

Fig. 1.

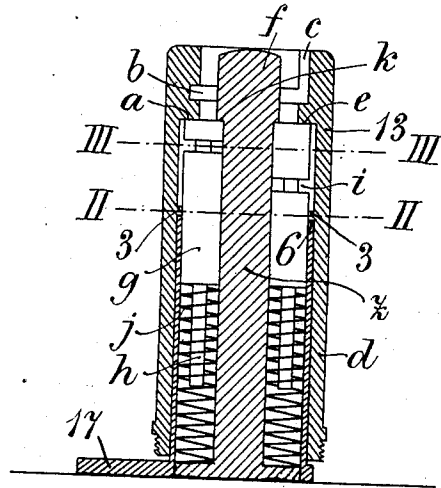


Fig. 2.

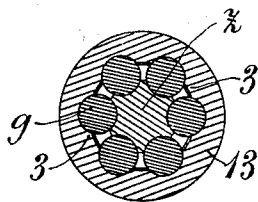


Fig. 3.

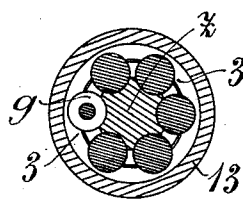


Fig. 4.

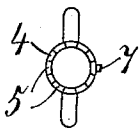
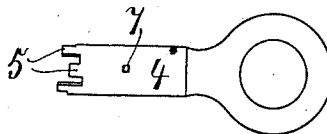


Fig. 5.



Witnesses
 M. W. Darg.
 W. K. Boulter

Inventor
 Herman Nielsen
 By W. K. Boulter attorney

UNITED STATES PATENT OFFICE.

HERMAN NIELSEN, OF COPENHAGEN, DENMARK.

LOCK.

1,043,131.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed November 26, 1907. Serial No. 403,838.

To all whom it may concern:

Be it known that I, HERMAN NIELSEN, a subject of the Kingdom of Denmark, residing at Ingemansvej 9, Copenhagen, Denmark, have invented a new and useful Lock; and I do hereby declare the following to be a full, clear, and exact description of the same.

The invention relates to the so-called Brahma locks, in which the lock can only be opened when the tumblers, which are provided with notches, have been displaced so as to make these notches lie in the same plane. The locks of this kind hitherto known have the disadvantages, that, on account of their construction, and more especially on account of the many parts of which they consist, the locks are too big and unhandy, for which reason they have not come much into use. Either the tumblers consist of several parts arranged in different organs, which have to be turned in relation to each other, or the projectors preventing the turning, or the opening of the lock, are arranged on a special plate which has to be screwed on to the body of the lock, which latter fact has also the effect that the lock can without much difficulty be disjoined and consequently, opened, without the use of the key belonging to the lock. The present locking mechanism is, on the contrary, characterized by its exceedingly simple construction; it consists merely of a hollow cylinder fastened to the lock-case itself, and which may also be in one piece with the lock-case, in which cylinder is arranged the rotatable cylinder containing the spring actuated tumblers, so that, besides the tumbler the lock contains only two bodies movable in relation to each other. The arrangement can, therefore, be constructed very small and be used in any kind of lock, and being at the same time completely secured against being taken apart from without or against being opened without the use of the right key.

In the drawing Figure 1 shows an axial section of the locking-mechanism, Figs. 2 and 3 show sections on the lines 2—2 and 3—3 of Fig. 1, Figs. 4 and 5 show the key by an end view and a side view respectively.

The mechanism comprises the hollow cylinder 13, in which the lock-cylinder z is inserted. The cylinder 13 is shaped cylindrically inside and has the shoulder a , the smooth wall below the said shoulder being,

