

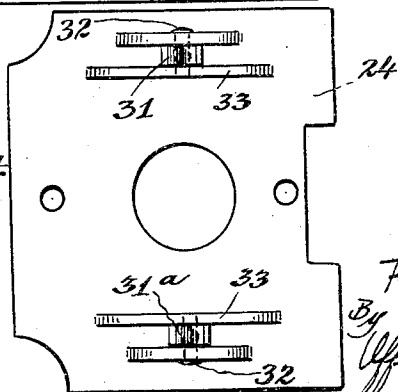
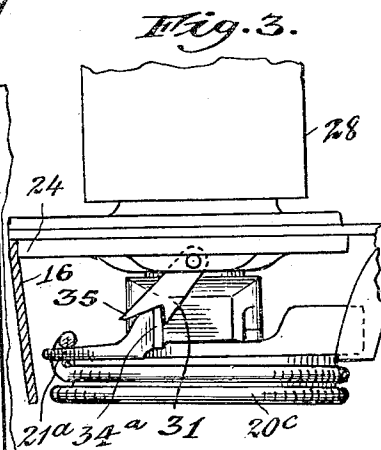
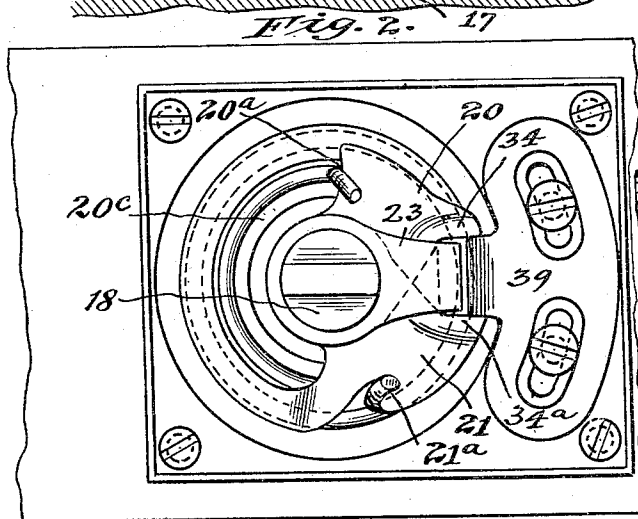
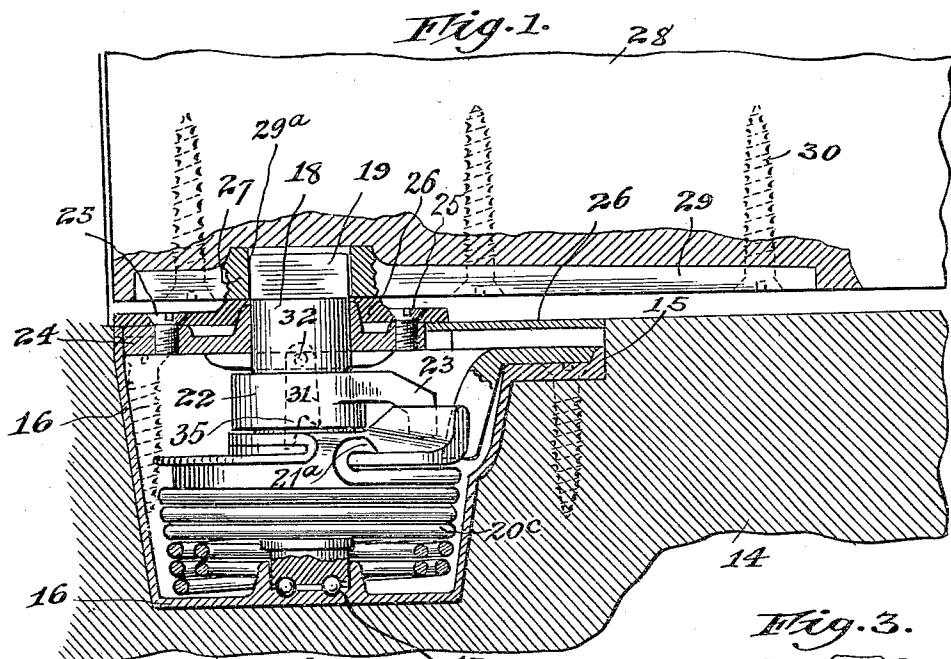
HINGE.

APPLICATION FILED JULY 24, 1908.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 1.

931,715.



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HINGE.

