Oct. 12, 1926. 1,602,480

M. J. CUNNINGHAM

HINGE

Filed August 27, 1925 2 Sheets-Sheet 1

Fig.1.

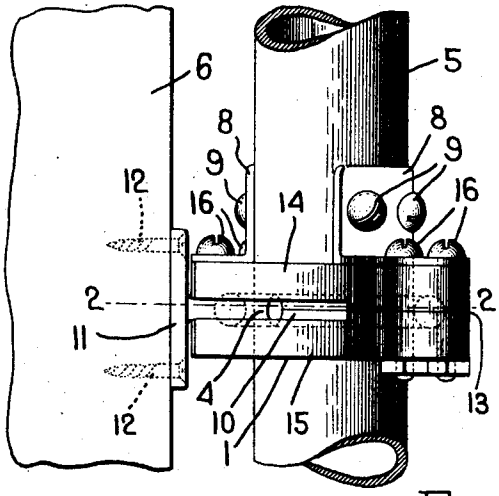


Fig.2.

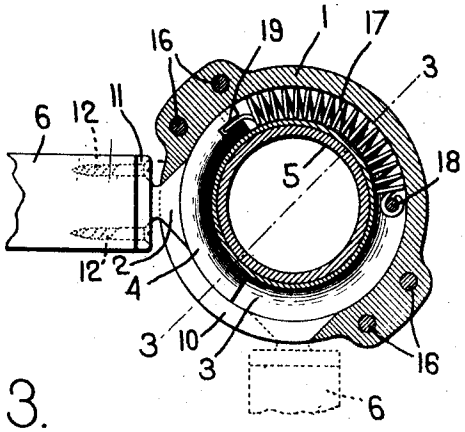


Fig.3.

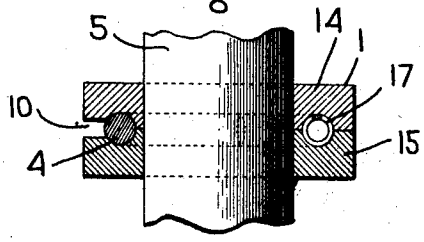


Fig.4.

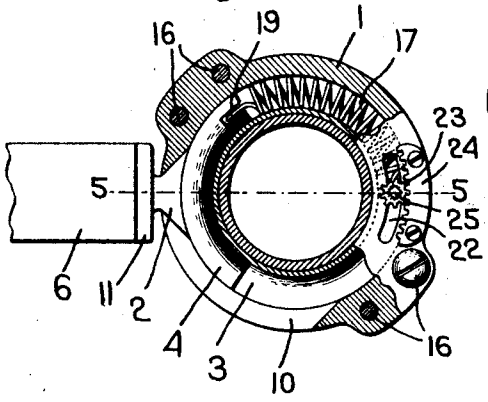
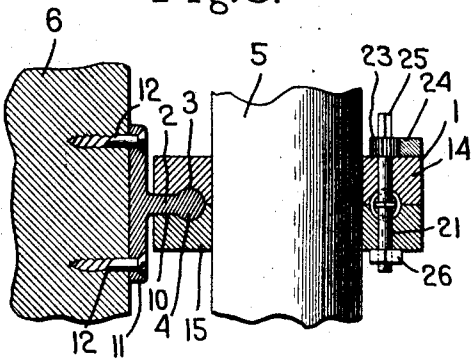


Fig.5.



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Filed August 27, 1925 2 Sheets-Sheet 2

Fig.6.

