U. MISCELLANEOUS HARDWARE.
Draftsman.

No. 842,668. PATENTED JAN. 29, 1907.

J. E. HUEY.

DOOR PIVOTING DEVICE.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 1.

Fig. 1

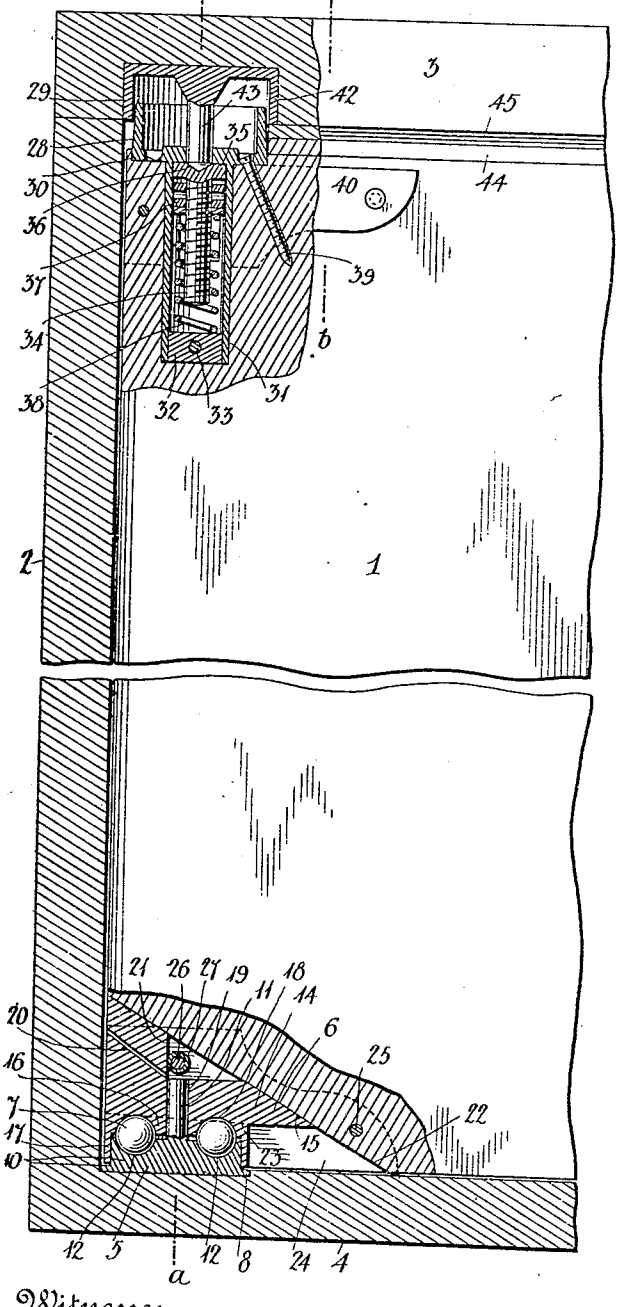
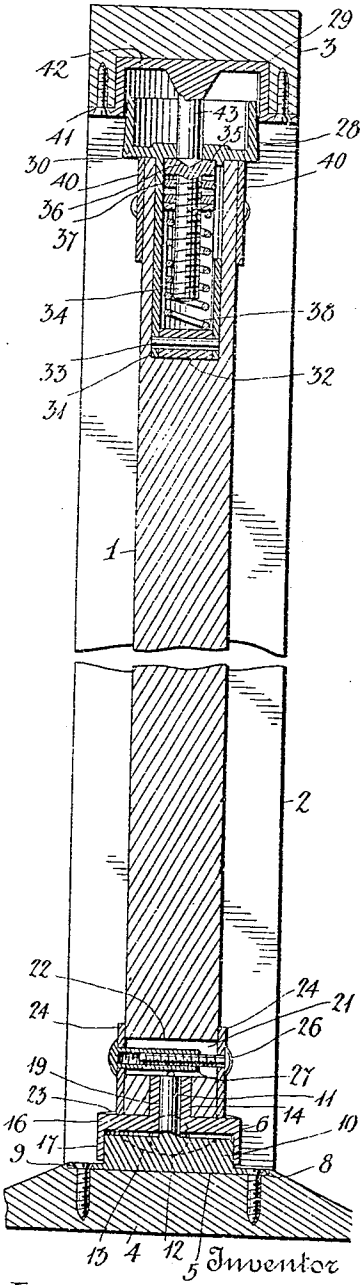


Fig. 2



Witnesses
[illegible]
C. F. Griesbauer.

Inventor
James E. Huey
by H. B. Williamson & Co
Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

MISCELLANEOUS HARDWARE.

Draftsman.

No. 842,668.

PATENTED JAN. 29, 1907.

J. E. HUEY.

DOOR PIVOTING DEVICE.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 2.

