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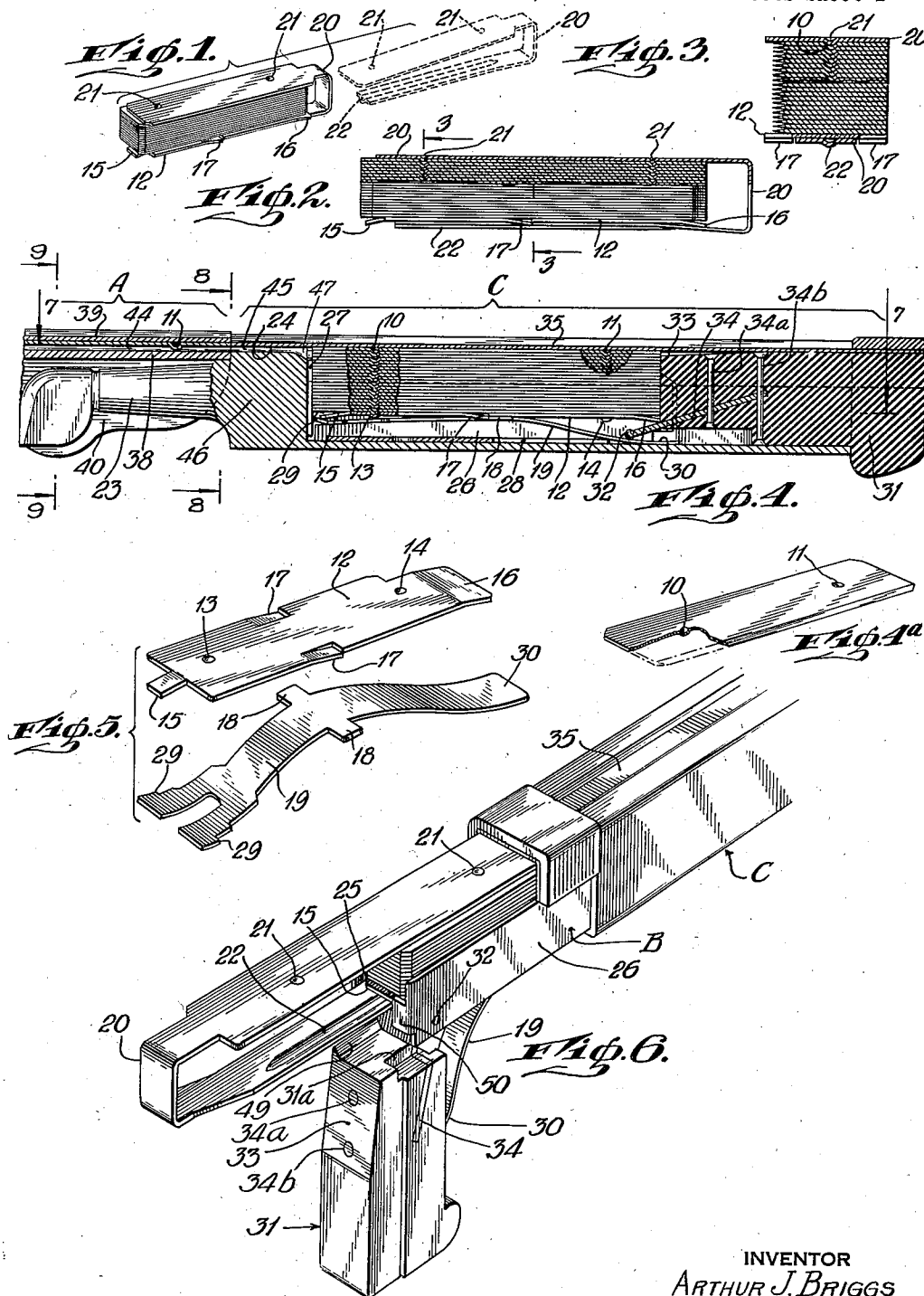
**A. J. BRIGGS**