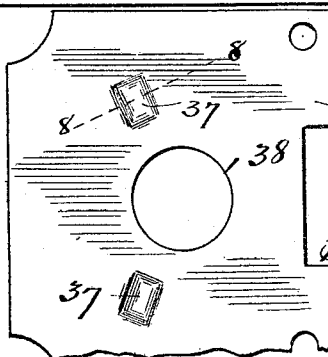
Patented Aug. 24, 1909.

3 SHEETS—SHEET 2.

Fig. 5.



Fig. 7.



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UNITED STATES PATENT OFFICE.

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HINGE.

931,715.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed July 24, 1908. Serial No. 445,197.

To all whom it may concern:

Be it known that I, FRANK B. AUSTIN, a citizen of the United States, residing at Racine, in the county of Racine, State of Wisconsin, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

The invention pertains to a hinge and more in particular to a floor hinge, adapted to coöperate with a swinging door and having means for retaining the door in any desired position.

I am aware that Letters Patent of the United States No. 815,011, dated March 13, 1906, were granted to Sigvart Hanson for improvements in floor hinge, the construction of said hinge being somewhat similar to my construction, except that no means were provided for retaining the door in various positions.

One of the objects of my invention is to provide a hinge mechanism with a strong and durable lock whereby the door may be swung on either side of the door casing, firmly held in an open position, and released without fear of injuring any of the parts constituting the lock or the hinge.

A further object of my invention is to provide means for disengaging the spring from the door whereby the door may be swung either way without being under tension, and set at any place.

Further objects will appear throughout the specification and are shown in the accompanying drawings, in which—

Figure 1 is a vertical central section through the hinge casing. Fig. 2 is a top plan view with the floor and casing plates removed. Fig. 3 is a detail view of the ratchet and dog mechanism constituting the lock. Fig. 4 is a bottom plan view of the cover for the casing, designed to show the dogs pivoted thereto. Figs. 5, 6, 7, 8, 9, 10, 11, 12 and 13 are modified forms of my device.

Referring now more particularly to the drawings, 14 represents a floor having a suitable socket adapted to receive the hinge casing 15; the upper portion of the casing being somewhat enlarged and adapted to receive a casing or top plate hereinafter described. At the bottom of the casing an annular recess or seat 16 is provided with ball bearings 17 therein, in which a pintle 18 rests, said pintle being provided at its top with a tenon

19 projecting above the hinge casing and adapted to coöperate with a socket on the bottom portion of the door, to be hereinafter described. Pivotaly mounted upon the pintle are two arms 20 and 21, and immediately below said arms and surrounding said pintle is a double acting spring formed from a single wire and constituting two coiled springs, one within the other, the terminal ends of said springs 20^a and 21^a being upturned and engaging suitable notches in the arms 20 and 21, respectively, whereby the arms are under a constant tension forcing same together. Situated immediately above the two arms, in the preferred form, is a collar 22, having a lug 23 thereon, the end of which is turned in substantially a vertical position, the collar being non-rotatably secured to the pintle, and the vertical turned end of the lug projecting between the two arms 20 and 21 so that in the construction so far described, any movement of the pintle 18 would consequently move the lug 23, which being moved in either direction would act upon one of the spring holding arms and would move the same against the action of the double acting spring. A casing plate 24 is adapted to fit over the top of the casing and is secured thereto by means of the screws 25, engaging suitable portions of the casing and a floor plate 26 is employed to present a neat floor finish, when coöperating with an annular collar 27, having a boss thereon which surrounds the upper portion of the pintle immediately below the tenon 19.

The door 28 is herein partially represented, it having a base plate 29 secured thereto with a socket 29^a adapted to receive the tenon 19, the plate being secured to the door by means of the screws 30.

The construction just described presents substantially no new features over the patent referred to and the operation of the device is substantially the same, in that the door is adapted to be moved in either direction against the action of the double coil spring and will be returned to its normal position when the door is released.

My invention pertains primarily to means for holding the door open and to accomplish this I provide the casing plate 24 with dogs 31 and 31^a, which are pivoted to said casing plate by means of pivot pins 32, held between parallel shoulders 33, preferably

