

Jan. 24, 1967

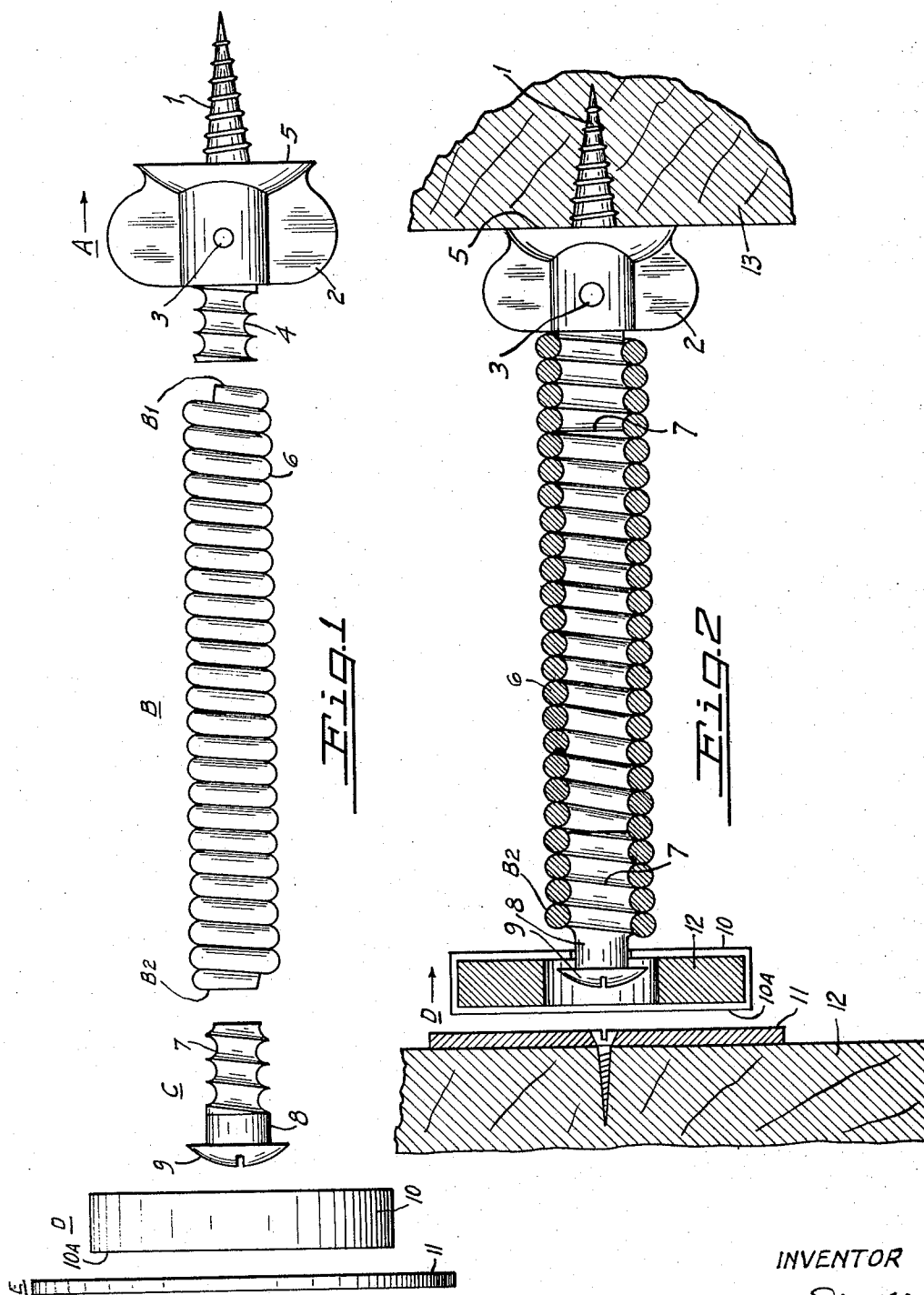
L. W. DINKIN

3,300,239

STOP AND MAGNETIC HOLDER FOR RELATIVELY MOVEABLE ELEMENTS

Filed Nov. 30, 1964

3 Sheets-Sheet 1



INVENTOR

Leon W. Dinkin

Jan. 24, 1967

L. W. DINKIN

3,300,239

STOP AND MAGNETIC HOLDER FOR RELATIVELY MOVEABLE ELEMENTS

Filed Nov. 30, 1964

3 Sheets-Sheet 2.

