

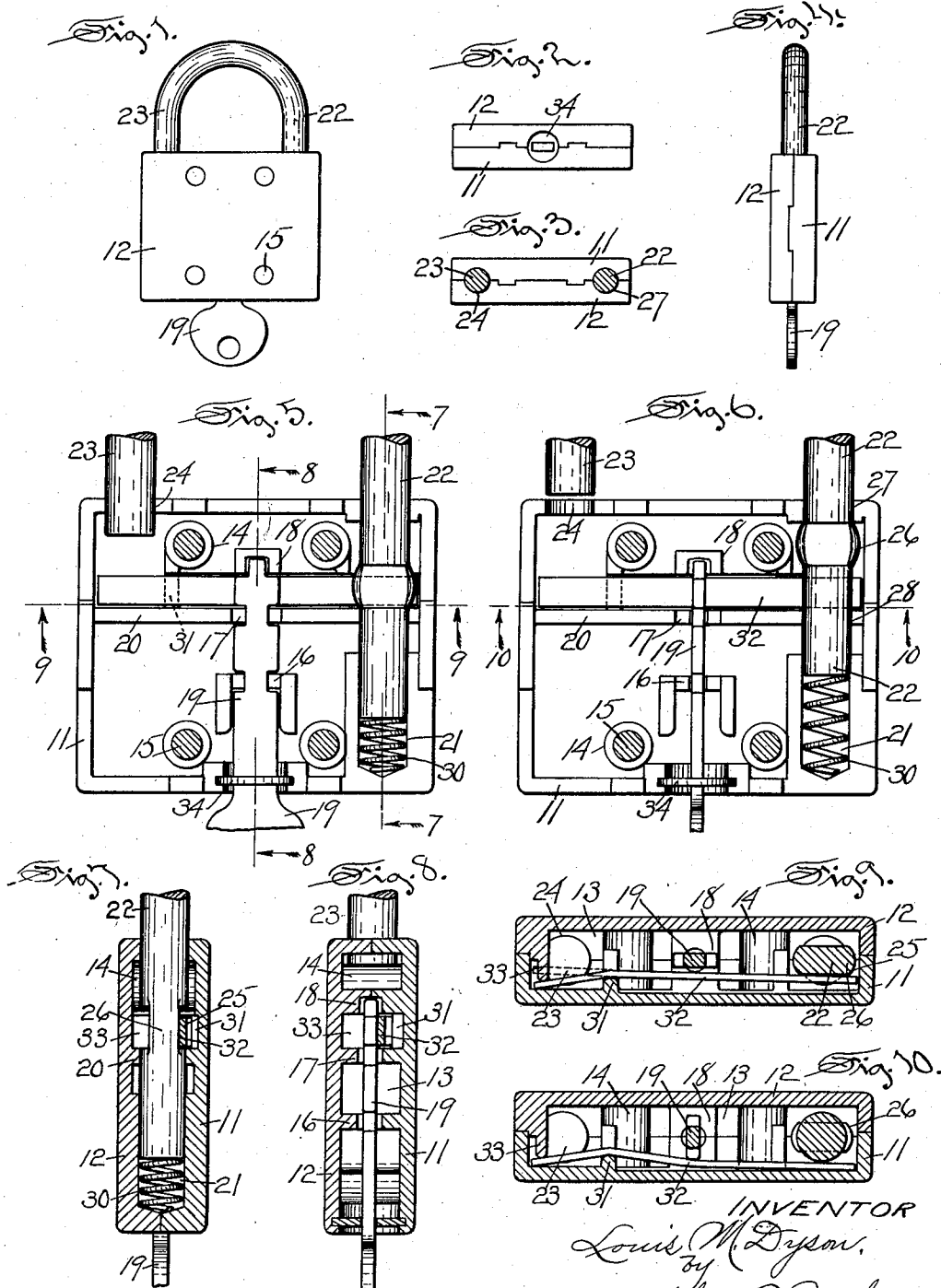
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LOCK

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LOCK

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My invention relates more particularly to that class of locks known as padlocks, and an object of my invention, among others, is the production of a lock of this type that shall be extremely simple in construction and that may be produced at a minimum cost.

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

Figure 1 is a face view of the lock.

Figure 2 is a view looking at the end for receiving the key.

Figure 3 is a view of the opposite end with the arms of the shackle cut in two.

Figure 4 is an edge view.

Figure 5 is a view on enlarged scale illustrating the interior mechanism of the lock, one of the case sections being removed, and the shackle arms being broken off.

