

ORIGINAL COPY
PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION.

Improvements in or relating to Door Springs.

We, BROOKES & ADAMS, LIMITED, a Company organised under the Laws of Great Britain, of 250 to 252, Barr Street, Hockley, Birmingham, in the County of Warwick, and ARNOLD EDWIN BROOKES, a Subject of the King of Great Britain, of the same address, do hereby declare the nature of this invention to be as follows:—

10 This invention relates to spring fittings for closing doors and refers more particularly to that type of fitting which includes an attachment bracket carrying a pivot pin upon which is mounted a spring housing containing a spring, the spring acting upon the housing and the housing having an arm which acts upon the door.

15 In this type of apparatus it is known to provide the housing with a series of openings so that the housing can be turned against spring pressure for increasing the spring pressure applied to the arm.

20 The object of the present invention is to provide an improved construction of fitting of the type referred to, and according to the present invention the spring housing is made in two parts each containing a separate spring, the two spring housing parts mechanically engaging together and one of them being provided with openings for engagement by the pressure arm or by the adjusting key.

25 The making of the spring housing in two parts and the employment of two separate springs enables the device to be produced conveniently by moulding in synthetic resin.

30 The spring housing parts and/or the attachment bracket may be made as mouldings in synthetic resin or similar material, and the adjacent ends of the housing parts may be closed but provided with inter-engaging projections and recesses so that they mechanically inter-engage.

35 In one construction the attachment bracket which may be formed as a synthetic resin moulding or as a metal casting or in any other suitable material may comprise an attachment portion consisting of a flat plate, and two portions projecting at right angles to this attachment portion, which projecting portions receive the pivot pin.

The projecting portions of the attachment bracket are provided with slots or holes for engagement by the projecting ends of the springs so that one end of each spring will be anchored against rotation. 55

The two spring housing parts are mounted upon the pivot pin between the projecting portions of the attachment bracket, and these spring housing parts may be made as synthetic resin mouldings. 60

Each member may be of approximately cylindrical form with its outer end open and its inner end closed. 65

The inner ends of these two members are formed with inter-engaging projections or recesses. For instance, one of them may be moulded with a number of radial projections on its end, and the other one moulded with a number of radial slots, the slots being considerably deeper than the projections so that when the two portions are placed together, the projections do not fill the slots but leave a corresponding number of radial openings around one of the portions. 70 75

Each of the spring housing parts is provided with an interior boss spaced away from the wall of the housing by an annular chamber which receives the coil wire spring. 80

Each of the springs is provided at its two ends with projecting portions projecting parallel to the axis of the spring. 85

One spring is a right hand helix and the other spring is a left hand helix.

The projecting ends of the two springs adjacent the projecting portions of the attachment bracket project out of the open ends of the housing parts and into the slots or openings in the attachment bracket so that the outer ends of the springs are locked against rotation. 90 95

The projecting inner ends of the springs are located within holes provided in the closed ends of the spring housing parts, the arrangement being such that if either of the housing parts is rotated, the spring tension is increased. 100

For producing the necessary spring tension a sheet metal, wire or other key may be provided adapted to fit in any one of the slots in one of the spring housing 105

parts. When the spring housing parts have been turned to produce a sufficient spring tension, the pressure arm member is applied to the spring housing.

- 5 The pressure arm member may be made of sheet metal and may be of channel section, and at its one end where it is attached to the spring housing, it is provided with a projection which can enter
10 any one of the radial slots in one of the spring housing members. The arm is also shouldered adjacent its end, the shoulders bearing on the outer surface of the spring housing member.
15 Since the two spring housing members are mechanically locked together, the force of both springs will be transmitted

to the pressure arm, and should either spring break, the appliance will continue to function.

The free end of the pressure arm is forked and provided with a pivot pin upon which is mounted a roller which may be grooved, and in the groove may be placed a rubber or other ring for bearing on the
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25 door.

Dated the 1st day of March, 1932.
FORRESTER, KETLEY & Co.,
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Birmingham, and
Jessel Chambers, 88/90, Chancery Lane,
London, W.C. 2.

COMPLETE SPECIFICATION.

Improvements in or relating to Door Springs.

