No. 885,253. PATENTED APR. 21, 1908.

O. HUMMEL.

PADLOCK.

APPLICATION FILED NOV. 9, 1907.

Fig. 1.

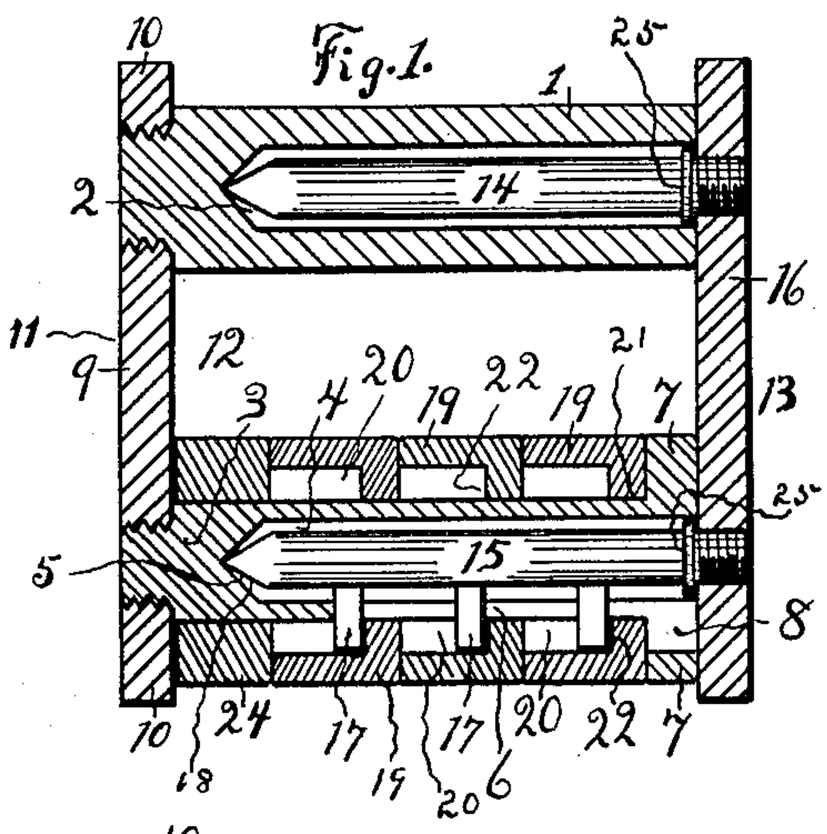


Fig. 2.

