A tray is provided for storing a plurality of casings side by side relationship and adapted to permit successive removal of individual casings therefrom. Each casing has received therein a single head unit for a safety razor, the head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface and the head unit being detachably engageable with a safety razor handle. Each head unit is retained in its casing against accidental removal in such a manner that the cutting edge of the (or each) blade is protected against damage and the head unit is engageable by the handle while the unit is still within the case so that the head unit when engaged with the handle may be withdrawn from the casing by means of the handle.

15 Claims, 6 Drawing Figures
The invention relates to safety razors which comprise a handle and a replaceable head unit detachably secured to the handle, the head unit comprising not only at least one blade but also a member (conveniently made of plastics material) to which the blade is permanently secured and which provides the guard surface for engaging the skin ahead of the cutting edge of the blade. The invention provides new or improved protective packaging for the replaceable head units of such razors.

The invention provides the combination of a head unit for a safety razor and a protective casing for the head unit, wherein the head unit incorporates at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, the head unit being detachably engageable with a safety razor handle, and wherein the casing is adapted to receive a single head unit and to retain the latter therein against accidental removal in such a manner that the cutting edge of the (or each) blade is protected against damage and wherein the head unit is engageable by the said handle while the unit is still within the case, the head unit when engaged with the handle being withdrawable from the casing by means of the handle.

The invention also includes such a combination further comprising a tray for storing a plurality of the said casings in side-by-side relationship, and adapted to permit successive removal of single cases therefrom.

Preferably, at least the casing is so constructed that it can be re-engaged over the head unit while the latter is secured to the handle to afford temporary protection to the cutting edge during the interval between successive shaving uses. It can also be so re-engaged when the head unit has reached the end of its useful life and it is desired to replace it by a fresh unit; the handle is then disconnected from the unit while the latter is retained within the casing, so that the cutting edge (or edges) of the discarded head unit are shielded by the casing and the risk of their causing damage is avoided.

Further features and advantages of the invention will sufficiently appear from the following description, given with reference to the accompanying drawings, of a preferred embodiment of the invention. In the drawing:

FIG. 1 is a perspective front view of a razor handle, a razor head unit and a protective casing for the head unit, shown separated from one another;

FIG. 2 is a perspective rear view of the head unit and the casing;

FIG. 3 is a plan view on an enlarged scale of a container holding four of the protective casings, which for clarity of illustration are shown empty, although in practice each of them will contain a razor head unit;

FIGS. 4 and 5 are sectional views taken on the lines IV-IV and V-V respectively of FIG. 3; and

FIG. 6 is an end view of the container.

The razor handle 6 shown in FIG. 1 and the razor head unit 7 shown in FIGS. 1 and 2 do not themselves form any part of the present invention and it is deemed unnecessary to describe them fully. It will be seen that the handle 6 includes a pair of rails 8 which can be slidably engaged with a pair of undercut flanges 9 on the head unit 7. The head unit includes a pair of blades 10 having spaced, parallel cutting edges arranged to follow one another over the skin, the blades and a toothed spacing member 11 disposed between them being permanently secured in a two-part member of plastics material which provides inter alia the flanges 9 and a guard surface 12 for engaging the skin ahead of the cutting edges.

The protective casing 20 for the head unit 7 has the general form of an open-topped rectangular box and is conveniently made as an integral moulding of transparent plastics material. The base 21 of the box projects beyond the end walls 22, 23 to form lugs 24. One end wall 23 is formed with an externally projecting rectangular lug 25. The opposite end wall 22 is formed with a projection 26 of the same external dimensions but taking the form of a narrow rim bordering an opening 27 formed through the end wall 22. One side wall 28 of the box has its edge formed with two spaced notches 29. Adjacent the end walls 22 and 23, there are provided projections 30 adapted to locate and support the end portions of the head unit 7. Side wall 28 is formed with an inwardly projecting lip 31 adapted to cooperate with a shoulder 13 on the head unit and the other side wall 32 is formed with a projection 33 adapted to cooperate with the guard surface 12 of the head unit. The bottom of the box is provided with low relief projections 34.

If the longitudinal edge of the head unit which is shown uppermost in FIG. 1 is inserted into the casing so that shoulder 13 is engaged behind lip 31 and the head unit is then turned (counterclockwise in FIG. 1) about a longitudinal axis defined by lip 31, guard surface 12 engages the face of projection 33 and exerts a camming action thereon. The material of which the casing is made allows this camming action to force the side walls 28 and 32 sufficiently apart to allow the head unit to snap into a position in which it seats on projections 30 and is restrained against accidental removal from the casing by the engagement of the parts 31 and 33 of the casing with the parts 13 and 12 respectively of the head unit. To assist snap-insertion of the head unit, a pair of slits 50 may be provided in wall 28 adjacent lip 31. When the head unit 7 is thus packed within its protective casing 20, the cutting edges of the blades are enclosed within the casing but are held well spaced from the inner surface of the casing and are thus securely protected against damage.

