July 4, 1939. B. F. STANNARD 2,164,358

CLOSURE CONTROLLING DEVICE

Filed Jan. 22, 1937 2 Sheets-Sheet 1

Fig. 1.

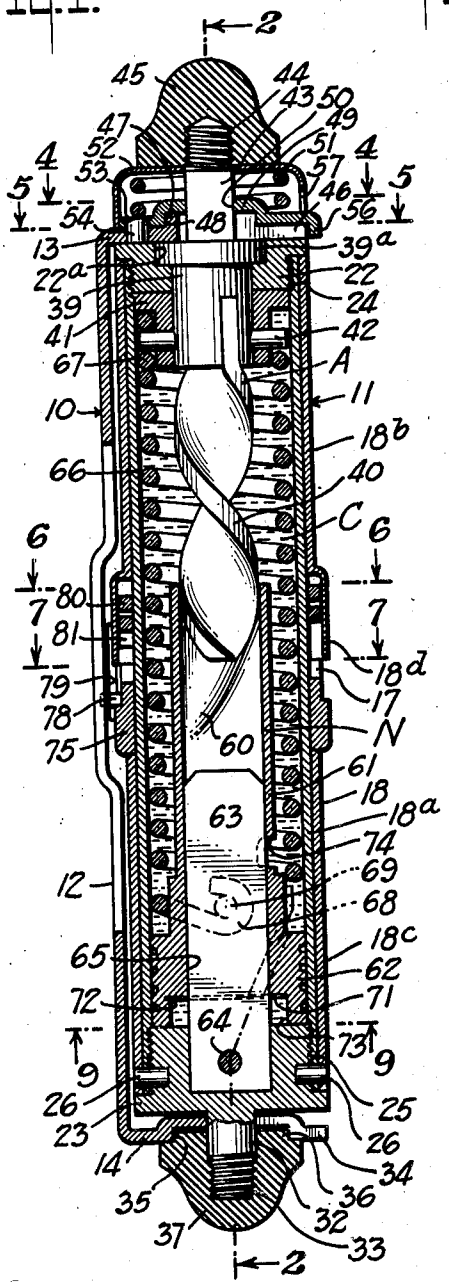
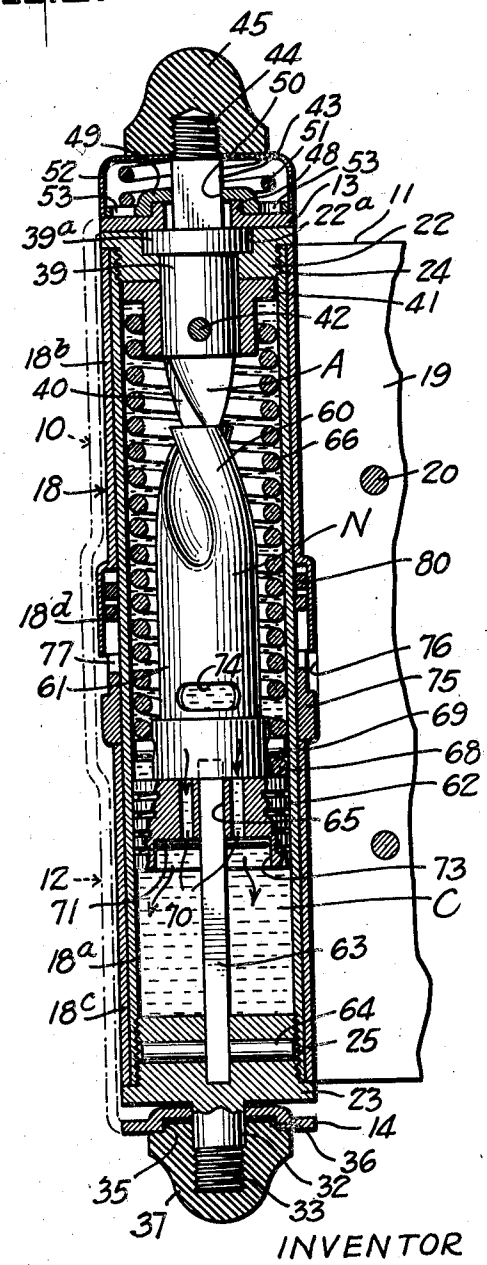


Fig. 2.