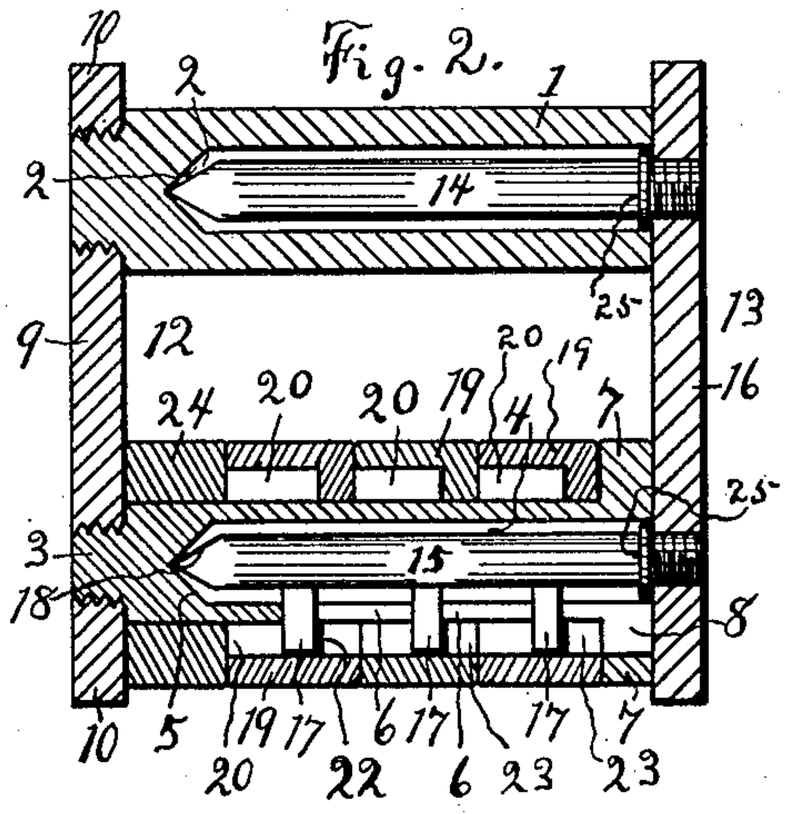


Fig. 3.

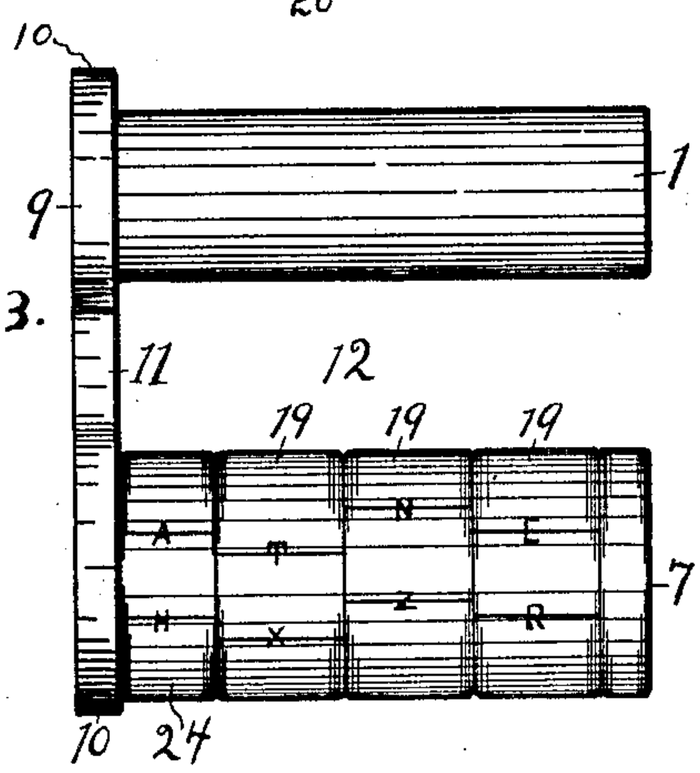


Fig. 4.

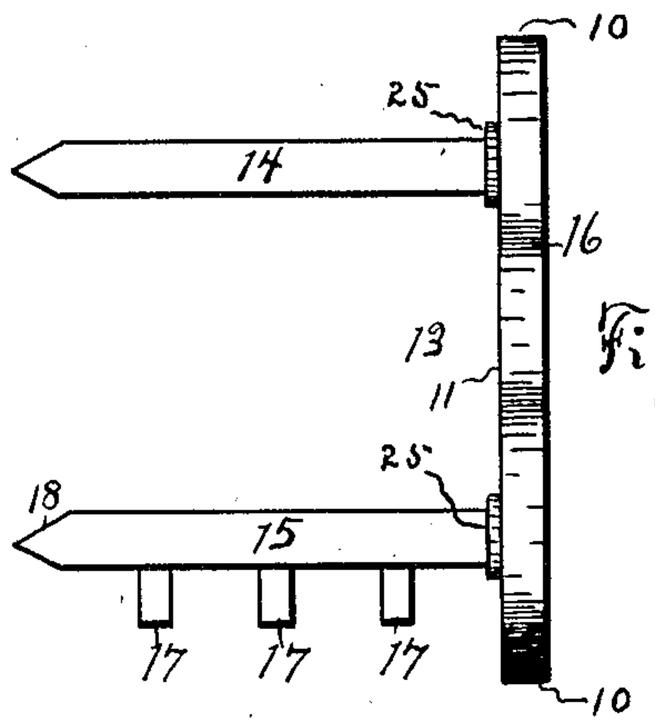


Fig. 5.

