge of a safety razor-blade, said arms also having return hooks to engage the blade, a spring normally holding said slidable plate in its rear position with said hooks in engagement with the blade, means for pushing said slidable plate forwardly in opposition to said spring for freeing said hooks from said blade, a blade-holder for the blade, and a blade held at its back edge in said holder and adapted to engage at its forward edge said seats.

Signed at New York city, in the county of New York and State of New York, this 26th day of May, A. D. 1921.

MARCUS B. BEHRMAN.