We, BROOKES & ADAMS, LIMITED, a Company organised under the Laws of Great Britain, of 250 to 252, Barr Street,
30 Hockley, Birmingham 19, in the County of Warwick, and ARNOLD EDWIN BROOKES, a Subject of the King of Great Britain, of the Company's address, do hereby declare the nature of this invention and in what manner the same is to
35 be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to spring fittings for closing doors and refers more particularly to that type of fitting which includes
40 an attachment bracket carrying a pivot pin upon which is mounted a spring housing containing a spring, the spring acting upon the housing and the housing having
45 an arm which acts upon the door.

In this type of apparatus it is known to provide the housing with a series of openings so that the housing can be turned
50 against spring pressure for increasing the spring pressure applied to the arm.

The object of the present invention is to provide an improved construction of fitting of the type referred to, and according
55 to the present invention the spring housing is made in two parts each containing a separate spring, the two spring housing parts mechanically engaging together and one of them being provided with openings
60 for engagement by the pressure arm or by an adjusting key.

The making of the spring housing in two parts and the employment of two separate springs enables the device to be
65 produced conveniently by moulding in synthetic resin or like mouldable material.

The spring housing parts and/or the

attachment bracket may be made as mouldings in synthetic resin or similar
70 material, and the adjacent ends of the housing parts may be closed but provided with inter-engaging projections and recesses so that they mechanically inter-engage.
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In order that our invention may be clearly understood and more readily carried into practice, we have appended
80 hereunto one sheet of drawings illustrating the same, wherein:—

Figure 1 is a perspective view of one form of spring fitting constructed in accordance with the present invention.

Figure 2 is a sectional plan view of same.

Figure 3 is a sectional front elevation through the spring housing.

Figure 4 shows in perspective the engagement between the housing parts.

Figure 5 is a perspective view illustrating one end of the pressure arm.

Figure 6 is a perspective view of one end of a modified form of pressure arm.

In the construction illustrated in the accompanying drawings the attachment
95 bracket 10 which may be formed as a synthetic resin moulding or as a metal casting or in any other suitable material comprises an attachment portion 11 formed
100 as a flat plate, with two portions 12 projecting at right angles to this attachment portion, which projecting portions 12 receive the pivot pin 13.

The projecting portions 12 of the attachment bracket are each provided with a slot
105 14 for engagement by the projecting end 15 of one of two springs 16 so that one end of each spring will be anchored against rotation as shown in Figure 3.

The two spring housing parts 17 and 18
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are mounted upon the pivot pin 13 between the projecting portions 12 of the attachment bracket, and these spring housing parts may be made as mouldings from synthetic resin or other mouldable material.

Each of the parts 17 and 18 is of approximately cylindrical form with its outer end 19 open and its inner end 20 closed.

The inner ends 20 of the parts 17 and 18 are formed with inter-engaging projections or recesses, the part 17 being moulded or formed with a number of radial projections or ribs 21 on its end 20, and the part 18 being provided with a number of radial slots 22. The slots are considerably deeper than the projections 21 so that when the two portions are placed together, the projections do not fill the slots but leave a corresponding number of radial openings as shown in Figure 1.

The slots 22 are formed by moulding in the end of the part 18, a plate 23 having a number of upstanding projections 24, as shown in Figure 4, the slots 22 being formed between the projections 24 when the plate is secured in position, in the part 18 indicated in dotted lines in Figure 4.

Each of the housing parts 17 and 18 is provided with an interior boss 25 forming with the wall of the housing part an annular chamber which receives the coil wire spring 16 as shown in Figure 3.

The pivot pin 13 is inserted through a hole in one portion 12 and through holes in the bosses 25 and the screw threaded end of the pin is engaged with an internally screw threaded hole in the other portion 12.

Each end of the springs 16 is provided at one end with the projecting portion 15 and at the other end with a projecting portion 26, both of these portions extending parallel to the axis of the spring.

One spring is a right hand helix and the other spring is a left hand helix.

The projecting ends 15 of the two springs 16 project out of the open ends 19 of the housing parts 17 and 18 and into the slots 14 in the portions 12 of the attachment bracket so that the outer ends of the springs are locked against rotation.