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Filed Jan. 22, 1937 2 Sheets-Sheet 2

Fig. 3.

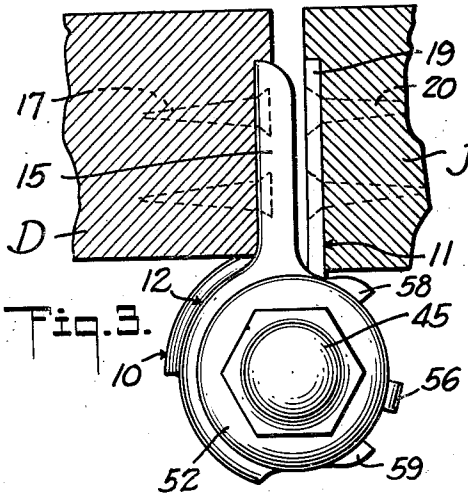


Fig. 7.

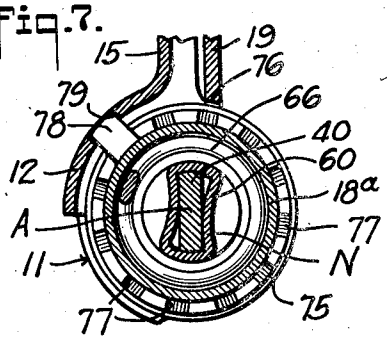


Fig. 8.

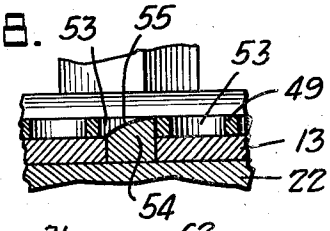


Fig. 4.

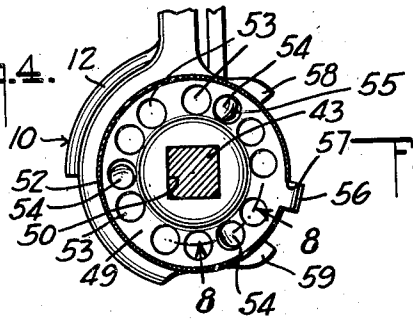


Fig. 9.

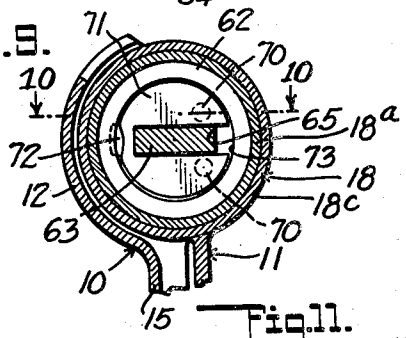


Fig. 5.

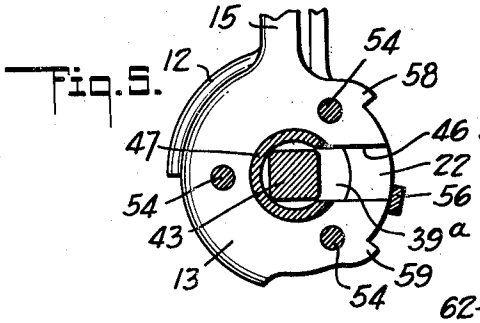


Fig. 10.

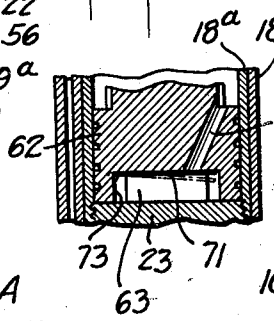


Fig. 11.

