

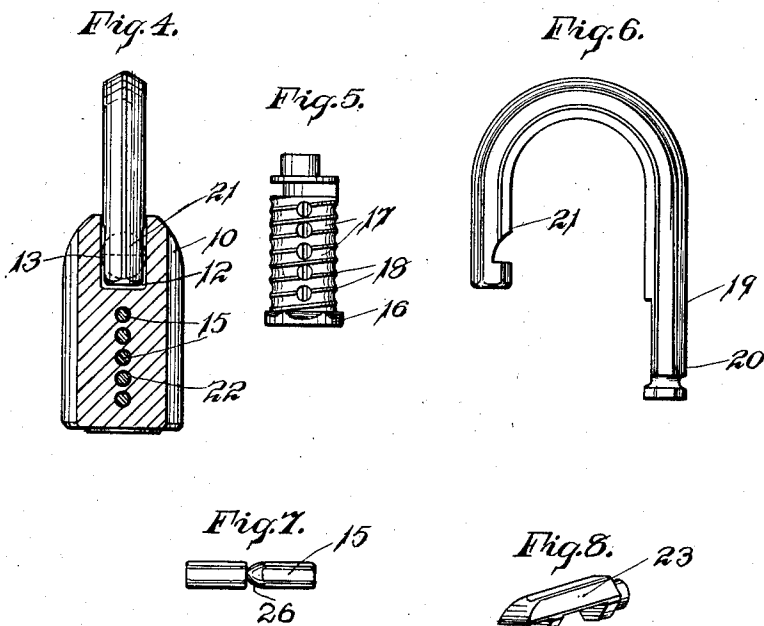
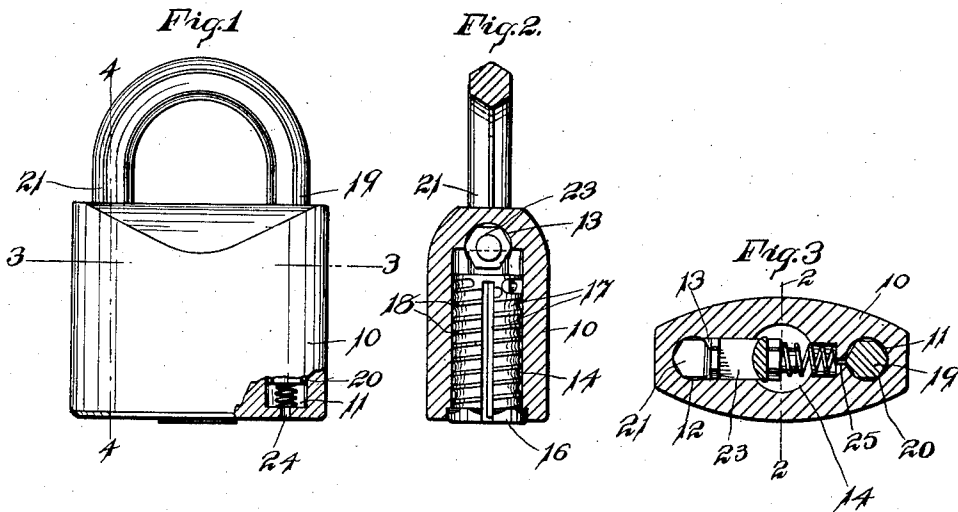
E. B. STONE.

LOCK.

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1,016,455.

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WITNESSES:

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LOCK.

1,016,455.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ELMER B. STONE, a citizen of the United States, and a resident of New Britain, in the county of Hartford and State of Connecticut, have invented a new and Improved Lock, of which the following is a specification.

My invention relates more especially to that class of locks in which the movable members in whole or in part are fitted to move in recesses provided for their reception, and an object of my invention, among others, is to provide a lock of this class in which the movable members shall not be affected in a manner to become inoperative or to require the application of undue force to move them.

One form of lock embodying my invention and in the use of which the objects herein set out as well as others, may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a lock embodying my invention, with parts broken away to shown construction. Fig. 2 is a view in central lengthwise section through the lock, the plane of section being denoted by dotted line 2—2 of Fig. 3. Fig. 3 is a detail view in section through the lock on plane denoted by dotted line 3—3 of Fig. 1. Fig. 4 is a detail view in section through the lock on plane denoted by dotted line 4—4 of Fig. 1. Fig. 5 is a detail view of the cylinder. Fig. 6 is a detail view of the shackle. Fig. 7 is a detail view showing a set of tumblers, scale enlarged. Fig. 8 is a detail perspective view of the bolt.

The effect of the combined action of natural elements, as dampness and frost, and further the effects of the combined action of natural elements and the ingredients forming the composition of metals commonly used in the construction of locks is such as to produce a deposit upon the surface of the metal, and the latter is particularly true in cases where the atmosphere contains more or less salt. A lock of common construction and more especially a padlock, in which the movable members are fitted in recesses provided to contain them, when subjected to the action of such elements soon becomes inoperative for the rea-

son that the deposit above referred to fills up the minute space between the movable members and the wall of their recesses so that they cannot move without the application of extreme force. The objections herein referred to are particularly found on ships traversing salt water, and it is the purpose of my present invention to provide a lock composed of metal usually employed in the construction of such locks and which will withstand this action of the elements, and which will not become inoperative thereby. Such a lock is shown in the accompanying drawings, in which the numeral 10 denotes a case of common construction having a shackle recess 11, a keeper recess 12, a bolt recess 13, a cylinder recess 14 and tumbler recesses 22. In the common form of construction of locks heretofore employed the movable members located in said recesses are made of the same general shape and quite closely fit them, these recesses commonly being round in cross section, and the members round and of approximately the same size, so that there is a bearing of the movable member about its entire cylindrical surface. In carrying out my invention I reduce this bearing surface, which may be effected in various ways, so that there will be a number of bearing surfaces each of very little area, that is extremely narrow and of considerable length, or of little length and width, and while the device embodying my invention and shown herein has the movable members shaped to produce this reduced bearing yet the invention does not of necessity contemplate such construction. Different ways of providing this reduced bearing is shown on different members, but these even do not contemplate all of the ways in which this reduced bearing may be formed.

