May 14, 1940. L. KUHNL 2,200,752

MAGAZINE FOR RAZOR BLADES

Filed March 29, 1939

Fig. 1.

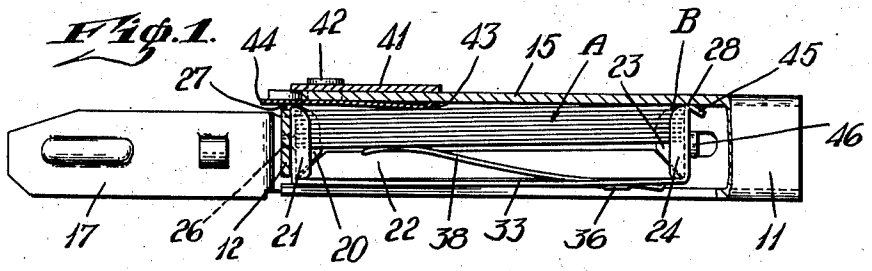


Fig. 2.

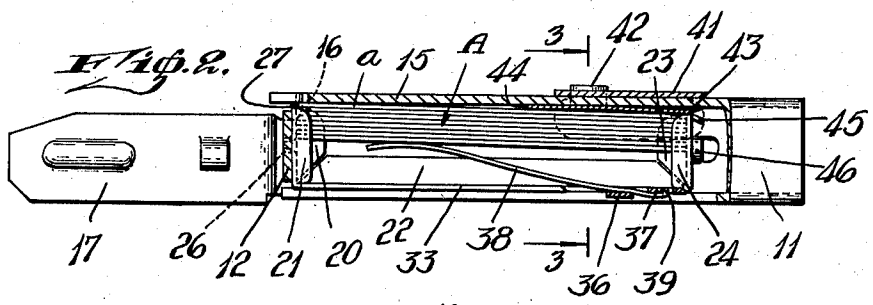


Fig. 3.

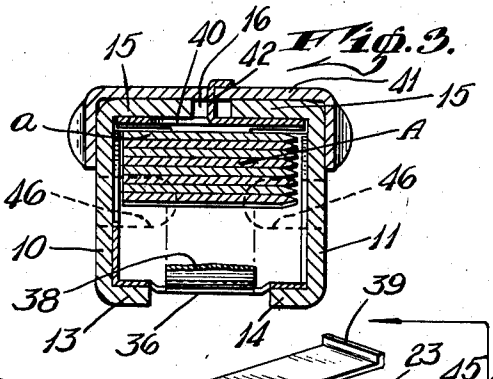
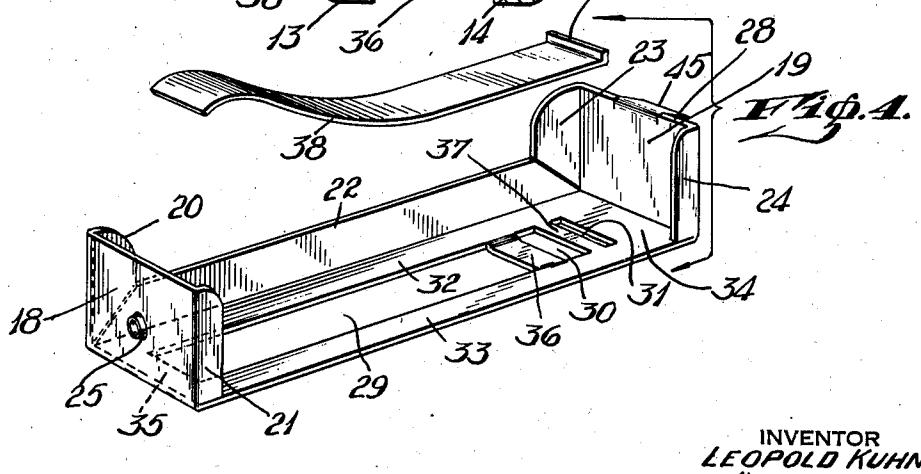


Fig. 4.



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MAGAZINE FOR RAZOR BLADES

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Application March 29, 1939, Serial No. 264,712

2 Claims. (Cl. 206—16)

The invention relates to an improved razor blade magazine of the type provided with means for ejecting blades therefrom one by one and as they are ejected feeding them to shaving position in a razor head. It should be noted, however, that the invention is not concerned with the disposition of a blade after it it is ejected, and it is immaterial whether or not an ejected blade is injected into a razor head.

The general nature and purposes of the device will be understood after examining the blade magazines illustrated and described in United States Patent No. 1,969,945 to O. V. Rodrigues, United States Patent No. 2,043,046 to Leopold Kuhnl, United States Patent No. 2,109,017 to O. V. Rodrigues, and generally described they comprise a casing, a receptacle within the casing in which a stack of blades is retained, a reciprocable plunger for successively ejecting blades from the stack through an orifice in the casing, and means for aligning the magazine with a razor head so that each blade as it is ejected from the magazine will be properly directed to shaving position in the razor head.