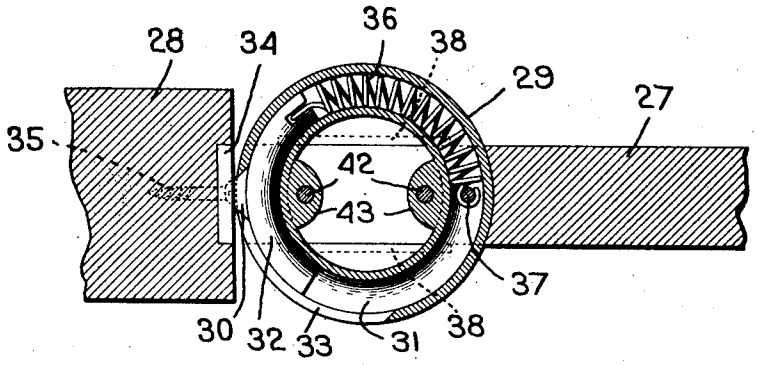
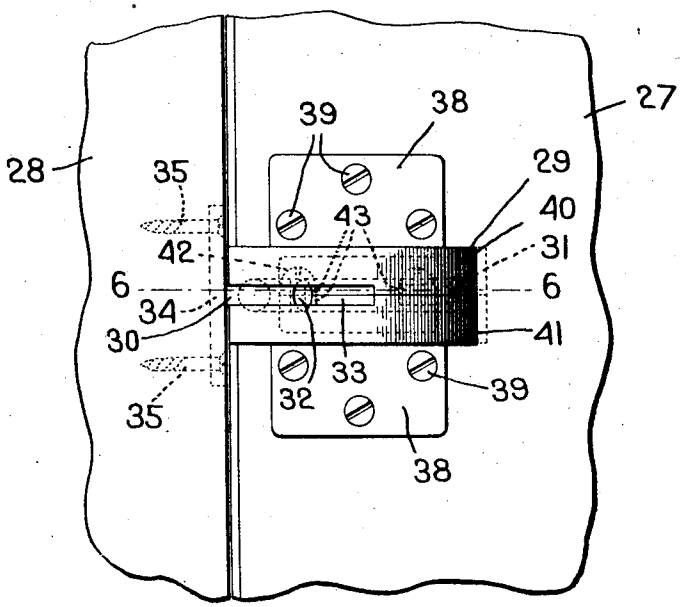


Fig.7.



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UNITED STATES PATENT OFFICE.

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HINGE.

Application filed August 27, 1925. Serial No. 52,832.

This invention relates to hinges and has for its object to provide a novel hinge which is suitable for use either as a gate hinge or as a door hinge.

My improved hinge comprises two hinge members, one of which is provided with an internal annular trackway and the other of which is provided with an arcuate-shaped shoe that operates in the trackway. The shoe is secured to one of the two parts that are hinged together and the member having the circular trackway is secured to the other part. If desired, a spring can be located in the circular trackway and attached to the shoe which will resist opening movement of the door or gate and tend to close the latter.

In order to give an understanding of the invention I have illustrated in the drawings some selected embodiments thereof which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a fragmentary side view showing my hinge as applied to a gate hinge;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is a section on the line 3—3, Fig. 2;

Fig. 4 is a view similar to Fig. 2 but illustrating an adjusting device for adjusting the tension of the spring;

Fig. 5 is a section on the line 5—5, Fig. 4;

Fig. 6 is a view taken on the line 6—6, Fig. 7 showing the hinge adapted for use in hanging a door;

Fig. 7 is a side view of Fig. 6.

My improved hinge comprises the hinge members 1 and 2. The hinge member 1 is provided internally with an annular trackway or raceway 3 and the hinge member is formed with an arcuate shoe 4 which fits within the trackway. The turning movement of the two hinge members is secured by the sliding movement of the shoe 4 in the circular trackway. The hinge member 1 is secured to one of the two parts which are to be secured together and the hinge member 2 is secured to the other part.

The construction shown in Figs. 1 to 5 is particularly adapted for use in hanging a gate and in this embodiment the hinge member 1 will be secured to the gate post 5 while the hinge member 2 is secured to the gate 6. The hinge member 1 is shown as a ring-shaped member through which a tubular post 5 may be inserted, said member 1 being secured to the post in any suitable way. One way is to provide said member with ears or lugs 8 which overlie the post 5 and are secured thereto by means of screws or bolts 9.

The hinge member 1 is provided on one side with a slot 10 leading to the trackway 3 and the hinge member 2 is provided with any suitable means for attaching it to the gate 6 and for this purpose it may conveniently be made with a foot portion 11 which is secured to the gate by means of suitable screws 12.

I find it convenient to make the hinge member 1 in two parts, said member being divided horizontally along the line 13 so as to make an upper section 14 and a lower section 15. These sections are secured together by bolts or screws 16. This construction is preferred because it facilitates the making of the raceway 3. Said raceway (which is preferably circular in cross section) may be partially in the upper section 14 and partially in the lower section 15.