The projecting ends 26 of the springs project through holes 27 provided in the closed ends 20 of the housing parts, and into a hole 28 in the plate 23 as shown in Figure 3, the arrangement being such that if either of the housing parts is rotated, the spring tension is increased.

For producing the necessary spring tension a sheet metal, wire or other key 29 is provided, one end being adapted to fit in

any one of the slots 22 in one of the housing parts. When the housing parts have been turned to produce a sufficient spring tension, the pressure arm member 30 is applied to the spring housing.

The pressure arm 30 is made of sheet metal and is of channel section, and at one end where it is attached to the spring housing, it is provided with a projection 31 which can enter any one of the radial slots 22, the arm being also shouldered adjacent this end, the shoulders 32 bearing on the outer surface of the spring housing member, as shown in Figure 2.

Since the two spring housing members are mechanically locked together when the parts are assembled, the force of both springs will be transmitted to the pressure arm, and should either spring 16 break, the appliance will continue to function.

The free end 33 of the pressure arm is forked and provided with a pivot pin 34 upon which is mounted a roller 35 grooved to receive a rubber or other ring 36 for bearing on the door.

A strip spring 37 is secured to the inner side of the arm 30 and this serves to retain the key 29 conveniently when not required for use, so that the key is readily available when required.

In the modified form of arm illustrated in Figure 6, the spring 37 is dispensed with and projections 38 are provided on the arm, these projections being bent across the channel and the key 29 being retained in the arm by inserting one end of the key beneath the projections 38. The key can be slid along the arm within the channel and being of slightly cranked form, the key can be wedged beneath the projections 38.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A spring fitting of the type referred to wherein the spring housing is made in two parts each containing a separate spring, the two spring housing parts mechanically engaging together and one of them being provided with openings for engagement by the pressure arm and/or by an adjusting key.

2. A spring fitting according to Claim 1 wherein the spring housing parts are formed from a mouldable material, such as synthetic resin or the like, one part being moulded or formed with projections and the other part having recesses with which the said projections can inter-engage.

3. A spring fitting according to Claim 1 or 2 including an attachment bracket having two spaced projecting portions be-

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- tween which the spring housing parts are rotatably mounted on a pivot pin engaging in said projecting portions.
- 5 4. A spring fitting according to Claim 2 wherein the recesses in one part are formed by moulding in the part a metal plate having spaced projections between which are located the said recesses.
- 10 5. A spring fitting according to Claim 2 or 4 wherein the recesses on one part are deeper than the projections on the other part, so that when the parts are engaged together the projections do not fill the recesses but leave a corresponding
- 15 number of radial openings.
6. A spring fitting according to Claim 5 wherein the pressure arm is provided at one end with a projection adapted for engagement in one of said openings, the arm
- 20 also having one or more shoulders adapted to bear on the outer surface of the spring housing when the fitting is assembled.
7. A spring fitting according to Claim 3 wherein each spring is provided at each
- 25 end with a portion extending parallel to the axis of the spring, one projecting end being engaged with the attachment bracket and the other end with one of said spring housing parts.
- 30 8. A spring fitting according to Claim 7 wherein one end of each spring projects from the spring housing part in which it is mounted and engages in a slot or opening in the adjacent projecting portion on the attachment bracket.
- 35 9. A spring fitting according to any of the preceding Claims wherein each spring is located in the annular space between the wall of the housing part and an internal boss provided in the housing part.
- 40 10. A spring fitting according to any of the preceding Claims including means for retaining the adjusting key conveniently on the pressure arm.
11. A spring fitting according to Claim 10 wherein the retaining means for the key comprises a spring secured to the arm or one or more projections provided on the arm, the key being inserted between the arm and said spring or said projection
- 45 or projections.
12. A spring fitting of the type referred to substantially as described with reference to the accompanying drawings.
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Dated the 3rd day of April, 1933.

FORRESTER, KETLEY & Co.,

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Central House, 75, New Street,

Birmingham 2, and

Jessel Chambers, 88/90, Chancery Lane,

London, W.C. 2.

[This Drawing is a reproduction of the Original on a reduced scale.]