FIG. 6

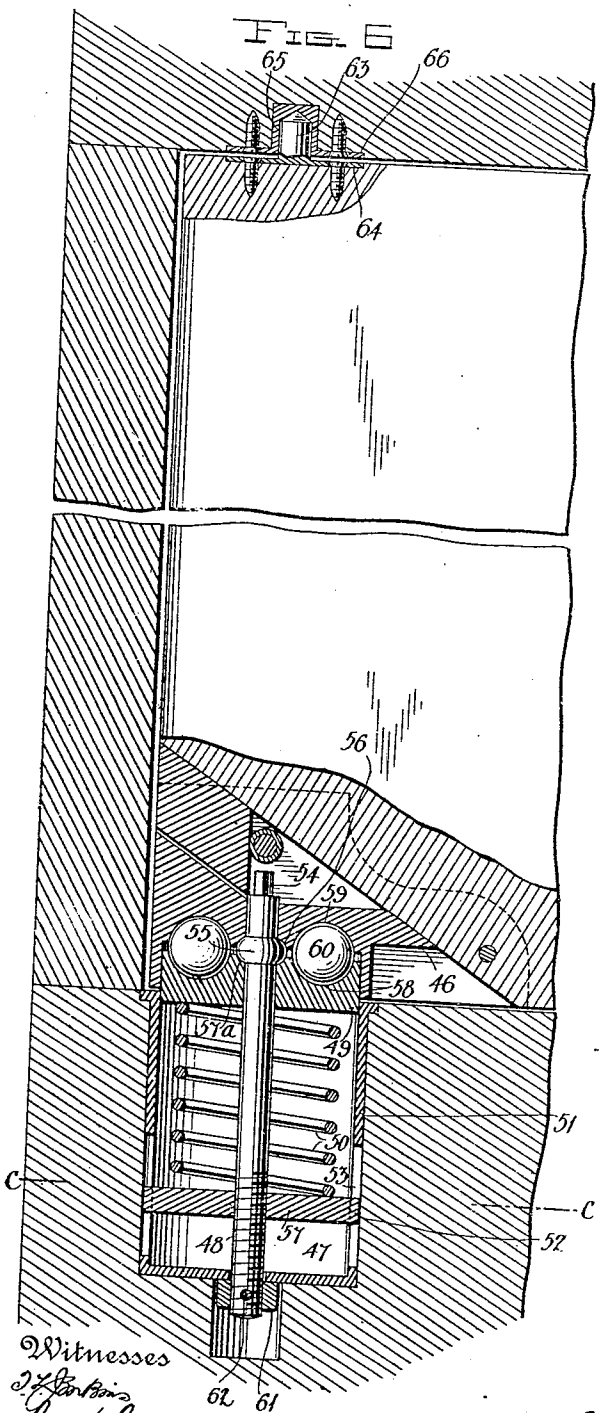


FIG. 7

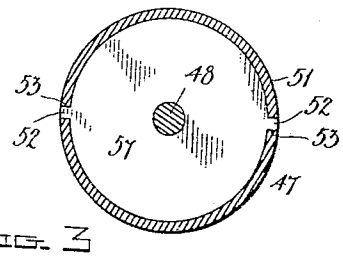


FIG. 3

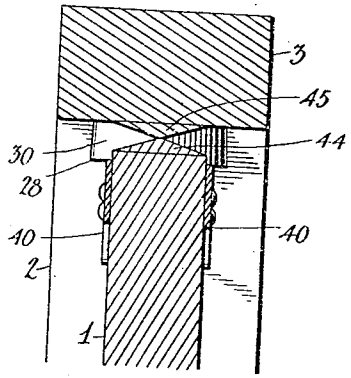


FIG. 5

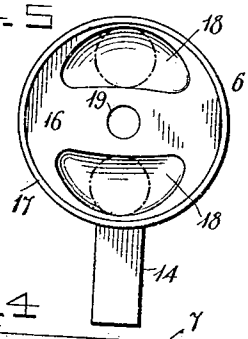
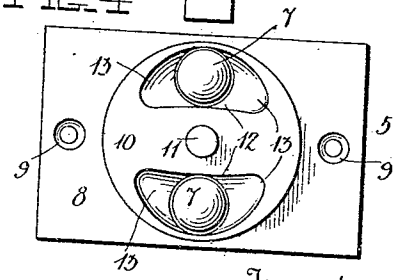


FIG. 4



Witnesses

C. H. Griesbauer.

Inventor

James E. Huey

by A. Wilkinson & Co

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES EDWARD HUEY, OF CHARLOTTE, NORTH CAROLINA, ASSIGNOR OF ONE-HALF TO WELCOME C. LOVEJOY, OF CHARLOTTE, NORTH CAROLINA.

DOOR-PIVOTING DEVICE.