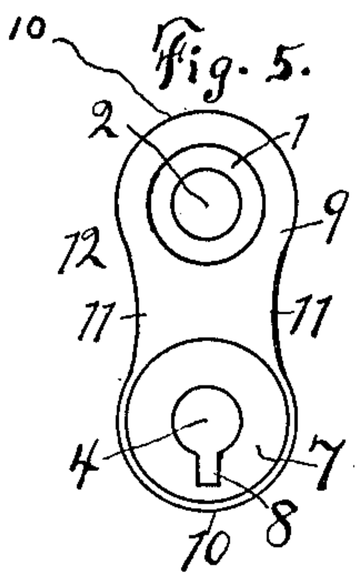


Fig. 6.

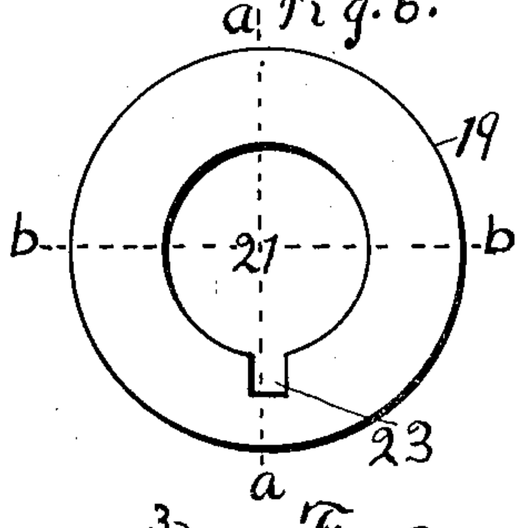


Fig. 7.

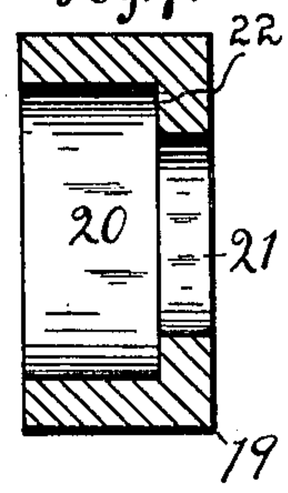


Fig. 8.

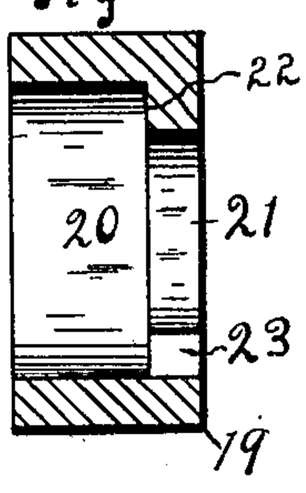
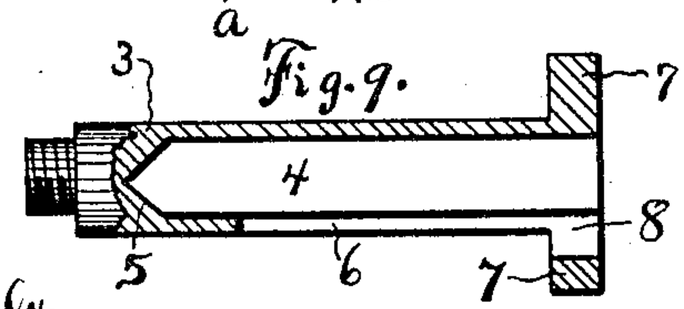


Fig. 9.



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UNITED STATES PATENT OFFICE.

OSCAR HUMMEL, OF SOUTH OMAHA, NEBRASKA.

PADLOCK.

No. 885,253. Specification of Letters Patent. Patented April 21, 1908.

Application filed November 9, 1907. Serial No. 401,419.

To all whom it may concern:

Be it known that I, OSCAR HUMMEL, a citizen of the United States, residing at South Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Padlocks, of which the following is a specification.