**2,258,968**

RAZOR BLADE PACK

Filed Jan. 29, 1941

2 Sheets-Sheet 1



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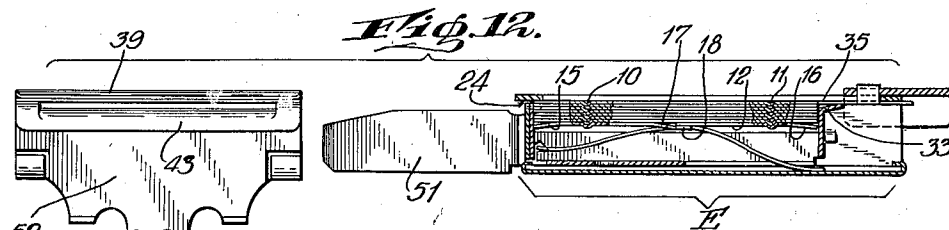
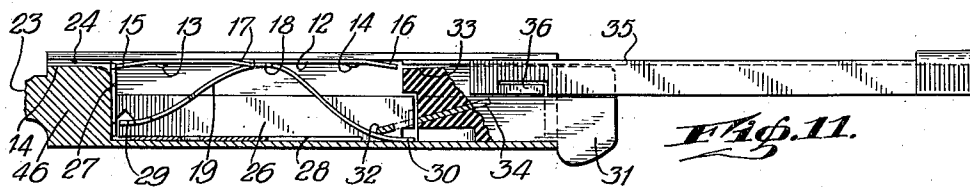
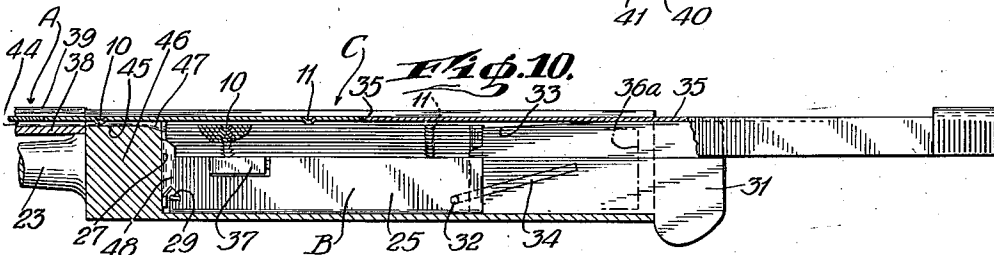
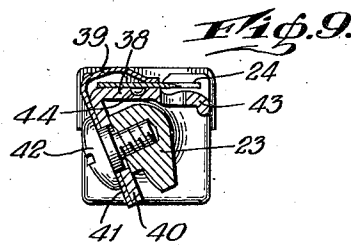
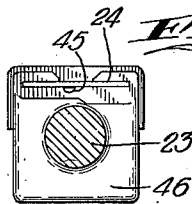
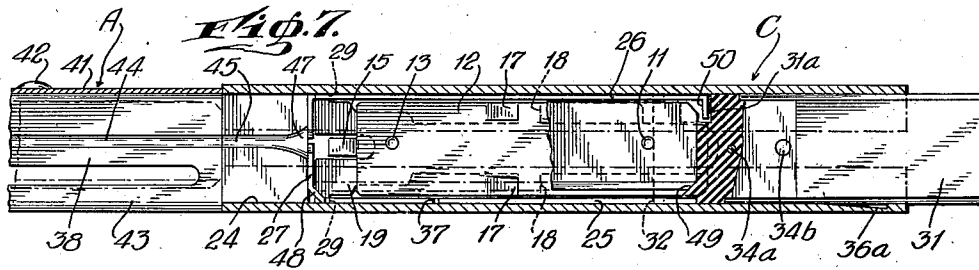
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RAZOR BLADE PACK

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,258,968

## RAZOR BLADE PACK

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Application January 29, 1941, Serial No. 376,431

11 Claims. (Cl. 206—16)

The invention relates to razors of the so-called "magazine" type and more particularly to blade packs to be used in filling and refilling the magazine.

One of the objects of the invention is a blade pack of compact form and make-up that utilizes inexpensive containers or wrappers.

Another object is to enable the user to load the magazine with loose blades which however are provided with means for preventing easy dislodgment of one from another and whereby the pile of blades will be maintained in fixed position in the magazine except as they are ejected one by one as needed from the magazine into the shaving head of the razor.

Other objects will appear in the course of the description of the invention.

Describing the drawings,

Fig. 1 is an isometric view of the assembled blade pack including in dotted lines a separate view of the retaining clip;

Fig. 2 is a view in elevation of the pack partly in section;

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

Fig. 4 is a sectional longitudinal view of the razor with the blade pack therein;

Fig. 4a is a view of a single blade;

Fig. 5 shows the bottom plate of the pack and the lifting spring;

Fig. 6 is an isometric view of the razor with the breech open showing how the stack of blades is introduced into the razor;

Fig. 7 is a view on the line 7—7 of Fig. 4;

Fig. 8 is a view on the line 8—8 of Fig. 4;

Fig. 9 is a view on the line 9—9 of Fig. 4;

Fig. 10 is a view illustrating the method of introducing a blade into the head of the razor;

Fig. 11 is a view showing the positions of the parts when the blades of the pack have been exhausted;

Fig. 12 shows an adaptation of the invention to a type of razor with which a detachable magazine is employed.

