DEVICE FOR RETAINING A STACK OF PAPERS IN A FILE

Field of the invention

The present invention relates to a device for retaining a stack of papers in files, the device being of the type in which the papers are retained by rings that are opened and closed by a mechanism that includes a lever, for example a lever arch mechanism for a lever arch file.

Background of the Invention

Lever arch files are well known for retaining a stack of papers in a file. They generally include a base, two rings secured to, and extending upwardly from, the base for engaging holes in the margin of the stack of paper. Each ring is composed of a section in the form of a post for holding the papers when the file is closed and an arched section. A mechanism is provided for holding the sections in a closed position in which the rings form closed loops that retain the stack of papers and allow the uppermost page(s) of the stack to be slid over the rings so that lower pages can be read. The mechanism can be operated by a lever to move the two sections of the rings apart so that papers may be added to, or removed from, the rings. The lever can also be operated to move the two sections of the rings together again into the closed position.

The levers of the mechanism are made of metal because of the requirement for strength, especially in the region of the lever that engages the rest of the mechanism for opening and closing the rings but the metal can be uncomfortable for frequent users of such files. In addition, there is no means of colour coding the mechanism to allow easy identification without painting the mechanism, which can easily be chipped off.

The present invention provides a way of making the opening and closing of the mechanism more comfortable to the frequent user and also to colour code the mechanisms and also, incidentally, making the mechanism more attractive.

Summary of the Invention

According to a first aspect of the present invention, there is provided a device for retaining in a file a stack of papers that have holes in their margins, which device comprises :

a base;

at least two rings secured to and extending upwardly from the base for engaging the marginal holes in the papers, each ring being composed of a moveable first section and a second section, the rings being arranged to engage holes in the margin of the papers ;

a mechanism for keeping the first and second sections of each ring in either a closed position in which the first and second sections of each ring abut each other and form a closed loop and an open position in which the first and second sections of each ring are spaced apart from each other to allow papers to be added to or removed from, the rings, the mechanism comprising a lever having a handle end and an operating end, the operating end co-operating with the rest of the mechanism for moving the first and second sections of each ring between the open and the closed positions, wherein the surface of the handle end of the lever is formed of a material that is softer than metal, preferably a plastic material.

The term " ring " used in the present specification is intended to encompass both:

a) an arrangement in which the first and the second sections are each part-circular, and

b) an arrangement in which first and the second sections together form elongated loops in which one section is generally straight(although it can have a bend along its length)and the other section has an arched shape upper portion(so-called "lever arch files").

However the particular shape of the rings does not affect the principle underlying the present invention and they can have any desired shape.

Preferably, as is generally known in so-called "lever arch files", the first sections of each ring are linked together and pivotally mounted on the base and the lever operates to move the first sections between the open and closed positions. The mechanism may include a spring that, when the lever is released, urges the first sections of the rings into the open position in which case the lever may then operate by moving the first sections against the action of the spring into the closed position. The first sections may be locked in the closed position by the lever until released, when they can move under the influence of the spring into the open position. The alternative is also possible, that is to say the spring could urge the first sections into the closed position and the lever could operate to move the first sections into the open position against the action of the spring. However, such an arrangement is not preferred because the rings would be held in their closed position merely by the spring, which could allow the rings to be opened accidentally.

The handle end could be formed wholly of the softer material or the softer material could be a sleeve on the otherwise metallic lever. If the handle end of the lever is made of plastic or other colourable material, the handle end can be colour coded by the user according to the contents of the file. Incidentally, this could making the mechanism more attractive.