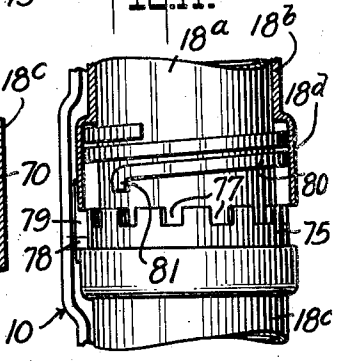
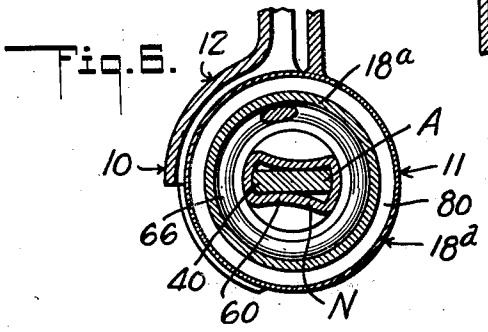


Fig. 6.



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Patented July 4, 1939

2,164,358

UNITED STATES PATENT OFFICE

2,164,358

CLOSURE CONTROLLING DEVICE

Benjamin F. Stannard, Los Angeles, Calif., assignor of forty per cent to A. B. Leavelle, Los Angeles, Calif.

Application January 22, 1937, Serial No. 121,752

20 Claims. (Cl. 16—54)

This invention relates to closure controlling devices of the general character embodied in my copending application field May 20, 1936, Serial No. 80,813.

An object of the present invention is to provide a closure controlling device performing the functions of a hinge and check by highly efficient and extremely rugged mechanism having the desirable qualities of structural simplicity and compactness and positively controlling the closure with which it is associated, in a manner to insure movement of the closure to its closed position silently and smoothly from any open position, yet permitting unrestricted opening movement of the closure.

Another object of the invention is to provide a closure controlling device of the above described character which embodies means enabling such adjustment of the checking mechanism to be effected as will render the device applicable to closures of different weights by compensating therefor, in a manner to insure operation of the checking mechanism with maximum efficiency irrespective of the weight and size of the closure.

A further object of the invention is to provide a closure controlling device embodying means for retaining the closure in various open positions from which the closure can be readily released for movement, all while insuring that should an attempt be made to force the closure from the open position without releasing the retaining means, the latter will yield to positively prevent damage to the device and/or the closure.

With these and other objects in view, the invention consists in the combinations, arrangements and functional relationships of elements as set forth in the following spcification and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a central vertical longitudinal sectional view of the closure controlling device, and illustrating the positions occupied by the working parts of the device when the closure is closed;

Figure 2 is a vertical longitudinal sectional view taken on the line 2—2 of Figure 1, and illustrating the positions occupied by the working parts in an approximately 180° open position of the closure;

Figure 3 is a plan view of the closure controlling device applied to the closure;

Figures 4, 5, 6 and 7 are horizontal sectional views taken, respectively, on the lines 4—4, 5—5, 6—6 and 7—7 of Figure 1;

Figure 8 is an enlarged fragmentary sectional view taken on the line 8—8 of Figure 4;

Figure 9 is a horizontal sectional view taken on the line 9—9 of Figure 1;

Figure 10 is a fragmentary vertical sectional view taken on the line 10—10 of Figure 9;

Figure 11 is a fragmentary view in side elevation partly broken away, and illustrating a yieldable retaining means embodied in the invention.

Referring specifically to the drawings, this embodiment of the invention comprises hinge members 10 and 11 constructed of metal, the member 10 having an elongated and approximately quarter-cylindrical portion 12 from the ends of which project circular heads 13 and 14, and from one longitudinal edge of which projects a rectangular attaching plate 15 having suitable openings through which screws 17 are adapted to be passed to secure the member to the hinge edge of a door D as shown in Figure 3.

The member 11 is constructed to provide an elongated and externally cylindrical portion or casing 18 which is of the same external diameter as that of the heads 13 and 14 and is composed of an inner tube 18a and outer tube sections 18b and 18c spaced apart at their confronting ends except for a connection provided by a radially projecting attaching plate 19 having suitable openings receiving screws 21 to secure the member 11 to the jamb J of the door D. The inner tube 18a is a force fit within the outer tube sections so that the resulting composite structure is integral for all practical purposes. The inner end of the tube section 18b terminates in an annular flange or skirt 18d of enlarged diameter which is utilized in conjunction with a yieldable retaining or holding means to be later fully described.

