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A Compressor Bar for a Lever-Arch Type File Mechanism

This invention relates to a compressor bar for a lever-arch type file mechanism, and in particular such a mechanism adapted to be affixed to a substrate to form a lever-arch type file.

Background of the Invention

In most existing lever-arch type file mechanisms, a one-armed lever is provided for pivoting a pair of arch elements relative to a pair of fixed posts to allow pieces of hole-punched paper to be retrieved from or inserted into the file mechanisms, and for closing the posts and arch elements to form a pair of closed rings to retain the paper therein. Such conventional mechanisms also include a compressor bar with two openings each for receiving one of the posts. When the posts and the arch elements mate with each other, the compressor bar is movable relative to the ring pairs so formed.

The compressor bar carries a pair of flexible rods, whose relative position may be changed upon operation of a button. In particular, the button may be moved between a first position in which the rods grip the posts and prevent relative movement between the compressor bar and the posts and a second position in which the posts are free from the rods so that relative movement between the compressor bar and the posts is allowed. By way of such an arrangement, the compressor bar may be caused to bear on the paper held by the ring pairs, to thereby prevent relative sliding movement between the paper and the posts, and thus the file mechanism.

When a user carries a conventional lever-arch type file for a meeting or the like, it often occurs that no writing instrument is readily available when needed, thus causing inconvenience and embarrassment. It is thus an object of the present invention to provide a compressor bar for a lever-arch type file mechanism, a lever-arch type file mechanism, and a paper retaining device in which the aforesaid shortcoming is mitigated, or at least to provide a useful alternative to the trade and public.

Summary of the Invention

According to a first aspect of the present invention, there is provided a compressor bar for a lever-arch type file mechanism, including a base with a plurality of openings; a pair of resilient rods carried by said base; an operating member operable to change the relative position of said pair of rods; characterized in including means for releasably holding at least

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one writing instrument.

According to a second aspect of the present invention, there is provided a lever-arch type file mechanism including a platform; at least two rings secured to and extending upwardly from the platform for engaging holes in at least a piece of paper, each said ring including a post member fixed to said platform and an arch member movable relative to said platform and said post member; a lever operable to move said arch members relative to said post members between a closed configuration in which said rings are closed and an open configuration in which said rings are open; and a compressor bar including a base with a plurality of openings each for receiving one of said post members, a pair of resilient rods carried by said base, and an operating member operable to change the relative position of said pair of rods; characterized in that said compressor bar includes means for releasably holding at least one writing instrument.

According to a third aspect of the present invention, there is provided a paper retaining device including at least two post members; and a compressor bar including a base with a plurality of openings each for receiving one of said post members, a pair of resilient rods carried by said base, and an operating member operable to change the relative position of said pair of rods; characterized in that said compressor bar includes means for releasably holding at least one writing instrument.

Brief Description of the Drawings

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

Fig. 1 is a partial perspective view of a file with a lever-arch type file mechanism having a compressor bar according to a first embodiment of the present invention;

Fig. 2 shows the file of Fig. 1 holding a pen;

Fig. 3A is a front view of the compressor bar of the file shown in Fig. 1;

Fig. 3B is a bottom view of the compressor bar shown in Fig. 3A;

Fig. 3C is a top view of the compressor bar shown in Fig. 3A;

Fig. 3D is a right side view of the compressor bar shown in Fig. 3A;

Fig. 3E is a left side view of the compressor bar shown in Fig. 3A;

Fig. 4 is an enlarged sectional view taken along the line I-I of Fig. 3A;

Fig. 5 is an exploded view of the compressor bar shown in Fig. 3A;

Fig. 6 is a perspective view of the compressor bar shown in Fig. 3A;

Fig. 7A is a front view of the base of the compressor bar shown in Fig. 3A;

Fig. 7B is a bottom view of the base shown in Fig. 7A;

Fig. 7C is a top view of the base shown in Fig. 7A;

Fig. 7D is a right side view of the base shown in Fig. 7A;

Fig. 7E is a left side view of the base shown in Fig. 7A;

Fig. 8A is a front view of the connecting member of the compressor shown in Fig. 3A;

Fig. 8B is a bottom view of the connecting member shown in Fig. 8A;

Fig. 8C is a top view of the connecting member shown in Fig. 8A;

Fig. 8D is a left side view of the connecting member shown in Fig. 8A;

Fig. 8E is a perspective view of the connecting member shown in Fig. 8A;

Fig. 9 is a partial perspective view of a file with a lever-arch type file mechanism having a compressor bar according to a second embodiment of the present invention;