Brief Description of the Drawings

Three embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a perspective view of one embodiment of the device of the present invention in the "closed" position and also shows, in Figures 1A to 1D, detailed views of a lever that forms part of the device ;

Figure 2 shows the handle end of the lever described in the device of Figure 1 ;

Figure 3 shows the lever described in the device of Figure 1 but without the handle end ;

Figure 4 is a perspective view of a second embodiment of the device of the present invention in the "closed" position and also shows, in Figures 4A to 4D detailed views of the lever that forms part of the device ;

Figure 5 shows the handle end of the lever described in the device of Figure 4 ;

Figure 6 is an exploded view of the device shown in Figure 4 ;

Figure 7 is a perspective view of a third embodiment of the device of the present invention in the "closed" position and also shows, in Figures 7A to 7D detailed views of the lever that forms part of the device ;

Figure 8 shows a sleeve forming part of the handle end of the lever in the device of Figure 7 ;

Figure 9 is an exploded view of the device shown in Figure 7 ;

Detailed Description of the Invention

Referring initially to Figure 1A and 6, there is shown a device for retaining a stack of papers in a file. The device includes a base 10 made from pressed steel having holes 12 that accommodate rivets(not shown)for securing the device to a file. Two rings 14 extend from the base 10, each ring being composed of a fixed post 16 and a moveable arched section 18. The posts 16 pass through holes 19 in the base 10(see Figure 6)and are held in place on the base 10 by deforming the base of the posts with a hammer.

The arched sections 18 of the two rings 14 are joined together by a central section 30, which is pivotally held on the base by two bent over tabs 31(see Figure 6), which are pressed out from the base 10. Such an arrangement allows the arched sections 18 and the connecting part 30 to pivot about a horizontal axis 25 extending between the two tabs 31.

The connecting section 30 includes a crank section 32. A leaf spring 34 is secured at one end (34') in a slot 36 in the base ; the other end 34" engages underneath the crank section 32 and tends to urge the crank section 32 upwardly, causing the arched sections 18 to pivot anticlockwise about the horizontal axis 25.

A generally upright wall 40 is also pressed out from the base 10. A lever 42 is secured to the wall 40 by means of a rivet 44 that passes through a hole 46 in the wall 40 and a hole 48 in the lever 42. The arrangement is such that the rivet 44 allows the lever 42 to pivot about the

wall 40.

The lever 42 carries a roller 50 that is secured to it by a further rivet 52 whose end is secured in a hole 54 in the lever 42. The roller engages the top of the crank section 32 to control the opening and closing of the arched section 18 of the ring 14, as will be described later.

The tops of the posts 16 have a male profile 60 that mate with a corresponding female profile at the end 62 of the arched sections 18(see Figure 6); this allows a positive engagement between the post 16 and the arched section 18 of each ring 14 and assists the alignment between the post 16 and the arched section 18 of each ring so that paper cannot snag on the join between them.

The lever 42 can be moved about rivet 44 between a horizontal position(shown in Figure 1)and an upwardly extending position(not shown). In the position shown in Figure 1, the roller 50 presses the crank section 32 down against the action of the spring 34 to keep the arched sections 18 of each ring in the locked position abutting against the corresponding posts 16 to form the closed rings shown

in Figure 1. The roller 50 lever passes over the dead centre of the lever mechanism when moved fully into the downward position, whereby the spring 34 acts to keep the lever in the closed position.

When the lever 42 is moved upwardly from the position shown in Figure 1, the roller 50 no longer presses down on the crank section 32 and this allows the crank section 32 to be moved upwardly by spring 34, thereby allowing the arched sections 18 to pivot anticlockwise about axis 25 to separate the arched sections 18 of the rings from the post sections 16. By pressing down on the lever 42, the crank section 32 can be moved by the roller 50 against the action of the spring 34 into the closed position shown in Figure 1.

A stack of papers(not shown)having holes in their margins can be threaded onto the posts 16 when the rings are in their "open" position. Once the stack of papers has been threaded on to the posts 16, the lever 42 can be depressed to the position shown in Figure 1 to hold the stack of papers captive on the rings 14. The upper pages of the stack may be slid over the posts 16, and retained on the arched section 18 so that papers lower down the stack can be exposed for easy reading. The lever arch file described above has been conventional.

