

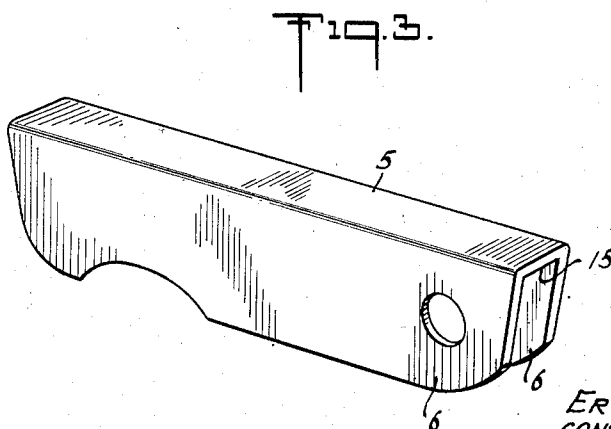
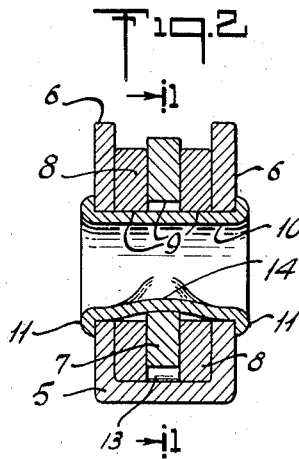
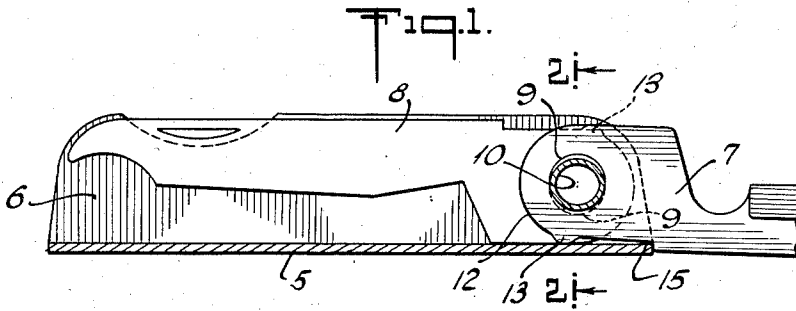
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W. E. BASSETT

2,832,135

COMBINED TOOL

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2,832,135

COMBINED TOOL

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7 Claims. (Cl. 30—152)

My invention relates to a combined tool, and more particularly to a tool having a plurality of pivotally supported blade-like members movable to open and closed positions.

It is an object of the invention to provide a combined tool having improved means for resiliently supporting blades in definite position relatively to the case.

Another object is to provide a case of the character indicated which has a solid base smooth on the outside and provided with novel spring means on the inside for holding said blades in definite position.

A more specific object is to provide a tool of the character indicated having a resilient pivot for supporting the blades and holding them in place.

Briefly stated, in a preferred form of the invention, I provide a case which preferably consists of a channel member having a base and upstanding side walls defining the case. The blades are pivotally mounted between the side walls of said case by means of a pivot member which is preferably relatively resilient. The base is preferably intact and smooth on the outside and the resilient means for holding the blades in definite position relatively to the case is in the form of a resilient rivet rather than by some spring means forming a part of the casing itself.

In the drawings which show, for illustrative purposes only, a preferred form of the invention:

Fig. 1 is a central longitudinal sectional view of a combined tool of the character indicated, illustrating features of the invention;

Fig. 2 is a sectional view on an enlarged scale, taken substantially in the plane of the line 2—2 of Fig. 1;

Fig. 3 is an inverted perspective view of the channel case illustrated in Figs. 1 and 2.

In said drawings, the case comprises a channel member which may consist of a base 5 and upstanding side walls 6—6 defining an elongated channel constituting a housing or case for the blade members. One or more blade members 7—8 are pivotally supported in the housing between the upstanding walls and are movable from closed position between the upstanding walls and to an open position extending away from the casing. The blades have openings 9 therethrough for receiving a pivot member 10 and this pivot member is preferably slightly resilient.

The pivot member 10 is preferably in the form of a hollow eyelet which passes through all of the openings 9 and through openings in the side walls 6 and is spun over or riveted in place as indicated at 11—11. This pivot member 10 may be formed of material, such as steel which is quite resilient, or if greater resiliency and softness is required, the pivot member or eyelet may be formed of thin brass. The blades may be provided with arcuate friction surfaces 12 concentric with the pivot axis which may engage the bottom of the base 5 during the opening or closing movements of the blades. Since the pivot is somewhat resilient and since the arcuate surfaces may be of a size to wedge slightly between the case and the pivot, friction will be produced for limiting

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the free movement of the blades in moving to open and closed positions.

In order to hold the blades in definite positions, for example in the wide open position, each blade is provided with a holding surface which may be a distinct hump or projection 13, and the distance between the outside of the pivot and the outside of the hump or projection is slightly greater than the normal distance between the outside of the pivot and the normal base of the channel beneath the rivet so that when the projection 13 engages the bottom of the channel, that is the base 5, the rivet will be distorted, as indicated at 14 in Fig. 2.

