Jan. 15, 1935. E. L. CHISLING 1,988,237

DOOR HOLDER

Filed May 27, 1932 2 Sheets-Sheet 1

Fig. 1.

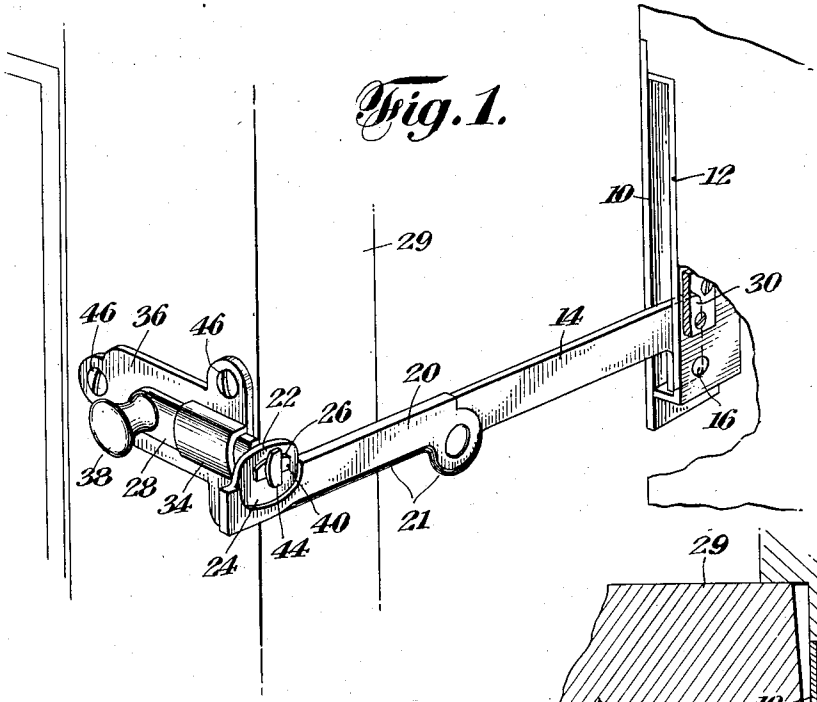


Fig. 3.

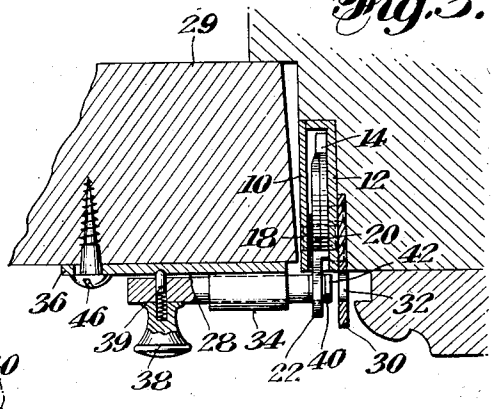


Fig. 4.

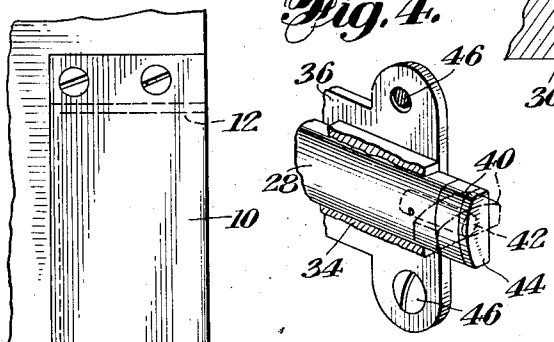
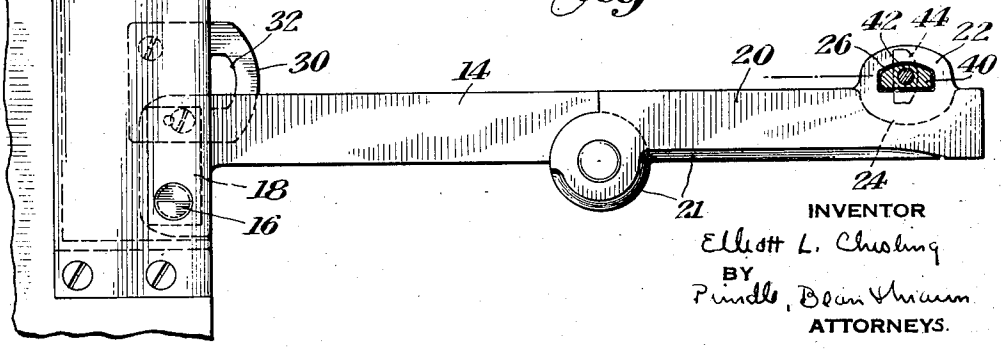


Fig. 2.