formed integral with the plate 24, and said dogs coöperating with shoulders 34 and 34^a, preferably formed integral with the arms 20 and 21, respectively. By this construction the door is capable of being held open in the following manner, as is best illustrated in Fig. 3. Assuming that the door was moved so as to actuate arm 21, said arm would be forced backward against the action of the spring until the shoulder 34^a thereon came in contact with the dog 31, whereupon the dog would swing backward slightly until it was seated over the shoulder 34^a, whereupon the spring would be held back by means of the dog and as there would be no spring action against the door when the arm was held in this position, it would consequently remain stationary; at the same time it would hold the spring out of action, and thereby permit the door to be freely swung between its normal position and its limited open position, it of course being understood that there is sufficient friction existing between the pintle 18 and the various parts to hold the door open at any point set. When it is desired to close the door and to have the spring act again thereon, it is only necessary to press the same backward far enough until the shoulder 34^a passes behind the elongated point 35 of the dog, whereupon the dog will fall into substantially a vertical position and the spring will then return the arm to its normal position, as the dog cannot then engage the shoulder. In moving the door in the opposite direction, as heretofore described, the same action will take place with respect to the dog 31^a, it being understood that the dogs are arranged upon opposite sides of the pintle so as to retain the door in an equally open position irrespective of which side it is swung.

There of course may be many modifications in the structure, and I have attempted in the remaining figures shown in the drawings to show various changes, all of which pertain to means for retaining the door in an open position.

In Fig. 5 the dogs are omitted and a socket 36 is formed upon the top of the depending lug 23, the depending lug in Fig. 5 being shown as having a straight top and the lug portion depending in a vertical position instead of being beveled at the end, as shown in Fig. 1. Coöperating with the socket and the lug are two snap buttons 37, preferably formed integral with the casing plate 24, which in this instance would be composed of a spring material, the snap buttons being struck from the metal upon either side of the apertures 38 through which the pintle passes. In this construction, when the depending lug is moved in either direction one of the snap buttons would engage the socket and thereby hold an arm against the action of the spring.

It may be stated that in all my constructions a stop plate 39 is provided, adapted to project between the two arms and to prevent one of said arms from rotating while the other is being turned, the stop plate being preferably secured to the casing by any well known means.

Another modification is as best shown in Figs. 10 and 12 wherein instead of forming a depression upon the top of the depending lug, it may be formed upon the end thereof, as shown at 40, and adapted to coöperate with a plunger 41, normally pressed outward by a spring 42, said plunger and spring being secured to the casing and there being two plungers and springs provided having the same relative positions to each other as the snap buttons 37, whereby when either arm is rotated by the lug, the recess or depression 40 will register with one of the plungers which thereupon seats itself for the objects specified.

Still another modified form of my construction as shown in Fig. 13 lies in forming a seat 43 upon the top of the respective arms 20 and 21 and placing the plunger 44 in a vertical position with a spring 45 to normally press the same outward from the casing, whereby when either arm is rotated the plunger will seat itself in the depression 43 on the top of the arms 20 and 21, it of course being understood that depression 43 and plunger 44 have the same function as the depression 40 and plunger 41.

While it is obvious that there may be many other modifications and changes in my structure, nevertheless it is thought that the present modifications will be sufficient to show that my construction is not necessarily limited to the modifications and forms herein shown, and that my invention consists broadly in any means in combination with a hinge construction herein shown for retaining the door in an open position, and therefore without confining myself to the specific structural means for accomplishing the objects of my invention,

I claim:

1. A double acting spring floor hinge comprising, in combination, a casing, a pintle rotatably mounted therein, a pair of arms rotatably secured to said pintle, a lug non-rotatably secured to said pintle and adapted to engage either of said arms, a double acting spring engaging said arms and normally holding them in a closed position, and means secured to said casing and adapted to engage said arms for holding either of them in an open position, substantially as described.

2. A double acting spring floor hinge comprising, in combination, a casing, a pintle rotatably mounted therein, a pair of arms rotatably secured to said pintle, provided with shoulders, a lug non-rotatably secured

to said pintle and adapted to engage either of said arms, a double acting spring engaging said arms and normally holding them in a closed position, and means for engaging
5 said shoulders whereby said arms are held in an open position, substantially as described.

3. A double acting spring floor hinge comprising, in combination, a casing, a pintle
10 rotatably mounted therein, a pair of arms rotatably secured to said pintle and provided with shoulders, a lug non-rotatably secured to said pintle and adapted to engage
15 either of said arms, a double acting spring engaging said arms and normally holding them in a closed position, and dogs mounted in said casing and adapted to engage said

shoulders for holding either of said arms in an open position, substantially as described.

4. A double acting spring floor hinge comprising, in combination, a casing, a pintle 20 rotatably mounted therein, a pair of arms rotatably secured to said pintle, and having shoulders thereon, a lug non-rotatably secured to said pintle and adapted to engage 25 either of said arms, and dogs secured to said casing and adapted to engage said shoulders for holding either of said arms back against the action of said spring, substantially as described.

FRANK B. AUSTIN.

In presence of—

D. J. MOREY,
W. S. MOREY.