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2,000,337

SLIDE RULE CASE

Filed Nov. 1, 1932

FIG. 1.

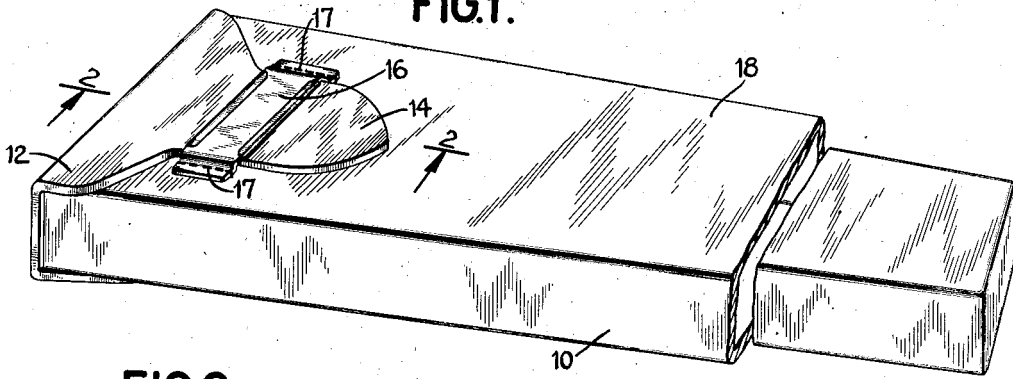


FIG. 2.

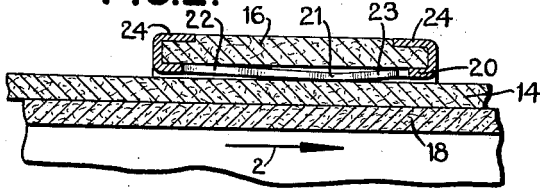


FIG. 3.

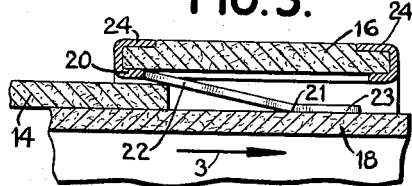


FIG. 4.

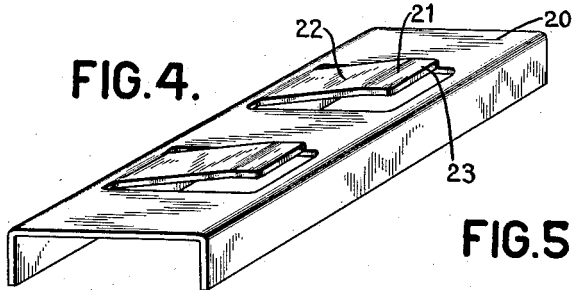


FIG. 5.

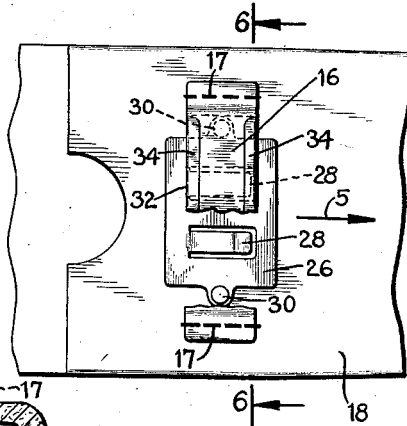


FIG. 6.

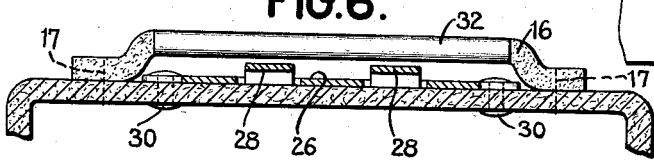


FIG. 7.

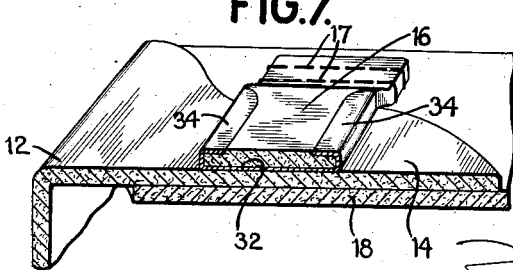
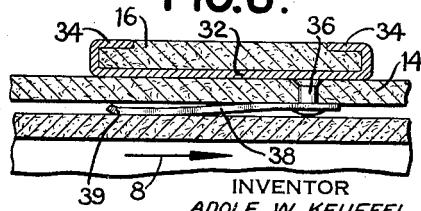


FIG. 8.



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SLIDE RULE CASE

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8 Claims. (Cl. 150—52)

This invention relates broadly to cases for slide rules and other relatively heavy objects and more particularly to the manner of securing the cover on such case.

