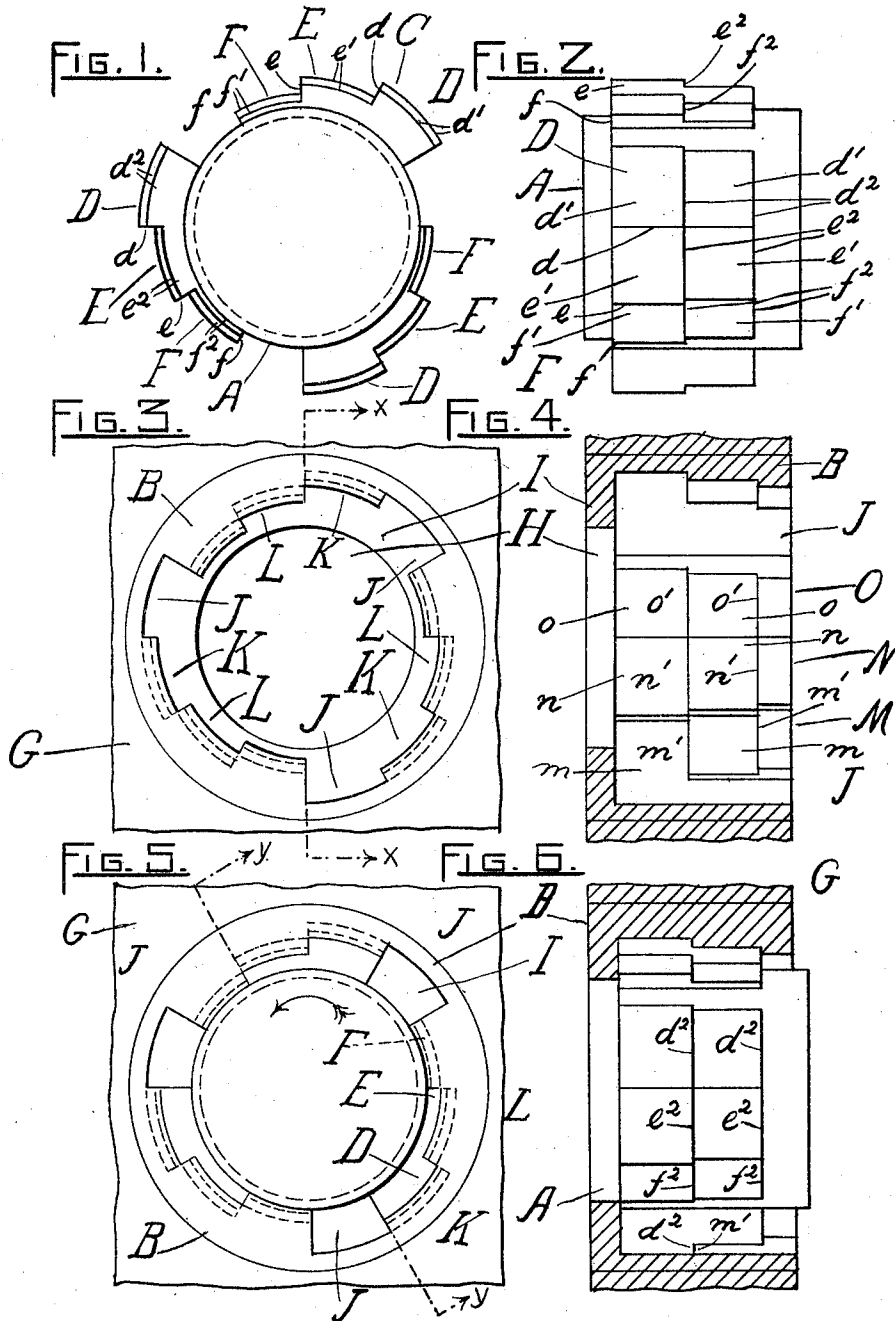


C. J. LJUNGGREN.
 CLOSURE LOCKING MEANS.
 APPLICATION FILED JULY 11, 1910.

1,002,409.