Fig. 10 shows the file of Fig. 9 holding a pen;

Fig. 11A is a front view of the compressor bar of the file shown in Fig. 9;

Fig. 11B is a bottom view of the compressor bar shown in Fig. 11A;

Fig. 11C is a top view of the compressor bar shown in Fig. 11A;

Fig. 11D is a right side view of the compressor bar shown in Fig. 11A;

Fig. 11E is a left side view of the compressor bar shown in Fig. 11A;

Fig. 12 is an enlarged sectional view taken along the line II-II of Fig. 11A;

Fig. 13 is an exploded view of the compressor bar shown in Fig. 11A;

Fig. 14 is a perspective view of the compressor bar shown in Fig. 11A;

Fig. 15A is a front view of the base of the compressor bar shown in Fig. 11A;

Fig. 15B is a bottom view of the base shown in Fig. 15A;

Fig. 15C is a top view of the base shown in Fig. 15A;

Fig. 15D is a right side view of the base shown in Fig. 15A;

Fig. 15E is a left side view of the base shown in Fig. 15A;

Fig. 16 is a partial perspective view of a file with a lever-arch type file mechanism having a compressor bar according to a third embodiment of the present invention;

Fig. 17 shows the file of Fig. 16 holding a pen;

Fig. 18A is a front view of the compressor bar of the file shown in Fig. 16;

Fig. 18B is a bottom view of the compressor bar shown in Fig. 18A;

Fig. 18C is a top view of the compressor bar shown in Fig. 18A;

Fig. 18D is a right side view of the compressor bar shown in Fig. 18A;

Fig. 18E is a left side view of the compressor bar shown in Fig. 18A;

Fig. 19 is an enlarged sectional view taken along the line III-III of Fig. 18A;

Fig. 20 is an exploded view of the compressor bar shown in Fig. 18A;

Fig. 21 is a perspective view of the compressor bar shown in Fig. 18A;

Fig. 22A is a front view of the base of the compressor bar shown in Fig. 18A;

Fig. 22B is a bottom view of the base shown in Fig. 22A;

Fig. 22C is a top view of the base shown in Fig. 22A;

Fig. 22D is a right side view of the base shown in Fig. 22A; and

Fig. 22E is a left side view of the base shown in Fig. 22A.

Detailed Description of the Embodiments

A file with a lever-arch type file mechanism having a compressor bar according to a first embodiment of the present invention is shown in Figs. 1 and 2, and generally designated as 100. The file 100 is made up of a substrate, e.g. a cardboard cover 102, fixedly secured with a lever-arch type file mechanism 104. The file mechanism 104 is adapted to retain a stack of hole-punched paper 106 in the file 100.

The file mechanism 104 has a lever 105 operable to pivot a pair of arch elements 108 relative to a pair of posts 110 fixed to a platform 112 to allow the pieces of hole-punched paper 106 to be retrieved from or inserted into the file mechanism 104, and for closing the posts 110 and arch elements 108 to form a pair of closed rings to retain the paper 106. The file mechanism 104 also includes a compressor bar 114 with a resilient cylindrical holder 116 for releasably holding a writing instrument, e.g. a pen 119.

As shown in Figs. 3A to 6, the compressor bar 114 has a base 117 with two openings 118 each for receiving one of the posts 110. When the posts 110 and the arch elements 108 mate with each other, the compressor bar 114 is movable relative to the ring pairs formed by the posts 110 and arch elements 108.

The compressor bar 114 carries a pair of flexible rods 120, whose relative position may be changed upon operation of a button 122 on the base 117. In particular, the button 122 may be moved between a first position in which the rods 120 grip the posts 110 and prevent relative movement between the compressor bar 114 and the posts 110 and a second position in which the posts 110 are free from the rods 120 so that relative movement between the

compressor bar 114 and the posts 110 is allowed. By way of such an arrangement, the compressor bar 114 may be caused to bear on the paper 106 held by the ring pairs, to thereby prevent relative sliding movement between the paper 106 and the posts 110, and thus the file mechanism 104.

As shown in Figs. 7A to 7E, a longitudinal end of the base 117 is provided with two holes 124 for engagement with a connecting member 126 as shown in Figs. 8A to 8E *via* two rivets 128 (see Figs. 5 and 6). Returning to Fig. 4, it can be seen that the holder 116 is made up of a length of wire 130 (which may be made of metal, plastics or fibre) wound into a cylindrical shape, and with a through hole 132 for releasably holding the pen 119. Alternatively, the holder 116 may be in the form of a resilient band made up of a number of connected links. A tongue 134 of the connecting member 126 extends into the interior of the holder 116 for engaging the connecting member 126 with the wire 130, and thus with the holder 116.