Each blade preferably engages the end of the case, as indicated at 15 when in wide open position. The point at which the projection 13 engages the base 5 of the case, when the blade is in wide open position, should be rearwardly of the vertical projection of the pivot, as shown in Fig. 1, so that there is a three-point support for the blade and the resilient force urging downwardly will act between the point 15 and the position of contact between the base and projection 13. As shown particularly in Fig. 2, the blade members when in closed position will normally fit between the bottom of the pivot and the base 5 without distorting the rivet substantially. However, when any one of the blades is turned to open position, the projection corresponding to the projection 13 will engage the base and distort the pivot, as shown in exaggerated form in Fig. 2, so as to definitely hold the blade in wide open position. Additional projections could be placed on the blades so as to hold all of the blades in definitely closed positions in much the same manner that the blades are held in open position, as heretofore described. However, any such projections for holding said blades in closed positions, would normally be shallower than the projections 13 since it is not usually necessary to hold the blades in closed position with such security as to hold the blade in open position.

It will be seen that I have provided a combined tool of the character indicated, wherein the casing is perfectly smooth and intact on the outside, except perhaps for the riveting or spinning over of the rivet heads at 11, and yet there is an internal spring in the form of a spring pivot or eyelet which will provide all of the spring pressure necessary to hold the blades in the desired positions. Reference is made herein to Bassett application Serial No. 615,200, filed October 10, 1956, now Patent No. 2,798,290.

While the invention has been described in considerable detail and a preferred form shown, it is to be understood that some changes may be made within the scope of the invention, as defined in the appended claims.

I claim:

1. In a device of the character indicated, an elongated channel having an elongated continuous flat base and opposed upstanding side walls and defining a retaining case, a plurality of elongated blade members, means for pivotally supporting said blade members about a common axis between said side walls, said blade members at one end having pivot apertures therethrough, said means for pivotally mounting said blades comprising a pivot member extending through said openings in said blades and secured to said side walls of said channel, said blades being movable from a closed position within said channel to an open position extending away from said casing, said blades adjacent said pivot having projections thereon to engage the bottom or the base of said channel when said blades are in open position, the radial distance between said projection and the outside of said pivot being slightly greater than the normal distance between the bottom of said base and the outside of said pivot, whereby when said projection is in contact with the base of said

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channel said pivot will be distorted and hold said blade member in definite position relatively to said case.

2. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls and defining a retaining case, a plurality of elongated blade members, pivot means for pivotally securing said blade members about a common axis between said side walls, said pivot member being radially slightly resilient, each of said blade members having a surface thereon to contact the base of said channel when said blade having said surface is in wide open position, the normal distance between said surface when in contact with said base and the outside of said pivot adjacent thereto being slightly greater than the normal distance between the base of said channel and the outside of said pivot, whereby when said blade is in wide open position said pivot will be resiliently distorted so as to hold said blade in definite position.

3. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls and defining a retaining case, an elongated blade member, a resilient pivot for pivotally mounting said blade member on an axis between said side walls, said pivot member extending through an opening in said blade and being secured to said side walls, the normal radial distance between the outside of said pivot and the adjacent surface on the base of the casing being normally less than the distance between the outside of the pivot and a surface on said blade member to contact said base, whereby when said surface is in contact with said base said pivot will be distorted and hold said blade member in definite position, depending upon the angular position of said surface on said blade member.

4. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls and defining a retaining case, a plurality of elongated blade members, a pivot member extending through said blade members at one end and secured to said side walls for pivotally mounting said blade members upon a common axis between said side walls, said pivot being radially slightly resilient and each blade having a portion fitting between said base and said pivot at a substantially greater distance radially between the normal distance of the outside of said pivot and said base, whereby said blades will be frictionally held in place by the spring action of said pivot.

5. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls

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and defining a retaining case, a plurality of elongated blade members, a pivot for supporting said blade members on a common axis between said side walls, said blades having openings therethrough at one end, said pivot comprising a hollow rivet of relatively thin section so as to be slightly resilient, said rivet passing through said openings in said blades and being secured to said upstanding walls, said blades having wedging portions to wedge between the base of said channel and the outside of said pivot, whereby said pivot will be slightly resiliently distorted and serve to hold said blades frictionally in place.

6. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls and defining a retaining case, an elongated blade member, a resilient pivot passing through an opening in said blade member for supporting said blade member on a transverse axis between said side walls, said blade member when in wide open position having a part engaging the edge of said base at the end adjacent said pivot, said blade member having a projection engaging the base of said channel and being of a size to distort said rivet to increase the frictional hold of said blade member on said base, said position of said projection on said blade member being such in relation to the axis of such pivot and the point at which said blade member engages said base as to provide a three-point support with the projection of the pivot axis between the end of the base of the case and the position at which said blade engages the bottom of said base.

7. In a device of the character indicated, an elongated channel having a base and opposed upstanding side walls and defining a retaining case, an elongated blade in said case, resilient means for holding said blade in a definite position relatively to said case, said resilient means comprising a resilient pivot extending through openings in said blade and said side walls, said blade having a wedging portion to wedge between the base of said channel and the outside of said pivot.

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