

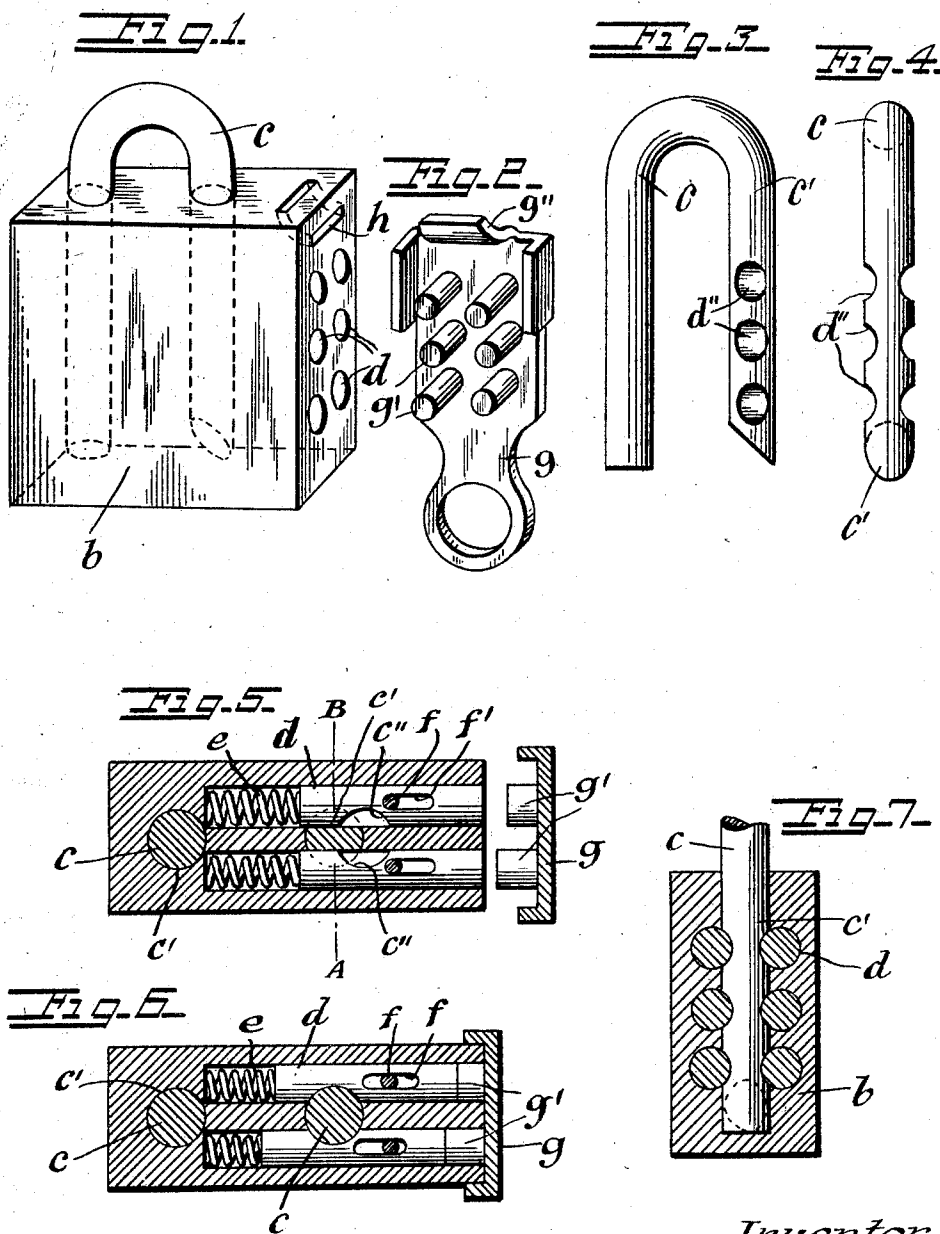
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A. VODA

SAFETY PADLOCK

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Inventor
A. Voda
by Langner Perry Card & Langner.
Attys.

UNITED STATES PATENT OFFICE.

ABEL VODA, OF BUDAPEST, HUNGARY, ASSIGNOR TO VERDUN MŰVEK RESZVENY-TARSASAG, OF BUDAPEST, HUNGARY.

SAFETY PADLOCK.

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To all whom it may concern:

Be it known that I, ABEL VODA, a citizen of Hungary, residing at Budapest, Hungary, have invented certain new and useful Improvements in Safety Padlocks (for which I have filed applications in Hungary, November 25, 1919, and August 12, 1920), of which the following is a specification.

My invention relates to safety padlocks and more particularly to devices of the kind described in which in a solid block of metal provided with bores for receiving the two legs of a shackle a plurality of further bores are provided at right angles to the legs of the shackle in which spring actuated tumblers are arranged so as to slide in axial direction. The tumblers are secured against rotation in their holes. They engage lateral recesses of one of the shackle legs and are provided with recesses at various distances from their ends. These tumblers are so arranged that in their limiting position, in which their front ends are in line with the outer face of the metal block, they engage the recesses of the shackle, but release them when they are, against the action of their springs, forced so far into the metal block that the recesses of all tumblers are within the cross-section of the shackle leg.