17 indicates a spring which is anchored at one end to the hinge member 1 as shown at 18 and is connected at the other end to the shoe as shown at 19. In the construction shown in Fig. 2 the opening movement of the gate 6 is from the full to the dotted line position, such movement carrying the shoe portion around the trackway 4 to approximately a 90° angle. During this movement the spring 17 is stretched and placed under increased tension. This spring is preferably a spiral spring of a size to freely fit the trackway. When the gate has been opened and is then released the tension of the spring 17 will swing the gate into its closed position, indicated in full lines Fig. 2. When in this position the stem of the member 2 engages the end of the slot 10 and thus limits the closing movement of the gate.

In Figs. 4 and 5 I have illustrated a construction for adjusting the tension of the spring 17. In this embodiment the spring is anchored at one end to a pin 21 which occupies a curved slot 22 that is formed vertically through the hinge member 1. This pin has rigid therewith at its upper end a pinion 23 which meshes with a rack 24 that is fixed to the hinge member 1. The upper end 25 of the pin is squared to receive a wrench. By rotating the pin the pinion 23 will be rolled over the stationary rack 24 and the position of the pin will thus be adjusted longi-

tudinally of the slot 22 thereby to place the spring under greater or less tension. When the proper adjustment has been made the pin is locked in position by tightening a clamping nut 26 on the lower end thereof. It will be understood that the pinion 23 is rigid on the pin 21 so that when the nut 26 is tightened said pin will be locked in adjusted position.

In Figs. 6 and 7 I have illustrated a different embodiment of the invention adapted for use in hanging a door. In said figures the door is indicated at 27 and the door post 28. In this embodiment the shoe member of the hinge is secured to the stationary part or door post and the track member is secured to the swinging part or door.

The hinge member containing the circular track is indicated at 29 and the other member at 30. The track member 29 has the annular trackway 31 and the hinge member 30 has the arcuate shoe 32 which slides in the trackway, the member 29 being provided with the peripheral groove 33 through which the shoe member projects. Said shoe member is formed with the foot 34 which is secured to the door post by means of suitable screws 35.

36 indicates a spring which occupies the trackway 31 and which is connected at one end to the shoe and at the other end is anchored to the member 29 as shown at 37.

In installing this construction it will be necessary to cut a slot transversely into the the door to receive the member 29 and said member may be provided with ears or lugs 38 which overlie the sides of the door and are secured thereto by screws 39. The hinge member 29 is divided horizontally as in the other embodiment of the invention and the two parts 40 and 41 are secured together by means of bolts or screws 42 which extend through lugs 43 formed on the two sections 40 and 41 and situated interiorly of the member 29.

I claim:

1. In a hinge, the combination with a post, of a track member encircling the post and rigidly secured thereto, said track member having an internal trackway and a peripheral slot communicating with the trackway, a shoe member having a shoe which fits the trackway, a door member secured to the shoe member, a pulling spring in the trackway anchored at one end to one end of the shoe, and an adjustable anchoring member carried by the track member and to which the other end of the spring is secured.

2. In a hinge, the combination with a post, of a track member encircling the post and rigidly secured thereto, said track member having an internal trackway and a peripheral slot communicating with the trackway, a shoe member having a shoe which fits the trackway, a door member secured to the shoe member, a pulling spring in the trackway anchored at one end to one end of the shoe, a pin carried by the track member and to which the other end of the spring is secured, and means to adjust the pin longitudinally of the trackway.

3. In a hinge, the combination with a post, of a track member encircling the post and rigidly secured thereto, said track member having an internal trackway and a peripheral slot communicating with the trackway, a shoe member having a shoe which fits the trackway, a door member secured to the shoe member, a pulling spring in the trackway anchored at one end to one end of the shoe, a pin carried by the track member and to which the other end of the spring is secured, and means exterior to the trackway to adjust the pin longitudinally of the trackway.

4. In a hinge, the combination with a post, of a track member encircling the post, said track member being divided horizontally and each portion thereof having an annular groove, said grooves being aligned with each other and forming an annular trackway, said track member also having a peripheral slot communicating with the trackway, a shoe member having a shoe fitting the trackway, said shoe member projecting through the slot, a pulling spring anchored at one end to one end of the shoe member and at the other end to the track member, and a swinging closure secured to the shoe.

In testimony whereof, I have signed my name to this specification.

MICHAEL J. CUNNINGHAM.