Figs. 13 and 14 illustrate modified types of blades.

Referring more in detail to the drawings, a preferred type of blade that embodies some of the principles of the invention is illustrated in Fig. 4a. The blade shown is of a well-known conventional shape but is distinguished from such blades in that it is provided with two depressions or indentations 10 and 11, the process of producing these indentations (which may be accomplished by the use of a punch and die) creating nubs on the opposite side of the blade. The blades are

all alike, and the nubs are similarly and uniformly positioned on all of them so that, when the blades are stacked or piled, the nubs of each blade nest in the indentations of the blade next below it, except of course in the case of the bottom blade, the nubs of which nest in the bottom plate as will be presently explained. Each blade is therefore definitely located with respect to blades adjacent to it, although since the nubs and indentations are of approximately spherical contour a slight force is sufficient to dislodge them and to cause the blade to which the force is applied to slide on the one with which it contacts. The contour of the indentations and nubs is however not invariable, the particular contour shown being selected merely because of its metal-working advantages coupled with the fact that it satisfactorily functions to locate the blades with respect to each other and at the same time offers a yielding instead of a positive resistance to dislocation. However, it will become apparent as the description continues that, while it should be possible to dislodge a blade for lengthwise movement in one direction, it may if desired be positively prevented against dislodgment in the opposite direction. The manner in which the nubs and indentations function is illustrated in Figs. 2, 3, and 4. The number of blades in the stack is a matter of choice, although limited of course by the capacity of the chamber of the razor into which they are to be inserted.

The stack of blades preferably rests upon a plate 12 (Fig. 5) provided, as in the case of the blades, with indentations indicated by the numerals 13 and 14 located to register with the nubs on the bottom blade of the stack. The tongue 15 projecting from one end of the plate tips slightly down (as viewed in the drawings) and likewise the opposite end 16. In addition, two tongues 17, 17 are struck downwardly to serve as abutments to cooperate with the lugs 18, 18 projecting laterally from the lifting spring 19 (Fig. 5). The functions performed by the bottom plate and the spring will be later explained. In assembling, the stack of blades rests on the plate 12, the nubs of the bottom blade registering with the indentations 13 and 14 of the plate.

To retain the stack and the plate in assembled condition whereby it will resist forces tending to dis-assemble it, I provide the clip 20 (Figs. 1 and 6), whereby it will resist casual forces, which is of resilient material, such as steel or hard brass, the clip being (as in the case of the blades) provided with indentations and corresponding nubs 21, 21, although in this case only the nubs

function. These nubs register with the indentations in the top blade of the stack. The clip is of U-shape as shown with the legs of the U normally turned inward toward each other so that, when stressed to grip the stack as shown, the latter will be tightly clamped. The bottom leg of the clip is provided with a longitudinal groove 22 into which the nubs of the plate 12 project and whereby the lower leg of the clip is maintained in a fixed position laterally.

The razor combines a shaving head generally designated by the letter "A" mounted on a post 23 projecting from a hollow handle, generally designated by the letter "C", which serves as a magazine for containing the blade stack and also the mechanism for ejecting blades therefrom. It consists essentially of an elongated boxlike structure closed at one end except for the presence of the blade-ejection orifice 24 and open at the opposite end to permit the blade-inserting and blade-ejecting mechanism to be operated.

A blade stack container indicated generally by the letter "B" is slidably encased in the chamber within the handle. This container is essentially a box with the sides 25 and 26 and the end wall 27, the top being open and the bottom being apertured as at 28 to permit the lifting spring to free itself and drop to the bottom of the container when the latter is withdrawn from the chamber in which it is enclosed. To explain, it is to be noted that the lifting spring 19 pivotally engages the ends of the side walls of the box by means of the shoulders 29, 29. When the container is within the chamber, the free end 30 of the lifting spring rests on the bottom of the chamber and the spring bows upwardly as shown in Fig. 11, where the container is emptied of blades and, as shown in Fig. 4, where a full stack of blades is within the container. The normal shape of the spring when in an unstressed condition is approximately as shown in Fig. 5. When the blade container is withdrawn from the chamber, the free end 30 of the lifting spring drops through the aperture 28 in the bottom of the container and down over the end of the bottom wall of the chamber, and therefore its presence does not interfere with the insertion in the container of a stack of blades. Clearance is provided between the upper edge of the end wall 27 and the top wall of the casing in order to permit of the passage of a blade and also of the plunger from the magazine through the blade ejection orifice 24. This end wall is centrally notched as shown in Figs. 7 and 11 so that the nubs on the blades will pass freely through.

