

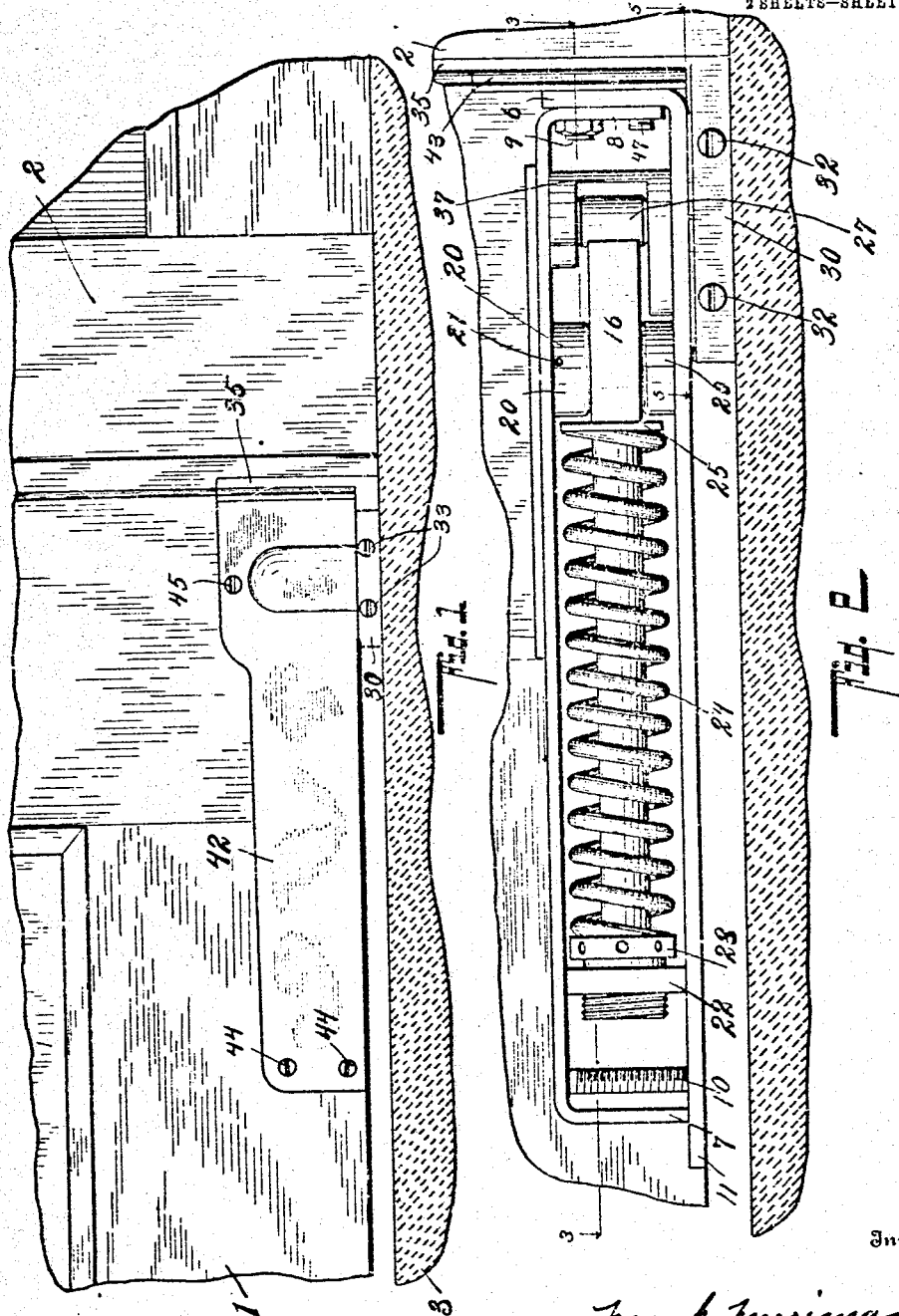
M. MERRIMAN.
 SPRING HINGE.

APPLICATION FILED OCT. 9. 1909.

Patented Apr. 19, 1910.

955,653.

