June 25, 1929. J. R. JACKSON, JR 1,718,649

COLLAPSIBLE GATE

Filed Feb. 24, 1927

Fig. 3.

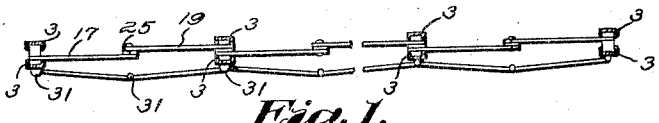


Fig. 1.

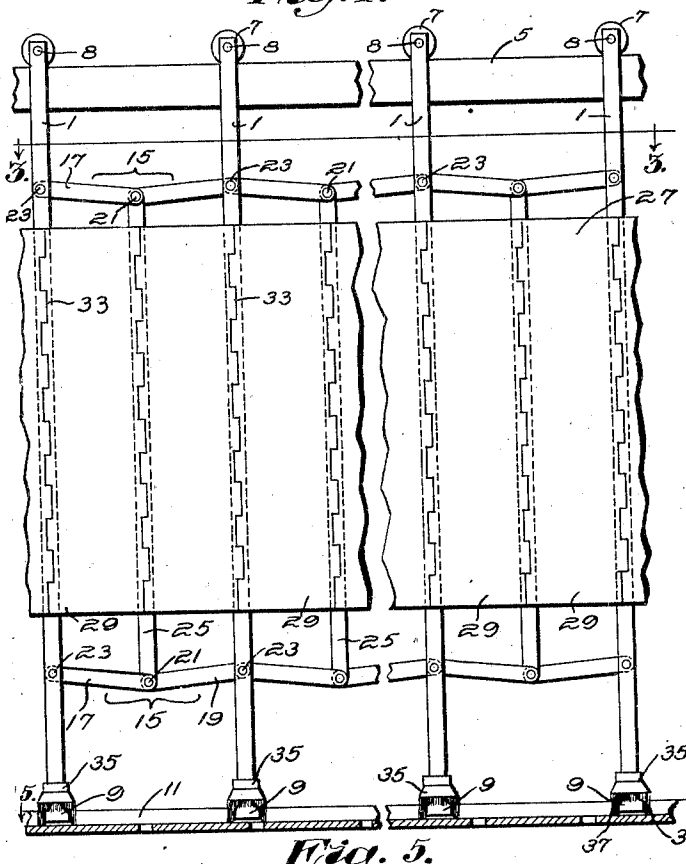


Fig. 4.

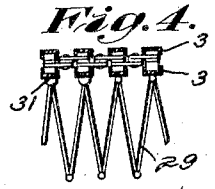


Fig. 2.

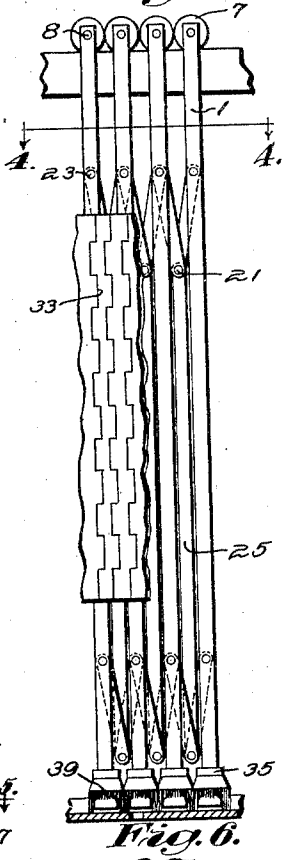


Fig. 5.

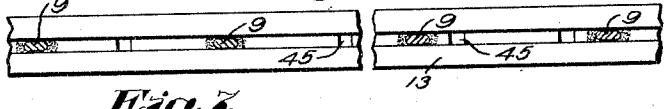


Fig. 6.

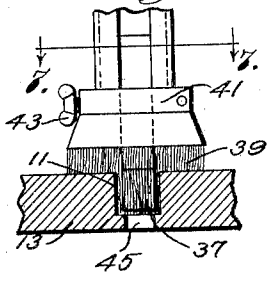
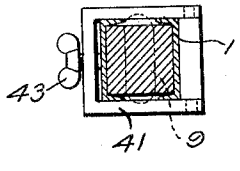


Fig. 7.



