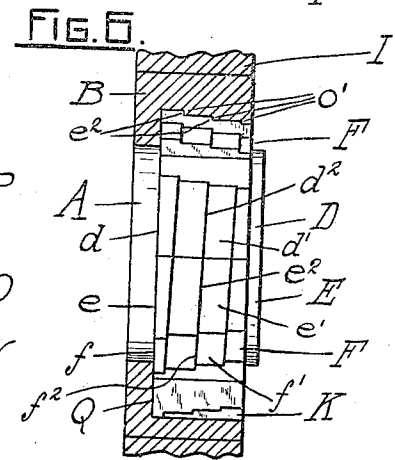
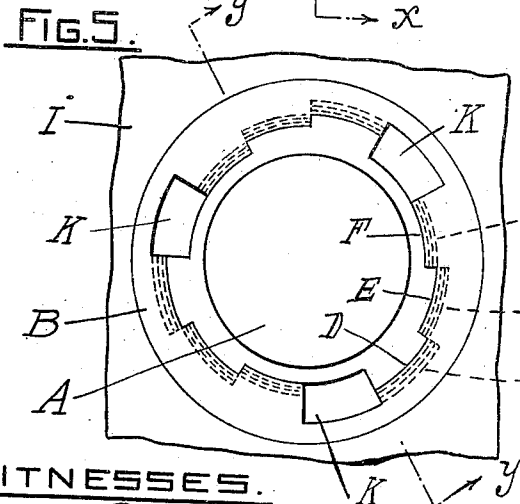
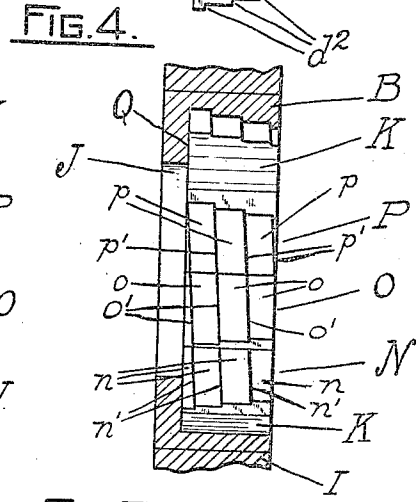
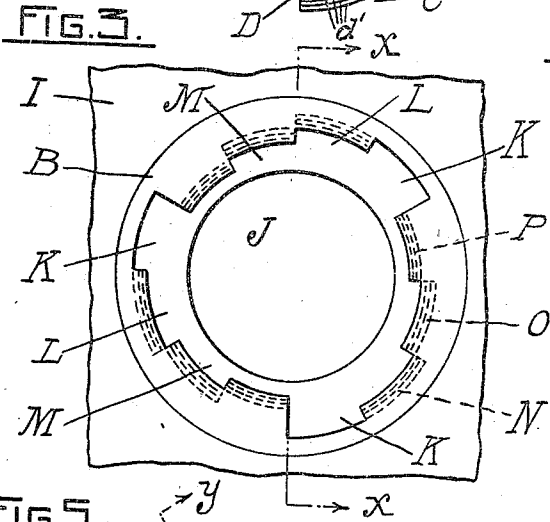
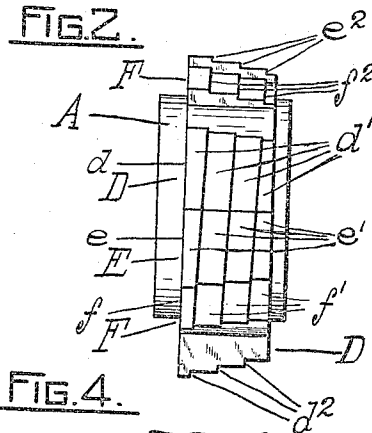
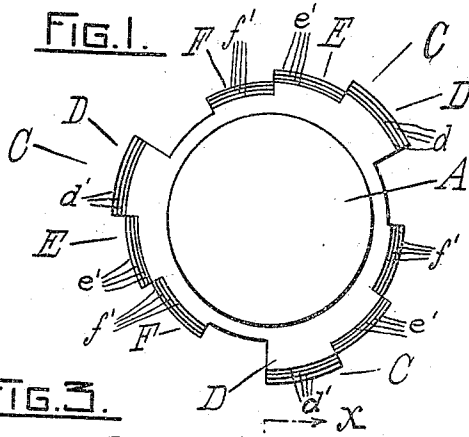


C. J. LJUNGGREN.
CLOSURE LOCKING MEANS.
APPLICATION FILED OCT. 16, 1909.

957,354.

Patented May 10, 1910.



WITNESSES.

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CLOSURE-LOCKING MEANS.

957,354.

Specification of Letters Patent.

Patented May 10, 1910.

Original application filed September 2, 1908, Serial No. 451,444. Divided and this application filed October 16, 1909. Serial No. 522,930.

To all whom it may concern:

Be it known that I, CARL J. LJUNGGREN, a subject of the King of Sweden, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Closure-Locking Means, of which the following is a specification.

The present invention relates to closure locking means purposed for use in massive structures such as vault doors, gun breeches, and posts; and is a division of my pending application Ser. No. 451,444 filed Sept. 2, 1908.

