

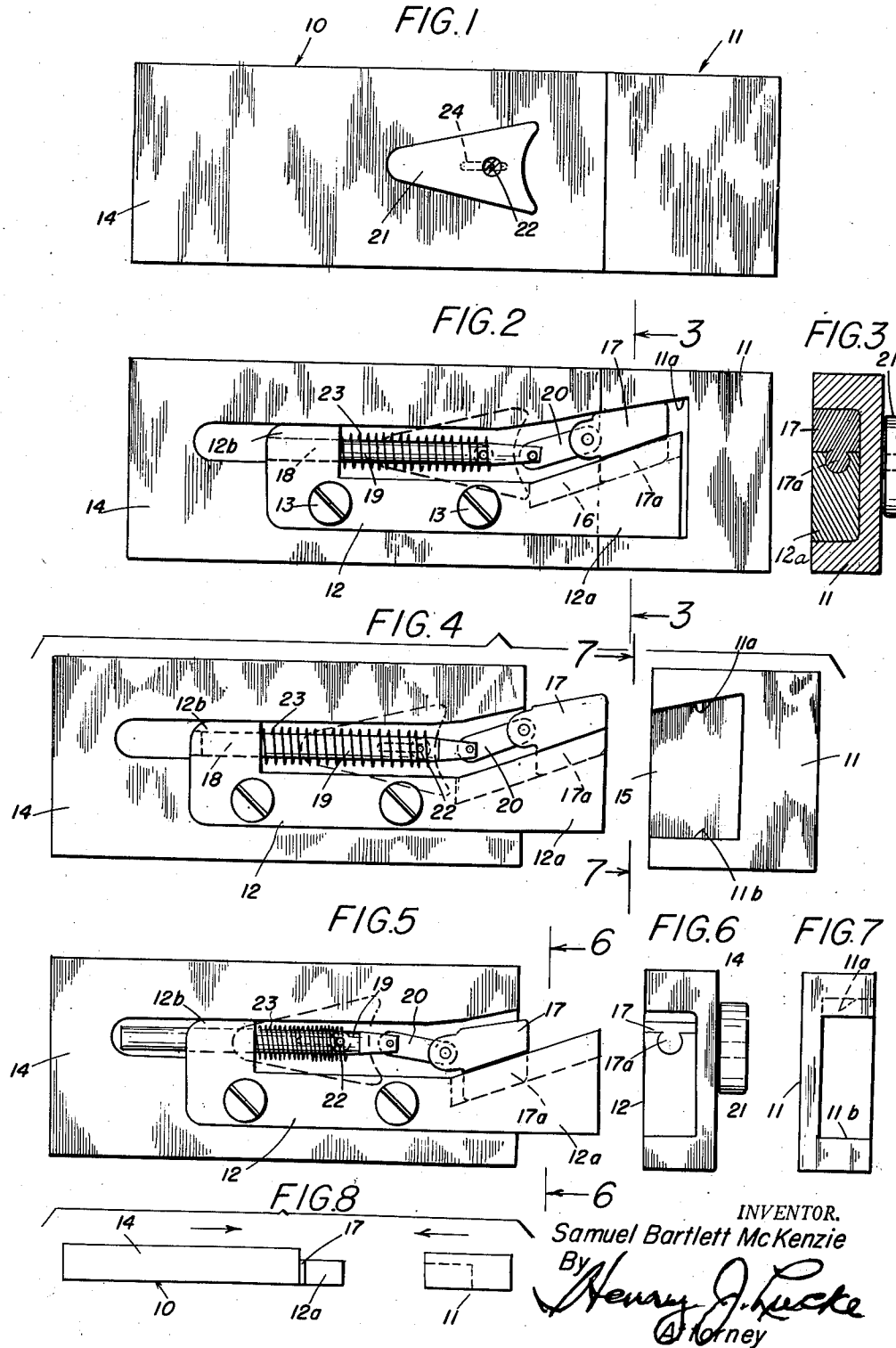
Dec. 18, 1951

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2,578,723

CONNECTOR DEVICE

Filed Dec. 31, 1946



UNITED STATES PATENT OFFICE

2,578,723

CONNECTOR DEVICE

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Application December 31, 1946, Serial No. 719,365

2 Claims. (Cl. 292—302)

1

This invention relates to connector devices; more particularly to connector devices of the type enabling separate structures or members to be latched tightly together and to be unlatched and separated at will.