2 SHEETS—SHEET 1.



Witnesses
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By

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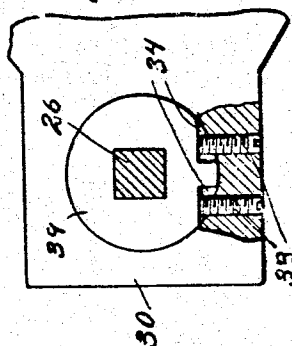
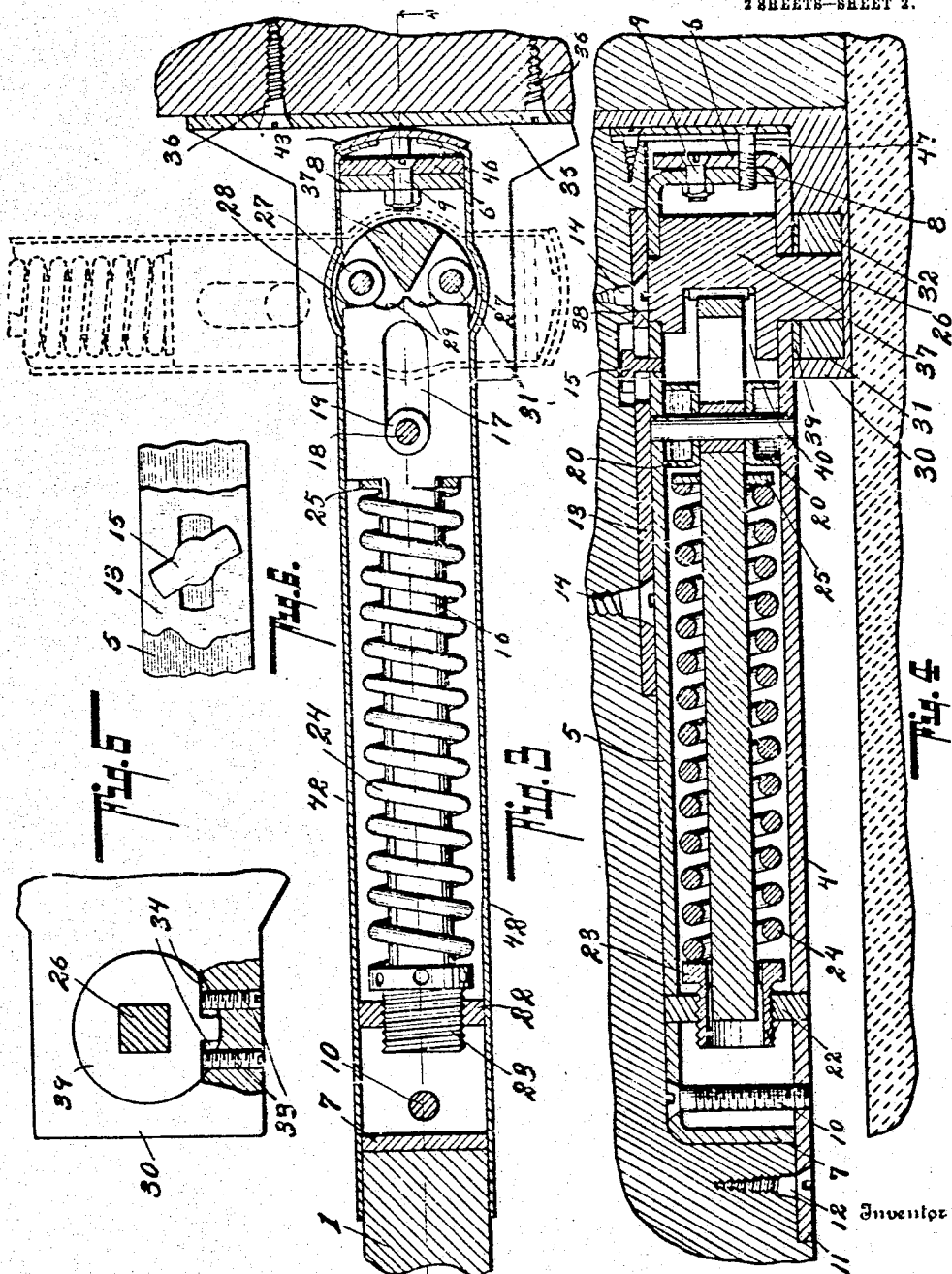
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MARK MERRIMAN, OF ALBION, MICHIGAN, ASSIGNOR TO T. C. PROUTY COMPANY, OF ALBION, MICHIGAN.

SPRING-HINGE.

