Dec. 16, 1930. H. J. GILBERT 1,785,343

LATCH FOR FOLDING BRACES

Filed Sept. 20, 1928

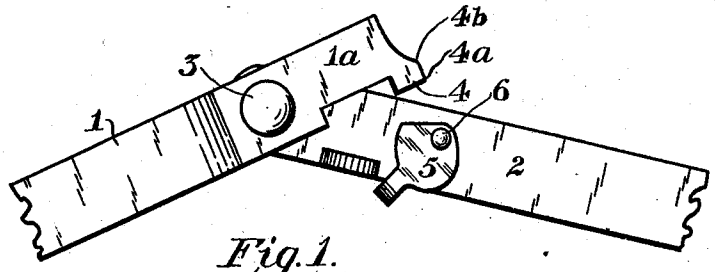


Fig. 1.

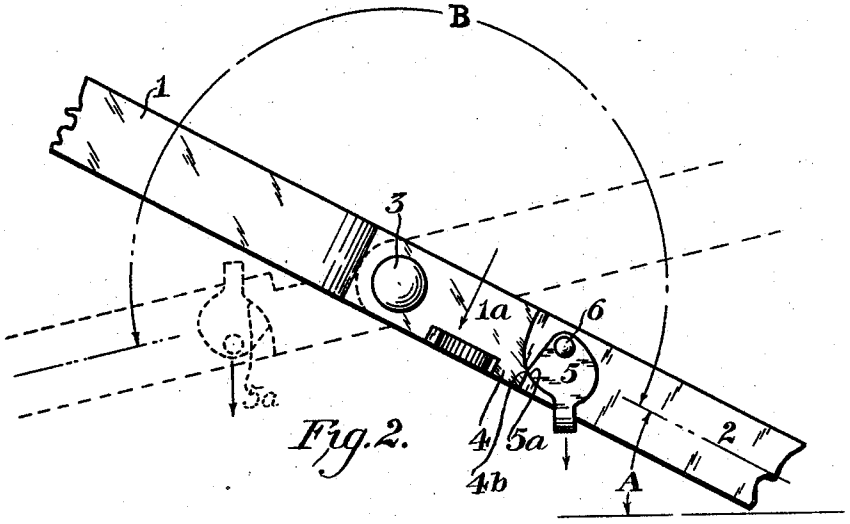


Fig. 2.

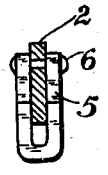


Fig. 3.

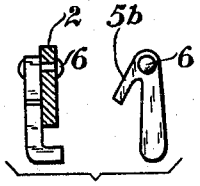


Fig. 4.

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UNITED STATES PATENT OFFICE

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LATCH FOR FOLDING BRACES

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This invention is a joint for folding braces such as are used on collapsible tables and for similar purposes. The improvement consists in a novel form of catch or latching device for automatically engaging and releasably holding the pivotally joined bars in extended position.

The latching device is of the gravitational type and the object of the invention as claimed is to provide a pivoted, as distinguished from a sliding, gravitational latch which will act to lock the bars together, regardless of the inclination or slope of the extended bar, within a very wide range of such variations of position.

An ordinary gravitational sliding latch will usually function when the latch bar is at a slope of about thirty degrees from the horizontal. Consequently the effective range of operation of a folding brace provided with a sliding latch is about one hundred twenty degrees of arc. My improved gravitational latch will function through a much greater angular range of brace positions, say about two hundred twenty degrees.

It is important in a latch of this character that it shall be capable of operating gravitationally practically regardless of the position of the brace on the table or other article with which it is used. Sometimes it is advisable to give the brace only a small amount of slope, in other cases a larger amount and consequently it is advisable to have a gravitational latch that will work at any usual angle, or even if the brace is horizontal.

With the foregoing and certain other objects in view, which will appear later in the specification, my invention comprises the devices described and claimed and the equivalents thereof.

In the drawings Fig. 1 is a face view of a brace partly folded.