The cylinder 16 is provided with grooves 17 extending about the cylinder, preferably spirally, the ridges 18 between the grooves forming narrow bearing surfaces, and the incline of these ridges being such that when the cylinder is given a quarter turn the inner surface of the recess 14 will have been swept by the ridges. This result may be attained in various ways by such a relative disposition of the ridges or projections on

the meeting surfaces as to cause such meeting surfaces to be entirely swept as the cylinder is rotated to operate the lock, the proper inclination of the ridges to accomplish this result being one of the means only. The shackle as to its long leg 19 has bearing ridges 20, formed by making the shackle of angular shape in cross section, hexagonal as shown herein, these bearing ridges extending lengthwise of the leg, and the short leg 21 is of the same shape in cross section. This construction of the cylinder and the shackle legs with narrow bearing ridges enables the deposit, hereinabove referred to, to get but little hold, so that but slight force is required to overcome such hold and move the parts, and as the parts are rotated in the regular operation of the device this deposit will be worn off in the form of powder which will readily move through the grooves or spaces between the bearing ridges, which grooves afford a relief for this powdered material. Likewise the tumblers 15 and the bolt 23 are formed of the same shape in cross section as the legs of the shackle, the action of these parts being the same, and each movable member of the lock is thus provided with means to prevent such accumulation of a deposit and consequent sticking of parts as to cause the lock to become inoperative.

In order to prevent the members of a set of tumblers from being secured together as above described the meeting ends of the tumblers are reduced as to the engaging surface as shown herein, the end of one tumbler being left flat as is usual, and the end of the other tumbler being rounded off or pointed as shown at 26 in Fig. 7 of the drawings.

The bottom of the shackle recess 11 has a small opening 24 through which the powdered deposit may sift to thus relieve the parts, and likewise an opening 25 is formed through the bottom of the bolt recess 13.

I have shown herein two forms of members providing the ridges or narrow bearing surfaces, but other forms may be made use of to accomplish the same results, and these different forms may be embodied in the several members as may be desired.

I claim—

1. A lock case having a recess, lock mechanism located within the case and including a member located and movable in said recess in the operation of the lock, the surface of one of said parts (member or wall of the recess) being formed to provide a number of small bearing surfaces for the movable member against the wall of said recess to prevent the member from becoming inoperative by reason of corrosion.

2. A lock case having a recess, lock mechanism located within the case and including a member located and movable in said re-

cess in the operation of the lock, the surface of said movable member being formed to provide a number of small bearing surfaces for said movable member against the wall of said recess to prevent the member from becoming inoperative by reason of corrosion.

3. A lock case having a recess, lock mechanism located within the case and including a member located and movable in said recess in the normal operation of the lock mechanism, the surface between said parts being formed to provide narrow ridges forming bearing surfaces for the movable member against the wall of said recess to prevent the member from becoming inoperative by reason of corrosion.

4. A lock case having a recess for a cylinder, lock mechanism located within the case and including a cylinder located and movable in said recess in the operation of the lock, the surface of said cylinder being formed to provide narrow bearings for said cylinder against the wall of its recess to prevent the cylinder from becoming inoperative by reason of corrosion.

5. A lock case having a recess for a shackle, lock mechanism located within the case and including a shackle located and movable in said recess in the operation of the lock, the surface of said shackle being formed to provide narrow bearings for said shackle against the wall of its recess to prevent the shackle from becoming inoperative by reason of corrosion.

6. A lock case having a recess for tumblers, lock mechanism located within the case and including tumblers located and movable in said recess in the operation of the lock, the surface of said tumblers being formed to provide narrow bearings for said tumblers against the wall of the recess to prevent the tumblers from becoming inoperative by reason of corrosion.

7. A lock case having a recess for a bolt, lock mechanism located within the case and including a bolt located and movable in said recess in the operation of the lock, the surface of said bolt being formed to provide narrow bearings for said bolt against the wall of the recess to prevent the bolt from becoming inoperative by reason of corrosion.

8. A lock case having a recess for tumblers, lock mechanism located within the case and including tumblers located and movable in said recess in the operation of the lock, said tumblers being disposed in pairs arranged end to end, and the meeting ends of the tumblers being formed to provide a narrow bearing for one member of the pair against the other for preventing the tumblers from becoming inoperative by reason of corrosion.

9. A lock case having a recess, lock mechanism located within the case and including

a member located and movable in said recess in the normal operation of the lock mechanism, the surface of one of said parts being formed with a number of narrow bearing ridges inclined with respect to the axis of said part to sweep the entire surface of the opposite part to prevent the member from becoming inoperative by reason of corrosion.

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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."