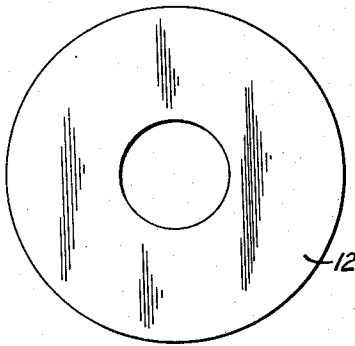


Fig. 7

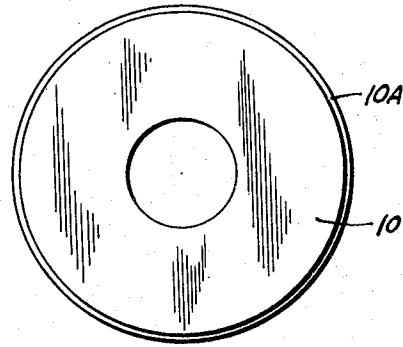


Fig. 6

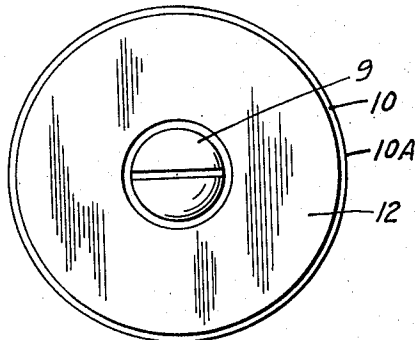


Fig. 4

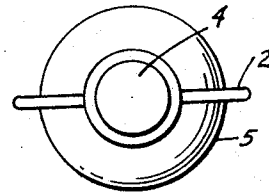


Fig. 3

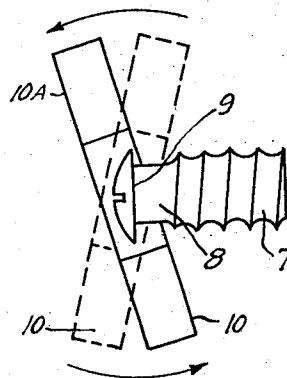


Fig. 5

INVENTOR
L. W. Dinkin

Jan. 24, 1967

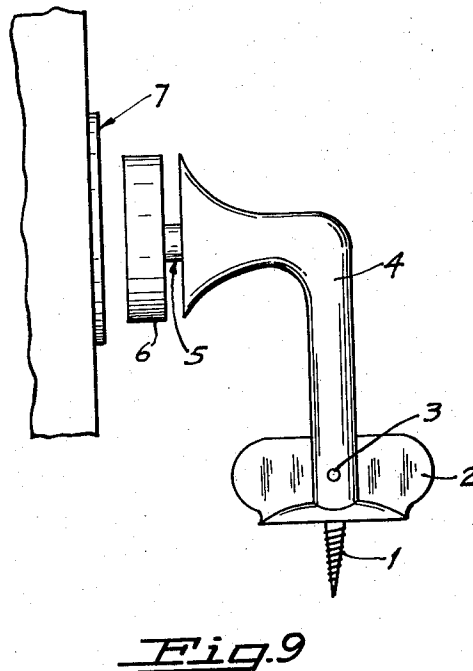
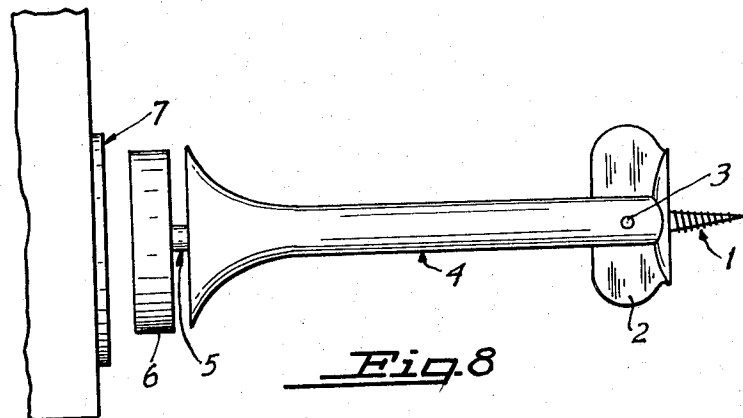
L. W. DINKIN