Fig. 2 is a face view showing in full lines a brace extended and automatically fastened by the latch, the angular position or slope of the brace with respect to the horizontal being indicated. In the same view the dotted position indicates the angle through which the brace may be turned without impairing the effectiveness of the automatic gravitational latch.

Fig. 3 is a detail view showing a preferred form of the pivoted latch.

Fig. 4 is a detail of a modified form.

As is clearly shown in the drawings, the brace consists of two bars 1, 2 pivotally joined at 3, a projecting end 1*a*, of bar 1 being in overlapping relation with bar 2.

For restraining the overlapping end 1*a* from sidewise movement beyond the straight or extended position of the brace any suitable lateral abutment or aligning means may be employed. One form of such abutment consists of a struck-up portion 2*a* on an edge of bar 2 and a co-operating recess 1*b* formed in the overlapping edge of the end 1*a*, all of which is usual in devices of this kind.

The claimed subject matter of the invention is found in incorporating with the folding bars and lateral stop means, an improved latching device that operates in practically any position of the brace within the requirements of ordinary practice.

The latching device is made by cutting away a portion of the top edge of the overlapping part 1*a* of bar 1 so as to present a tongue or keeper 4. On bar 2 a catch 5 is pivotally mounted at 6 just beyond the extremity of the overlapping part. This catch comprises essentially a pivoted gravitational pawl which may be in the form of a cam whose outer edge 5*a* is normally positioned to swing by gravity into the arc or path of travel of the tongue or keeper 4.

The specific shape of the catch may be varied, but I prefer the form shown in Figs. 1, 2, 3, where it is shaped like a clevis that straddles the bar 2 and has on one side an en-

larged area that includes the gravitational finger or cam.

The loop portion of the latch furthermore limits the angular movement that is permitted the latch itself about its pivotal center, thereby keeping it normally positioned for engaging and for disengaging from the tongue or keeper. The loop of the clevis serves as a thumb piece or handle by which the catch can be lifted to disengage it, and the loop also constitutes a weight by which the pivoted catch is automatically put into engagement whenever the bars 1, 2 are so positioned that gravity can act on the catch for that purpose. For example, from any inclination with respect to the horizontal, as indicated at A, clear around through angle B, say, approximately two hundred twenty degrees, the latch will work automatically by gravity.

In Fig. 4 is shown a modified form of latch wherein a finger 5*b* is substituted for the cam shown in Fig. 3 and half of the clevis loop is dispensed with. The purpose of this illustration is to indicate the kind of variations that may be made in the shape of the catch without departing from my invention as set forth in the claims.

Essentially the catch is any gravitationally weighted pawl that is mounted on one of the bars and is capable of a swinging movement in an arc that intercepts the arc of travel of the overlapping part 1*a* of the other bar.

In operation, the catch 5 hangs freely suspended from its pivot on bar 2. When the bars are moved into their aligned position the side edge of pawl 5 rides over the outer corner 4*a* and across the top edge of keeper 4, and the outer edge 5*a* of the pawl drops down behind the other corner 4*b* of the keeper, thus locking it.

To release the catch, the loop or depending end of the clevis is lifted by hand. The latch will operate in this manner in any position of the bar 2 within the range indicated by arc B, or approximately two hundred twenty degrees.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a brace comprising two bars pivotally joined, one having an extension member in overlapping relation to the other bar, and stop means for limiting the movement sidewise of said member, a keeper formed in the end of said member, a pivotally mounted gravitational latch on the second bar whose path of angular movement intercepts the path of angular movement of the keeper.

2. A structure as set forth in claim 1 wherein the latch is in the form of a clevis having a cam member adapted to gravitationally engage said keeper, said clevis also having portions engaging both sides of the bar on which it is mounted and having a connecting loop portion engaging the edge of the bar to act as a stop.

3. A structure as set forth in claim 1 wherein the latch is in the form of a clevis having a cam member adapted to gravitationally engage said keeper, and a loop member for limiting the angular movement of the cam, by engagement of said loop member with the bar on which it is mounted to serve as a stop for said cam member.

In testimony whereof, I affix my signature.

HENRY J. GILBERT.