The ends of the casing 18 are closed by plugs 22 and 23 threaded at 24 and 25, respectively, into the inner tube 18a of the casing, the lower plug 23 being locked to the casing by pins 26—26 as shown in Figure 1.

Projecting axially from the lower plug 23 is a trunnion 32, the end portion of which is threaded at 33. The trunnion is adapted to be freely received in a radial slot 34 formed in the head 14 and bounded at its closed end by a circular recess 35 in which is freely receivable a cylindrical projection 36 of a cap nut 37 when screwed on the threaded portion 33 as shown in Figure 1.

Rotatably mounted in the upper plug 22 is the journal 39 of an actuating member A in the form of a spirally twisted bar 40 of rectangular cross section, the bar being confined against axial displacement by a circular flange 39a on the journal 39 seating in a circular recess 22a in

the plug and co-acting with a flanged collar 41 secured to the journal by a diametrically extending pin 42 therethrough, all as clearly shown in Figures 1 and 2.

From the upper end of the journal 39 projects a trunnion 43, the outer end of which is left-hand threaded at 44 to receive a cap nut 45. The trunnion 43, which is square in cross section, passes freely through the circular end portion of a radial slot 46 in the head 13 as shown in Figure 5. Said circular end portion of the slot 46 is bounded by a collar 47 freely receivable in a circular recess 48 formed in the central portion of a disk 49 having a square opening 50 centrally thereof through which the square trunnion 43 extends to provide an operative connection between the disk and trunnion. The disk 49 is yieldingly urged axially into engagement with the head 13 by a short coil spring 51, and the disk and spring are enclosed by a cup-shaped cap 52 having a central opening freely receiving the trunnion 43, and being confined thereon by the nut 45.

The disk 49 is provided with a circular series of openings 53 with any of which pins 54 on the head 13 are adapted to co-act in providing an operative connection between the hinge member 10 and the disk. As shown in Figure 8, each pin 54 is beveled in a direction circumferentially of the head 13 to provide a cam surface 55, and as shown in Figures 1, 4 and 5, the disk 49 is provided with a depending lug 56 projecting through a slot 57 in the cap 52 and adapted to co-act with lugs 58 and 59 on the head 13 to limit circumferential adjustment of the disk on the head, all for a purpose to be fully described hereinafter.

It is to be noted that with the hinge members 10 and 11 secured, respectively, to the door D and jamb J, the door can be hung and unhung when the lower nut 37 and the upper assembly consisting of the nut 45, cap 52, spring 51 and disk 49, are removed, as the hinge member 10 can be separated laterally from the hinge member 11 by the provision of the radial slots 34 and 46 in the heads 14 and 13, respectively, which permit the trunnions 43 and 32 to be disengaged from the heads. However, it will be clear that when the nut 37 and the aforestated upper assembly are applied as shown in Figure 1, they co-act with the heads to maintain the hinge members connected in hinging relationship.

The actuating bar 40 co-acts with a nut N in the form of a partially flattened and spirally twisted portion 60 of a tube 61 enlarged at one end to provide a piston 62 working in the cylinder defined by the casing 18. The nut and piston unit are confined against rotation and to movement axially in the casing by a stud 63 of rectangular cross section fixed by a pin 64 to the lower plug 23 and having a slidable keyed co-action with a rectangular opening 65 in the piston portion of the nut N.

A relatively heavy coil spring 66 is mounted in the casing 18 to surround the actuating member A and the nut N, the upper end of the spring having a hooked connection at 67 with the projecting extremity of the pin 42, whereas the lower end of the spring has an identical hooked connection at 68 with a pin 69 projecting from the nut N.

As the actuating member A is rotated relative to the casing 18 upon each hinging movement of the member 10 relative to the member 11 as will effect opening of the door D, the actuating member will co-act with the non-rotatable nut N to feed the latter axially from the position shown in Figure 1 towards that shown in Figure 2 so as to compress the spring 66 between the collar 41 and the piston 62. Due to the hooked connection of the spring 66 to the actuating member A through the medium of the pin 42, and to the nut N through the medium of the pin 69, the spring will be wound and loaded torsionally as well as compressionally or axially during opening movement of the door.