A file with a lever-arch type file mechanism having a compressor bar according to a second embodiment of the present invention is shown in Figs. 9 and 10, and generally designated as 200. As can be seen in Fig. 10, a compressor bar 214 of a lever-arch type file mechanism 204 of the file 200 carries a resilient cylindrical holder 216 for releasably holding a writing instrument, e.g. a pen 219.

As can be seen more clearly in Fig. 12, the holder 216 is engaged with a base 217 of the compressor 214 *via* a connecting member 226 which is integrally formed with the base 217. Again, a tongue 234 of the connecting member 226 extends into the interior of the holder 216 for engagement with the holder 216.

A file with a lever-arch type file mechanism having a compressor bar according to a third embodiment of the present invention is shown in Figs. 16 and 17, and generally designated as 300. As can be seen in Fig. 17, a compressor bar 314 of a lever-arch type file mechanism 304 of the file 300 carries a resilient cylindrical holder 316 for releasably holding a writing instrument, e.g. a pen 319.

As can be seen more clearly in Fig. 19, the holder 316 formed of a wire 330 is engaged with a base 317 of the compressor bar 314 *via* a connecting member 326 which is integrally

formed with the base 317. Again, a tongue 334 of the connecting member 326 extends into the interior of the holder 316 for engagement with the holder 316.

As shown in Fig. 12, in the file mechanism 204, the connecting member 226 extends from an upper surface of the base 217 and includes a downwardly extending protrusion 236; whereas as shown in Fig. 19, in the file mechanism 304, the connecting member 326 extends from a side surface of the base 317.

Although the present invention has so far been described in the context of a compressor bar for use in a lever-arch type file mechanism affixed to a cardboard to form a file, it is envisaged that the compressor bar 114, 214, 314 may be used in other stationery items. For example, a writing board (which may be made of plastics, metal or cardboard) may be affixed with two posts (which may be rigid or flexible) spaced apart from each other by the distance of the two openings 118 of the compressor bar 114. The two posts may be inserted into holes of pieces of paper hole-punched at their upper end for retaining the paper. The compressor bar 114, 214, 314 may then be engaged with the posts for selectively gripping the posts so as to bear on the pieces of paper for releasably retaining them with the stationery item.

It should be understood that the above only illustrates examples whereby the present invention may be carried out, and that various modifications and/or alterations may be made thereto without departing from the spirit of the invention.

It should also be understood that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any appropriate sub-combinations.

CLAIMS:-

1. A compressor bar for a lever-arch type file mechanism, including:

a base with a plurality of openings;

a pair of resilient rods carried by said base;

an operating member operable to change the relative position of said pair of rods;

characterized in including means for releasably holding at least one writing instrument.

2. A compressor bar according to Claim 1 further characterized in that said holding means is substantially cylindrical in shape.

3. A compressor bar according to Claim 1 or 2 further characterized in that said holding means is made up of a wire member.

4. A compressor bar according to Claim 1 or 2 further characterized in that said holding means is resilient.

5. A compressor bar according to Claim 2 further characterized in that said holding means includes a through hole for receiving said writing instrument.

6. A compressor bar according to Claim 1 further characterized in that said holding means is fixedly engaged with said base *via* a connecting member.

7. A compressor bar according to Claim 6 further characterized in that said connecting member is fixedly engaged with said base *via* at least one securing member.

8. A compressor bar according to Claim 6 further characterized in that said connecting member is formed integrally with said base.

9. A compressor bar according to Claim 6 further characterized in that at least part of said connecting member is received within said holding means.

10. A lever-arch type file mechanism including:

a platform;

at least two rings secured to and extending upwardly from the platform for engaging holes in at least a piece of paper, each said ring including a post member fixed to said platform and an arch member movable relative to said platform and said post member;

a lever operable to move said arch members relative to said post members between a closed configuration in which said rings are closed and an open configuration in which said rings are open; and

a compressor bar including a base with a plurality of openings each for receiving one of said post members, a pair of resilient rods carried by said base, and an operating member operable to change the relative position of said pair of rods;

characterized in that said compressor bar includes means for releasably holding at least one writing instrument.

11. A paper retaining device including:

at least two post members; and

a compressor bar including a base with a plurality of openings each for receiving one of said post members, a pair of resilient rods carried by said base, and an operating member operable to change the relative position of said pair of rods;

characterized in that said compressor bar includes means for releasably holding at least one writing instrument.