This invention relates to improvements in padlocks of the type employing a series of locking-rings, rotatable and in combination, to effect unlocking, and has, for one of its objects, the provision of a simple and durable construction of a lock of this class which shall be reliable in its operation and economical in manufacture.

Another object is to provide a construction whereby the distal end of the locking-bar may have a positive mounting to insure a true presentation of the tangs within the tang-chambers of the locking-rings, and will permit the locking-bar to move freely within the recess of the ring-shaft.

To these ends I have devised the construction shown in the accompanying drawing, wherein,—

Figures 1 and 2 are views of my invention in longitudinal section, showing the parts, respectively, in locked and unlocked positions. Fig. 3 is a side view of the U-shaped casing with locking-rings thereon; and Fig. 4 is a side view of the U-shaped locking-member used in connection therewith. Fig. 5 is an end view, somewhat reduced, of Fig. 3 showing the open ends of the casings. Figs. 6, 7 and 8 are enlarged views of any one of the locking-rings, Fig. 6 being an end view. Fig. 7 is a view of the locking-ring, sectioned on line *b b*, and Fig. 8 is a view thereof, sectioned on line *a a* of Fig. 6. Fig. 9 is a view in longitudinal section, of the recessed ring-shaft.

Referring to the drawing for a more particular description, numeral 1 indicates a sleeve preferably formed as a cylinder, longitudinally and circularly recessed the greater part of its length, as at 2; and I provide the ring-shaft 3 having a circular recess 4 formed therein the greater part of its length, with a convergently-formed inner wall 5 defining the closed end of the recess, and at its free end having the annular holding-flange 7 thereon, this flange being formed with a slot 8 of greater radial extent than slot 6 of ring shaft 3. The end-piece 9 is employed comprising a rectangular plate with outwardly-curved ends 10 and curved inwardly between its ends as at 11 for convenience, and has secured thereon near one of its ends the sleeve 1, the ring shaft 3 being secured upon its opposite end, and the mounting of the parts being such that the longitudinal walls of recesses 2 and 4 will be adjacent and parallel; and the parts thus described may be said to represent a U-shaped casing 12.

I construct a U-shaped locking-member 13, best shown in Fig. 4, comprising the cylindrically-formed bar 14 and a locking-bar 15, each rigidly secured, parallel and adjacent, upon the end-piece 16, the latter having the same convenient shape as end-piece 9; locking-bar 15 is provided with a series of lugs or tangs 17, disposed in longitudinal alinement and extending at substantially right angles from its body, its free end having a circularly tapered wall 18 formed with a lesser inclination than wall 5 of recess 4.

The bar 14 and locking bar 15 are adapted to have a sliding movement within recesses 2 and 4, respectively, tangs 17 traversing slot 8 and slot 6; and when the inward sliding movement has been completed, the tangs are disposed within slot 6; at this time the pointed end of the locking-bar makes contact with the contracted end-wall 5 which defines the closed terminal of recess 4; the result of this particular contact and mounting for locking-bar 15 is that it may be constructed with a considerable less diameter than that of the recess, but will be reliably positioned at its transverse center; and on account of this difference in diameter the locking-bar will slide within the recess without obstruction; a close fitting of these parts is objectionable, because defacement or accumulated rust would prevent the required free sliding movement, and it is important that tangs 17 make a true presentation, transversely, within the recesses of the locking-rings, presently to be considered.

I construct cylindrical locking-rings 19, each formed with an annular chamber or recess 20, best shown in Figs. 7 and 8, and having a circular opening 21 of less radial extent than recess 20, thereby forming the transverse, circular engaging-wall or ward 22, and in wall or ward 22 is formed the longitudinal slot 23 opening upon recess 20. As thus constructed, the locking-rings are similarly formed, the number employed corresponding to the number of tangs upon locking bar 15; and I employ a rotatable, blank ring 24, similar in external appearance to locking-rings 19, and, in assembling the parts, these

rings are rotatably seated upon ring shaft 3 and are held thereon by flange 7. The locking-rings are indexed so that the operator may know when slots 23 thereof are in alinement with slot 6, and when so alined, locking-bar 15 may be passed wholly within recess 4, bar 14 also entering recess 2, and when thus positioned, the parts will be disposed as shown in Fig. 2, tangs 17 being within recesses 20, and slots 23 immediately at the rear of the tangs, the parts being unlocked. The locking-rings, when thereafter rotated, assume positions so that slots 23 are not in alinement and a withdrawal of locking-bar 15 is prevented, because the transverse walls or wards 22 are interposed; and the several parts when in this locked position, are as shown in Fig. 1.