No. 842,668. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed February 23, 1906. Serial No. 302,496.

To all whom it may concern:

Be it known that I, JAMES EDWARD HUEY, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Improvements in Door-Pivoting Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in door-pivoting devices which are adapted to hang and support a door so that the same may be opened from either side and which operate automatically to normally retain the door in a closed position and to return the door to a closed position after it has been opened; and my invention consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view showing a door-frame, a door, and my improved pivoting devices for the door, the latter being indicated in a closed position. Fig. 2 is a similar view taken on a plane at right angles to that of Fig. 1 and indicated by the line *a a* of said Fig. 1. Fig. 3 is a detail sectional view taken on the plane indicated by the line *b b* of Fig. 1. Fig. 4 is a detail top plan view of the lower member of the lower pivoting device. Fig. 5 is an inverted plan view of the upper member of the lower pivoting device. Fig. 6 is a sectional view of a door and door-frame provided with modified forms of my door-pivoting devices, and Fig. 7 is a detail sectional view taken on the plane indicated by the line *c c* of Fig. 6.

The door is indicated at 1.

2 indicates a side jamb of the frame, 3 the top jamb, and 4 the carpet strip or sill.

The lower pivoting device comprises the lower member 5, the upper member 6, and the supporting bearing-balls 7. The lower member 5 has a base-plate 8, which is rectangular in form and either of the longer sides of which may be placed against the side jamb 2, the said plate being recessed in the carpet-strip and secured in place by means of screws, the said plate 8 being provided with screw-holes 9. On the center of the upper side of the plate 8 is a cylindrical boss 10, from the center of which rises a pivot-stud 11. In the upper side of the said boss on opposite sides of the said pivot-stud and concentric therewith are two segmental grooves 12, which are provided with oppositely-inclined cams or wedge-surfaces 13, the said grooves being deepest at their central portions midway between their ends. The upper member 6 of the lower pivoting device comprises a web 14, which has an inclined upper edge 15. Said upper member has on the lower side of the said web, at the outer end thereof, a cylindrical boss 16, having a depending cylindrical flange 17, that fits over the cylindrical boss 10 of the lower member 5.

In the under side of the boss 16 are segmental grooves 18, which correspond with the grooves 12 of the lower member and register therewith, the bearing-balls 7 being retained in the said grooves 12 and 18, as shown in Fig. 1. The said upper member 6 has a vertical opening 19 to receive and form a bearing for the pivot-stud 11 of the lower member. The web 14 is here shown as provided with a downwardly-inclined channel 20, which leads to the upper end of the opening 19 and enables oil to be applied to the bearing formed by said opening and the pivot-stud 11, as will be understood. In the upper side of the web 14 is a notch or recess 21.

The door 1 has one of its lower corners recessed, as at 22, to receive the web 14. Said recess is open at the lower and inner edges of the door, and the top of said recess is inclined, as shown, to bear on the inclined upper edge 15 of said web. The cylindrical boss 16 of the upper member 6 is fitted in a countersink in the lower portion of the door near its inner pivotal side.

To facilitate the placing of the door on the upper member 6, the upper side of the shoulder formed by the lateral projection of the boss 16 beyond the sides of the web 14 is inclined, as indicated at 23 in dotted lines in Fig. 1. I also employ a pair of plates 24, which are shown in dotted lines in Fig. 1 and in cross-section in Fig. 2, which plates bear against opposite sides of the door so as to cover the recesses made for the reception of the upper member 6 and present a sightly appearance. These plates are secured to the door by means of screws 25 near their inner ends. They are also connected together near their outer ends by a screw 26 and a screw-sleeve 27, each having a head, as shown, to

bear against the outer side of one of the plates, the said screw engaging the threaded bore of the screw-sleeve and coacting therewith to clamp the plates on opposite sides of the door. The notch or recess 21 in the web 14 serves to clear said screw and screw-sleeve, (which are placed in a transverse opening in the door,) and the latter enable the plates to be secured on the opposite sides of doors of varying thicknesses, so that my improved pivot devices may be employed on doors of any thickness.

It will be understood, upon reference to Fig. 1, that the segmental grooves of the upper and lower members of the lower pivoting device register with each other when the door is in a closed position and when the bearing-balls 7 are in the deepest central portions of said grooves. It will be further understood that when the door is turned in either direction the angular movement of the upper member on the lower member will cause the coacting cam or wedge surfaces of the grooves to move the bearing-balls in one direction or the other, corresponding with the movement of the door, and that as said bearing-balls traverse the cams or inclined surfaces of said grooves they will cause the upper member 6 to be raised from the lower member and the door to be raised with such upper member. It will also be understood that when the door is released said coacting cam-surfaces of the grooves of the upper and lower members will coact with the said bearing-balls 7 by reason of the weight or downward pressure of the door to return the latter automatically to its normal closed position.

