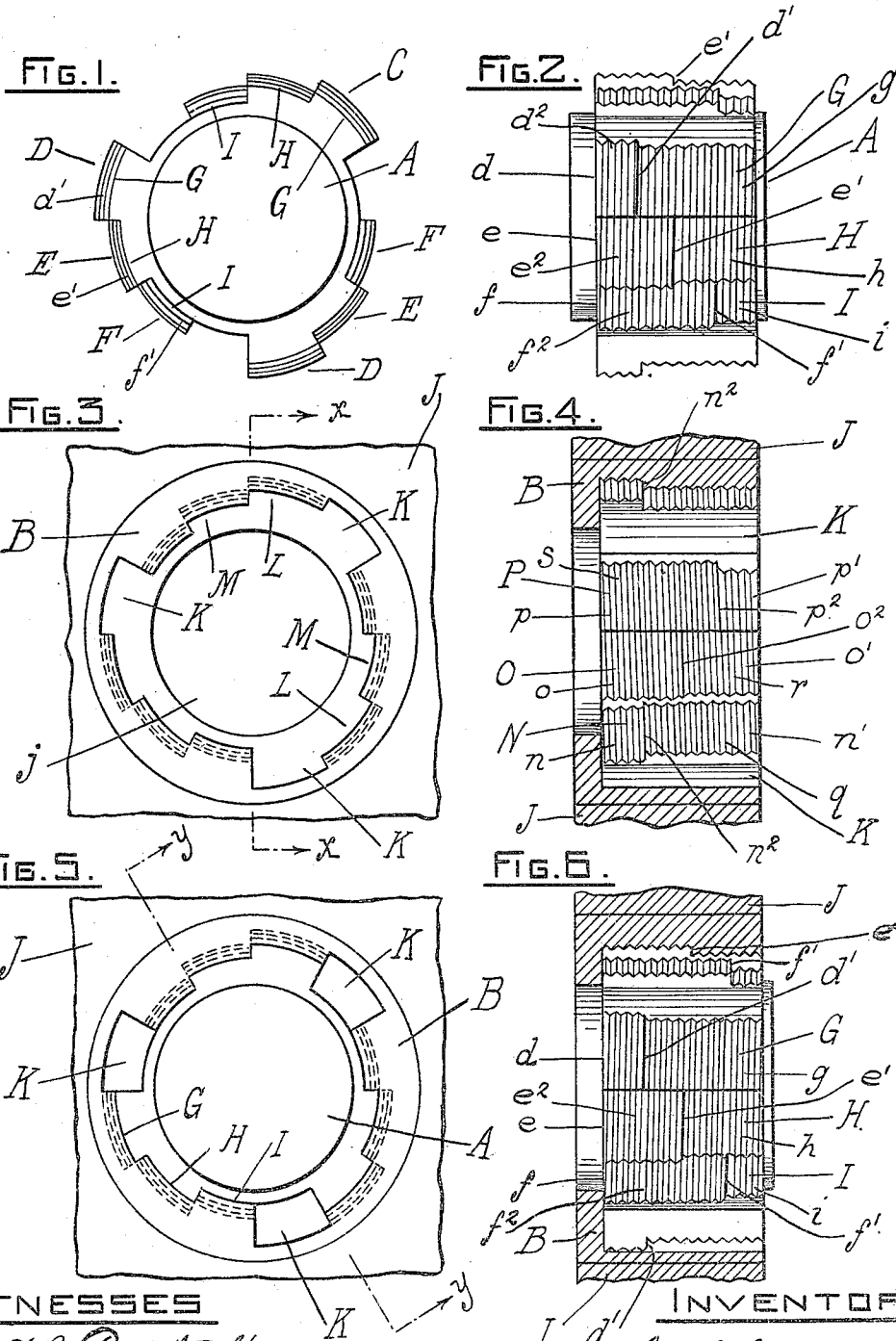


C. J. LJUNGGREN.
CLOSURE LOCKING MEANS.
APPLICATION FILED OCT. 16, 1909.

957,355.

Patented May 10, 1910.



WITNESSES

Albert S. Progenitor
George H. McLaughlin

INVENTOR.

Carl J. Ljunggren
By Horatio E. Billings
ATTORNEY.

UNITED STATES PATENT OFFICE.

CARL J. LJUNGGREN, OF PROVIDENCE, RHODE ISLAND.

CLOSURE-LOCKING MEANS.

957,355.

Specification of Letters Patent.

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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.

My invention relates to closure locking means adapted for use in vaults, guns, ports, etc. and constitutes a division of my pending patent application Serial No. 451,444 filed Sept. 2, 1908. In such structures strength, convenience of action and perfect seating are essential. Screw threads alone as interengaging means are incapable of withstanding continued excessive shocks. I have discovered, however, that both strength and facility of action, as well as other advantageous results may be attained by the employment of threads when used upon peculiarly arranged graduated shoulders.