3,300,239

STOP AND MAGNETIC HOLDER FOR RELATIVELY MOVEABLE ELEMENTS

Filed Nov. 30, 1964

3 Sheets-Sheet 3



INVENTOR
L. W. Dinkin

1

3,300,239
STOP AND MAGNETIC HOLDER FOR RELATIVELY MOVEABLE ELEMENTS
Leon W. Dinkin, 100 Font Blvd.,
San Francisco, Calif. 94132
Filed Nov. 30, 1964, Ser. No. 414,568
2 Claims. (Cl. 292-251.5)

Generally speaking the invention relates to a stop of the type adapted to stop the relative movement of two relatively moveable elements, such as a door and a wall effectively pivotally mounting the door with respect thereto, or the like, and effectively holding the door in a fixed position against the stop by magnetics. More specifically the present invention relates to such a stop which is effective for stopping relative motion of the relatively moveable elements by means of receiving impact of one of said relatively moveable elements in virtually axial relationship with respect to the stop, and to achieve retention of the impact point position without further manual effort. By the same token, a slight pull, sufficient to break the magnetic hold, frees the pivotal member so that it can be returned to its original position if that end is desired.

Generally speaking, the improved stop of the present invention includes a base cooperable to be fixed to one of a pair of relatively moveable elements. The base is provided with a wood-screw thread formed at one end to secure the stop to one of the pair of relatively moveable elements. In addition, the base is formed with two wings extending from the projecting stud so that the unit may be screwed into a baseboard, wall, door, floor, or other member manually and without the aid of tools. In addition, in at least one form of the invention, the base is formed with a small bore equidistant between, and at right angles to the said wings extending through the mid-section of the base so that the simplest variety of tool, a common nail, may be used for applying torque to the fastening member so that the unit may be installed with ease and simplicity. The unit may be formed with either the said bore, or with the said wings, or with both. In addition, the further extension of the wing mid-section to form a stud, where the diameter of said stud in relation to the inside diameter of a helically coiled spring is such that when the stud is encased by the spring a tight fit results causing the two members to be secured to each other rather permanently. This bond may also be accomplished by the stud having thread or groove means, or protrusions, or notches to hold the said spring fast. Said spring is a longitudinal helically coiled spring, the first end of which is engaged by encasing the aforementioned stud with the major portion of the spring projecting outwardly from the base for axial impact with the other of said relatively moveable elements. In addition, a bolt or rivet or similar headed device formed with the dimensions wherein the diameter of said bolt, rivet, etc., in relation to the inside diameter of said spring is such that when the bolt is encased by the spring, a tight wedge fit results, causing the two members to be secured to each other for all intents and purposes. The bond at this end may also be accomplished by the insert having thread or groove means, or protrusions, or notches to hold said spring fast. In addition, a free section of the bolt extending beyond that section of the bolt already encased by said spring, making a shaft between the end of the spring and the head of the bolt. In addition, a ferrous metal housing, armature, formed with a center bore or punchout wherein the diameter of said bore or punchout in relation to the diameter of the bolt is such that the armature will fit loosely on the free section of the bolt, and be smaller in diameter than the head of the bolt, so

2

that the armature is held within the confines of the area between the end of the spring and the head of the bolt when a section of the bolt is engaged by the spring, so creating a swivel potential for the armature. In addition, a magneto to fit properly into the armature, and endowed with the proper polarity, so that the armatured magnet creates a magnetic field sufficient to adhere and attract a ferrous strike-plate. In addition, said ferrous strike-plate is affixed to the other relatively moveable element so that it can receive the impact of the movement, and at the same time engage the magnetic field created by the armatured magnet on the stop, and thereby hold the moveable element in a fixed terminal position.

From the above description of the basic form of the present invention, it will be obvious to those skilled in the art, that virtually all of the hereinbefore-mentioned prior art disadvantages are virtually entirely eliminated and overcome in and through the use of the present invention. And also to provide a needed additional feature to the stop, mainly, to embody in the same stop unit the function of a holder as well.

For example, it is obvious that the stop of the present invention will be fully effective with respect to axially received impact, while at the same time the strike-plate performs a dual usage by engaging the magnetic field and acting as a shield against damage and defacement. With the variety of door stops presently being manufactured there is nothing to arrest continued pivotal movement once the door is stopped, save to deter additional movement by manually holding the door open, or by the installation of additional equipment such as door catches and the like, or by applying triangular floor wedges under the door. In the embodiment of the present invention, the unit does not only function as a door stop that can be installed with no tools at all, but serves the purpose of a door-holder as well, without the additional expense of installing additional equipment and without causing further defacing of doors and walls.