The novel connector device of the invention possesses bolt and keeper mechanism so formed and arranged that vibration thereof, or of the structures or members to which applied in use, will act only to tighten the latching relationship, and will increase rather than reduce the effectiveness of the device.

Further, the device of the invention is arranged for application to separate structures or members which come together directly in substantially mutually abutting relationship; that is to say, so that the bolt and keeper parts of the device which are secured to the respective structures or members lie within and move along a substantially common plane during the movement into and out of connected or latched relationship. The bolt slides directly into and out of the keeper upon the aforesaid movement of the separate structures or members, and the movable latching portion of the bolt is operable by means slidably disposed within a slideway associated with the bolt and lying within and along the aforesaid common plane.

An object of the invention is to provide a connector device useful for a variety of specialized applications, wherever vibration is a problem, for example, for the constantly-tight latching a great number of different types of sliding closures, and, again, for the detachable yet constantly-tight connection of structural members in portable building construction, the ends of strap retainers for cinching down cargo for transit, etc.

An object is to provide such a connector device, which is simple, space-saving, and inexpensive in construction, and which is positive-acting in operation.

These and further objects and features of the invention will be apparent from the following detailed description of the preferred specific embodiment illustrated in the accompanying drawings.

In the drawing:

Fig. 1 represents a side elevation of the device in its interconnected and latched condition;

Fig. 2, a similar view, but showing the opposite side of the device;

Fig. 3, a vertical section taken on the line 3—3, Fig. 2;

Fig. 4, a view corresponding to that of Fig. 2,

2

but illustrating the two parts of the device unlatched and separated;

Fig. 5, a view corresponding to the left-hand portion of Fig. 4, namely, the bolt portion, illustrating the movable wedging member retracted into disengaged or unlatched position;

Fig. 6, an end elevation of the bolt as viewed from the line 6—6, Fig. 5;

Fig. 7, an end elevation of the keeper as viewed from the line 7—7, Fig. 4; and

Fig. 8, a top plan view corresponding to Fig. 4 but drawn to a somewhat reduced scale.

Referring now to the drawing: The bolt part of the device is indicated 10 and the keeper part 11.

The bolt proper includes a stationary guide member 12 secured as by the screws 13, 13 to a suitable mount 14, which may be an integral part of one of the structures to be interconnected or may be a piece adapted to be attached to such structure.

The mount 14 is in this instance recessed to receive the bolt, and the bolt is inset therein flush with the recessed face thereof, see Fig. 6.

The keeper 11 is hollow, having opposing interior walls 11a and 11b converging toward an entry mouth 15. The wall 11a slopes relative to the wall 11b, thereby providing a keeper surface for the bolt. The wall 11b provides a guide surface. The keeper may be formed integral with the other of the structures to be interconnected or may be a separate piece suitably inset therein or attached thereto.

The stationary guide member 12 of the bolt has a free end 12a, which projects from the recess of the mount 14 as illustrated. Such end 12a is here shown of wedge formation, diverging outwardly, with its upper wedge surface grooved as a slideway, see 16.

The bolt also includes a movable wedging member, here indicated as a block 17 mounted for sliding movement along the upper wedge surface of the stationary guide member 12. A tongue 17a fits into the groove 16 in dove-tail fashion, thereby securing the wedging block 17 to the upper wedge surface of the guide member 12, on which it slides. Such movable wedging member of the bolt cooperates with the keeper surface 11a in latching the separable parts of the device together.

The bolt is arranged to slide directly into the keeper as the respective structures or members to which they are attached are brought together along a common plane, see Fig. 8, and the operative means effective on the movable wedging

member of the bolt lies within and extends along said common plane.

The operating means is arranged for reciprocation within a longitudinal slideway associated in said common plane with the stationary guide member 12 of the bolt. Here, the slideway is formed longitudinally of a portion 12b of the stationary guide member which juts out from the main body thereof at a location spaced backwardly from the projecting forward end 12a. Such slideway is designated 18.