A closure for the container and also for the open end of the razor handle is supplied by the block 31 pivoted to the container by the trunnions 32, whereby, when the block carrying with it the container is withdrawn to the position shown in Fig. 6, it drops down or may be swung down to permit of the insertion in the container of a blade pack also as shown in Fig. 6. It will be observed that the block 31 has a slightly inclined surface 33 (Figs. 4 and 6), the purpose of which is to insure a certain and easy entrance when the block (with the container) is moved into the chamber from the position shown in Fig. 6 to the position shown in Fig. 4. The plate 34 retained in position by the rivets 34a and 34b is simply an expedient for establishing a hinged connection between the block 31 and the blade container.

Ejection of blades one by one through the

blade-ejection orifice 24 is effected by means of the plunger 35, which is slidably mounted within the handle so that it can be reciprocated between the positions shown in Figs. 4 and 11 in line with the blade-ejection orifice. It is channel-shaped, the edges of the flanges of the channel sliding along the upper edges of the container, and rear support and freedom of motion are permitted by the fact that it slidably rests on the block 31. To limit its rearward stroke, an outwardly projecting spring tongue 36 is provided, which on withdrawal of the plunger abuts against the indentation 36a (Fig. 7) in the inside of the wall of the chamber. The container itself may also be provided with a similar spring tongue 37 which operates in a similar way to limit the extent to which the container may be withdrawn from the chamber.

The shaving head (see Figs. 4, 7, and 9) is pivoted to the post 23 so that it can be swung to the position shown in these figures to receive a blade and then to a position perpendicular to the post for shaving purposes. It consists essentially of a bottom plate 38 and a blade clamping plate 39, which may be angular extensions of the plates 40 and 41 through which the pivoting screw 42 passes, whence it is threaded in the post. The usual guard 43 is, of course, provided. In the blade-supporting surface of the bottom plate 38 there is provided a longitudinal groove 44 in which the nubs of a blade travel in the course of being injected into the shaving head. The position of this groove laterally with respect to the guard is such that, when the nubs of a blade are located in it, the edge of the blade bears a correct or desired positional relationship to the guard, and thus blades are all uniformly positioned in the head. Of course, on the other hand, the position of the groove may be first fixed and the nubs on the blades positioned to correspond with it.

The groove 44 registers with the groove 45 in the end wall 46 of the handle and thus the nubs of the blade being ejected travel in it and thence into the groove 44. To properly guide the blades into the groove 45 its entrance may be slightly widened as shown at 47. It will be observed (see Fig. 7) that one corner of the container is formed to exhibit a diagonally extending facet, as shown at 48, and that (see Fig. 6) the block 31 is provided with a flange 49, of triangular section. Thus, only the extreme ends of the cutting edge of a blade in the container can contact with the wall of the container, which of course is desirable to insure that their edges shall not be injured.

The corners of the blades themselves are preferably cut away as shown in Fig. 4a but not sufficiently to permit the blade edge to contact with the side of the container. This is shown in Fig. 7.

By reference to Figs. 1 and 6, it will be understood how the pack may be assembled. The desired number of blades may first be stacked with the nubs of each successive blade beginning with the top blade and nested in the indentations of the blade beneath and (if single edge blades) with the edges all on one side of the pile. The pile may be then placed on the bottom plate 12 with the nubs of the bottom blade nested in the indentations 13 and 14 of the plate and with the tongue 15 at that end of the pack which first enters the blade stack container as the magazine is being loaded (see Fig. 6). The clip or clamp (see Fig. 1) is then applied so that the nubs on

