Jan. 21, 1958 P. E. GIBBONS 2,820,243

FLOOR TYPE SPRING HINGES FOR DOORS

Filed April 15, 1955 2 Sheets-Sheet 1

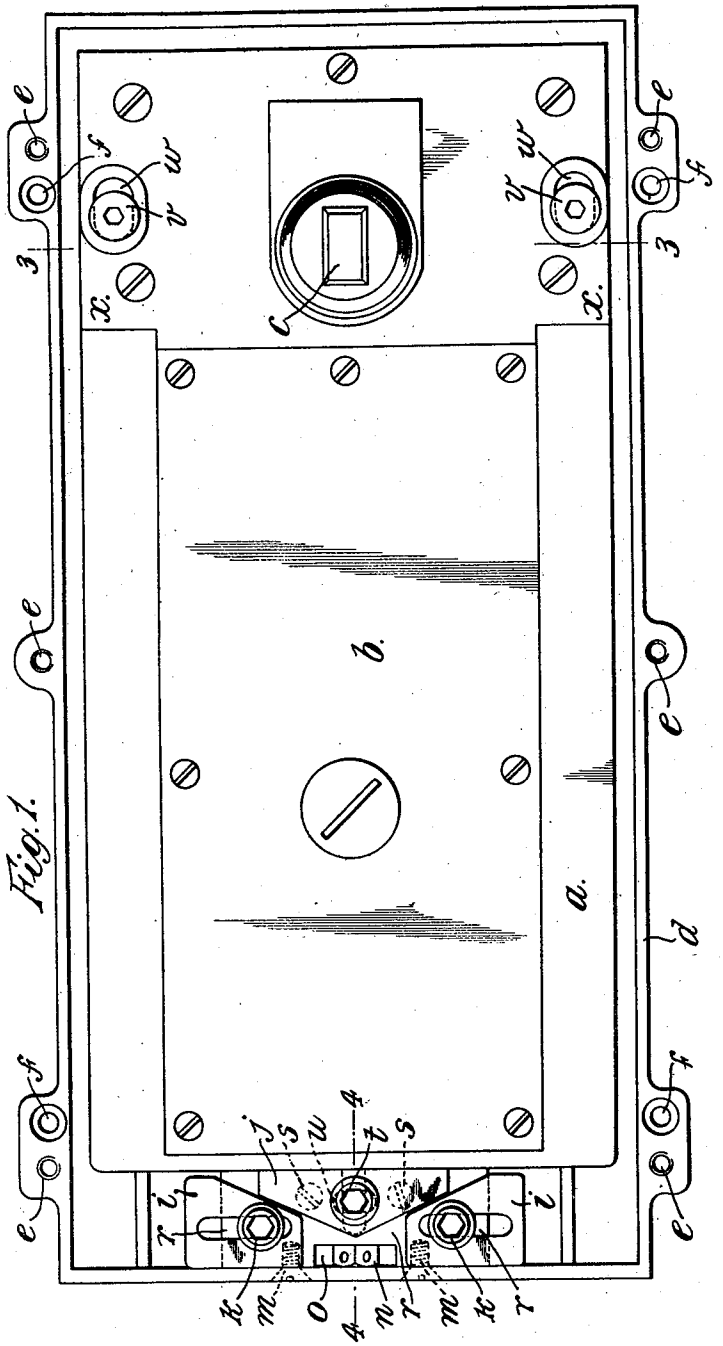


Fig. 1.