In blade magazines of this general character it has been frequently found that, as the plunger is retracted, it often exerts sufficient frictional effect on the topmost blade of the stack to drag the blade back with it, with the result that the plunger cannot be made to engage the blade for ejecting it into the razor head. This is due to the fact that clearance is provided between the end wall of the receptacle and the upper wall of the casing in order to permit the blade engaging plunger to pass to the rear of the stack preparatory to engagement with the topmost blade for ejecting it. This clearance may be sufficient to permit not only the plunger but also a blade to pass through it at the same time, although, as a practical matter, the clearance is preferably considerably less than the thickness of the plunger plus a blade. However, if on retraction of the plunger a blade is dragged into the clearance, the plunger becomes jammed and cannot pick up a blade on its forward stroke.

It is the object of the invention to prevent frictional engagement of the plunger from dragging the topmost blade of the stack back through the clearance referred to.

Referring to the drawing:

Fig. 1 is a view of the parts broken away showing the construction of the inner working parts and showing the position of the plunger and the relationship of the parts at the completion of a blade-ejecting stroke;

Fig. 2 is a view similar to Fig. 1 but showing the plunger in a partially retracted position;

Fig. 3 is a view on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view showing the parts constituting the blade stack receptacle.

Referring to the drawing more in detail, the casing or housing (see Figs. 2 and 3) comprises a sheet metal structure consisting of the side walls 10 and 11, the end wall 12, the bottom flanges 13 and 14, and the top wall 15, the top wall 15 being provided with the slot 16 running nearly its entire length and serving as a guide for the blade-ejecting unit as will presently be described. The casing may be extended to form an aligning finger 17 if the device is to be used for injecting blades into a razor head. In such case the razor head would be provided with an aligning slot of well-known construction, such as is described in the patents above referred to.

A stack of blades indicated as a whole by the letter A is contained in an inner receptacle the component parts of which are best shown in Fig. 4. This receptacle is, as I prefer to show it, an open, boxlike structure, comprising the forward end wall 18, the rear end wall 19, the flanges 20, 21, 22, 23, and 24, the flanges 21 and 24 bearing merely against the ends of the edges of the blades and serving with the other flanges to retain the stack in the receptacle. The greater portions of the edges are thus free from contact with the wall of the casing when the receptacle is in place therein, as shown in Figs. 2 and 3. The front wall 18 of the receptacle is provided with a lug 25 which, when the receptacle is in the casing, projects into an aperture 26, the purpose being to locate the front wall so that there is a definite fixed clearance 27 between its upper edge and the top wall 15 of the casing to permit of the ejection of a blade therethrough.

The rear wall 19 of the receptacle is of such a height as to allow for clearance between its upper edge 28 and the top wall of the casing, the purpose being to permit the rearward passage of the blade-ejecting plunger therethrough, as will be presently explained. The receptacle is supported by resting on the flanges 13 and 14 of the casing but is resiliently pressed upwardly, the lug 25 pivoting on the walls of the aperture 26, by the construction which I will now describe.

It will be observed that a considerable part of the bottom wall of the receptacle (see Fig. 4) is largely removed, leaving the rectangular aperture 29, the aperture 30, and the aperture 31. In other words, the bottom of the receptacle may be described as being composed of the strips 32

and 33, the end portions 34 and 35, the connecting piece 36 and the connecting piece 37 extending from one side strip to the other. The connecting strip 36 is, it will be noted, dropped slightly below the level of the side strips 32 and 33.

The spring 38 serves the dual function of resiliently pressing the stack of blades upwardly so that the top blade *a* is in line with the ejection orifice 27 and also of resiliently biasing the upper edge 28 of the rear wall of the receptacle toward the top wall 15 of the casing. The manner in which it does this may be understood from an examination of Figs. 1 and 4. The spring is mounted in cantilever fashion in the bottom of the casing, the connecting piece 36 serving as one fulcrum and the connecting piece 37 serving as the other fulcrum, and, when there is no load on its free end, this free end extends considerably above the plane connecting the two end walls. The upturned portion 39 of the spring extends into the aperture 31, this arrangement however being merely to anchor the spring in position. The spring when under tension bears upwardly on the connecting piece 37 and downwardly on the connecting piece 36, and the obvious result of depressing the free end of the spring is to cause the portion of the strip 33 in the vicinity of the cantilever mounting to bow out or protrude as illustrated in Fig. 1 and, since the strip 33 rests on the flange 13, to cause the upper edge 28 of the rear wall of the receptacle to be resiliently pressed against the top wall 15 of the casing. As shown, there is also a tendency to the same effect in the case of the side strip 32, but, as I show the construction, the side strip 32 is reinforced by the flange 22 and such flexing does not take place to an appreciable or useful degree. In point of fact it is not necessary, as I have found that the flexing of one strip only sufficiently accomplishes my purpose. It is assumed, of course, that in actual construction the flexibility of the side strip 33 and the tension of the spring are adjusted so that the above described flexing of the side strip 33 will take place to a sufficient extent to accomplish the purpose described—that is to say, the spring must be sufficiently strong to overcome the resistance of the strip 33 to flexing. The material of the receptacle, or at least the material of the strip 33, is preferably sufficiently resilient to prevent it from taking a set when flexed by a load on the spring. It will now be clear that the spring 38 serves two purposes—first, that of resiliently maintaining the stack in its most upward position and also that of causing the receptacle to pivot on the aperture 26 and keep the upper edge 28 of the rear end wall of the receptacle bearing resiliently on the upper wall of the casing.