INVENTOR

Elliott L. Chisling

BY

Pindle, Bean & Thurman

ATTORNEYS.

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Fig. 5.

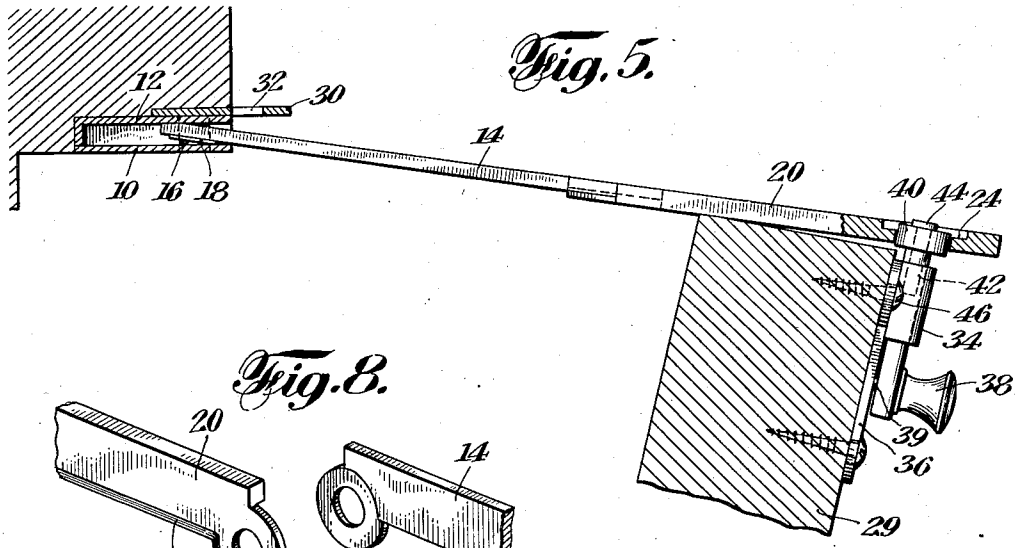
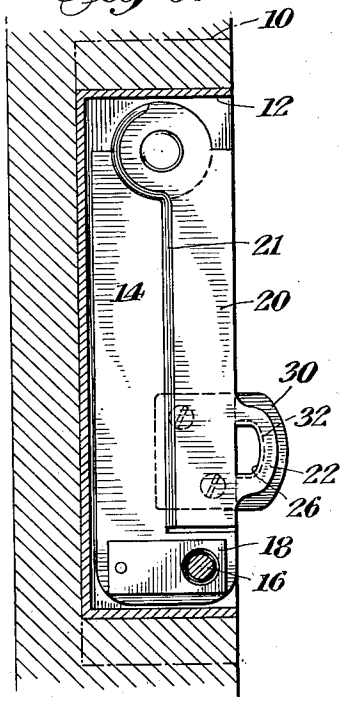


Fig. 8.

Fig. 6.



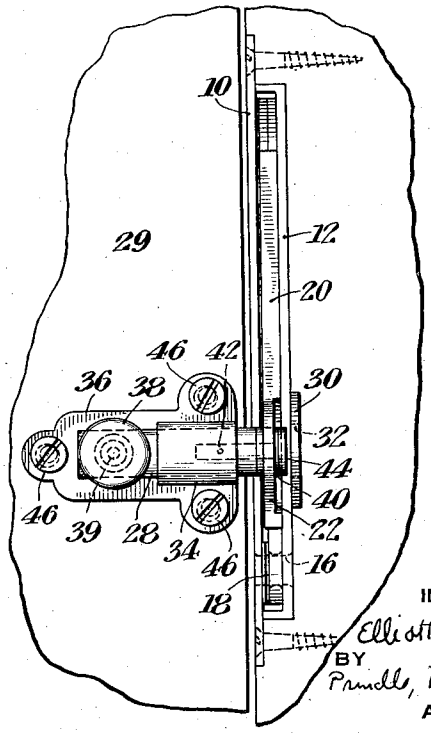


Fig. 7.

INVENTOR
Elliott L. Chisling
BY
Prindle, Blair & Mann
ATTORNEYS

Patented Jan. 15, 1935 1,988,237

UNITED STATES PATENT OFFICE

1,988,237

DOOR HOLDER

Elliott L. Chisling, New York, N. Y.