Heretofore, the cover of such a case has been provided with a tongue which has been inserted beneath a transversely extending strap to hold the cover in closed position. It has been the experience that when such a case is inverted, as frequently happens, the relatively heavy object therewithin, resting on the cover, or the impact thereof when urged toward the cover when falling, has forced it open, permitting the object to fall out and become damaged. This is because the strap has not held the tongue strongly enough to oppose the opening movement. It has, furthermore, never been possible, in commercial production, to sew the strap at its ends to the cover so that the strap is stretched tightly enough to engage the tongue with sufficient friction to prevent it from easily slipping out from beneath the strap. Or where such leather strap has, when new, afforded a frictional grip, the strap soon stretches and loses the capacity to hold the tongue in place. Snap fasteners and the like have never proven practical as fastening means for tongues on cases of this character, not only because the mere insertion, accidentally, of something beneath the end of the tongue, disengages the snap fastener, but also because the respective fastener parts are likely to become damaged and their interengagement rendered impossible. Furthermore, the metallic fastener part within the case is likely to damage the scale surface of the slide rule and render readings of some graduations difficult.

The present invention has for its object the combination with the well known strap part and tongue part fastening, of means yieldingly preventing the separation of the parts while readily permitting the insertion of the tongue beneath the strap.

In one of its aspects, the strap and the side of the case to which it is secured form a passage having substantially parallel sides, one of said sides being relatively unyielding and the other of said sides having resilient means to yieldingly engage the tongue.

In another of its aspects, the tongue itself may carry resilient means yieldingly engaging the passage.

The invention also seeks fastening means for the cover of a case of this character which is practical from the standpoint of ease and cheap-

ness of manufacture and durability and convenience in use.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description taken in connection with the accompanying drawing illustrating various embodiments by which the invention may be realized, and in which:

Figure 1 is a view, in perspective, showing the invention applied to a slide rule case;

Figure 2 is a view, in transverse section, of the preferred embodiment of this invention, taken on the line 2—2 of Figure 1, showing the tongue inserted beneath the strap.

Figure 3 is a view similar to Figure 2 but showing the strap partly withdrawn;

Figure 4 shows the plate with resilient tongues which is adapted to be secured to the strap;

Figure 5 is a plan view showing a modified form of the invention in which the resilient tongue engaging means is carried on one wall of the tongue passage, while the other wall is relatively unyielding, parts being broken away in the interest of clearness;

Figure 6 is a view in transverse section taken in the plane 6—6 of Figure 5;

Figure 7 is a fragmentary view showing still another modification of the invention; and

Figure 8 is a sectional view taken as in Figures 2 and 3, but showing yet another modification.

Referring first to Figure 1, a case, which is illustrated as of the shape commonly used as a container for slide rules, is illustrated at 10. The invention is not to be deemed limited to a slide rule case, such being used for purposes of illustration only as representative of cases used as containers for relatively heavy objects which are opened frequently; likely to be inverted in the course of handling, so that the shock of the object striking the cover exerts a force sufficient to cause the unfastening of the cover; and which users generally prefer to be able to open with the thumb or other digit of the hand which holds the case, so that the object can be removed with the other hand, when, say, a computation is to be made.

The case 10 is shown provided with the usual cover 12 secured along its lower edge to the lower side of the case (as viewed in Figure 1). The cover is provided with a tongue 14 whereby the cover is held in closed position by passing it under a transverse strap 16, secured, as by stitching 17, to the upper side 18 of the case (as viewed in Figure 1).

In commercial production, it is found not possible to stitch the straps 16 with a uniform degree of tension so that the friction of the substantially parallel sides of the tongue passage (formed by the strap 16 and the side 18 of the case) in engaging the tongue 14 will hold it against accidental withdrawal. It is proposed, therefore, in accordance with this invention to provide a tongue passage or slot in which resilient means will be utilized to yieldingly engage an opposing surface and prevent too easy withdrawal of the tongue.

In Figures 2 and 3, the strap 16 is shown as carrying a relatively stiff plate 20 with which the resilient means are carried. In this modification, (see Figure 4) a substantially channel shaped metallic member 20 has cut out therefrom at least one and preferably two three sided tongues 22, which are resilient by reason of the inherent resiliency of the material of the plate 20. These tongues 22 are deflected at their free ends, as shown.

The plate 20 is placed on the strap 16 conveniently before the strap is secured to the case 10. In manufacture, the strap is laid in the channel and the flanges are curved over the side edges of the strap, as at 24. The strap is then secured to the side 18 of the case with the resilient tongues 22 extending in the direction in which the tongue 14 on the cover is inserted beneath the strap 16, such direction being indicated by the arrow (2, 3, 5 and 8) and obvious in Figures 1 and 7. The free ends of the tongues 22 will then occupy the position indicated in Figure 3 in substantial contact with the side 18 of the case.