the upper leg of the U nest in the indentations in the uppermost blade and the nubs on the plate 12 register with the groove 22 on the lower leg of the U. The legs of the U point in the same direction as does the tongue 15. The blade stack container having been fully withdrawn as shown in Fig. 6 and the closure block 31 being out of the way, the pack is then inserted in the container. The clip is then wholly withdrawn (to be discarded if desired), the cooperating nubs on the upper leg being readily freed from the stack and leaving the stack together with the plate 12 in the container. To prevent withdrawal of the stack as the clip is withdrawn, the container may be provided with a stop 50 against which the blade stack abuts as the clip is withdrawn, tending to carry with it, of course, the blade stack. However, this stop is located low enough so that it does not interfere with the introduction of the pack into the container. The closure block 31 may be relieved as shown at 31a so that it can be closed without interference from the stop. The clip having been withdrawn, the blade stack container, together with the closure block 31 (the latter being swung up in the process), is driven into the chamber to the position shown in Fig. 4. As this takes place, the spring 19 is dragged along with the container, its free end trailing along the bottom of the casing, the result being that it is flexed from its normal shape as shown in Fig. 5 to a nearly flat shape, which causes a resilient upward pressure to be exerted against the blade stack. The uppermost blade of the stack is therefore always pressing against the plunger or against the top wall of the casing (i. e., in line with the blade ejection orifice) when the plunger is withdrawn. As blades are fed one by one from the stack, the stressed spring follows upwardly until the last blade has been ejected. In order to insure that the last blade shall not be dragged backwardly by the friction of the plunger as the latter is withdrawn, the lugs 18, 18 may be provided on the spring against which the tongues 17, 17 abut, there being enough flexibility in the spring to allow the lugs 18, 18 to travel upwardly in a perpendicular plane.

Actual ejection of the topmost blade of the stack is effected by first fully retracting the plunger, whereupon the topmost blade rises to alignment with it and with the ejection orifice, and then advancing the plunger to the position shown in Fig. 4. This action dislodges the topmost blade from the one beneath it, and it is driven into shaving position in the head, guided to proper relation with the guard because its path is fixed by the nubs traveling in grooves 44 and 45. If it is desired then to use the implement for shaving, the shaving head is swung to a position crosswise of its supporting post.

The blades all maintain their positions fixedly with respect to each other by virtue of the nesting of the nubs and indentations, a condition which is maintained by the pressure of the lifting spring 19.

When the bottom blade of the stack has been ejected, the bottom plate 12 has risen to the top of the chamber as shown in Fig. 11. On withdrawal of the closure block and blade stack container, the bottom blade may be dropped out or manually removed. It has previously been noted that the ends of the bottom plate are tipped downward slightly. This is to prevent its being ejected through the blade discharge orifice. If it is attempted to so eject it, the tip of the plunger rides over the end 16 instead of abut-

ting with it as in the case of a blade. But even if there is any tendency to eject it through the orifice by reason of frictional contact between it and the plunger, the tipped-down tongue 15 abuts against the end wall of the blade stack container which positively prevents it from passing into the blade ejection orifice.

Fig. 12 illustrates an adaptation of the invention to the type of razor with which a separate magazine is employed. The parts indicated generally by the letter "E" are in all respects similar to the parts indicated by the letter "C" in Fig. 4. However, in place of the shaving head mounted on the post as shown in Fig. 4, there is provided an aligning finger 51 which is designed to enter an aligning slot in the shaving head 52 and position the magazine and the shaving head with respect to each other so that a blade ejected from the magazine enters the blade channel in the shaving head. This shaving head as in the case of that shown in Fig. 4 has a bottom plate and a blade clamping plate and guard, together with a groove, in the bottom plate precisely as in the case of the permanently affixed shaving head. Razors of this type are as shown in Rodrigues United States Patent No. 1,969,945, issued August 14, 1934.

It has been stated above that the form of nubs and indentations shown may be varied from the preferred form. Figs. 13 and 14 show two illustrative variations. In Fig. 13 the nubs and indentations are formed simply by striking out tongues 60, 60, which constitute the nubs, and at the same time the indentations are formed as indicated at 61. In Fig. 14 indentations 63 and 64 are made by striking down the nubs with a die properly shaped to give them a semi-conical contour. In these two examples, each blade is obviously positively held against movement in one direction, although it is free to slide in the other direction. However, since it is only necessary that the blade slide in the direction of the shaving head, these would function so far as the purposes are concerned in the same way as does the preferred form. It will be noted that in all types of nubs illustrated, the nubs and indentations slope away from the surface of the blade toward one end thereof—i. e., the rear end as the stack is placed in the chamber. This angle of slope is small enough so that by an endwise thrust against a blade it may be dislodged from the blade contiguous to it, the nubs merely sliding up on the indented surfaces until the blade is completely free.