The provision of opening 27 in end wall 22 of the casing allows the rails 8 of razor handle 6 to be engaged by longitudinal sliding movement with flanges 9 of a head unit while the latter is still in position within its casing 20. When the handle has thus been securely attached to the head unit, the head unit can readily be removed from the casing by turning the razor handle (clockwise in FIG. 1) relative to the casing, so as to spring the unit out of the casing. By corresponding reverse movement the casing can readily be reapplied to the head unit while the latter is still connected to the handle, either to provide temporary protection to a head unit which is capable of further use, or to allow disposal of a head unit which is to be discarded. In the latter case, of course, after engaging the head unit in the casing, the razor handle is disconnected from the head unit by appropriate sliding movement and can then be engaged with a fresh head unit.

FIGS. 3 to 5 show four of the protective casings 20 packaged in a container from which they can be removed one at a time. In practice, of course, each casing 20 will contain a head unit 7, as already described, but
for clarity of illustration FIGS. 3 to 5 show the casings empty.

The container 40 has the form of a shallow rectangular tray or open-topped box, integrally moulded from a suitable plastics material, and is of a size to accommodate five of the casings 20 disposed side by side. It has a base 41, end walls 42, 43 and a pair of side walls 44. Each side wall 44 is formed adjacent its upper edge with an inwardly projecting flange 45 which extends longitudinally over four fifths of the length of the tray, that is the path occupied by the four casings 20. Flanges 45 engage over the projections 25 and 26 of the casings and prevent the latter from being lifted out of the container. The flanges are of triangular section, as shown in FIG. 5, thus allowing the casings to be inserted (open face downwards) into the container by pressing them down against the sloping faces of the flanges and forcing the side walls 44 apart. To facilitate such resilient yielding of the side walls, the extremities of end wall 43 are not joined to the side walls but are spaced slightly apart from them. The parts of the side walls not provided with flanges 45 are formed with cut outs 46. The base 41 of the container is formed with two pairs of upwardly projecting ratchet teeth 47 and 48 whose positions across the width of the container corresponds to those of the notches 29 in the side walls of the casings 20.

When the four casings are positioned in the container as shown in the drawing, they are prevented against moving longitudinally of the container by the end wall 43 and by the engagement of the pair of teeth 47 with the side wall 30 of the left hand casing 20. By pressing against the right hand casing 20, the four casings can be shifted leftwards together through a distance equal to the width on one casing, the resilience of the container material allowing over-riding of the teeth 47, bringing the left hand casing against the end wall 42. During the final part of this movement the side wall 30 of the right hand casing rides over the teeth 48, which prevent any return movement to the right of the casings. The movement has carried the projections 25, 26 of the left hand casing beyond the ends of the container flanges 45, so that this casing is held in the container only by being frictionally gripped between the next casing and the end wall 42, which is of slightly bowed form. The left hand casing can accordingly easily be lifted out of the container, making the razor head unit which it contains accessible for connection to the razor handle in the manner already described. The lugs 24 on the casing and the cut outs 46 in the container walls facilitate removal of the casing from the container.

The three casings now remaining in the container are still retained therein by the flanges 45 and are held against movement longitudinally in either direction by the teeth 47 and 48. While the head unit which it contained is in service, the empty casing can be replaced temporarily in the vacant space at the left hand end of the container from which it was withdrawn. After reloading the empty casing with a used razor head unit, as described above, this casing can be inserted into the vacant space at the right hand end of the container (the lugs 24 ensuring that the casing is inserted open side down) and thereafter the four casings can be moved leftwards together in the manner already described to bring the second casing into position for removal.

What we claim is:

1. The combination of a plurality of individual protective safety razor head unit casings and a tray for storing said plurality of the said casings in side-by-side relationship, each said casing having a single safety razor head unit therein, each said head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, said head unit being detachably engageable with a safety razor handle, each said casing defining a single chamber in which a single head unit is received, structure in said casing for retaining said head unit therein against accidental removal in such a manner that the cutting edge of said blade is protected against damage and wherein said head unit is engageable by the said handle while said head unit is still within said chamber, each said head unit when engaged with the handle being withdrawable from its casing by means of the handle, said tray including resilient securing structure constructed to secure each individual casing in said tray in aligned side-by-side relationship with another casing secured in said tray.

2. A combination according to claim 1, wherein insertion of the head into said box and removal of the latter therefrom are permitted by resilient deformation of the material of which the box is made, the head member co-acting with the box to effect such deformation.

3. A combination according to claim 1 wherein said head unit has attachment means on a surface thereof opposite said guard surface, said attachment means being engageable by the said handle by transverse relative sliding movement of the said handle and said head unit in the longitudinal direction of said head unit (parallel with the blade edge) and said box has at least one of its said end walls formed with a notch to permit sliding insertion of the said handle in the said longitudinal direction.

