C. DIENER.

SELF LOCKING HINGE.

APPLICATION FILED JAN. 18, 1915.

1,140,129. Patented May 18, 1915.

Fig. 1.

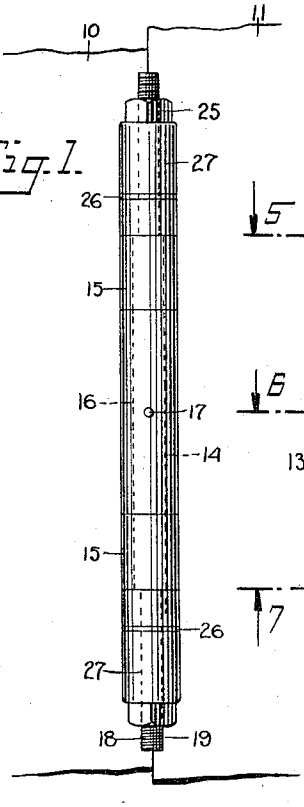


Fig. 2.

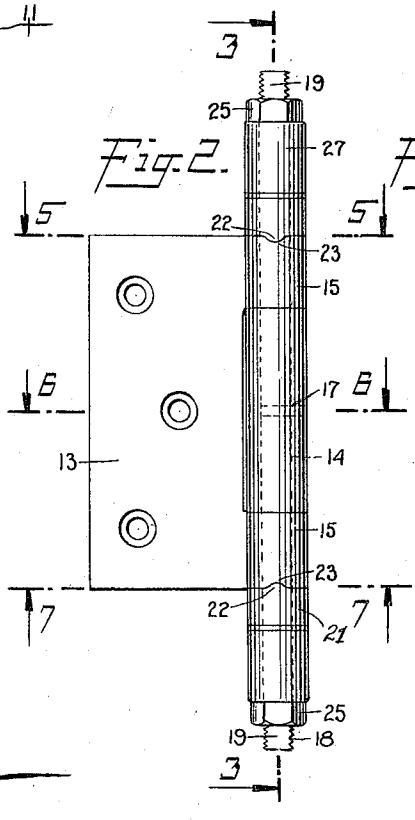


Fig. 3.

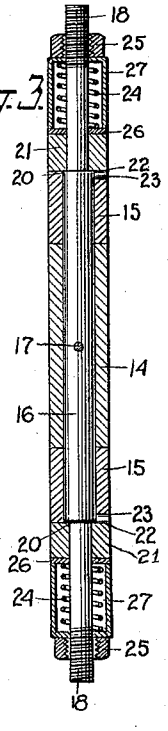


Fig. 4.

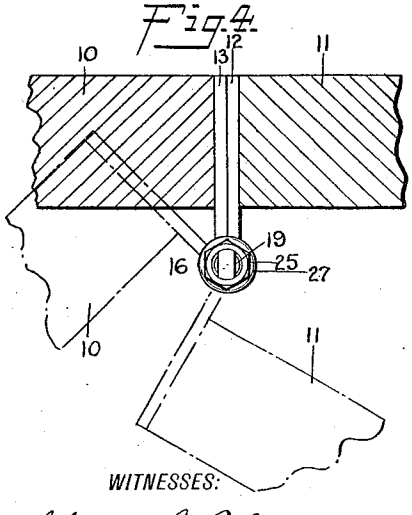


Fig. 5.

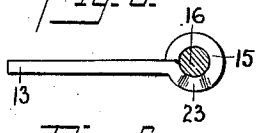


Fig. 6.

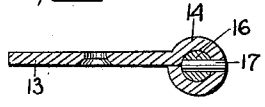
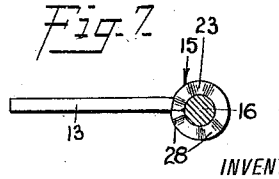


Fig. 7.



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SELF-LOCKING HINGE.

1,140,129. Specification of Letters Patent. Patented May 18, 1915.

Application filed January 18, 1915. Serial No. 2,845.

To all whom it may concern:

Be it known that I, CHARLES DIENER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Self-Locking Hinge, of which the following is a full, clear, and exact description.

This invention relates to improvements in hinges and more particularly an improved self-locking hinge designed to hold a door or closure in a predetermined or desired open position or closed.

Another object of the invention is to provide an improved self-locking hinge in which spring means are provided to hold the leaves of the hinge in different relative positions immovable with respect to each other, the sleeves or knuckles of the hinge plates or leaves being designed to coöperate with each other or with spring-actuated means in order to hold the leaves of the hinge in certain relative angular positions or closed as desired.