The interior of the casing provides a fluid chamber C, and all unoccupied space therein is intended to be filled with a suitable liquid such as castor or other oil which acts as a checking medium to retard the closing movement of the door during which the liquid is forced to by-pass from the upper to the lower side of the piston 62 through the annular space provided by a pre-calculated clearance between the piston and the internal wall of the casing 18.

The piston 62 is provided with ducts 70—70 extending from one side of the piston to the other and controlled by a valve 71 in the form of a spring metal plate secured in any suitable manner, such as by soldering, at one point 72 in its periphery to the piston. The plate freely works in a recess 73 in the piston and is bifurcated to freely straddle the stud 63 and cover the ends of the ducts 70 during closing movement of the door, yet to fulcrum about the point of attachment 72 during opening movement of the door in response to pressure of liquid in the ducts, whereby to permit the by-passing of liquid through the piston in a relatively large volume, as indicated by the arrows in Figure 2, so that the opening movement of the door will be unrestricted. In order to permit free passage of liquid into and out of the tube 61, an opening 74 is provided therein.

The operation of the invention is as follows:

With the door closed, the parts of the device will occupy the position shown in Figure 1. Upon opening the door, a corresponding angular movement will be imparted to the actuating member A from the hinge member 10 through the medium of the intervening operative connection provided by the disk 49, thus causing the actuating member to co-act with the non-rotatable nut N in axially feeding the latter towards the position shown in Figure 2, during which movement the liquid in the chamber C is free to by-pass through the ducts 70—70 of the piston 62. Thus the opening movement of the door will be unrestricted by the liquid and will serve to load the spring 66 compressionally and torsionally.

Upon releasing the door the spring 66 will urge the door closed, but the closing movement will be effectively retarded by the liquid, which can now only by-pass around the piston.

In order to compensate for doors of different weights which require different loadings of the spring 66 to restore the door to closed position, the disk 49 can be circumferentially adjusted, preferably when the door is closed, so as to vary the initial loading of the spring.

For example, should the spring loading be insufficient to close the door, a turning movement exerted with a wrench upon the nut 45 in a direction to tighten the latter (counter-clockwise in Figure 1) will correspondingly rotate the actuating member A to increase the torsional and compressional loading of the spring 66. It will be apparent that the disk 49 will be correspondingly rotated due to the fact that it rides over

the cam surfaces 55 of the pins 54 which enter successive openings 43 of the disk as the disk is advanced rotationally, the spring 51 yieldingly retaining the disk in the selected position of circumferential adjustment, so as to maintain the desired initial loading of the spring 66. Thus the disk 49 and its associated parts broadly constitute a means by which the loading of the return spring 66 can be varied to compensate for doors of different weights in order to insure operation of the device with maximum efficiency.

Mounted on the inner tube 18a of the casing 18 between the outer tube sections 18b and 18c so as to normally rest by gravity on the annular shoulder formed by the upper end of the tube section 18c is a sleeve 75 which constitutes a holding means and passes freely through an opening 76 in the portion 19 of the member 11.

This sleeve is provided on its upper edge with a circular series of notches 77 and with a radial lug 78 which projects into a slot 79 in the portion 12 of the member 10 so that the sleeve is confined against rotation relative to this member yet is capable of vertical adjustment on the tube 18a of the casing 18.

Mounted on the tube 18a above the sleeve 75 so as to be concealed by the skirt 18d is a torsional spring 80 which is normally constricted upon the tube 18a and terminates at one end in a laterally bent extremity constituting a lug 81 adapted to enter any one of the notches 77 upon manually raising the sleeve 75.

When it is desired to retain the door in an open position, the sleeve 75 is raised to engage the lug 81 with one of the notches 77, so that by temporarily holding the sleeve raised until the door is released, the action of the spring 66 in tending to close the door, will force the lug tightly against one wall of the co-acting notch. As the force with which the spring 80 is constricted upon the tube 18a is sufficient to prevent its rotation on the tube under the urging action of the return spring 66, the sleeve will be maintained in its raised position to hold the door in the selected open position.