The lever 42 has a metallic operational end 45, which carries the roller 50 and which is secured to the wall 40. The lever also has a handle end 47 that is manipulated by the user. The operational end 45 has a spigot 49 that fits into a recess 51 in the handle end 47 and the handle end is held on the spigot by friction or by adhesive. Figure lB is a perspective view of the lever 42 alone, Figure lC is a perspective view of the lever but with the two ends 45,47 shown separated. Figure lD is a side view of the lever 42 and Figure lE is a sectional view through line

E-E of Figure lD.

Figure 2 shows the handle end 47 of the lever in perspective view (Figure 2A), in side view (Figure 2B), in top view(Figure 2C)and in end view (Figure 2D).

Figure 3 shows the operational end 47 of the lever in perspective view(Figure 3A), in side view (Figure 3B) and in top view(Figure 3C).

The device of Figure 4 is identical to Figure 1 except that the handle end of the lever 42 is provided by a cover 60 that is pushed onto one end 62 of the operational part 64 of a conventional lever arch lever. Figure 4B is a perspective view of the lever 42 alone, Figure 4C is a perspective view of the lever but with the two parts 60 ; 62,64 shown separated. Figure 4D is a side view of the lever 42 and Figure 4E is a sectional view through line E-E of Figure 4D.

Figure 5 shows the handle end 60 of the lever of Figure 4 in perspective view(Figure 5a), in side axial sectional view(Figure 5B), in top view(Figure 5C) and in end view(Figure 5D).

Figure 6 is an exploded view of the device of Figures 4 and 5 showing the component parts of the device.

The device of Figure 7 is identical to Figure 1 except that the handle end of the lever 42 is provided by a sleeve 70 that is pushed onto one end 72 of the operational part 74 of a lever for a lever arch file. Figure 7B is a perspective view of the lever 42 alone. Figure 7C is a perspective view of the lever but with the two parts 70; 72, 74 shown separated. Figure 7D is a side view of the lever 42 and Figure 7E is a sectional view through line E-E of Figure 7D.

Figure 8 shows the sleeve 70 of the lever 42 in perspective view(Figure 8A), in side axial sectional view(Figure 8B), in top view(Figure 8C) and in end view (Figure 8D).

Figure 9 is an exploded view of the device of Figures 7 and 8 showing the component parts of the device.

WHAT IS CLAIMED IS:

1. A device for retaining in a file a stack of papers that have holes in their margins, which device comprises:

a base;

at least two rings secured to and extending upwardly from the base for engaging the marginal holes in the papers, each ring being composed of a moveable first section and a second section, the rings being arranged to engage holes in the margin of the papers;

a mechanism for keeping the first and second sections of each ring in either a closed position in which the first and second sections of each ring abut each other and form a closed loop and an open position in which the first and second sections of each ring are spaced apart from each other to allow papers to be added to, or removed from, the rings, the mechanism comprising a lever having a handle end and an operating end, the operating end co-operating with the rest of the mechanism for moving the first and second sections of each ring between the open and the closed positions, wherein the surface of the handle end of the lever is formed of a material that is softer than metal, preferably a plastic material.

2. A device as claimed in claim 1, wherein the first sections of each ring are connected together and pivotally mounted and the lever is capable of urging the first sections of the rings into the closed position and wherein the mechanism includes a spring that urges the first sections into the open position when the lever is released.

3. A device as claimed in claim 2, wherein the first section of each ring is locked in the closed position by the lever until released.

4. A device as claimed in any one of claims 1 to 3, wherein the handle end is formed wholly of the softer material.

5. A device as claimed in any one of claims 1 to 3, wherein the handle end is formed as a sleeve on the lever.

6. A device as claimed in any one of claims 1 to 5, wherein the handle end of the lever is made of plastic or other colourable material, and the handle end is coloured.