Fitted within the slideway 18 for sliding reciprocation therealong is a slide member, shown as a pin 19. The forward end thereof is articulatively connected to the movable wedging member, such articulative connection here conveniently taking the form of a link 20 pivotally connected at one of its ends to the pin 19 and at its other to the wedging block 17, as illustrated.

A handle 21, arranged for manual manipulation exteriorly of the device, is secured to the forward end portion of the pin 19 as by means of a screw 22, and between such screw 22 and the slideway portion 12b of the stationary guide member of the bolt a coil spring 23 encircles the pin 19. Disposed as it is between handle screw 21 and the abutment furnished by slideway portion 12b, and being normally under compression, such spring 23 maintains the wedging block 17 in its extreme forward position upon the projecting end of stationary guide member 12 of the bolt when the bolt and keeper parts are separated, as is the case in Fig. 4. Such position is maintained against the normal size of spring 23, it should be noted, by reason of the fact that handle screw 22 is at the forward end of the slideway slot 24 (appearing in Fig. 1) in mount 14, through which it extends and along which it reciprocates.

When the wedging block 17 is retracted, either by pushing handle 21 back manually against the urge of spring 23 or by allowing it to be pushed back by forcibly shoving the bolt into the keeper upon interconnecting the two structures, the bolt appears as illustrated in Fig. 5. This is the disengaged or unlatched position. Forcing of the handle, slide, and wedging block forwardly by the spring 23 means that, when the bolt is within the keeper, as illustrated in Fig. 2, the wedging block 17 makes latching contact with keeper surface 11a short of the extreme forward position of Fig. 4, thereby affording leeway for further wedging travel of the wedge block relative to the stationary guide member 12a upon which it is mounted and to the keeper surface. Accordingly any looseness occasioned by wear is automatically corrected, and tight connection is constantly maintained under all circumstances of use.

Whereas this invention is here illustrated and described with respect to a preferred specific form thereof it should be understood that various changes may be made in that form and various other forms may be constructed on the basis of the teachings hereof by those skilled in the art without departing from the generic scope of the invention as defined by the following claims.

I claim:

1. In a connector device for detachably connecting together two separate structures which may be brought together along a substantially common plane, one structure having secured thereto a hollow keeper having opposing interior walls converging to an entry mouth, one of such opposing walls providing a guide surface and the other a keeper surface, a bolt mechanism secured to the other structure for sliding insertion within and latching cooperation with the keeper of the first structure, said bolt mechanism comprising: a stationary guide member adapted to slide into the keeper of the first structure along the guide surface thereof, a movable wedging member mounted on said stationary guide member for making latching contact with the keeper surface on the keeper of the first structure, a spring constantly urging said movable wedging member toward the free front end of said stationary guide member, operating means attached to said movable wedging member, and a slideway associated with said stationary guide member of the bolt mechanism, said slideway lying within and extending along the common plane of the two structures, said operating means comprising a slide mounted in said slideway, a link articulatively connecting said slide with said wedging member, and a handle projecting from said slide.

2. In a connector device for detachably connecting together two separate structures, one structure having secured thereto a hollow keeper having opposing interior walls converging to an entry mouth, one of such opposing walls providing a guide surface and the other a keeper surface, a bolt mechanism secured to the other structure for sliding insertion within and latching cooperation with the keeper of the first structure, said bolt mechanism comprising: a stationary guide member adapted to slide into the keeper of the first structure along the guide surface thereof, a movable wedging member mounted on said stationary guide member for making latching contact with the keeper surface on the keeper of the first structure, a slideway associated with said stationary guide member, and operating means attached to said movable wedging member, said operating means comprising a pin mounted for reciprocation within said slideway, a handle projecting from said pin adjacent the forward end thereof, and a coil spring encircling said pin between said handle and an abutment portion of said slideway spaced rearwardly thereof with respect to said handle, said spring constantly urging said movable wedging member toward the free front end of said stationary guide member.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,047,623	Felts	July 14, 1936
2,195,542	Shaffer et al.	Apr. 2, 1940
2,230,409	McKenzie	Feb. 4, 1941