4. A combination according to claim 3 and further including a flange outwardly projecting from each said end wall for facilitating manual gripping of said box during engagement of said head unit by the handle and withdrawal of said head unit from said box by means of the handle and during reinsertion of said head unit into said box for storage and subsequent disengagement of the handle from said head unit.

5. A combination according to claim 1 wherein each said casing comprises an open-topped rectangular box having two opposed side walls, two opposed end walls, and a base that defines a single chamber in which said head member is received, and internal projecting means in said box which make snap fitting engagement with said head unit to retain said head unit in said box against accidental displacement from said box.

6. The combination of a plurality of individual protective safety razor head unit casings, each said casing having a single safety razor head unit therein, each said head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, said head unit being detachably engageable with a safety razor handle, each said casing receiving a single head unit and retaining the latter therein against accidental removal in such a manner that the cutting edge of said blade is protected against damage and wherein said head unit is engageable by the said handle while said head unit is still
with its casing, each said head unit when engaged with the handle being withdrawable from its casing by means of the handle, and a tray for storing said plurality of the said casings in side-by-side relationship, structure in said tray for guiding successive removal of individual casings therefrom and said casings being positioned on said tray such as to prevent access to the head unit in each said casing prior to removal of said casing from said tray.

7. A combination according to claim 6 wherein each said casing comprises an open-topped rectangular box having two opposed side walls, two opposed end walls, and a base that defines a single chamber in which said head member is received, internal abutment means in said box for engagement by parts of said head member to hold the cutting edge of said blade spaced from the interior surfaces of said box, and internal projecting means in said box which make snap fitting engagement with said head unit to retain said head unit in said box against accidental displacement from said box, said boxes being assembled in secured relation to said tray with their open tops against the floor of said tray, said boxes being provided with stop means which prevent their assembly to said tray in any other attitude.

8. The combination of a plurality of individual protective safety razor head unit casings, each said casing having a single safety razor head unit therein, each said head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, said head unit being detachably engageable with a safety razor handle, each said casing comprising an open-topped rectangular box having two opposed side walls, two opposed end walls, and a base that defines a single chamber in which said head member is received, internal abutment means in said box for engagement by parts of said head member to hold the cutting edge of said blade spaced from the interior surfaces of said box, and internal projecting means in said box which make snap fitting engagement with said head unit to retain said head unit in said box against accidental displacement from said box, said boxes being assembled in secured relation to said tray with their open tops against the floor of said tray, said boxes being provided with stop means which prevent their assembly to said tray in any other attitude.

11. A combination according to claim 10 wherein the floor of said tray is provided with upstanding projections which permit movement of said boxes thereover towards the said one end of the tray, but which resist movement of said boxes thereover in the reverse direction.

12. The combination of a plurality of individual protective safety razor head unit casings, each said casing having a single safety razor head unit therein, each said head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, said head unit being detachably engageable with a safety razor handle, each said casing comprising an open-topped rectangular box having two opposed side walls, two opposed end walls, and a base that defines a single chamber in which said head member is received, and internal projecting means in said box which make snap fitting engagement with said head unit to retain said head unit in said box against accidental displacement from said box in such a manner that the cutting edge of said blade is protected against damage and which said head unit is engageable by the said handle while said head unit is still within its box, each said head unit when engaged with the handle being withdrawable from its casing by means of the handle, stop structure projecting externally from said box, and a tray for storing said plurality of the said casings in side-by-side relationship, said tray having opposed side walls which are formed with longitudinally extending internal rails which cooperate with said stop structure of individual boxes to prevent the latter from being removed from said tray while said stop structures are in engagement with said rails, each said stop structure slidingly engaging said rail to guide the box towards one end of said tray, said rails being interrupted for passage of the stop structure from said tray therethrough.

13. A combination according to claim 12 wherein said tray is constructed of a resiliently flexible material and said rails and said stop structures are constructed to permit snap fitting insertion of said boxes into said tray between said rails.

14. A said box according to claim 13 wherein said rails have internal side faces sloping inwardly and downwardly towards the floor of said tray, said faces providing cam-surfaces facilitating outward deflection of said side walls of the tray upon insertion of said boxes.

15. The combination of a plurality of individual protective safety razor head unit casings, each said casing having a single safety razor head unit therein, each said head unit incorporating at least one blade and a head member to which the blade is permanently secured and which provides a guard surface, said head unit being detachably engageable with a safety razor handle, each said casing receiving a single head unit and retaining the latter therein against accidental removal in such a manner that the cutting edge of said blade is protected against damage and wherein said head unit is engageable by the said handle while said head unit is still within its casing, each said head unit when engaged with the handle being withdrawable from its casing by means of the handle, and a tray for storing said plurality of the said casings in side-by-side relationship, the floor of said tray being provided with an upstanding projection, the casings being movable across the projection towards one end of said tray, said projection resisting a movement of said casings thereover in the reverse direction.