With the above and other objects in view, the invention resides in the peculiar combination and arrangement of parts to be hereinafter more fully described, illustrated and claimed, it being an object to provide a device which is simple in construction, durable and efficient in operation and not likely to get out of order.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views and in which—

Figure 1 is a fragmentary front elevation of one form of the improved self-locking hinge; Fig. 2 is a view at right angles to Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 2; Fig. 4 is a front view of the device as shown in Fig. 1; Fig. 5 is a sectional view on the line 5—5 of Fig. 2; Fig. 6 is a sectional view on the line 6—6 of Fig. 2; Fig. 7 is a sectional view on the line 7—7 of Fig. 2.

In Figs. 1 to 7, inclusive, one form of hinge is shown adapted for use with a swinging member, door or closure 10 within a frame 11 and preferably for application to smaller doors or closures such as used with wardrobes and cupboards. The hinge includes a leaf 12 to which is pivoted a leaf 13, the same having co-acting knuckles or sleeves of any suitable number. The hinge leaf 11 which is attached to the frame is provided with a knuckle or sleeve 14 which is straddled by upper and lower knuckles 15 of the hinge leaf or plate 13 so as to contact with the top and bottom edges of the knuckle 14, the latter being in turn fixed to the pintle 16 as by means of a set pin 17 passing through the knuckle 14 and into the pintle or pivot. By this construction the pintle is constrained to remain fixed with respect to the hinge plate or leaf 13 and said pintle is provided with one or more threaded extremities 18 having flattened portions 19 terminating at the top and bottom edges of the hinge at the shoulders 20 and having mounted thereon against rotation cylindrical locking dogs 21 which are provided with camming projections 22 designed to enter corresponding notches 23 in the adjacent knuckle portions 15 of the hinge leaf 13. For this purpose resilient means are provided in the form of coiled springs 24 mounted on the ends of the pintle between nuts 25 threaded thereon and washers 26 which contact with the adjacent end surfaces of the locking dogs in such a manner that the latter are forced toward the knuckles 15 whereby the projections 22 are held in engagement with the notches 23. The springs 24 may be inclosed within casings or caps 27 having open ends contacting with the washers 26 and having their other ends closed by contact with the nuts 25 so that adjustment of the latter will correspondingly adjust the tension of the springs.

The projections 22 are disposed in a plane at an angle of 90° from the planes of the hinge leaves when the hinge is closed, and as the locking dogs are held from turning on the pintle this position is permanent with respect to the hinge leaf 12 fixed to the frame, and when the door is closed the projections will enter the notches 23 to hold the door in a closed position, but in view of the camming or sloping formation of the projections and notches, pressure by the springs forcing the projections of the locking dogs against the camming walls of the notches will cause the door to be closed automatically when it has been moved to a predetermined angular position or from a slightly open position, and lock the same in a closed position. By this means the use of latches or other fastening devices is obviated and injuries due to contact with open

doors of the nature set forth avoided. However, should it be desired to hold the door in an open position in various angular relations to the frame, one or both of the sleeves are provided with an additional number of camming notches 28 also designed for engagement by the projections 22 so as to hold the door against further movement.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a very simple and positively acting locking hinge and that the principles involved therein may be equally well employed with double acting or other types of hinges without departing from the spirit of the invention.

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

1. A self-locking hinge, comprising a pair of leaves provided, each, with interengaged knuckle portions, a pintle passed through said knuckle portions and provided with angular extensions above and below said sleeve portions, means for securing said pintle to a knuckle portion of one of said leaves, a dog slidably mounted on each of said angular pintle extensions and held against rotation thereon, a nut threaded on each angular pintle extension, and a spring interposed between the respective dogs and nuts for forcing the respective dog against the respective knuckle portion of the other leaf, the coacting edges of said nuts and knuckle portions having interfitted camming notches and projections.

2. A self-locking hinge, comprising a pair of leaves provided, each, with interengaged knuckle portions, a pintle passed through said knuckle portions and provided with angular extensions above and below said knuckle portions, means for securing said pintle to a knuckle portion of one of said leaves, a dog slidably mounted on each of said angular pintle extensions and held against rotation thereon, a nut threaded on each angular pintle extension, a spring interposed between the respective dogs and nuts for forcing the respective dog against the respective knuckle portion of the other leaf, the coacting edges of said nuts and knuckle portions having interfitted camming notches and projections, and a casing inclosing each of said springs.

3. A self-locking hinge, comprising a pair of leaves provided, each, with interengaged knuckle portions, a pintle passed through said sleeve portions and provided with angular extensions above and below said knuckle portions, means for securing said pintle to a knuckle portion of one of said leaves, a dog slidably mounted on each of said angular pintle extensions and held against rotation thereon, a nut threaded on each angular pintle extension, a spring interposed between the respective dogs and nuts for forcing the respective dog against the respective knuckle portion of the other leaf, the coacting edges of said nuts and sleeve portions having interfitted camming notches and projections, a casing inclosing each spring, and a washer interposed between the respective casings and knuckle portions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES DIENER.

Witnesses:
LAURA H. RAHN,
WILLIAM MILLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."