The blade-ejecting unit is composed of the plunger 40 and the thumb-and-finger piece 41 to which the plunger is connected by the lug 42, and the unit as a whole can be moved from one end of the slot 16 to the other, the connection between the plunger and the thumb-and-finger piece being loose enough to permit free movement.

In Fig. 1 the plunger is shown at the extreme end of its blade-ejecting stroke with the rear end of the receptacle tipped up by virtue of the tension of the spring 38 and the seating of the strip 33 on the flange 13, so that the edge 28 of the rear end wall is in contact with the upper top wall 15 of the casing. In practice, this contact extends throughout substantially the entire length of the edge 28, although the pressure of that portion of the edge which is affected by the flexing of the strip 33 is greater than that affected by the flexing of the strip 32. As, however, the plunger unit is retracted to the position shown in Fig. 2, the plunger forces down the rear end wall 28 against the resilient pressure of the spring 38 and can pass between the edge of the rear end wall and the upper wall of the casing without, however, any possibility of dragging a blade back with it, since the rear end of the blade *a* abuts against the end wall 19 of the receptacle which forms a positive stop. To cause the rear end of the plunger to more readily throw down the rear end of the receptacle, the plunger may be slightly tipped up and chamfered off as shown at 43. To permit the forward end 44 of the plunger to more readily pass over the rear end wall of the receptacle from the full rearward position of the plunger, the tongue 45 sloping away and downwardly from the edge 28 of the rear end wall may be provided. The tip 44 of the plunger will thus ride up on the tongue 45 and readily force the receptacle downwardly, being opposed only by the tension of the spring 38. However, it is not necessary that the rearward motion of the plunger be sufficient to carry the tip 44 beyond the edge 28, it being sufficient if the tip 44 be carried just far enough to clear the topmost blade *a*, in which event the tongue 45 would become unnecessary.

The receptacle may be locked in place in the casing by means of the lugs 46, 46 struck in from the side walls 10 and 11 of the casing.

While I have stated that the spring 38 functions not only to resiliently press the stack of blades upwardly but also to resiliently resist passage of the plunger over the edge 28, the statement of the latter function is in practice not wholly true since the resilient resistance to downward pressure on the edge 28 is in part due to the resilience of the material of the strip 33. In other words, the spring 38 and the side strip 33 constitute a resilient system acting to maintain the edge 28 in contact with the upper wall of the casing and to resiliently resist the passage of the plunger over the edge 28.

While I have described a certain particular construction in which my invention is incorporated, I do not desire to be limited to this particular embodiment since many changes and modifications may easily be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A magazine ejector for razor blades comprising a housing, a plunger mounted for reciprocation along an inner wall of the housing for ejecting blades contained therein, a blade-stack retaining receptacle confined within the housing and resting on the wall thereof that is opposite the plunger, said receptacle including a bottom wall and also an end wall of a height to provide clearance between the upper edge of the said end wall and the said inner wall, a blade-lifting spring mounted as a cantilever on the bottom wall of the receptacle and extending toward said inner wall, the spring being in a state of stress such as will cause the bottom wall of the receptacle to be flexed toward the housing wall on which it rests and cause the said end wall of the receptacle to rise and close said clearance.

2. A magazine ejector for razor blades comprising a housing, a plunger mounted for reciprocation along an inner wall of the housing

for ejecting blades contained therein, a blade stack retaining receptacle enclosed within the housing, said receptacle comprising an open top boxlike structure, and a blade-lifting spring having a cantilever connection with the bottom of the receptacle and adapted to act resiliently on the bottom of a stack of blades in the receptacle, the cantilever connection being adapted to flex the bottom of the receptacle outwardly against a wall of the casing and thus force an end wall of the receptacle against the said inner wall of the housing.

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