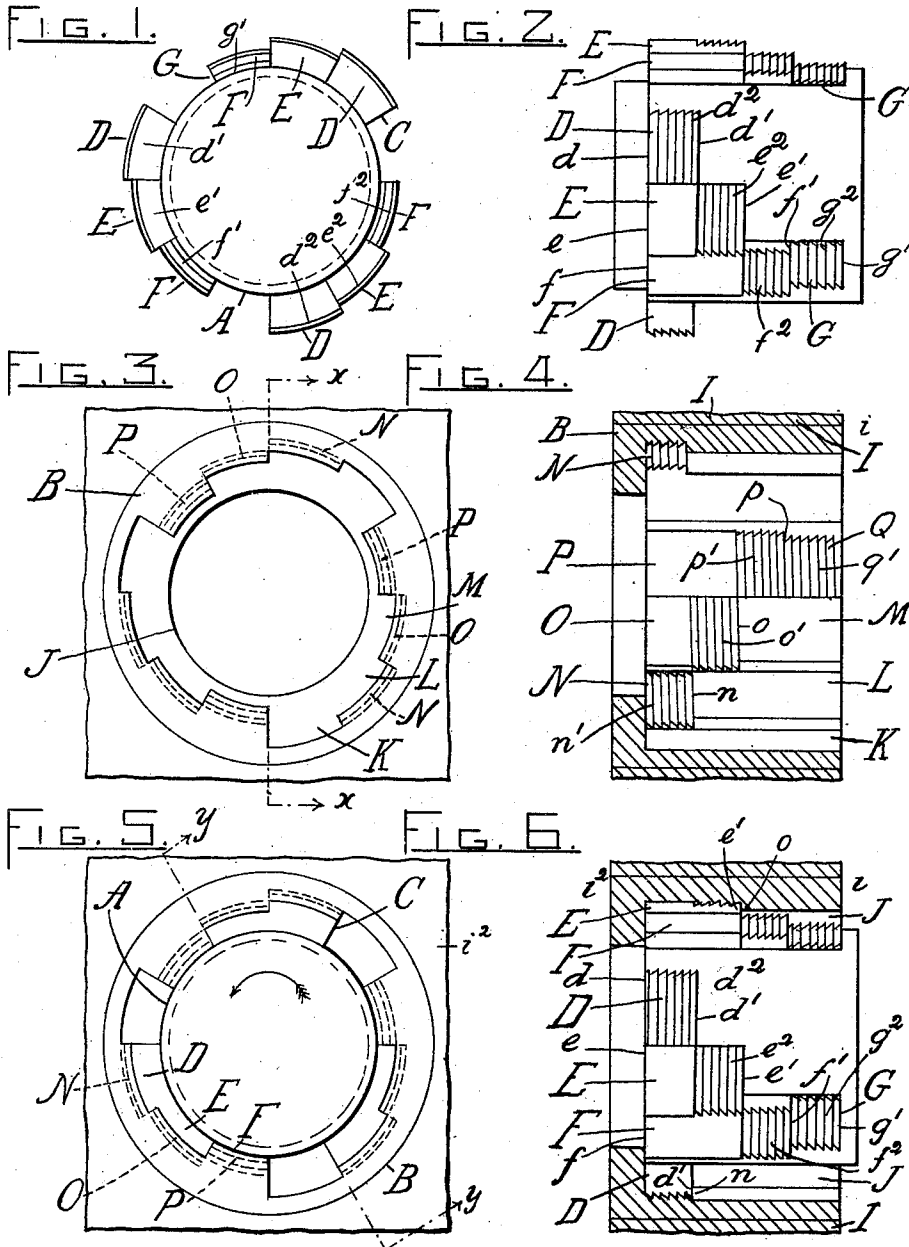


C. J. LJUNGGREN.
CLOSURE LOCKING MEANS.
APPLICATION FILED APR. 15, 1910.

991,448.

Patented May 2, 1911.



WITNESSES

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CARL J. LJUNGGREN, OF PROVIDENCE, RHODE ISLAND.

CLOSURE-LOCKING MEANS.

991,448.

Specification of Letters Patent.

Patented May 2, 1911.

Original application filed September 2, 1908, Serial No. 451,444. Divided and this application filed April 15, 1910. Serial No. 555,562.

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 Number 451,444 filed Sept. 2, 1908. In structures of this character peripheral screw threads solely have been found an insufficiently secure interengaging means for the interlocking members, especially when the parts are subjected to sudden or powerful shocks. The requisite strength and adaptability for perfect seating, I have found, is attainable by a particular arrangement of screw threads upon portions only of graduated steps. I have further discovered that the difficulty and attendant expense of forming these threads are lessened by their peculiar arrangement upon the steps.

My invention, therefore, consists of a device possessing claimed features of construction and relative arrangement of parts, one form of said device being illustrated by the accompanying drawings which form a part of this specification, and now to be described in detail.

Figures 1 and 2 are rear and side elevations respectively of a novel plug or closure member, Fig. 3, a rear end elevation of the stationary member, Fig. 4, a section of same 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 on $y-y$ of Fig. 5.

Like letters of reference indicate like parts throughout the views.

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

The member A, which is cylindrical in form, is provided with a plurality of annularly arranged interspaced segments C. Each segment comprises a plurality of ra-

dially graduated longitudinally disposed steps D, E, F, of graduated lengths whose front faces d, e, f , are in the same plane, and whose rear faces or shoulders d', e', f' , respectively are diagonally disposed with relation to each other and are transversely inclined. An auxiliary or initial step G formed continuous with the step F and having a rear face g' is herein shown and is found convenient, but may be omitted without departing from the spirit of my invention. The steps E and F are successively longer and lower than the step D, and the outer faces or peripheries of the steps D, E, F, and G, are provided with screw threads d^2, e^2, f^2 , and g^2 respectively.

The threads d^2 of the highest and shortest step D cover the entire periphery of the latter. The threads e^2 of the next longer and lower step E extend over the periphery of that portion of the step which projects beyond the step D. The threads f^2 are located only upon that portion of the periphery of the step F which projects beyond the step E. The threads g^2 extend throughout the length of the step G.

The stationary member comprises the collar B fixed in the wall I whose outer and inner surfaces are at i and i^2 respectively. The member B has a cylindrical orifice J provided with a circumferential series of radially graduated longitudinally disposed entrance channels K, L, M, corresponding respectively with the steps D, E, F. Within the orifice J the member B has a plurality of seats N, O, P, graduated both radially and longitudinally, and opening respectively into the channels K, L, M. The outer ends of these seats form transversely disposed inclined abutments n, o, p . The channel P at its outer end is still further recessed to form an auxiliary seat Q. The seats N, O, P, and Q, are provided with screw threads n', o', p' , and q' , respectively adapted to engage the threads d^2, e^2, f^2 , and g^2 . The threads o' and p' , it will be noted, extend over only a portion of their respective seats. The parts A and B are thus interengaged. 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 steps D, E, F, entering respectively the openings K, L, M. The member A is then turned in the direction of the arrow shown in Fig. 5 bringing the

steps D, E, F and G into their respective seats N, O, P and Q, and the threaded portions d^2 , e^2 , f^2 and g^2 into engagement with the threads n' , o' , p' and q' .

5 What I claim is,—

10 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, one step being provided with peripheral threads,

and that portion only of each remaining step which projects beyond the adjacent step being provided with threads upon its periphery.

15 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."