Furthermore, it is obvious that the present invention is of exceedingly simple, inexpensive construction capable of easy assembly, and at the same time serve a dual purpose.

With the above points in mind, it is an object of the present invention to provide an improved stop that can also serve as a holder for relatively moveable elements which can be installed without the aid of extensive tools.

Other and allied objects will be apparent to those skilled in the art after a careful perusal, examination and study of the accompanying drawings, the present specification and the appended claims.

To facilitate understanding, reference will be made to the hereinbelow-described drawing, in which:

FIG. 1 is an exploded elevation view of one illustrative embodiment of the present invention.

FIG. 2 is a cross section of the elevation of the entire unit assembled including the strike-plate affixed to a door section.

FIG. 3 is an elevation view of section A of FIG. 1 looking in the direction of arrow A.

FIG. 4 is an elevation view of section D of FIG. 2 looking in the direction of arrow D.

FIG. 5 is a sectional sketch of units B, C and D of FIG. 1 assembled to show the swivel movement potential.

FIG. 6 is an elevation of the armature looking in the direction of arrow D, showing the center hole and the end view of the housing rim.

FIG. 7 is an elevation view of the magnet looking in the direction of arrow D showing the center bore.

FIG. 8 is an elevation of a horizontal rigid stop with magnetic assembly and strike-plate.

3

FIG. 9 is an elevation of a vertical rigid stop with magnetic assembly and strike plate.

Generally speaking, the invention includes a base co-operable to be fixed to one of several relatively moveable elements (such as a portion of a wall adjacent a hinged door, for example). The base is provided with a projecting stud formed with peripheral thread or groove means, or notches, or protrusions that will form a tight fitting wedge when encased by the spring (in the illustrated form of the invention) comprising exterior thread means.

In the specific example illustrated the base is indicated generally at A of FIG. 1, and includes a thread fastening means 1, adapted to be threadedly engaged within a portion of a wall 13 (as best shown in FIG. 2) whereby to outwardly project the stud 4, which in this case, bears grooves means comprising exterior threads. The threaded engagement of the fastening means 1 in the wall 13 may be facilitated by manually applying torque to the fastening means via the wings 2, and/or by the insertion of a common nail, or simple rod, through bore 3, and therewith applying torque.

Also, generally speaking, the present invention includes a longitudinal helically coiled spring having a first end co-operable with the stud and the groove or protrusion means thereon whereby said stud will receive said first part of said spring in exterior encompassing relationship with respect to said stud with a portion of said first end of said spring received in said groove or protrusion means, and with the major portion of the spring projecting outwardly from the base to be positioned to receive axial impact of the other of said relatively moveable elements.

Also, generally speaking, the present invention includes a longitudinal helically coiled spring having the second end co-operable with the thread means of a portion of a bolt, with a free section of said bolt extending beyond the second end of the spring, and making a shaft between the said end of the spring and the head of the bolt. Thus, when the armature is assembled with said end of the spring by the engagement of the bolt threads with the groove means of the spring, the "play" permitted to the armature (by virtue of the larger bore than the diameter of the bolt shaft) within the confines of that shaft area between the head of the bolt and the end of the spring creates a swivel potential, as shown in FIG. 5.

The operation of the device may be briefly described as follows:

It is obvious when the device is mounted as shown in FIG. 2, it is well adapted to receive impact of a moving door, or the like, on the armature rim 10A if the force component involved is virtually axial with respect to the longitudinal axis of the spring 6. However, it is also obvious that the spring end B2 and the attached impact head (armature) D can be laterally deflected with respect to the longitudinal axis of the spring 6.

It is preferable that, once assembled, the impact magnetic head D with the swivel arrangement involving the bolt C, and the spring end B2 not be readily disengaged as it would serve no useful purpose, and may in fact warp the spring. The impact of the rim of the armature 10A against the strike-plate 11 can cause no damage or defacement, the plate acting as a shield. By the same token, the disengagement of the spring end B1 from the stud 4 is also not necessary or desirable once that section of the unit is assembled. With the manipulation of the wings 2, or the utilization of the bore 3 the unit can be installed as a single entity.