955,653.

Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed October 9, 1909. Serial No. 521,896.

To all whom it may concern:

Be it known that I, MARK MERRIMAN, a citizen of the United States, residing at Albion, county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

This invention relates to improvements in spring hinges.

10 My improvements are particularly applicable to the class of spring hinges illustrated in the patent to George M. Hughes of March 30, 1909, No. 916,447 although certain features are desirable for use and
15 capable of embodiment in other structures.

The main objects of this invention are, first, to provide an improved spring hinge designed to permit the door to swing in either direction from its closed position and
20 to automatically close the door. Second, to provide an improved arrangement of the parts for supporting and providing bearings for the spring actuated movable member. Third, to provide in a structure of this
25 class an improved post. Fourth, to provide in a structure of this class an improved casing. Fifth, to provide an improved floor member. Sixth, to provide an improved structure of this class in which the parts are
30 simple and economical to produce and assemble and one which is very durable in use.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

35 I accomplish the objects of my invention by the devices and means described in the following specification.

The structure described constitutes one effective embodiment of my invention.
40 Other embodiments would be readily devised by those skilled in the art.

The invention is clearly defined and pointed out in the claims.

45 A structure constituting an effective and preferred embodiment of the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which.

50 Figure 1 is a detail side elevation of a door with my improved hinge applied thereto. Fig. 2 is a corresponding view with one side of the casing removed. Fig. 3 is a detail horizontal section taken on a line corresponding to line 3—3 of Fig. 2, the spring
55 24 and sleeve 23 being shown in full lines.

Fig. 4 is a vertical longitudinal section taken on a line corresponding to line 4—4 of Fig. 3. Fig. 5 is a detail horizontal section taken on a line corresponding to line 5—5 of Fig. 2 showing details of the floor member
60 and the adjustment of the post therein. Fig. 6 is a detail plan view of the attaching means.

In the drawing, similar reference characters refer to similar parts throughout the
65 several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, 1 represents the door, 2 the door casing and 3 the floor, a
70 concrete floor being illustrated as my improved floor member is especially designed for use in structures having concrete floors.

My improved hinge is shown in the drawing in operative relation. The movable
75 member of my improved hinge or the member which is preferably attached to the door consists of a frame preferably made up of a bottom piece 4 and a top piece 5, the
80 forward end of the bottom piece 4 is turned upwardly at 6, while the rear end of the top piece is turned downwardly at 7, the forward end of the top piece being turned downwardly at 8. The up-
85 turned end 6 of the bottom piece and the downturned end 8 of the top piece are rigidly secured together by means of the bolt 9. The rear end of the frame pieces are secured together by means of the screw
90 10. The bottom piece is preferably extended at 11 to receive the attaching screw 12. The forward end of the frame is preferably secured to the door by means of a slotted plate
95 13 which is secured to the door by means of the screws 14, the frame being provided with a headed stud 15 to engage this slot when presented longitudinally thereto. By
100 passing the head through the slot and swinging the frame into position its forward end is secured so that by inserting the screw 12 the frame is secured to the door without the
105 necessity for long screws or any conspicuous attaching means. This frame construction and the attaching means therefor are substantially the same as that of the Hughes patent referred to. In this frame I mount
110 the bolt-like movable or reciprocating member 16 having a notched flattened head 16' provided with a longitudinal bearing slot 17 therein. Through this slot I pass a bearing

pin 18 which is preferably provided with a bearing roller 19. On each side of the reciprocating member are guides 20, the pin being passed through the guides. The upper guide is preferably adapted to serve as a lubricant receptacle to lubricate the bearing pin, its roller and the bearing slot of the reciprocating member. In practice the lubricant is preferably placed therein when assembling the hinge, a heavy "dope" being used. The lubricant receptacle is, however, provided with a hole 21 through which the lubricant may be injected if desired. It is found, however, in practice that by using the heavy "dope" the lubricant will last for a long period of time.

The rear end of the movable member is supported by the cross piece 22 of the frame, the cross piece being preferably provided with a threaded sleeve 23 into which the movable member projects. This sleeve forms a bearing for one end of the spring 24, the other end of the spring bearing against the collar 25 mounted on the stem of said bolt adjacent to its head 16' so that by adjusting the sleeve the tension of the spring is regulated.