Patented Sept. 5, 1911.



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CARL J. LJUNGGREN, OF PROVIDENCE, RHODE ISLAND.

CLOSURE-LOCKING MEANS.

1,002,409.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Original application filed September 2, 1908, Serial No. 451,444. Divided and this application filed July 11, 1910. Serial No. 571,295.

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 guns, vaults, ports, etc., and is a division of my pending patent application, Serial Number 451,444, filed Sept. 2, 1908.

The essential objects of the invention are strength, security, cheapness of construction, a minimum of parts, and an advantageous distribution of the strain upon the parts.

To the above ends essentially my invention consists in the novel construction and arrangement of parts hereinafter set forth and made the subject matter of the appended claims.

In the accompanying drawings which constitute a part of the specification, Figures 1 and 2 are rear and side elevations respectively of the novel plug or closure member, Fig. 3, a rear end elevation of the stationary member, Fig. 4, a section on line $x x$ of Fig. 3, Fig. 5, a rear elevation of the closure member, locked in the stationary member, and Fig. 6, a section on $y y$ of Fig. 5.

Like reference characters indicate like parts throughout the views.

My invention in its present embodiment comprises a door, plug, or closure member A coöperating with a breech or jamb B. The supporting, inserting and rotating mechanism used in connection with these parts are not herein shown, since they are well known in this art and form no part of the present invention.

The member A, of cylindrical form, is provided with a plurality of annularly arranged interspaced segments C of equal length, each of which segments comprises a plurality of radially graduated stepped portions D, E, F, extending longitudinally of the body and whose end faces d , e , and f respectively are parallel to each other. The stepped portions are respectively provided with a series of transversely disposed steps of gradually lessening radii toward the rear of the member A 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 alignment with each other and lie in planes at right angles to the surface of the body. The stationary member is in this instance a collar B fixed in the wall G in any desired manner, and incloses a substantially cylindrical orifice H of preferably reduced diameter at its front end to form an abutment I. The orifice has a circumferential series of radially graduated longitudinally disposed entrance channels J, K, and L corresponding in relative dimensions with the stepped portions D, E, and F respectively. The member B has in the orifice a plurality of longitudinally and circumferentially graduated channels M, N, and O, comprising longitudinal series of seats m , n , and o respectively of gradually diminishing radii rearwardly, and terminating at their ends in transversely disposed abutments or shoulders m' , n' , and o' respectively. Each transverse series of shoulders m' , n' , o' , lies in a single plane at right angles to the entrance channels, and form abutments for the rear faces d^2 , e^2 , f^2 of the segment portions D, E, F, of the plug.

The parts A and B are thus interengaged. The member A disposed as in Fig. 2, is introduced into the member B from right to left as viewed in Fig. 6, the stepped portions D, E, F entering the channels J, K, L respectively. The member A is then turned in the direction of the arrow shown in Fig. 5 to bring the portions D, E, F, into the seats of channels M, N, O, respectively. The parts of the members A and B which have the greater diametrical and peripheral dimensions are toward the forward end of the structure, and the rectangular graduations of the parts in two directions tend to distribute the strain and to enhance the resistive power of the structure.

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 radially graduated longitudinally stepped portions, said stepped portions being of equal length.

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 radially graduated longitudinally

nally stepped portions, said stepped portions being provided with end faces in annular alinement.

3. In a device of the type set forth, the
5 combination of a hollow stationary member provided with a series of internal radially graduated longitudinally disposed entrance channels, transversely disposed longitudinally graduated seats opening into the chan-
10 nels and provided with vertical faces in annular alinement, a rotatable closure body,

and radially graduated segments upon the body comprising transversely disposed steps of equal lengths adapted to enter the channels and register in the seats when the body 15 is rotated.

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

CARL J. LJUNGGREN.

Witnesses:

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