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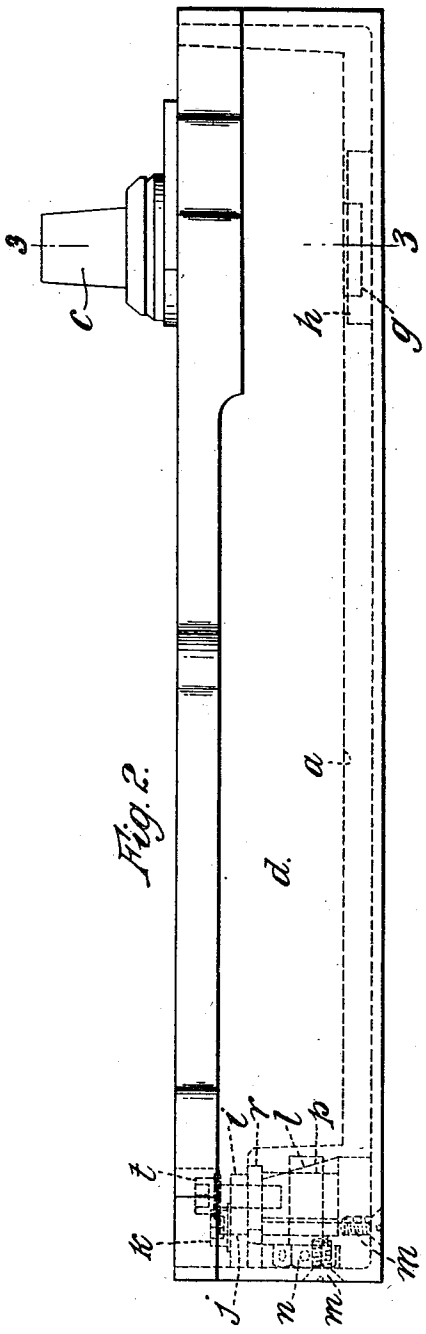


Fig. 2.

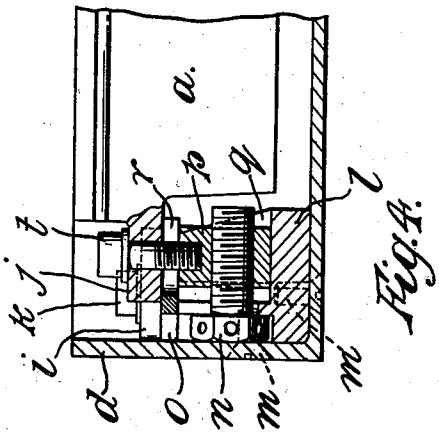


Fig. 4.

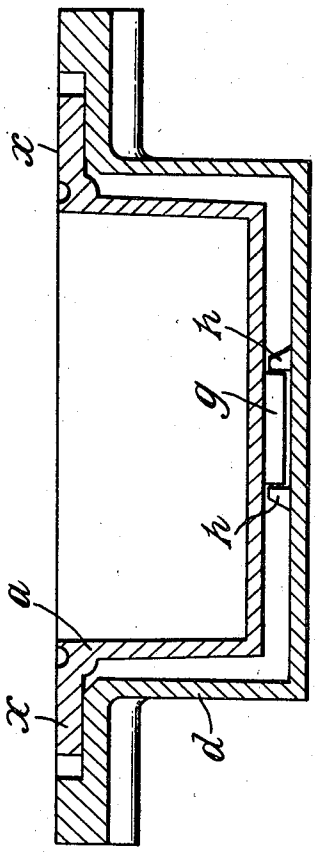


Fig. 3.

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FLOOR TYPE SPRING HINGES FOR DOORS

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1 Claim. (Cl. 16—185)

This invention relates to floor type spring hinges for doors and its object is to provide for the longitudinal adjustment thereof.

It is not unusual with floor type spring hinges for doors, especially double-acting spring hinges, to provide means for enabling the door to be angular adjusted relatively to the closed position of the components of the spring hinge, so that the spring will fully close the door, and in the case of double doors the spring hinges will bring the two leaves of the double door into mutual alignment. This adjustment is called centering, and provision can be made therefor with a thick door by making angularly adjustable the socket of the door shoe which fits on the upstanding spindle of the spring hinge.

With a thin door there is no room for an angularly adjustable socket in the door shoe, so any capability of so-called centering has to be provided in the spring hinge itself.

Floor type spring hinges intended to be sunk in concrete floors usually have an inner metal casing, containing the mechanism and oil, which is movably mounted in an outer metal casing which is eventually more or less permanently embedded in the concrete floor. Advantage is taken of such inner spring hinge casings in outer spring hinge casings to provide for centering of the door, by arranging that the inner casing is slightly angularly adjustable in the outer casing about the axis of the spring hinge spindle. The inner casing can, in one construction, be locked in its adjusted angular position in the outer casing, by a pair of slotted, horizontally located, plates presenting a suitably oblique edge of each to an oblique surface of a pair of mutually oppositely directed oblique edge surfaces on the end of the inner casing remote from the spring hinge spindle, each plate being clamped by pressure thereagainst of the head of a screw extending through its slot into a shoulder block secured in the end of the outer casing.