however, interrupted by a number of integral projections 3 having between them semi-circular recesses for the cylindrical tumblers, the number of which is the same as that of the tumblers. Above the shoulder a is a horizontal annular groove b for the cam of the key, and from the latter, a vertical groove c leads up to the end of the cylinder. The lock-cylinder z which is inserted in the cavity of the cylinder 13, is likewise cylindrical and of the same diameter as the cavity mentioned. It is provided with cylindrical borings, in which corresponding tumblers g are inserted. These cylindrical tumblers carry, at the bottom, guiding pins h for the spiral springs j , which rest, at the top, against the shoulders d thus formed, so that the tumblers are always carried as far inward as they can get, that is, until they push partly against the shoulder a on the cylinder 13 and partly against a small shoulder k , which limits the borings in the lock-cylinder z . At different distances from their upper ends, the tumblers g are provided with turned in grooves i . The outer walls for the borings of the tumblers in the lock-cylinder z are cut away at the top so that a shoulder 6 is formed, which rests against the under side of the projection 3. The cylinder z ends in a circular pivot f terminating adjacent one end of the cylinder 13 and forming a guide for the cavity of the key (Figs. 4 and 5), which consists of a hollow cylinder 4, the free lower edge of which is provided with a number of projections 5, the length of which is adjusted in such way that the notches i , when the key is pressed entirely in, will stand exactly in front of the projections 3. The right position of the key is indicated by a cam 7, which is first conveyed into the groove c , and afterward turned in the groove b . The lock-cylinder z is in suitable connection with a cam roll-back 17 intended for actuating the lock-bolt.

The roll-back 17 is in fixed connection with the cylinder z , in the borings of which the tumblers g are inserted. This cylinder z cannot normally be turned, because of the tumblers g being in the circular recesses between the projections 3. If the key be now introduced, the grooves i on the tumblers g will come opposite to the projections 3, and by the turning of the key the cylinder z , and therewith the roll-back 17 also, will be turned, the projections 5 on the key 4 strik-

ing against the side-walls of the borings in which the tumblers *g* are inserted.

What I claim is:—

1. In a mechanism of the character described, the combination with a hollow cylinder 13 having an integral shoulder *a*, and projections 3 having between them semi-circular recesses, said projections 3 being integral with the cylinder and lying in the same horizontal plane, of a cylinder *z*, inserted in the cavity of cylinder 13 and having cylindrical borings extending longitudinally of the cylinder *z*, and arranged circumferentially thereof, and the outer wall of the said borings being cut away to form shoulders 6 resting against the underside of the projections 3, and said cylinder *z* having a central projecting portion forming a pivot terminating adjacent to one end of cylinder 13, and being provided with a shoulder *k* lying in the same horizontal plane as the shoulder *a*, cylindrical tumblers movably arranged in the borings of cylinder *z* and the recesses intermediate the projections 3, said tumblers being of a length to extend above the plane of the projections 3 and abutting against the said shoulders *a*, and *k*, and being provided above the said projections 3 with circumferential grooves *i*, located at different distances from the upper end of the tumblers, said tumblers being adapted to be moved longitudinally to bring the grooves *i*, opposite the projections 3 to permit the cylinder *z* to be turned, guiding pins projecting from the tumblers, and springs surrounding said pins and bearing against the tumblers for the purpose set forth.

2. In a mechanism of the character described the combination with a hollow cylinder 13 having an integral shoulder *a*, to-

ward its upper end and projections 3 on the inner wall below said shoulder, and having between them semi-circular recesses, said projections 3 being integral with the cylinder and lying in the same horizontal plane, of a cylinder *z*, inserted longitudinally in the cavity of cylinder 13 and having cylindrical borings extending longitudinally of cylinder *z*, and arranged circumferentially thereof, and the outer wall of said borings being cut away to form shoulders 6 resting against the underside of projections 3, said cylinder *z*, having a central projecting portion at its upper end forming a pivot terminating adjacent to the upper end of cylinder 13 and being provided with a shoulder *k*, lying in the same horizontal plane as shoulder *a*, cylindrical tumblers movably arranged in the borings of cylinder *z* and the recesses intermediate the projections 3, said tumblers being of a length to extend above the plane of projections 3 and abutting against said shoulders *a*, and *k*, and being provided above projections 3 with circumferential grooves *i*, located at different distances from the upper end of the tumblers. said tumblers being adapted to be moved longitudinally to bring the grooves *i*, opposite the projections 3 to permit cylinder *z* to be turned, guiding pins projecting from the tumblers, springs surrounding the pins and bearing against the tumblers, and a roll-back 17 in fixed connection with the cylinder *z*, and adapted to turn with the latter.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HERMAN NIELSEN.

Witnesses:

H. FLEISCHER,
L. S. SUB.