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R. E. BROWN

FLY-OPEN KNIFE

Filed June 29, 1927

Fig. 1.

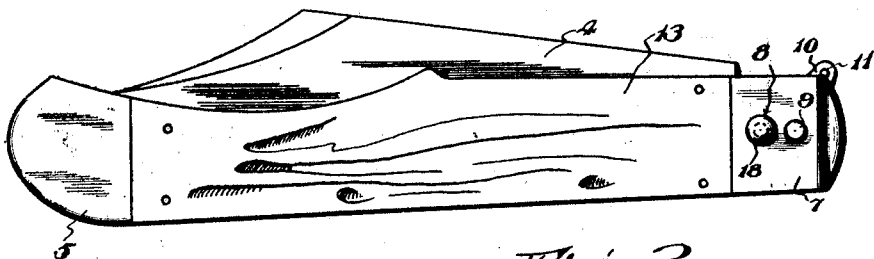


Fig. 2.

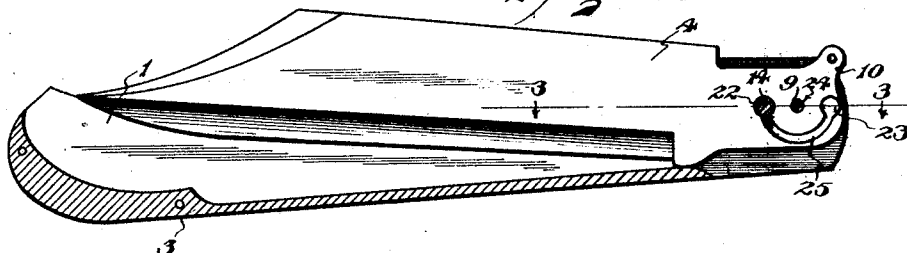


Fig. 3.

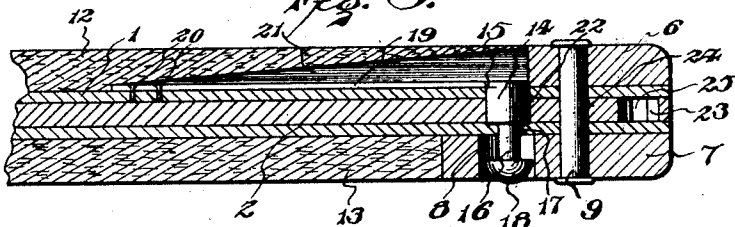


Fig. 4.

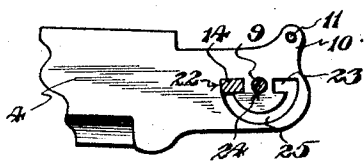


Fig. 5.

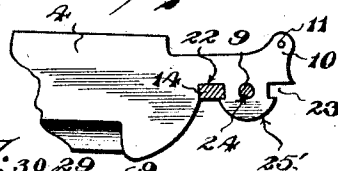
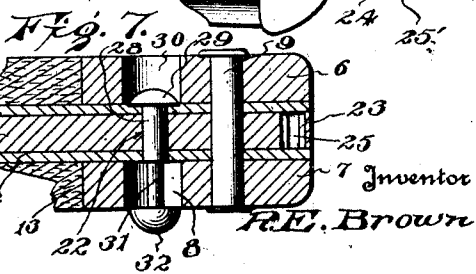
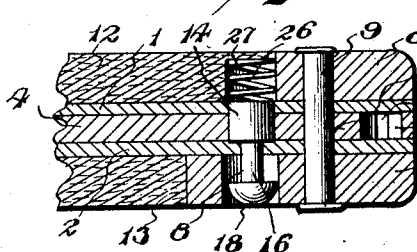


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FLY-OPEN KNIFE.

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This invention relates to cutlery and more particularly to a pocket knife of the fly-open type.

One object of the invention is to provide a fly-open knife having an improved latch by means of which the blade may be securely but releasably held in either an open or a closed position.

Another object of the invention is to allow the latch to have movement transversely through the heel portion of the blade into and out of a locking position, and at the same time prevent the latch from interfering with movements of the blade to an open or closed position when the latch is released.

Another object of the invention is to so mount the latch that it may be readily actuated to release the blade but prevented from being liable to be accidentally released with consequent danger of cutting the clothing or hands of a person when the knife is carried in a pocket.

The invention is illustrated in the accompanying drawing, wherein

Figure 1 is a side elevation of the improved knife;

Fig. 2 is a longitudinal section through the knife;

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

Fig. 4 is a fragmentary view of the blade showing a modified form of latch-receiving slot cut therein;

Fig. 5 is a view similar to Fig. 4 showing another modified form of lock for the blade;

Fig. 6 is a view similar to Fig. 3 showing a modified construction, and

Fig. 7 is a view similar to Fig. 6 showing a further modified construction.