However, should an attempt be made to force the door closed when thus held open, the constricting force of the spring 80 upon the tube 18a will be overcome, thus permitting the spring 80 to be rotated on the tube by the sleeve 75 and the door to be closed without damage to the device and/or to the door. It will thus be appreciated that the sleeve 75, spring 80 and the associated parts broadly constitute means by which the door can be releasably maintained in various open positions, yet yielding to an excessive force applied to the door by permitting the latter to be moved in order to prevent damage to the door and the device.

What is claimed is:

1. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; a coil spring in the chamber; means in the chamber operatively connected to said spring and co-acting with said members to load the spring in response to relative hinging movement of the members in one direction; means co-acting with fluid in said chamber to check the reverse hinging movement of said members under the urging action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; and means including an element rotatable about the hinging axis of said members by which the initial loading of the spring can be varied to compensate for closures of different weights.

2. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; a coil spring in the chamber; means in the chamber operatively connected to said spring and co-acting with said members to load the spring in response to relative hinging movement of the members in one direction; means co-acting with fluid in said chamber to check the reverse hinging movement of said members under the urging action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; a load adjusting element operatively associated with the second means; and means on said element and one of the hinge members by which a variation in the initial loading of said spring by an adjustment of the element, is caused to be retained.

3. A closure hinge comprising a pair of hingedly connected members one having means defining a fluid chamber; a coil spring in the chamber; means in the chamber operatively connected to said spring and co-acting with said members to load the spring compressionally and torsionally in response to relative hinging movement of the members in one direction; means co-acting with fluid in said chamber to check the reverse hinging movement of said members under the urging action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; a load adjusting element means for mounting said element for rotation about the hinging axis of said members and operatively associating the element with the second means to vary the initial loading of said spring in response to rotation of the element; the element and one of the hinge members having co-acting means for retaining the element in the selected position of adjustment.

4. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; a coil spring in the chamber; an actuating member in the chamber mounted for rotation about the hinging axis of the hinge members; means for operatively connecting the actuating member to one of the hinge members for rotation thereby; means in the chamber co-acting with the actuating member to load the spring in response to relative rotation of the hinge members in one direction; means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge members under the action of the spring, yet rendering movement of the hinge members in said one direction comparatively unrestricted by the fluid; means by which said actuating member can be rotated independently of the hinge members to vary the initial loading of said spring; and means by which the actuating member can be retained in a selected position of rotary adjustment relative to one of the hinge members so as to maintain the spring loading.

5. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; a coil spring in the chamber; an actuating member in the chamber, mounted for rotation about the hinging axis of the hinge members and having a non-circular trunnion; a disk having a slidable keyed connection with said trunnion and provided with a circular series of openings; a pin carried by one of the hinge members and adapted to enter any one of said openings to vary the relationship of the disk and said

one of the hinge members rotationally and provide an operative connection therebetween; means in the chamber operatively connected to the other hinge member and co-acting with the actuating member through the medium of said spring to load the latter in response to rotation of the actuating member by said one of the hinge members in one direction relative to the other hinge member; and means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge members under the action of the spring, yet rendering movement of the hinge members in said one direction comparatively unrestricted by the fluid.

6. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; a coil spring in the chamber; an actuating member in the chamber, mounted for rotation about the hinging axis of the hinge members and having a non-circular trunnion; a disk having a slidable keyed connection with said trunnion and provided with a circular series of openings; a pin carried by one of the hinge members and adapted to enter any one of said openings to vary the relationship of the disk and said one of the hinge members rotationally and provide an operative connection therebetween; means for yieldingly urging the disk axially in a direction for the pin to enter the openings; the pin having a cam surface with which the disk is adapted to co-act in clearing the disk from the pin when the disk is rotated in one direction, whereby to enable the disk to be advanced in said one direction for co-action with the pin in different positions of adjustment of the disk; means in the chamber operatively connected to the other hinge member and co-acting with the actuating member through the medium of said spring, to load the latter in response to rotation of the actuating member by said one of the hinge members in said one direction relative to the other hinge member; and means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge members under the action of the spring, yet rendering movement of the hinge members in said one direction comparatively unrestricted by the fluid.