The upper pivoting device comprises the lower member 28 and the upper member 29. The lower member 28 has a cylindrical boss 30, the base of which is countersunk in the upper edge of the door, as shown in Fig. 1. From the said boss depends a cylindrical sleeve 31, the lower end of which is closed by a removable plug 32, the latter being here shown as secured in place by a pin 33. In the said sleeve is a bearing-screw 34, which is also an adjusting member. Said screw has a head 35, provided in its upper side with a bearing and center socket 36. On the threaded stem of the screw is an adjusting-nut 37, which bears on the upper end of a spring 38, the lower end of which bears on the plug 32. Said spring exerts a downward thrust on the door to add to the downward pressure of the door on the lower pivoting devices and to supplement the gravitating action of the door. The sleeve 31 is mortised in the door, and a screw 39 is employed to secure the lower member 28 of the upper pivoting device to the door, as shown in Fig. 1. I also provide a pair of plates 40, which are secured to the opposite sides of the door at the upper, inner, or pivotal corner thereof to form a finish for the same. The upper member of the upper pivoting device comprises a plate 41, which corresponds in size and shape with the plate 8, and a cylindrical depending sleeve 42, which receives the cylindrical boss 30 of the lower member 28. From the center of the said sleeve 42 depends a pivot-stud 43, the lower end of which engages the bearing and centering socket 36 of the adjusting-screw 34.

It will be understood that owing to the fact that the door moves downwardly to a slight extent when moving to a closed position there would be a crack of some width between the upper side of the door and the upper jamb of the door-frame. To obviate this, I provide the upper edge of the door with a stop-strip 44, which is beveled on opposite sides, and also provide the upper jamb of the frame with a similar stop-strip 45. These stop-strips, owing to their beveled or opposite sides, afford a clearance for the door as it moves upwardly and downwardly and also closes the crack above the door when the latter is closed. (See Fig. 3.)

I will now describe the modified form of my invention shown in Figs. 6 and 7. The lower pivoting device comprises the upper member 46, which is almost identical in construction with the upper member 6, hereinbefore described, and the lower member 47. In coaction therewith I employ a pivoting and adjusting screw 48, a follower 49, an adjusting-spring 50, and an adjusting-yoke 57. The lower member 47 has a depending cylinder 51, in which operates the follower 49 and the adjusting-yoke 57. The follower 49 has the cam or wedge surfaced grooves 58 in its upper side corresponding with the similar grooves 59 in the lower side of the upper member 46 to receive bearing-balls 60. The adjusting-yoke has lugs 52, which operate in grooves 53 in the sides of the cylinder. The upper end of the screw 48 is angular in form, as at 54, to enable it to be turned by a wrench. Near its upper end said screw has an annular flange 55, which is received in countersunk recesses 56 57^a in the opposing sides of the member 46 and follower 49, so that said screw is prevented from moving vertically with relation to said member 46, but when turned by reason of the engagement of its threads with a threaded opening in the adjusting-yoke 57, through which it extends, causes said adjusting-yoke to move upwardly or downwardly, according to the direction in which said screw is turned. The spring 50 is here shown as a coiled spring, with its ends respectively engaging the under side of the follower 49 and the adjusting-yoke 57, so that its tension is varied by the movement of the adjusting-yoke to cause it to press upwardly under the follower 49 with any desired degree of force, and hence cause said follower to coact with the bearing-balls 60 and the upper member 46

to normally close the door and to normally retain the door in a closed position. It will be understood that the door in this form of my invention does not move vertically, said movement being made by the follower 49. At the lower end of the screw 48 is a nut 61, which after it has been adjusted is secured to the screw, as by a pin 62. The upper pivoting devices comprise, essentially, a stud 63 on a member 64, secured to the door, and a bearing sleeve or recess 65 in a member 66, secured to the upper jamb.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined by the appended cla ms.

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

1. An upper door-pivoting device comprising a lower member having a cylindrical boss, a cylindrical sleeve depending therefrom, a removable closure for the lower end of said sleeve, a bearing-screw in said sleeve, having a head provided with a bearing-socket in its upper side, an adjusting-nut on said screw, and a spring in said sleeve bearing under said nut; in combination with an upper member, having a cylindrical depending sleeve to receive the cylindrical boss of the lower member, and a pivot-stud to extend into the bearing-socket of the screw of the lower member, substantially as described.

2. In combination with a lower door-pivoting member, an upper door-pivoting member having a web provided with an inclined upper side and a clearance notch or recess, a door having a recess in its lower, inner corner, for the reception of the said web, plates on opposite sides of the door, and a clamping device for the said plates, cleared by said notch or recess in said web, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES EDWARD HUEY.

Witnesses:
J. W. GARNER,
W. C. LOVEJOY.