The improved fly-open knife constituting the subject matter of this invention includes a handle having side walls 1 and 2 formed of brass or other strong metal. A blade expelling spring 3 of a conventional construction, is secured between the side walls or plates 1 and 2, as shown in Figure 2, so that the blade 4 may be moved outwardly to an open position when released. Each wall carries a bolster 5 at its rear end, and at their forward ends they carry bolsters 6 and 7, one of which is of greater length than the other, and adjacent its inner end formed with an opening or pocket 8. Alined openings are formed in the walls and bolsters 6 and 7 to receive the pin 9 which passes through the heel portion of

the blade to pivotally mount the same. If desired, the heel portion of the blade may be provided with an extension or ear 10 carrying a short abutment pin 11 to engage the bolsters and limit movement of the blade about its pivot pin. The usual face plates 12 and 13 are provided for the outer faces of the walls 1 and 2 and are secured thereto between the bolsters by rivets, or in any other desired manner.

In order to releasably secure the blade in either an open or a closed position I have provided a latch 14 which is slidably passed through an opening 15 formed in the wall 1 and formed with a reduced portion or shank 16, which passes through an opening 17 in the wall 2 and projects into the pocket 8. A head 18 is provided at the outer end of the shank 16 and formed with a rounded outer surface so that pressure may be easily applied to the head in order to move the latch inwardly against the action of the spring 19. The spring preferably consists of a strip of resilient metal which extends from the latch longitudinally upon the outer face of the wall 1 and is secured at its end opposite the latch by rivets or other suitable fasteners 20. A groove 21 which increases in depth towards the bolster 6 is formed in the inner face of the facing plate 12 so that movement of the latch to a released position against the action of the spring will not be interfered with. The spring 19 may be formed integral with the latch or separate therefrom, and secured to the latch in any desired manner. By referring to Figure 2, it will be seen that the heel portion of the blade has been formed with openings 22 and 23 disposed in spaced relation to opposite sides of the opening 24 through which the pivot pin 9 passes, and joined by an arcuate slot 25 which partially encircles the opening 24 and pin 9. If the latch is circular in cross section the openings 22 and 23 will also be circular, but the shape of the latch in cross section and the opening may be varied if so desired. Examples of this are shown in Figures 4 and 5 where the latch and the openings are shown rectangular.

It should also be noted that if desired the portion of the heel in which the slot 25 is formed may be removed, as shown in Figure 5, in which case the reduced portion of the latch will follow the curved edge 25' between the seats 22 and 23 corresponding to the inner

wall of the slot when the blade is being opened or closed.

When the knife is in use, it may be held in one hand and pressure applied to the head 18 to force the latch inwardly against the action of its spring. As soon as the large portion of the latch has been moved through the opening 15 a sufficient distance to pass entirely out of the opening 22, the blade is released and the spring 3 will cause the blade to be swung outwardly in an opening direction. The reduced shank 16 is of such diameter that it may be freely received in the arcuate slot 25 and, therefore, movement of the blade will not be interfered with when the latch is in the releasing position. As soon as the blade is fully open, the positions of the openings 22 and 23 will be reversed from that shown in Figure 2 and the latch may then enter the opening 23 and securely lock the blade against closing. Therefore, the blade will be securely held in an open position and cannot be closed until the latch is again moved to release it. When, however, the latch is again moved to a releasing position, the blade can be closed and the latch allowed to enter the opening 22 and again lock the blade.

In Figure 6, there has been shown a slightly modified form of the invention. Referring to this figure, it will be seen that a coiled spring 26 has been substituted for the spring strip 19. This spring 26 is received in a pocket 27 bored or otherwise formed in the facing 12 and bears against the inner end of the latch so that the latch will be yieldably held in an operative position. In other respects the construction of the knife is the same as shown in Figure 3 and the operation is the same as previously described.

In Figure 7, there has been shown a construction slightly different from that in Figure 6. In this form of the invention, the spring 26 is omitted and the enlarged portion 28 of the latch is of sufficient length to extend through the blade and walls of the handle and at one end is provided with a head 29 received in an opening or socket 30 formed in the bolster 6. A reduced portion 31 extends from the opposite end of the enlarged portion of the latch and carries a head 32. When this form of latch is employed, it must be manually moved to a releasing or locking position. Otherwise the operation is similar to the one shown in Figure 6.

Having thus described the invention, I claim:

1. A fly-open knife comprising a handle having a blade pivotally mounted therein, the heel portion of said blade having seats therein at opposite sides of its pivot and being formed with an arcuate portion connecting the seats about the pivot, a spring carried by said handle to engage said blade and move the blade to an open position, and a latch movable transversely through the handle

and having a portion to fit within the seats and a reduced portion to move out of a seat and along said arcuate portion to the other seat, said latch when in a locking position having its larger portion disposed in a seat in the blade to secure the blade against movement about its pivot.

2. A fly-open knife comprising a handle having a blade pivotally mounted therein, the heel portion of said blade having openings therein at opposite sides of its pivot and an arcuate slot connecting the openings about the pivot and of less width than the diameters of the openings, a spring carried by said handle to engage said blade and move the blade to an open position, and a latch including a spring strip carried by a side wall of said handle and an arm extending from said strip transversely through the handle and having a portion to fit snugly in the openings and a reduced portion received in said slot to allow movement of the blade about its pivot when the latch is moved in opposition to the action of its spring to displace the larger portion of its arm from the opening.