The invention is conveniently embodied in a form substantially similar to the structure disclosed in the accompanying drawings which form a part of this specification, and in which—

Figures 1 and 2 are rear and side elevations respectively of a novel plug or closure member, Fig. 3, a rear end view of the receiving orifice, Fig. 4, a section on line $x-x$ of Fig. 3, Fig. 5, a rear elevation of the closure member locked in the receiving member, and Fig. 6, a section of the same on line $y-y$ of Fig. 5.

Like letters of reference indicate like parts throughout the views.

In its present embodiment my invention comprises a plug, door or closure member A cooperating with a jamb or breech B. The supporting, inserting, rotating, and withdrawing mechanism for the member A is so well known to the art that an illustration thereof is not given, and such features form no part of the present invention.

The member A is preferably cylindrical in general outline, and is provided with a plurality of segments C of equal length interspaced equidistant from each other. Each segment comprises a plurality of radially graduated longitudinally disposed steps D, E, F, of graduated lengths extending partially across the body A, whose front end faces d, e, f , are in the same plane, and whose rear end faces or shoulders d', e', f' ,

respectively are diagonally disposed with relation to each other, and are transversely inclined. The steps E and F are successively longer and lower than the step D, and all are provided upon their outer faces or peripheries with screw threads d^2, e^2, f^2 , respectively. The segments are completed with auxiliary steps G, H, I, located respectively in longitudinal alinement with the steps D, E, F, of which they are the complements. The auxiliary steps are radially graduated, and are provided upon their outer faces with screw threads g, h, i .

The receiving or stationary member is preferably a collar B fixed in the wall J, and contains a substantially cylindrical orifice j , having a circumferential series of radially graduated longitudinally disposed entrance channels K, L, M, respectively corresponding in relative dimensions with the forward steps D, E, F.

Within the orifice j , the member B is provided with a plurality of longitudinally disposed and radially graduated channels N, O, P, whose respective inner portions n, o, p , are deeper than their outer portion n', o', p' forming intermediate transversely disposed inclined abutments n^2, o^2, p^2 , respectively. The channels N, O, P, are throughout their length provided respectively with screw threads q, r, s , adapted to engage, as will be later shown, the threads g, h, i .

The parts A and B are interengaged 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 viewed in Fig. 6, the stepped portions D, E, F, entering respectively the entrance openings K, L, M. The member A is then turned toward the left as viewed in Fig. 5, bringing the steps D, E, F, respectively into the channel seats n, o, p ; and the steps G, H, I, into the seats n', o', p' respectively. The shoulders d', e', f' then contact with the abutments n^2, o^2, p^2 . 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 steps, said steps being graduated both radially and longitudinally, and being

provided with threads upon their outer faces.

2. In a device of the type set forth, the combination with a stationary member, of a closure body, a segment upon the body comprising steps graduated both radially and longitudinally, auxiliary steps in longitudinal alinement with the first mentioned steps, said auxiliary steps being longitudinally and radially graduated.

3. In a device of the type set forth, the combination with a stationary member, of a closure body, a segment upon the body comprising steps graduated both radially and longitudinally and provided with threads upon their outer faces, auxiliary steps in longitudinal alinement with the first mentioned steps, said auxiliary steps being longitudinally and radially graduated and being provided with threads upon their outer faces.

4. In a device of the type set forth, the combination with a stationary member, of a closure body, a segment upon the body comprising a plurality of radially graduated longitudinally disposed steps of graduated lengths provided with terminal shoulders diagonally disposed with relation to each other, and longitudinally disposed auxiliary steps extending from the first mentioned steps and in a lower plane than the latter,

all the steps being provided with threads upon their outer faces.

5. In a device of the type set forth, the combination with a stationary member, of a closure body, a segment upon the body comprising steps graduated both radially and longitudinally and provided with threads upon their outer faces, said steps terminating in transversely inclined shoulders, and radially and longitudinally graduated auxiliary steps extending from said shoulders in a lower plane and provided with threads upon their outer faces.

6. In a device of the type set forth the combination with a hollow stationary member provided with longitudinally disposed radially graduated channels comprising deep inner portions and less deep outer portions said channels being provided with threads, a closure member within the stationary member, a segment upon the closure member, longitudinally disposed and graduated steps adapted to the channels, and threads upon the steps adapted to engage the threads of the stationary member.

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

CARL J. LJUNGGREN.

Witnesses:

HORATIO E. BELLOWS,
GEORGE H. McLAUGHLIN.