Application May 27, 1932, Serial No. 613,795

10 Claims. (Cl. 292—263)

This invention relates to a device to be used to hold doors ajar and prevent entry when the door is partly open, in a manner similar to the well-known chain bolt. While primarily intended as a safety device on the outside doors of houses and apartments, one of the uses of the device is for the doors of staterooms on steamships, and it is particularly constructed to keep rattle down to a minimum. At the same time, the device is quite ornamental and efficient.

My invention may be readily understood from the illustrative example shown in the accompanying drawings, in which Fig. 1 is a perspective view showing the device in operation, with the door ajar and with part of the jamb broken away and the dead bolt keeper removed; Fig. 2 is a side view of the device with the bolt in section; Fig. 3 is a sectional plan view of the device with the door in closed position; Fig. 4 is a full view of the bolt with an alternative position of one of the movable parts shown in dot and dash lines; Fig. 5 is a sectional plan view showing the door ajar; Fig. 6 is a horizontal section of the box with the parts in closed position; Fig. 7 is a view from the inside of the door with the door closed, and Fig. 8 is a detail perspective view of the hinge construction of the arms.

Broadly speaking, my invention is of the type which comprises an arm provided with a rule joint which is adapted to close into a box on the jamb and to be engaged when in closed position by a bolt on the door. A keeper is also supplied on the jamb which may be engaged by the bolt to lock the door in closed position.

In Fig. 1, the box is indicated as made of two members 10 and 12 which may be fastened together in any desired way as for example by welding or riveting. Pivoted near the bottom of the box but toward the front edge is the L-shaped member 14, the pivot being indicated by the numeral 16. The member 14 is considerably thinner than the distance between the members 10 and 12 and will be able to slide on the pivot and so have an appreciable opportunity for movement to change the angle of its plane relative to the pivot, in addition to its turning movement around the pivot. In order to hold the arm 14 tensioned toward member 12 a spring 18 is attached to the inner face of member 10 and presses against the arm 14. Hinged to arm 14 is another arm member 20, these members being connected by a rule joint shown in detail in Fig. 8. It will be apparent from this figure that arm member 20 is appreciably thicker than arm member 14, and it is desirable that it should be of such a thickness that it will just slide easily between members 10 and 12. The entering edge of arm member 20 is bevelled off as indicated at 21 so that it will readily enter the space between members 10 and 12. It is to be noted that member 20 is slightly shorter than arm member 14 so that its outer end (that is the lower end when the device is closed) is immediately above the base of arm member 14 and above the pivot 16. This arrangement results in the center of gravity of combined members 14 and 20 being back of pivot 16 and gives inherent stability to the members 14 and 20 when they are folded up between members 10 and 12, and this inherent stability plus the slight tension of spring 18 will be enough to keep them in place.

Near its free end, arm member 20 carries a projection 22 which will extend out from between members 10 and 12 even when the arms are folded up. Projection 22 is somewhat thinner than the main portion of arm 20 and this thinness is carried down into the arm 20 as indicated at 24. The projection 22 has an opening 26 (see Fig. 6) which is of the same shape as the cross section of a bolt 28 carried by the door 29 and is only just enough larger than the bolt to give an easy sliding fit. Screwed or otherwise attached or connected with member 12 is a plate 30 which has an opening 32 likewise adapted to receive the bolt 28 and serve as a deadbolt keeper. If desired, the opening 32 may have slightly more clearance than the opening 26. It may be found advantageous to make the plate 30 integral with the member 12 but it is preferably offset back of the general plane of member 12 or some other means is used to keep the plate 30 spaced away from projection 22 so that there will be ample clearance between these members for tip 44. It is advisable that this clearance be sufficient to allow some freedom in the positioning of the bolt on the door.

The bolt 28 slides in a sleeve 34 carried by a face plate 36 and is provided with a handle 38. Preferably inside the handle 38 is a detent 39 (see Fig. 3) adapted to engage with a corresponding notch or depression in the face plate 36 when the bolt 28 is engaging the opening 26 but is not in the opening 32. The bolt 28 is of substantially uniform cross section but near its outer end has a portion 40 which is adapted to rotate around a pivot 42 to which is firmly attached the end or tip 44. The movable por-

tion 40 is preferably made substantially wider than the thickness of the projection 22 of arm 20 so as to give some freedom for shrinkage of the door and also to permit angular movement of the arms 14 and 20 relative to the door. By making projection 22 relatively thin, and by carrying this thinness down into the arm, space is provided for the tip 44 of bolt 28 and the necessity for accuracy of adjustment of the bolt on the door is reduced.