The blank ring 24 is indexed to correspond with that of the locking-rings, but as clearly shown in Figs. 1 and 2, the blank ring does not operate to produce either a locking or unlocking of the device, the unlocking being effected by causing a rotation of rings 19 until their slots 23 are in alinement with slot 6; and as already explained, the operator may readily accomplish this, since certain predetermined characters upon the index are by him placed in alinement.

The annular flanges or collars 25 are provided for bar 14 and for locking-bar 15, and are secured adjacent end-piece 16; and when locking the parts, the inner wall of end-piece 16 makes contact with the end of the recessed sleeve 1 and with flange 7, collars 25 entering recesses 2 and 4; at this time the central, pointed end of the locking-bar contacts with the contracted, central terminal of recess 4, and the locking-bar, when pressed inward, is thereby forced to a true, central bearing and is thereby disposed at the center of recess 4.

By the foregoing construction vibration of the parts is prevented and, as already explained, members 14 and 15 may, on this account, have diameters much less than the recesses within which they slide; also by this construction, a free and true rotatable movement of the locking-rings is obtained. When rotating cylinders 19 to effect a locking of parts, each wall 22 is disposed rearwardly and closely adjacent each tang 17; tangs 17 occupy recesses 20 at this time, and unless the locking-bar occupies a position at the transverse center, of recess 4 the tangs, during a part of the rotation of the locking-rings, will make contact with walls 22 and thereby prevent the desirable, free, rotatable movement of the locking-rings, but according to the construction shown, this objectionable feature is avoided. The difference in the inclination of wall 18 and wall 5 permits the terminal end of the locking-bar to reach a central bearing within recess 4 without obstruction.

Having thus fully described the construction of parts, what I claim as my invention is,—

1. In a device of the character described the combination with an end member of two longitudinally recessed members rigidly secured to said end member, a second end member, rigid bars secured to said second end member, tangs carried by one of said bars, locking devices carried by one of the longitudinally recessed members adapted to engage said tangs, both of said bars being adapted to enter the longitudinally recessed members and being of such smaller diameter than said recesses as to lie out of contact with the side walls thereof said bars having pointed ends and the end walls of the recesses having concave centrally disposed recesses adapted to receive the pointed ends of the bars to thereby center said bars in said recesses.

2. In a device of the character described the combination with an end member of two longitudinally recessed members rigidly secured to said end member, a second end member, rigid bars secured to said second end member, tangs carried by one of said bars, locking devices carried by one of the longitudinally recessed members adapted to engage said tangs, both of said bars being adapted to enter the longitudinally recessed members and being of such smaller diameter than said recesses as to lie out of contact with the side walls thereof, said bars having pointed ends, the end walls of the recesses having concave centrally disposed recesses adapted to receive the pointed ends of the bars to thereby center said bars in said recesses, and collars carried by said bars adjacent the second end member said collars being substantially of the same diameter as said recesses to thereby prevent lateral movement of the bars when the parts are locked together.

3. In a device of the character described the combination with an end member of two longitudinally recessed members rigidly secured to said end member, a second end member, rigid bars secured to said second end member, tangs carried by one of said bars, locking devices carried by one of the longitudinally recessed members adapted to engage said tangs, both of said bars being adapted to enter the longitudinally recessed members and being of such smaller diameter than said recesses as to lie out of contact with the side walls thereof and means for centering said bars in said recesses.

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

OSCAR HUMMEL.

Witnesses:
HIRAM A. STURGES,
ALBERT SWARTZLANDER.