When the tongue 14 is inserted, as shown in Figure 2, the springs 22 are pressed upwardly toward the plate 20 and yieldingly engage the tongue 14, pressing it against the side 18 and holding it fast. The free ends of the spring 22, furthermore, oppose withdrawal of the tongue 14.

In the preferred construction, the extremity 23 of the springs 22 is bent angularly so that the end edge will not engage the material (usually leather) of the case and scratch the tongue as it is inserted and removed, but, instead, that a convex portion 21 of the spring will contact with the tongue, as shown in Figure 2.

It will be obvious that the spring need not be on the strap 16. In Figures 5 and 6, a flat plate 26 is formed with spring tongues 28 conveniently of the same shape as the springs 22. This plate 26 may be secured, as by rivets 30, to the side 18 of the case immediately beneath the strap 16 with the springs extending as before. If desired, the strap 16 may be provided with a stiff plate 32 in the form of a channel not cut out into spring tongues but whereof the flanges are bent over the edges of the strap, as at 34. Thus the passage for the tongue 14 on the cover 12 is again provided with substantially parallel, opposed sides one of which is relatively stiff and the other of which yieldingly engages the tongue 14.

In some circumstances, it may be sufficient to relay on the resiliency of the material of the case forming the side 18 to yieldingly hold the tongue 14 against the unyielding wall 32. In this event, as in Figure 7, the channel 32 cooperates with the stitching 17 at the end of the strap 16 so that it is somewhat taut.

Obviously, the spring tongue may be carried on the tongue 14 of the case. In Figure 8, the tongue 14 has secured to its lower surface, as by rivet 36, a leaf spring 38, which is deflected downwardly from the plane of the rivet head so that

its free end 39 is normally spaced from the tongue. This spring 38 extends in a direction opposed to that in which the tongue is inserted so as to resist withdrawal of the tongue 14. The strap 16, in this instance, also carries an inflexible plate 32 so that the tongue 14 is pressed by spring 38 thereagainst and is yieldingly held against accidental withdrawal.

It will thus be seen that there has been provided a simple and novel securing means for the flap or cover of a case adapted to hold some relatively heavy object, like a slide rule, which can be opened and closed by the fingers of the same hand which holds the case. Thus there has been retained the ideal and most efficient means for fastening the cover, that is, by a tongue and slot construction while to this has been contributed the improvement of constant engagement which the prior constructions lacked due to their becoming worn. The resilient tongue engaging means is so constructed that it only requires a very easy motion to insert the tongue under the strap when closing the cover, but, due to its shape, the resilient tongue has a somewhat cam-like action effect which of its very nature gives it a semi-self-locking action against opening when the heavy object inside thrusts itself against the cover.

Various modifications will occur to those skilled in the art in the composition, disposition and configuration of the component elements going to make up the invention as a whole as well as in the selection and combination of the several elements, and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawing, except as indicated in the appended claims.

What is claimed is:—

1. In a slide rule case or the like having a cover with a tongue thereon, the combination with a side of the case, of a strap secured at its ends thereto to form a passage for the tongue, said passage having spaced substantially parallel sides, a flat substantially rigid surface carried with one side, at least one resilient tongue carried with the other side and yieldingly and slidably contacting with the tongue on the cover when inserted in the passage.

2. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, and at least one resilient tongue carried with said plate and deflected away from the plate at one end.

3. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap and a plurality of resilient tongues carried with said plate and deflected away from the plate at one end.

4. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, means to secure said plate to the strap and at least one resilient tongue carried with said plate and deflected away from the plate at one end.

5. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured

at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, the side edges of said plate being turned over the edges of the strap and at least one resilient tongue carried with said plate and deflected away from the plate at one end.

6. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, the side edges of said plate being turned over the edges of the strap and a plurality of resilient tongues carried with said plate and deflected away from the plate at one end.

7. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longi-

tudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, said plate being formed with a plurality of tongues extending in the direction in which the tongue of the cover is inserted beneath the strap and whereof the respective free ends are deflected to substantially engage the case.

8. In a slide rule case having a cover with a tongue thereon, in combination, a strap secured at its ends to the case transversely of the longitudinal axis of the tongue, a substantially rigid plate carried with the underneath surface of the strap, a plate carried with the case beneath the strap and formed with a plurality of tongues extending in the direction in which the tongue of the cover is inserted beneath the strap and whereof the respective free ends are deflected to substantially engage the plate on the strap.

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