It is obvious that the flexibility of the armature housing the magnet (swivel arrangement above mentioned) to turn freely at any angle, horizontally and/or vertically, permits and creates a full 360 degree contact of the entire housing rim 10A with the strike-plate 11 even if the members meet at different angles. The full contact of the armature rim with the strike-plate is absolutely necessary so that the maximum magnetic field is engaged, and the magnet performs the work for which it was intended. If on the other

4

hand, a partial contact is made, as would be the case if both members were not in perfect parallel alignment, it would result in a greatly diminished or non-existent magnetic action that would obviously defeat the purpose of the holder. Since this desired perfect alignment is seldom encountered with rigid members, and since it would take a precision arrangement to achieve this alignment, and since once this perfect parallel alignment is accomplished with rigid members, uncontrollable and variable factors such as settling walls, or warping doors, or any fractional movement of one or both of these members would cause sufficient angular change so that the precision of the fixed points no longer exists, then it becomes imperative that the holder be equipped with the swivel arrangement above mentioned, or the like. Otherwise, the holding arrangement would be quickly rendered ineffectual. In effect, the magnetic swivel head creates a variable angular potential of unlimited scope so that any subsequent change in position of angle of either of the relatively moveable elements is automatically compensated for by the swivel and a complete magnetic contact is always achieved on impact.

Numerous modifications and variations of the present invention will occur to those skilled in the art after a careful study hereof. All such properly within the basic spirit and scope of the present invention are intended to be included and comprehended herein as fully as if specifically described, illustrated and claimed herein.

For example, the means for attaching the magnetic head to the spring end so that a swivel arrangement results, may be modified substantially. In at least one form of the invention, it may be in the form of a rivet rather than a bolt, or it may be in the form of an ordinary screw, or any other adaptation serving as an insert of this type. Various other attaching means may also be employed as where a capping means is formed to encompass the spring end and the magnetic head attached thereto with the swivel arrangement aforementioned in force, or as where an insert adapter is encompassed by the spring end and the magnetic head is attached thereto with said swivel arrangement.

It should also be noted that the stop need not necessarily be a spring, but can also be a rigid one-piece member as shown in FIG. 8 with the swivel magnetic head attached by alternate and various means. Another variation of a rigid one piece stop for application to members at right angles to each other is shown in FIG. 9 with the swivel magnetic head attached by alternate and various means. In another form of the invention a ball swivel may be applied to perform the required action, or a chain swivel, or other forms of swivels or swivel arrangements, or adaptations that result radial movement of the magnetic head.

The armature and the magnet may assume forms other than the ones specifically described and illustrated. For example, instead of the magnetic assembly being round it may be in the square or rectangular shape or other shapes. The strike-plate may assume various forms on a flat surface. The methods of attaching the strike-plate may vary.

The exact compositions, configurations, constructions, relative positions, and cooperative relationships of the various component parts of the present invention are not critical, and can be modified substantially within the spirit of the present invention.

The embodiment of the present invention specifically described and illustrated herein is exemplary only, and is not intended to limit the scope of the present invention, with due consideration of the doctrine of equivalents.

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

1. A stop for holding one of two relatively movable members in adjusted position comprising an elongated element having mounting means at one end for securing said device to one of said relatively moveable members, and having a magnetic unit at the other end for coaction with

5

a keeper on the other of said relatively moveable members, said magnetic unit comprising a headed element secured to said elongated element and rockably retaining, by said head, an enclosing housing in which is disposed a magnet; said housing having an apertured wall loosely receiving a stem portion of said headed element, and having a keeper-engaging surface opposite said opening; said magnet having a central opening of a size to permit rockable adjustment of said magnetic unit about the head portion of said headed element.

2. A stop as defined in claim 1, wherein said mounting means comprises a base having a screw portion; and a tool-receiving opening and projecting wing portions to serve as alternative means for mounting said stop on said one of said relatively moveable members.

15

6

References Cited by the Examiner

UNITED STATES PATENTS

375,206	12/1887	Shelton	85—9
1,574,578	2/1926	Holmes.	
2,462,174	2/1949	Fisher.	
2,652,585	9/1953	Herbenar.	
2,700,788	2/1955	Hennelly.	
2,761,718	9/1956	Tool	292—251.5
3,025,559	3/1962	Basinger	292—251.5 X
3,163,453	12/1964	Stephens	292—251.5

EDWARD C. ALLEN, *Primary Examiner.*R. E. MOORE, *Examiner.*