7. A closure hinge comprising a pair of hingedly connected members one having means defining a fluid chamber; a coil spring in the chamber; means in the chamber operatively connected to said spring and co-acting with said members to load the spring in response to relative hinging movement of the members in one direction; means co-acting with fluid in said chamber to check the reverse hinging movement of said members under the urging action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; the second means including an actuating member mounted for rotation about the hinging axis of the hinge members and having a non-circular trunnion; a load adjusting element mounted on said trunnion and having a keyed connection therewith; said element and one of the hinge members having co-acting means by which the element can be retained in different positions of rotational adjustment relative to said one of the hinge members, to vary the initial loading of the spring; and means by which the element can be adjusted.

8. A closure hinge comprising a pair of hingedly connected members one having means defining a fluid chamber; a coil spring in the chamber; means in the chamber operatively connected to said spring and co-acting with said members to load the spring in response to relative hinging movement of the members in one direction; means co-acting with fluid in said chamber to check the reverse hinging movement of said members under the urging action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; the second means including an actuating member mounted for rotation about the hinging axis of the hinge members and having a non-circular trunnion; a load adjusting element slidably keyed on said trunnion and having a circular series of openings; a pin on one of the hinge members adapted to enter any one of said openings to retain said element in a selected position of rotational adjustment; a spring for yieldingly urging the element axially towards the pin; the pin having a cam surface with which the element co-acts to enable the latter to be rotationally adjusted in one direction against the urging of the last mentioned spring; a nut on the trunnion; and a cap confined by the nut to enclose the element and last mentioned spring.

9. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; an actuating member journaled in one of the hinge members co-axially therewith, and having a spirally formed portion extending into said chamber; means operatively connecting the actuating member to the other hinge member for rotation thereby; a nut in the chamber having a piston working therein and a spirally formed tubular portion receiving said spirally formed portion of the actuating member; means co-acting with the nut to prevent rotation thereof relative to said one of the hinge members yet render the nut free to be axially fed by the actuating member in response to relative hinging movement of the hinge members; a coil spring operatively connected to the actuating member and nut so as to be loaded in response to relative hinging movement of the hinge members in one direction; and means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge member under the action of the spring, yet rendering the movement of the hinge members in said one direction comparatively unrestricted by the fluid.

10. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; an actuating member journaled in one of the hinge members, co-axially therewith, and having a spirally formed portion extending into said chamber; means operatively connecting the actuating member to the other hinge member for rotation thereby; a nut in the chamber having a piston working therein and a spirally formed tubular portion receiving said spirally formed portion of the actuating member; means co-acting with the nut to prevent rotation thereof relative to said one of the hinge members yet render the nut free to be axially fed by the actuating member in response to relative hinging movement of the hinge members; a coil spring operatively connected to the actuating member and nut so as to be loaded in response to relative hinging movement of the hinge members in one direction; means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge member under the action of the spring, yet rendering the movement of the hinge member in said one direction comparatively unrestricted by the fluid; and means by which the operative connection between the actuating

member and said other of the hinge members can be varied rotationally to vary the initial loading of the spring.

11. A closure hinge comprising a pair of hingedly connected members, one having means defining a fluid chamber; an actuating member journaled in one of the hinge members co-axially therewith, and having a spirally formed portion extending into said chamber; means operatively connecting the actuating member to the other hinge member for rotation thereby; a nut in the chamber having a piston working therein and a spirally formed tubular portion receiving said spirally formed portion of the actuating member; means co-acting with the nut to prevent rotation thereof relative to said one of the hinge members yet render the nut free to be axially fed by the actuating member in response to relative hinging movement of the hinge members; a coil spring operatively connected to the actuating member and nut so as to be loaded in response to relative hinging movement of the hinge members in one direction; means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge member under the action of the spring, yet rendering the movement of the hinge members in said one direction comparatively unrestricted by the fluid; and co-acting means on the actuating member and said other of the hinge members by which relative rotational adjustment therebetween can be effected to provide the operative connection in different positions of adjustment, whereby to enable the initial loading of the spring to be varied.