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE GATE.

Application filed February 24, 1927. Serial No. 170,616.

This invention aims to provide an improved collapsible gate of simple, safe and durable construction and having protecting means for preventing injury to those coming in contact with the gate.

In the accompanying drawings I have shown merely for illustrative purposes one embodiment of the invention, wherein:

Fig. 1 is a front elevation of the gate and its supporting and guiding means, a portion of the parts of which are broken away to save space in the drawings;

Fig. 2 is a similar elevation of the gate in its collapsed position;

Fig. 3 is a plan section taken on the line 3—3 of Fig. 1;

Fig. 4 is a similar plan view taken on the line 4—4 of Fig. 2;

Fig. 5 is a plan section taken on the line 5—5 of Fig. 1;

Fig. 6 is an enlarged detail section of the lower end of one of the supporting members and the adjacent portion of the threshold; and

Fig. 7 is a section taken on the line 7—7 of Fig. 6.

In the drawings a gate is shown comprising a plurality of upright supporting members 1, each including spaced parallel channel members 3, the flanges of which are desirably turned inward. The channels 3 composing the supporting members are arranged to straddle a track 5 arranged directly over the opening that is to be guarded by the gate and rollers 7 are pivotally secured by studs 8 to the upper ends of said channels and desirably therebetween to roll along the top of the track 5. The studs 8 constituting the pivots for said rollers also serve as spacers for said channels.

The lower end of each of the supporting members includes an elongated follower 9 which is secured between the lower ends of the channels 3 and projects a slight distance into a groove 11 formed in the threshold 13 of the doorway or opening. The followers 9 do not touch the bottom of the opening in said threshold, merely contacting with the sides of said groove, thus providing ample clearance whereby said members may be moved easily along the track 5.

Adjacent supporting members of the gate are connected together by parallel sets of links 15 two of which sets are shown between each adjacent pair of upright members, although it is to be understood that the invention is not limited to the number or positions of links shown. Each set of links is in the form of a toggle composed of members 17 and 19, each having pivotal connection at 21 with the other and another pivotal connection at 23 with one of the upright supporting members.

The connecting pivot 21 for the two links 17 and 19 is connected herein by a bar 25 with the similar pivot 21 of the other toggle for the same pair of supporting members 1. In other words, this bar 25 extends perpendicularly parallel with and midway between the two upright members 1 connected by said toggle. Consequently as these adjacent upright members are moved toward and away from each other the toggles 15 will be collapsed or extended respectively and the bar 25 moved vertically so that when the said supporting members 1 are folded to positions substantially close together the bar 25 will lie therebetween and approximately fill the remaining space separting said supporting members.

The channels 3—3 are spaced far enough apart to receive the links 17 and 19 therebetween so that when collapsed said links will lie evenly without twisting or cramping the supporting members.

Desirably the links forming said toggles 15 are never straightened sufficiently to bring their axes in perfect horizontal alignment and so will never cause the gate members to become locked in their open positions or prevent the easy closing thereof. By arranging the toggles 15 at least in pairs between each adjacent pair of supporting members and connecting them by the bars 25, it will be apparent that a state of parallelism will be maintained between the bars 25 and each of the supporting members and likewise between corresponding toggle members so that regardless of the point to which pressure may be applied at the edge of the gate to open the same, said upright members will move to collapsed or open position without materially shifting from their parallel relations. It is however to be understood that the number of toggles for connecting adjacent pairs of upright members is not limited to that shown herein.