3. A fly-open knife comprising a handle having a blade pivotally mounted therein, the heel portion of said blade having openings therein at opposite sides of its pivot and an arcuate slot connecting the openings about the pivot and of less width than the diameters of the openings, a spring carried by said handle to engage said blade and move the blade to an open position, and a latch including a spring strip extending longitudinally against the outer face of a side wall of the handle and secured at one end thereto, and a side arm at the free end of said strip passing transversely through the handle and blade and having a portion to fit snugly in the openings of the blade and a reduced portion receivable in said slot to allow movement of the blade about its pivot when the latch is moved against the action of its spring.

4. A fly-open knife comprising a handle having side walls formed with aligned openings, one opening being larger than the other, a blade pivotally mounted in said handle and having its heel portion formed with openings at opposite sides of its pivot and joined by an arcuate slot extending partially about the pivot, the openings in said blade being disposed to register with the openings in the handle and of the same diameter as the larger opening in the handle, a spring in said handle to engage said blade and move the blade to an open position, and a latch movable transversely through the handle and having a portion to fit snugly in the larger opening of the handle and openings of the blade and a reduced portion fitting snugly in the smaller opening of the handle and received in said slot to permit opening and closing of the blade, and means to yieldably hold said latch

in a locking position to dispose its larger portion in an opening of the blade and secure the blade in a set position.

5 5. A fly-open knife comprising a handle having side walls formed with aligned openings, one opening being larger than the other, a blade pivotally mounted in said handle and having its heel portion formed with openings at opposite sides of its pivot and
10 joined by an arcuate slot extending partially about the pivot, the openings in said blade being disposed to register with the openings in the handle and of the same diameter as the larger opening in the handle, a spring in
15 said handle to engage said blade and move the blade to an open position, and a latch including a spring-strip extending longitudinally upon the outer face of the side wall having the larger opening formed therein,
20 a lug extending from said spring and snugly received in registering openings in the blade and said wall to releasably lock the blade, a shank extending from said lug and projecting through the opening in the other wall
25 and when moved longitudinally to displace the latch, said lug being receivable in said slot to permit movement of the blade about its pivot, and face plates for said walls, one having a recess to receive said spring strip.

30 6. A fly-open knife comprising a handle having side walls formed with openings, a blade pivoted in said handle and having openings at opposite sides of its pivot and an arcuate slot joining its openings, the openings of the blade being disposed to alternately register with the openings in said walls,
35 a spring in said handle to engage said blade and move the blade to an open position, a latch slidably received in the openings of said handle and having a portion to fit snugly in the openings of the blades and lock the blade in open and closed positions and a reduced
40 portion receivable in the slot to permit movement of the blade when released, and means to yieldably retain the latch in locking position.

7. A fly-open knife comprising a handle having side walls formed with openings, a blade pivoted in said handle and having openings at opposite sides of its pivot and an arcuate slot joining its openings, the openings of the blade being disposed to alternately register with the openings in said walls, a
50 spring in said handle to engage said blade and move the blade to an open position, a

latch slidably received in the openings of said handle and having a portion to fit snugly in the openings of the blade and lock the blade in open and closed positions and a reduced portion receivable in the slot to permit movement of the blade when released, a spring to yieldably retain the latch in a locking position, and face plates secured against the outer side faces of said walls, one face plate being formed with a pocket enclosing said spring
60 and receiving a portion of said latch when the latch is moved to a releasing position.

8. A fly-open knife comprising a handle having side walls formed with openings, a blade pivoted in said handle and having
70 openings at opposite sides of its pivot and an arcuate slot joining its openings, the openings of the blade being disposed to alternately register with the openings in said walls, a spring in said handle to engage said blade
75 and move the blade to an open position, a latch slidably received in the openings of said handle and having a portion to fit snugly in the openings of the blade and lock the blade in open and closed positions, and a reduced
80 portion receivable in the slot to permit movement of the blade when released, and a spring to yieldably retain the latch in a locking position, bolsters at the ends of said handle, one being provided with an opening receiving
85 the outer end portion of said latch, and face plates secured against the outer faces of said walls, one having a pocket in its inner face enclosing said last-mentioned spring and adapted to receive a portion of said latch
90 when the latch is moved to a releasing position.

9. A fly-open knife comprising a handle having a blade pivotally mounted therein, the heel portion of said blade having openings therein at opposite sides of its pivot
95 and an arcuate slot connecting the openings about the pivot and of less width than the diameters of the openings, a spring carried by said handle to engage said blade and move the blade to an open position, and a latch
100 movable transversely through the handle and having a portion to fit snugly within the openings and a reduced portion to move through said slot when the latch is in a releasing position and the blade swung to open
105 and closed positions.

In testimony whereof I affix my signature.

ROBERT E. BROWN. [L. s.]