According to the present invention, an inner casing of a floor type spring hinge is arranged to be longitudinally displaceable in an outer casing thereof, and means are provided for longitudinally displacing such inner casing in such outer casing and for holding the inner casing in the longitudinally displaced position. Such capability of longitudinal displacement of the inner casing may be superimposed on the above-mentioned centering arrangement and utilise the above described locking means for the centering also to lock or assist in locking the inner casing in its longitudinally adjusted position.

A constructional embodiment of an inner and an outer floor type spring hinge casing, wherewith in accordance with the invention the inner casing can be longitudinally adjusted in the outer casing, and also the inner casing can be centered in the outer casing, is shown, by way of example, in the accompanying drawings, in which:

Fig. 1 is a plan, and

Fig. 2 a side elevation.

Fig. 3 is a transverse section on the line 3—3 of Figs. 1 and 2, with all internal mechanism omitted.

Fig. 4 is a section on the line 4—4 of Fig. 1, a portion of the inner casing being shown in elevation.

a is the inner casing of the floor type spring hinge casing, and which contains, beneath a removable cover *b*, Fig. 1, the spring hinge mechanism which is operated by

the usual flat-provided upstanding spring hinge spindle *c*, on which fits a socket carried in a shoe at the heel of the door.

The inner casing *a* is both angularly and longitudinally adjustable inside an outer casing *d*, wherein it is enclosed by a cover plate (not shown) secured thereon by screws screwing into holes *e* in lugs on the outer casing *d*. The outer casing *d* is intended to be sunk in a floor, often of concrete, wherein it can be held down by screws, inserted through further, countersunk, holes *f* in the lugs of the outer casing *d*, into screw-threaded holes in embedded rag bolts.

The inner casing *a* can be angularly adjusted by hand in the outer casing *d*, turning about the axis of the spindle *c*. For this purpose a shallow circular boss *g*, coaxial with the spindle *c*, Figs. 2 and 3, is cast on the under surface of the inner casing *a*, and which is located snugly between a pair of ridges *h*, cast on and extending a short distance longitudinally along the base of the outer casing *d*.

The inner casing *a* is locked in the angular position to which it has been adjusted, to centre the spring hinge relatively to the proper closed position of the door, by means of a pair of slotted plates *i* presenting mutually oppositely oblique edge surfaces, to mutually oppositely oblique edge surfaces of a flange *j* on the end of the inner casing remote from the spindle *c*. These plates *i* are locked by the heads of screws *k* bearing thereon. These screws *k* screw into a shoulder-forming block *l*, secured by screws *m* passing through the base and end of the outer casing *d*.

The inner casing *a* can slide longitudinally in the outer casing *d*, the boss *g* being guided between and by the ridges *h*. To displace the inner casing *a* longitudinally in the outer casing *d*, a horizontal screw *n*, held captive by its capstan head in a recess *o* between the block *l* and the end wall of the outer casing *d*, is provided. This capstan-headed screw *n* screws in a rectangular nut *p*, held in a vertical notch *q*, in the block *l*, covered by a plate *r*, held down on the block *l* by screws *s* and notched to permit access by a tommy bar to the capstan head of the screw *n*.

The nut *p* is connected to the inner casing *a* by a screw *t*, which extends through a slot *u*, in the oppositely oblique-edged flange *j* of the inner casing *a*, into the nut *p*.

When longitudinally adjusted, the inner casing *a* is fixed in the outer casing *d*, by the oblique-edged plates *i* and by tightening guide screws *v* extending through slots *w*, of sufficient width to permit the centering, in the border flange *x* of the inner casing *a*. The screw *t* can also be tightened to assist in locking the inner casing *a* in its longitudinally adjusted and centered position in the outer casing *d*.

The guide screws *v* screw in the base of the outer casing *d*.

I claim:

In a floor type spring hinge, an outer casing having a base, a pair of upstanding ridges on and extending longitudinally along said base of said outer casing, an inner casing having a base and longitudinally adjustable in said outer casing, a circular boss on and projecting downwards from said base of said inner casing and guidedly slidable and angularly adjustable between said longitudinal ridges, means for longitudinally adjusting said inner casing in said outer casing, and means for holding said inner casing in a longitudinally and angularly adjusted position.

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