In the drawings affixed to this specification and forming part thereof, an embodiment of my invention is illustrated diagrammatically by way of example. In the drawings:—

Fig. 1 is a perspective view of my improved padlock,

Fig. 2 is a perspective view of the key for opening the padlock,

Fig. 3 is an elevation, and

Fig. 4 an end elevation of the shackle,

Figs. 5 and 6 are sectional plan views of the lock and key, illustrating the parts in locking and unlocking position, respectively,

Fig. 7 is a section on line A—B in Fig. 5.

The padlock comprises a solid block *b* of metal which is provided with two parallel bores for receiving the two legs of the shackle *c*. One leg *c'* of the shackle is provided with cylindrical recesses *d''*. In the device illustrated, six bores for the tumblers *d* are provided in the metal block *b* which bores are at right angles to the legs of shackle *c*. The tumblers are provided with longitudinal slots *f'*, as best seen in Figs. 5 and 6, in which are inserted pins *f* so as to

limit the stroke of the tumblers and prevent them from turning in their bores. At the rear of every tumbler, a spring *e* is inserted in the bore which forces the tumbler to the outside as far as permitted by pin *f*. In this position, the outer ends of the tumblers are in line with the face of block *b*. Each tumbler *d* is provided at the side adjacent to the leg *c'* of the shackle with a cylindrical recess *c''*. The recesses *c''* are at various distances from the ends of the tumblers.

In the position illustrated in Fig. 5, the tumblers engage the recesses *d''* of leg *c'* so that the shackle *c* cannot be withdrawn. If, however, the tumblers *d* are moved into the block *b* for such a distance that the recesses *c''* coincide with the cross-section *c''* of the leg *d'*, the shackle is released and can be withdrawn.

For unlocking the padlock, the key illustrated in Fig. 2 is provided. It consists of a plate *g* having a plurality of pins *g'* arranged in conformity with the number and arrangement of tumblers *b*. The plate *g* is further, at its upper end, provided with a hook *g''* which is adapted to engage a slot *h* in the block *b*.

When it is desired to unlock the padlock, the hook *g''* is inserted into the slot *h* and the plate *g* is forced toward the block *b*, so that the pins *g'* force the tumblers *d* into the block *b*. The length of pins *g'* is such that the tumblers *d* are placed in unlocking position.

Owing to the construction described, quantity production is very simple. The tumblers *d* and the shackle *c* are made of round iron bars, the recesses for receiving the tumblers and legs of the shackle being bored. The manufacture is as follows:

First the several keys corresponding to the various combinations are made, whereupon the holes for the legs of the shackle *c* are bored in the block *b* and the shackle inserted into the holes so as to be in its lowest position. Now, the holes for receiving the tumblers *b* are bored, which at the same time produces the recesses *d''* in the leg *c'* of the shackle. Now, the shackle *c* is removed, the springs *e* and the tumblers *d* are inserted and pins *f* are fixed in position. The key *g* is now placed in position so that the tumblers *d* are forced into the block in conformity with the length of pins *g'*. In this position of the tumblers, a drill having

the same diameter as the leg c' is inserted into the bore for receiving this leg and all the recesses c'' of the tumblers are bored exactly in the required position.

5 I claim:

1. In a padlock, a solid metal block, a shackle, two parallel passages in said block receiving the legs of said shackle, a plurality of parallel bores in said block crossing one leg of said shackle, locking pins of circular cross section slidable within said bores, means to prevent the said locking pins from rotation and means to limit the stroke of the locking pins, springs thrusting said locking pins into their locking position, recesses in the leg of the shackle adapted to engage the said locking pins and a recess in an intermediate part of the said locking pins adapted to register in an intermediate position of the locking pins with one of the passages of the said block receiving the shackle.

2. In a padlock, a solid metal block, a shackle, two parallel passages in said block receiving the legs of said shackle, a plurality of parallel bores in said block forming two rows located on the two sides of the leg of the shackle crossing one of the said legs on its both sides, locking pins of circular cross section slidable within said bores, means to prevent the said locking pins from rotation and means to limit the stroke of the locking pins, springs thrusting said locking pins into their locking position, recesses in the leg of the shackle adapted to engage the said locking pins and a recess in an intermediate part of the said locking pins adapted to register in an intermediate position of the locking pins with one of the passages of the said block receiving the shackle.

3. In a padlock, a solid metal block, a shackle, two parallel passages in said block

receiving the legs of said shackle, a plurality of parallel bores in said block crossing one leg of said shackle, locking pins of circular cross section slidable within said bores, means to prevent the said locking pins from rotation and means to limit the stroke of the locking pins, springs thrusting said locking pins into their locking position, recesses in the leg of the shackle adapted to engage the said locking pins, a recess in an intermediate part of the said locking pins adapted to register in an intermediate position of the locking pins with one of the passages of the said block receiving the shackle, and a slot in the said block adapted to be engaged by a hooked part of the key.

4. In a padlock, a solid metal block, a shackle, two parallel passages in said block receiving the legs of said shackle, a plurality of parallel bores in said block forming two rows located on the two sides of the legs of the shackle crossing one of the said legs on its both sides, locking pins of circular cross section slidable within said bores, means to prevent the said locking pins from rotation and means to limit the stroke of the locking pins, springs thrusting said locking pins into their locking position, recesses in the leg of the shackle adapted to engage the said locking pins and a recess in an intermediate part of the said locking pins adapted to register in an intermediate position of the locking pins with one of the passages of the said block receiving the shackle, and a slot in the said block adapted to be engaged by a hooked part of the key.

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

ABEL VODA.

Witnesses:

ALEXANDER HORTAY,
JOSEPH CHEFKO.