Where gates of the collapsible type are employed in elevators there is sometimes danger of passengers therein being crowded against the gate or getting their hands or fingers caught between the relatively movable supporting members. Therefore to guard against such an accident collapsible protecting means have been provided, herein consisting of a protecting member 27. Desirably this member 27 is composed of a series of sheets or plates 29 arranged vertically along the inner face of the series of supporting members 1. Two at least of these sheets or plates are pivotally interposed between each pair of adjacent members 1 and their proximate perpendicular edges are pivotally connected together or hinged as at 31 to swing in opposite directions. The remote edges of the pivotally connected plates are connected for example at 33, to the nearest upright supporting members 1 of the gate so that as said upright members are moved toward or away from each other the plates 29 being hinged together in accordion-shaped fashion will fold compactly together as shown in Figs. 2 and 4 or open out to nearly straight position as shown in Figs. 1 and 3. Desirably the two folding sections of the hinge 29 which form the covering between adjacent supporting members 1 are never allowed to straighten absolutely and so never become locked in a position that would prevent the gate from being readily closed whenever desired. Furthermore said plates 29 need not be folded close enough together to pinch or injure any one, although a smooth surface will always be presented to resist crowding or pushing.

The guard member 27 in the present example is shown extending only part way of the gate in a vertical direction but amply covers the portions of the gate that are likely to be touched by the passengers in the car, although it is to be understood that the invention is not limited to the extent to which this guard member has been shown.

To insure greater freedom of movement of the upright members 1 lengthwise of the track 5, brushes 35 are secured around the followers 9, said brushes having relatively long bristles 37 for extending into the groove 11 and relatively short bristles 39 at the sides of said followers to wipe along the top of the track or threshold 13. The bristles 37 and 39 are desirably composed of steel or other stiff material to insure the cleaning of mud and other sticky substances from the track, and said bristles are mounted in holders 41 adjustably secured herein by thumb screw 43 to the upright members 1 and are capable of being readjusted from time to time as said bristles become shortened by wear.

The bottom of the channel 11 is provided at intervals with openings 45 through which dirt and other foreign substances may be discharged by said brushes.

It is to be understood that the invention is not limited to the specific embodiment herein shown.

Claims:

1. A collapsible gate comprising in combination, upright supporting members, guiding means for said supporting members, at least two sets of toggles interposed between the upright supporting members of each pair of adjacent members, means connecting the toggles of each set of upright supporting members together to cause said toggles to move in unison and folding guard sections carried by said supporting members to guard substantially that portion of one face of the gate lying between the two sets of toggles.

2. A collapsible gate comprising in combination, upright supporting members, guiding means for said supporting members, upright relatively short bars alternating with said supporting members, and at least two sets of pivotally connected links interposed between adjacent upright supporting members opposite ends of each of said sets of links being pivotally connected respectively with adjacent upright supporting members, said link sets being connected centrally with said upright bars and being maintained thereby in parallel operative relation with each other and collapsible guard members carried by said gate members between said sets of links.

3. A collapsible gate comprising in combination, a series of laterally movable spaced supporting members, toggle links interposed at separated points between each pair of adjacent supporting members of said series, means independent of said supporting members and connected at the elbows of said links for causing said toggle links to move in unison and collapsible guard means carried by said supporting members between said toggles to prevent bystanders getting caught between said relatively movable supporting members.

4. A collapsible gate comprising in combination, a series of laterally movable spaced supporting members, two sets of toggle links interposed between each pair of adjacent supporting members of said series, means independent of said supporting members for causing said toggle links to move in unison and a collapsible guard for said gate including vertically arranged relatively inflexible pivotally connected sections carried by said supporting members and arranged to fold in accordion-like formation during the collapsing of said gate.

5. A gate comprising in combination, a series of laterally movable upright supporting members, means interposed between said supporting members for maintaining the latter in constant parallel relation during their lateral movemets, means for guiding said supporting members during lateral move-

ment including a grooved track, and brush means carried by said supporting members for cleaning said track.

6. A gate comprising in combination, a series of laterally movable upright supporting members, means interposed between said supporting members for maintaining the latter in constant parallel relation during their lateral movements, means for guiding said supporting members during lateral movement including a grooved track, and brush means adjustably carried by at least one of said upright members to remove dirt and dust from said track.

7. A gate comprising in combination, a series of spaced supporting members movable laterally relatively to each other, a track from which said supporting members are suspended, collapsible connections interposed between said supporting members, a grooved guide for the lower ends of said members, said guide having openings spaced along the bottom of said groove and brushes carried by said supporting members for brushing dirt and dust through said openings.

In testimony whereof, I have signed my name to this specification.

JOSEPH R. JACKSON, JR.