I have described above certain embodiments of my invention and a preferred process with certain modifications thereof, but I wish it to be understood that these are illustrative and not limitative of my invention and that I reserve the right to make various changes in form, construction, and arrangement of parts, and also to make various changes in process of manufacture falling within the spirit and scope of my invention as set forth in the claims.

I claim:

1. A razor blade pack, comprising a stack of razor blades, each blade being provided with a plurality of nubs in one face and a plurality of indentations in the other, the nubs of each blade being nested in the indentations in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof at an angle small enough so that a blade may by an endwise sliding motion be dislodged from the blade con-

tiguous to it, and a clamp serving to hold said stack in assembled condition.

2. A razor blade pack, comprising a stack of razor blades, each blade being provided with a plurality of nubs on one face thereof and a plurality of indentations in the other, the nubs of each blade being nested in the indentations in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof at an angle small enough so that a blade may by an endwise sliding movement be dislodged from the blade contiguous to it, said pack also comprising a clamp serving to hold the assembly in place, said clamp being of U shaped form, one leg of the U being provided with nubs that enter the indentations on the top blade of the stack.

3. A razor blade pack, comprising a stack of razor blades, each blade being provided with a plurality of nubs on one face thereof and a plurality of indentations in the other, said blades being piled flatwise with their end and side edges flush and with their cutting edges all at the same side of the stack, the nubs of each blade being nested in corresponding indentations in a contiguous blade, and the nubs and indentations sloping away from the surface of the blade and toward one end thereof, at an angle small enough so that a blade may by an endwise sliding movement be dislodged in an endwise direction from the blade contiguous to it, said stack also comprising a resilient clamp for holding the assembly in place, said clamp being removable by a movement endwise of the stack.

4. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, the nub of each blade being nested in the indentation in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof and the angle of slope being small enough so that a blade may be dislodged by an endwise sliding movement from the blade contiguous to it.

5. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, the nub of each blade being nested in the indentations in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof and the angle of slope being small enough so that a blade may be dislodged by an endwise sliding motion from the blade contiguous to it.

6. A razor blade pack, comprising a stack of razor blades, each blade being provided with a plurality of nubs on one face and a plurality of indentations in the other, the nubs of each blade being nested in correspondingly positioned indentations in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof and the angle of slope being small enough so that a blade may be dislodged by an endwise sliding motion from the blade contiguous to it.

7. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, said blades being piled flatwise with their end and side edges flush and with their cutting edges all at the same side of the stack, the nub of each blade being nested in the in-

dentation in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof and the angle of slope being small enough so that a blade may by an endwise thrust against it be dislodged in an endwise direction from the blade contiguous to it.

8. A razor blade pack, comprising a stack of razor blades, each blade being provided with a plurality of nubs on one face and a plurality of indentations in the other, said blades being piled flatwise with their end and side edges flush and with their cutting edges all at the same side of the stack, the nubs of each blade being nested in corresponding indentations in a contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof and the angle of slope being small enough so that a blade may by an endwise thrust against it be dislodged in an endwise direction from the blade contiguous to it.

9. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, the nub of each blade being nested in the indentation in the contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof at an angle small enough so that a blade may by an endwise sliding movement be dislodged from the blade contiguous to it, said pack also comprising a bottom plate for the stack, at least one end of the said bottom plate being turned away from the bottom blade contiguous to it, and a clamp serving to hold the assembly in place.

10. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, the nub of each blade being nested in the indentation in the contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof at an angle small enough so that a blade may by an endwise sliding movement be dislodged from the blade contiguous to it, said pack also comprising a bottom plate for the stack, at least one end of said bottom plate being turned away from the bottom blade contiguous to it, and a clamp serving to hold the assembly in place, said clamp being of U shaped form, one leg of the U being provided with nubs that enter indentations in the top blade of the stack.

11. A razor blade pack, comprising a stack of razor blades, each blade being provided with a nub on one face and an indentation in the other, the nub of each blade being nested in the indentation in the contiguous blade, the nubs and indentations sloping away from the surface of the blade and toward one end thereof at an angle small enough so that a blade may by an endwise sliding movement be dislodged from the blade contiguous to it, said pack also comprising a bottom plate for the stack, at least one end of the said bottom plate being turned away from the bottom blade contiguous to it, and a clamp serving to hold the assembly in place, said clamp being of U shaped form, one leg of the U being provided with nubs that enter indentations in the top blade of the stack and the other leg being provided with a longitudinal groove on its inner side positioned to register with nubs on the bottom plate.

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