When the device is not in use arms 14 and 20 will be folded up between members 10 and 12 with the opening 26 in line with the opening 32 and bolt 28 will be kept in retracted position. When the door is closed, if bolt 28 is shoved all the way out it will engage with plate 30 and keep the door locked. If it is desired to leave the door ajar, or to open it so as to talk to someone on the outside whose identity is not known, the bolt 28 is retracted until the detent 39 engages its aperture indicating that movable portion 40 of the bolt is within the opening 26 of extension 22 and that tip 44 is clear of plate 30. If the door is now opened, the arms 14 and 20 will unfold, causing portion 40 of the bolt to pivot to the position shown in Fig. 1. When in this position the tip 44 will prevent the bolt from being disengaged from arm 20. As shown in Fig. 5 this opening of the door will cause considerable angular movement of the arms 14 and 20 relative both to the pivot 16 and to the bolt 28. This angular movement is permitted by the fact that arm 14 is thinner than the distance between members 10 and 12 and by the fact that extension 22 is thinner than movable portion 40 of the bolt as well as by the normal bevel on the edge of the door. However, it is advisable that the distance between members 10 and 12 be so adjusted that when these arms are fully opened, as shown in Fig. 5, arm 14 will jamb somewhat between the two members 10 and 12 and also that the fit between the bolt 28 and opening 26 be such that arm 20 will bind around movable portion 40 when the angle is thus changed, as these adjustments will prevent rattling. It will also be noted from Fig. 2 that the pivot on the hinge connecting arms 14 and 20 is below a straight line from pivot 42 to pivot 16 and, as the hinge opens upwardly, thrust on the door will simply serve to keep the arms opened full width. However, to close the door either the hinge joint of the two arms may be pushed up or one can push down with their thumb on the tip of arm 20, readily starting movement between arms 14 and 20 which will of course be continued by pressure on the door. The fact that movable portion 40 of bolt 28 is relatively broad as compared with the thickness of member 20, together with the relatively large spacing between extension 22 and extension 30, give some freedom in positioning the bolt properly on the door, but as doors usually shrink and settle I find it advantageous to attach the bolt to the door by round head screws with large heads and shanks smaller than the holes. This is illustrated in Fig. 4 where one of the screws 46 is shown in section. Ordinarily when positioning the bolt, the screws should be in the upper forward position.

From the foregoing description of my device it will be seen that it is one which can readily be manufactured and which will serve to hold a door open against pressure without rattling (thus permitting the device to be used as a ventilator) and in which a single bolt can be used either to keep the door locked tightly or to keep it locked while permitting limited movement.

What I claim is:

1. A device of the type comprising a box-like structure adapted to be attached to a door jamb and to carry a pair of hinged members, the outer of which carries a recess and is approximately equal in width with the box-like structure, and a bolt adapted to be attached to a door and engage such recess to open such members and thereby connect the door and the jamb structures, in which the inner of said members is considerably thinner than the other and is mounted in said box-like structure on a pivot having greater exposed length than the thickness of said member and so that said member may change the angularity of its plane relative to the pivot as well as to turn around the same, and in which the outer member of said pair is of substantially the same thickness as the exposed length of said pivot, but in which said outer hinged member is bevelled to approximately the width of the thinner member upon the edge first entering the box-like structure when the hinged members are closed so that angular movement of the inner member upon its pivot will not cause the outer member to strike against the box-like structure to prevent the closing of the members.

2. A structure as specified in claim 1 which further includes a spring member which tensions said thinner pivoted member so that the latter tends normally to assume a plane perpendicular to its pivot.

3. A device of the type comprising a box-like structure adapted to be attached to a door jamb and to carry a pair of hinged members, the outer of which carries a recess, and a bolt adapted to be attached to a door and engage such recess to open such members and thereby connect the door and the jamb structures, in which the box-like structure has an opening in its front and said hinged members are adapted to fold substantially within said structure when closed and the inner of said members has a leg extending under the other of said members when they are in closed position, the free end of which is mounted on said pivot so that when closed their center of gravity is behind the pivot towards the rear of the box-like structure whereby said hinged members tend to remain in equilibrium in said box-like structure.