The objects of my invention include those commonly sought in this class of structures, but more particularly, to afford intrinsic compensation for the wear of the parts, to prevent longitudinal play of the same, to facilitate seating, to distribute the strain throughout the entire structure, to furnish a maximum of resisting surface, to minimize the number of parts, and to avoid the use of threads.

Further objects of invention will appear from an examination of the drawings and the following description.

To the above and other ends invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings which constitute a part of this specification, Figures 1 and 2 are rear and side elevations respectively of the novel plug or closure member, Fig. 3 a rear end view of the receiving orifice, Fig. 4, a section of the same on line $x-x$ of Fig. 3, Fig. 5, a rear elevation of the closure member assembled in locked position, and Fig. 6, a partial section on $y-y$ of Fig. 5 showing the closure member in side elevation.

In the drawings similar reference letters indicate similar parts throughout the views.

The form of my invention herein described consists of a plug, door, or closure member A adapted to cooperate with a breech or jamb B. The mechanism for supporting, inserting, rotating, and withdrawing the member A forms no part of this invention and is well known in the art; therefore is not herein illustrated. The member A is preferably cylindrical in general outline having a plurality of segments C of equal length interspaced equidistant from

each other. Each segment comprises a plurality of radially graduated stepped portions D, E, F, which extend longitudinally of the body nearly to the ends of the latter. The front faces d, e, f , of the portions D, E, F, are in the same plane and form a shoulder. The stepped portions are respectively provided with a series of transversely disposed steps of gradually lessening radii toward the rear end of the member A, and whose peripheral faces d', e', f' are parallel with the axis of the member A, and whose rear faces d^2, e^2, f^2 are in alinement with each other but in pitched relation to the body.

The stationary member is in the present instance a collar B fixed in the wall I in any desired manner, and incloses a substantially cylindrical orifice J having a circumferential series of radially graduated longitudinally disposed entrance channels K, L, and M, respectively corresponding in relative dimensions with the stepped portions D, E, F. Within the orifice J the member B is provided with a plurality of longitudinally disposed graduated channelled portions N, O, P, whose respective channels n, o, p , are transversely disposed and slightly pitched, as well as of gradually diminishing radii rearwardly. The graduated channels n, o, p , which are in alinement with each other, form shoulders adapted to form abutments n', o', p' for the rear faces d^2, e^2, f^2 , respectively of the portions D, E, F, as will be hereinafter indicated.

Interengagement of the parts A and B is effected as follows. The member A, disposed as in Fig. 2, is introduced as a sliding fit into the member B from right to left as shown in Fig. 6, the stepped portions D, E, F, entering the channels K, L, M, respectively. The member A is then turned in the direction opposite the hands of a clock bringing the portions D, E, F, into the channelled portions N, O, P, respectively, with the peripheral faces d', e', f' , of the shoulders registering in the channels n, o, p ; and the rear faces d^2, e^2, f^2 , of the shoulders in frictional contact with the abutments n', o', p' respectively. The shoulder formed by the faces d, e, f , abuts against the internal end face Q of the member B.

It will be noted that multiple graduated step series and channels and abutments afford a maximum area of bearing surface,

and perfectly dissipates or distributes all axial stress; while the inclined or pitched character of the abutting faces of the parts and their accurate alinement insure not only a perfect seating of the parts, but compensates for wear. It will be noted that the portions of both members A and B having the greater diametrical and peripheral measurements are toward the forward end of the structure. When the member A is employed as a safe door it is preferably supported and seated in the jamb from the inside of the safe in any usual convenient manner.

What I claim is,—

1. In a device of the type set forth, the combination with a stationary member, of a closure body, and a segment upon the body comprising a plurality of radially graduated portions, each portion being provided with a series of transversely disposed steps provided with peripheral faces parallel with the axis of the closure body.

2. In a device of the type set forth, the combination with a stationary member, of a closure body, and a segment upon the body comprising a plurality of radially graduated portions, each portion being provided with a series of transverse steps of gradually lessening radii longitudinally of the body.

3. In a device of the type set forth, the combination with a stationary member, of a

closure body, and a segment upon the body comprising a plurality of radially graduated portions, each portion being provided with a series of steps of gradually lessening radii longitudinally of body and having a pitched relation to the body.

4. In a device of the type set forth, the combination with a stationary member, of a closure body, and a segment upon the body comprising a plurality of radially graduated portions, a series of graduated steps upon each portion provided with peripheral faces parallel with the body axis, and provided with rear pitched faces in alinement with each other.

5. In a device of the type set forth, the combination of a hollow stationary member provided with longitudinally disposed graduated channeled portions, each channeled portion being provided with transversely disposed graduated channels of diminishing radii longitudinally, and a closure member within the stationary member, and radially graduated portions upon the closure member provided with a series of steps adapted to register in the graduated channels.

In testimony whereof I have affixed my signature in presence of two witnesses.

CARL J. LJUNGGREN.

Witnesses:

HORATIO E. BELLOWES,
GEORGE H. McLAUGHLIN.