12. A closure hinge comprising a pair of hinge members, one having a casing defining a fluid chamber; plugs closing the ends of the chamber; a trunnion on one plug; a spirally formed actuating member in the chamber, journaled in the other plug and having a trunnion; means co-acting with the trunnions and the other hinge member to hingedly connect the hinge members; means for operatively connecting the actuating member to the other hinge member for rotation thereby; a nut in the chamber having a piston working therein and a spirally formed tubular portion receiving said actuating member; a stud fixed to the first mentioned plug and with which the nut has a slidable keyed connection; a coil spring in the chamber; means operatively connecting said spring to the actuating member and nut so as to load the spring in response to relative hinging movement of the hinge members in one direction; and means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge members under the action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid.

13. A closure hinge comprising a pair of hinge members, one having a casing defining a fluid chamber; plugs closing the ends of the chamber; a trunnion on one plug; a spirally formed actuating member in the chamber, journaled in the other plug and having a trunnion; means co-acting with the trunnions and the other hinge member to hingedly connect the hinge members; means for operatively connecting the actuating member to the other hinge member for rotation thereby; a nut in the chamber having a piston working therein and a spirally formed tubular portion receiving said actuating member; a stud fixed to the first mentioned plug and with which the nut has a slidable keyed connection; a coil spring in the chamber; means operatively connecting said spring to the actuating member and nut so as to load the spring in response to relative hinging movement of the hinge member in one direction; means co-acting with fluid in the chamber to check the reverse hinging movement of the hinge members under the action of the spring, yet render the movement of the members in said one direction comparatively unrestricted by the fluid; and means co-acting with the actuating member and said other hinge member by which they can be operatively connected in different relative positions rotationally in order to vary the initial loading of the spring.

14. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, means operatively connected to one member to rotate therewith and be free for latching adjustment relatively thereto; means on the other hinge member with which the first means when adjusted to a latching position co-acts to retain the members in any one of a plurality of relatively adjusted positions against the urging action of the members; and means for rendering said means ineffective to retain the members in the selected adjustment position as aforestated, should manual force be exerted to adjust the members relatively in said one direction.

15. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, means operatively connected to one member to rotate therewith and be free for latching adjustment relatively thereto; and a member frictionally correlated with the other hinge member and having means co-acting with the first means when adjusted to a latching position, to frictionally hold the hinge members in any one of a plurality of relatively adjusted positions against the urging action of the hinge members.

16. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, means operatively connected to one member to rotate therewith and be free for latching adjustment relatively thereto; and a coil spring constricted upon the other member to frictionally grip the latter, and having means with which the first means when adjusted to one position, can co-act to retain the members in any one of a plurality of relatively adjusted positions against the urging action of the members.

17. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, a sleeve mounted to rotate with one hinge member about the hinging axis of the members, and to gravitate to a non-latching position in the applied position of the hinge on a closure; a coil spring constricted on the other hinge member to frictionally grip the latter; and means on the sleeve and spring adapted to co-act when the sleeve is raised to a latching position, to retain the hinge members in any one of a plurality of relatively adjusted positions against the urging action of the members.

18. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, means operatively connected to one member to rotate therewith and be free for latching adjustment relatively thereto, and a member operatively associated yieldingly with the other hinge member and having means co-acting with the first means when adjusted to a latching po-

sition, to yieldingly hold the hinge members in any one of a plurality of relatively adjusted positions against the urging action of the hinge members.

19. In a hinge door check of the type which includes a pair of hingedly connected members urged to hingedly move relatively in one direction, means co-acting with the hinge members to releasably retain them in a relatively adjusted position against the urging action of the members; and means by which the first means is rendered ineffective to retain the hinge members as aforestated should a predetermined force be exerted to relatively adjust the members.

20. A closure hinge comprising a pair of hingedly connected members; a coil spring; means operatively connecting the spring and members by which the spring is caused to be loaded compressionally and torsionally in response to relative rotation of the hinge members in one direction; fluid means for checking the reverse hinging movement of the hinge members under the action of the spring, yet rendering movement of the hinge members in said one direction comparatively unrestricted; and means operatively connected to the spring, by which the initial loading thereof can be effected.

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