4. A device of the type comprising a box-like structure adapted to be attached to a door jamb and to carry a pair of hinged members, the outer of which carries a recess, and a bolt adapted to be attached to a door and engage such recess to open such members and thereby connect the door and the jamb structures, in which one of the members is mounted upon a pivot in said box-like structure and in which said box-like structure has an opening in its front, said hinged members being adapted to fold in a vertical plane substantially within said box-like structure when closed and the inner of said members having a leg extending under the outer of said members in the end of which is mounted the said pivot so that their center of gravity is behind the pivot point towards the rear of the box-like structure, whereby said hinged members tend to remain in equilibrium in said box-like structure.

5. A structure as defined in claim 4 which further includes a spring adapted to exert tension

against said hinged members when folded substantially within the box-like structure so that they tend to remain in place and so that rattle is avoided.

6. A device of the type comprising a box-like structure adapted to be attached to a door jamb and substantially to house a pair of hinged members, the outer of which carries a recess, and a bolt adapted to be attached to a door and engage such recess to open such members and thereby connect the door and the jamb structures, in which one of said members is pivoted in said box-like structure and is longer than the other and has a leg extending under the other member when they are in closed position in the end of which is mounted a pivot connecting said members to said box-like structure so that said member is pivoted off center so that its weight and the weight of the other hinged member, when the two are closed, tend to keep the members closed and within said box-like structure, the other such member being adapted to nest with the pivoted member approximately above said pivot point.

7. A device of the type described adapted to lock a door in open position, extensible inner and outer arm members hinged together adapted to open with the door in a perpendicular plane and to fold together substantially within the box-like structure on the jamb, means connecting said members to the jamb so that the members may swing laterally as the door is opened, an opening in the outer of said members, a bolt slidably mounted upon the door adapted to enter said opening and extend therebeyond, said bolt having a rotatable portion intermediate its ends thinner than the width of said outer member and adapted to engage the opening in the same snugly, and a non-rotatable tip, said rotatable portion being adapted to rotate as the hinged members open perpendicularly, said tip being adapted to lock the hinged member in place upon the bolt, said rotatable portion fitting said opening in said hinged member so that the same tends to bind when the hinged members are opened, whereby rattle is prevented.

8. In a door check, a box-like structure attached to the jamb and having an opening, an inner hinged member of L-shape with a long and short arm and pivoted to the box-like structure by the short arm towards the outer end thereof so as to move in a vertical plane and laterally and so that the long arm extends upwardly into the rear of the box-like structure, an outer hinged member having a projection with an opening attached to the upper end of said long arm by a rule joint, said outer member when the hinged members are closed lying above the short arm of the inner hinged member so that their combined center of gravity is behind the pivot point towards the rear of the box-like structure, said hinged members adapted to open and close in a general vertical plane and when closed to fold together within the box-like structure except for the projection upon the outer arm, and a bolt attached to the door adapted to engage said opening in said outer hinged member so that said hinged members will open when the door opens but so that movement of the door will be limited by the length of the hinge members.

9. In combination with a door, a jamb, a bolt of non-circular cross section on the door carried externally and visibly thereof, said bolt having a rotatable portion intermediate its ends and a non-rotatable tip, a pair of members hinged together with one hinged to the jamb and the other carrying a projection with an opening extending beyond the jamb adapted to receive the end of the bolt when such members are folded up and adapted to pivot around the bolt behind such tip upon the rotatable portion of said bolt, a fixed projection on the jamb having an opening aligned with the opening in the first projection and adapted to receive such bolt, and means for maintaining such projections in spaced relation so that such bolt may be positioned in the first projection with its tip extending therethrough without engaging the second projection.

10. In combination with a door and jamb, a bolt of non-circular cross section on said door, said bolt having a rotatable portion intermediate its ends and a non-rotatable tip, a pair of members hinged together with one hinged to the jamb and the other carrying a projection with an opening extending beyond the jamb adapted to receive the end of the bolt when such members are folded up and adapted to pivot around the bolt behind said tip upon the rotatable portion of said bolt, a fixed projection on the jamb having an opening aligned with the opening in the first projection and adapted to receive such bolt, means for maintaining said projections in spaced relation and means associated with the bolt adapted to position the bolt during sliding movement so that it is in locking position relative to the first projection but does not engage the second projection, and in which said bolt is carried externally of said door so that the same is visible and is provided with a flat inner face, and a curved outer face, and in which said openings upon said projections conform with the shape of said bolt.

ELLIOTT L. CHISLING.