The movable member 16 is arranged to coact with the post 26. The post is preferably provided with bearing rollers 27 with which the head 16' of the member 16 engages. The head 16 is preferably provided with outwardly inclined bearing surfaces 28 adapted to engage the bearing rollers 27 when the door is in its normal or closed position. Disposed between the inclined bearings is a pair of curved seats 29 adapted to receive the bearing rollers when the door is swung to a position substantially at right angles to its closed position, see dotted lines in Fig. 3, and retain the door in this position.

The post is preferably supported by floor member 30 having a socket 31 therein to receive the disk 32 which is secured upon the lower end of the post. This disk is adjustably secured in the socket by means of the screws 33 which are adapted to engage notches 34 formed in the disk 32. These parts are substantially the same as that of the Hughes patent referred to.

The floor plate is provided with an upwardly projecting casing attaching member 35 which is perforated to receive the attaching screws 36. By providing the member with this attaching plate it can be readily attached to structures having cement floors and, therefore, it is very desirable particularly when taken into connection with the post adjusting feature which permits the securing of the plate to the door casing and the adjustment of the post to properly center the door.

The post is provided with a head 37 which is disposed between the top and bot-

tom pieces of the frame, having a bearing engagement with both, thus pivotally supporting the frame and holding it in a horizontal position. On the upper end of the head is a bearing 38 to engage the top frame piece. A bearing washer 39 is preferably interposed between the bottom piece of the frame and disk 32 for securing the post. The head 37 of the post is recessed at 40 to receive the forward end of the movable member. The bearing pins 31 are supported at both ends so that they are not likely to be bent under the strains to which they are subjected.

The casing for my improved hinge preferably consists of a pair of side plates 42 and a curved end plate 43. The side plates 42 are adapted to extend above the frame and are perforated to receive the attaching screws 44 at their forward end and the screw 45 at the side above the post. The side plates are provided with inwardly projecting flanges 46 at their rear ends, the flanges being preferably curved. These flanges are embraced by the end plate 43 which is secured to the frame by the screw 47 thus effectively clamping the side plates so that very light side screws can be used, at the same time the side plates are effectively supported.

My improved hinge is simple in its parts and easily assembled; it is also a very desirable construction as it effectively supports the door to be swung in either direction and also it is attractive in appearance.

By arranging the parts as shown and described, the spring actuated movable member through which the spring acts in holding the door in position is supported so that the friction thereon is minimized. When the door is swung in one direction, one side of the bearing slot 17 engages the bearing roller 19 and when swung in the other direction the other side engages the roller so that it is effectively supported in each direction. The means for lubricating the hinge at this point is also very desirable and is accomplished in a simple and effective manner.

I have illustrated my various improvements in detail in the form preferred by me as it is the form in which I have embodied them in practice. I am aware, however, that they are capable of considerable variation in structural details without departing from my invention, and I desire to be understood as claiming the same in the specific form illustrated as well as broadly.

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

1. The combination with a post, of a frame pivotally associated with said post; a longitudinally slotted reciprocating member mounted in said frame; a bearing pin 130

seated in the slot in said reciprocating member; guides on said pin at each side of said reciprocating member; bearing members on said post to engage said reciprocating member; and a spring arranged to hold said reciprocating member yieldingly against said bearing members on said post.

2. The combination with a post, of a frame pivotally associated with said post; a longitudinally slotted reciprocating member mounted in said frame; a bearing disposed in the slot in said reciprocating member; bearing members on said post to engage said reciprocating member; and a spring arranged to hold said reciprocating member yieldingly against said bearing member on said post.

3. The combination of a post, of a movable member pivotally mounted thereon and comprising a frame adapted to be seated in a rabbet in a door; a spring actuated member carried by said frame and adapted to coact with said post; a casing comprising a pair of plates having inwardly projecting

flanges on their rear ends; an end plate arranged to embrace the flanges on said side plates; and attaching means for said end plate.

4. The combination of a floor hinge member comprising a floor plate having an upwardly-projecting casing attaching plate on its rear edge; a post; bearing members on said post; a second hinge member comprising a frame pivotally mounted on said post; a spring actuated member carried by said frame constructed and adapted to coact with said bearing members on said post; and means whereby said post and one of said hinge members may be adjusted relative to each other.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

MARK MERRIMAN. [L.S.]

Witnesses:

S. HEYUM,

E. T. ROBERTSON.