Figure 6 is a similar view illustrating the operation of the key in releasing the shackle.

Figure 7 is a view in section on a plane denoted by the dotted line 7—7 of Fig. 5.

Figure 8 is a view in section on a plane denoted by the dotted line 8—8 of Fig. 5.

Figure 9 is a view in section on a plane denoted by the dotted line 9—9 of Fig. 5.

Figure 10 is a view in section on a plane denoted by the dotted line 10—10 of Fig. 6.

In the accompanying drawing the numerals 11 and 12 denote two case sections of the lock each of which comprises substantially one-half of the case and which are formed to provide a chamber 13 when the two sections are secured together, as shown in Figs. 7 to 10, as by means of posts 14 which are reduced in size at their outer ends where they project through the case sections, said reduced portions being riveted as at 15. Each section may be provided with wards 16, 17 and 18 to engage notches in the edge of a key 19 as shown in Fig. 5, said wards being formed integrally with the case section and also to constitute bearings for turning movement of the key the wards 17 comprising ends of sections of a rib 20 dividing the interior of the case into two compartments, and the wards 18 creating a recess for reception of the reduced tip of the key, as shown in Fig. 5.

Each of the case sections is formed with a portion of a recess 21 for the end of the long arm 22 of the shackle, the short arm 23 of which enters through a hole 24 in the end of the case in a manner common to structures of this type.

The long arm 22 is provided with a recess 25

in the form of a notch on one side of the arm, the particular manner of forming this recess in fact creating recesses on opposite sides of the arm, one only, however, being used. These recesses are formed by a swaging operation in which the metal is forced out on opposite sides of the arm at the ends of the recesses to form stops 26 that, by contact with the edge of the hole 27, through which the long arm of the shackle extends into the case, limits the extent of outward movement of the shackle and prevents its removal from the case. In like manner these stops, by contact with the edge of the hole 28 in the ribs 20, will limit inward movement of said shackle arm. This movement of the shackle is sufficient to permit the short arm 23 to enter the hole 24 and to emerge therefrom for locking and unlocking action as will be readily understood. The recess 21 is located partially in each section of the case and a spring 30 is confined in this recess and thrusts against the end of the long arm 22 of the shackle to force the latter outwardly for unlocking movement, as shown in Fig. 6.

An important feature of the invention resides in the means for locking the shackle against movement with the short arm 23 thereof engaged within the hole 24, thereby retaining the parts in locked condition. To this end a fulcrum 31 is formed on the bottom of the case section 11 and a retainer in the form of a spring 32 is seated near one end upon this fulcrum, as shown in Figs. 9 and 10. A spring conditioning lug 33 projects from the case section 12 inwardly within the case section 11 to engage one end of the spring, as shown in Fig. 9, thereby tilting the spring so that its opposite end is engaged within the recess 25 in one side of the long arm of the shackle, as shown in Fig. 9, thereby locking the shackle against unlocking movement. When the key 19 is inserted into the lock through the key hole as shown in Figs. 5 and 9 and is turned to the position shown in Figs. 6 and 10, the spring is depressed, as shown in the latter figure, and removed from the recess 25 in the shackle arm thereby releasing the latter which immediately moves outwardly under the influence of the spring 30 and disengages the short arm 23 from the case. A key center 34 is located in grooves in each of the case members, as shown in Figs. 1 and 6, in a manner common to structures of this type.

I claim:

1. A lock comprising a case, a shackle including a long arm extending into said case, a recess formed in one side of said arm by metal extruded therefrom, a stop formed by the metal extruded

from said recess, means engaging said stop to limit both outward and inward movement of said shackle, and a locking member engaged within said recess to lock the shackle in place and positioned for operation by a key to release said shackle.

2. A lock comprising a case, a shackle including a long arm extending into said case, a recess formed in said arm by extrusion of metal thereof, a retaining lug composed of said metal extruded to form said recess, and a locking member engaged within said recess to lock the shackle in place and positioned for operation by a key to release said shackle.

3. A lock comprising a case, a fulcrum formed within said case, a locking member resting on said fulcrum, a shackle including a long arm having a recess therein, and means for tipping said locking member on said fulcrum to engage said recess, said locking member being positioned for

engagement by a key to operate it to release said shackle.

4. A lock comprising a case, a fulcrum formed within said case, a spring locking member resting on said fulcrum, a shackle including a long arm having a recess therein, and means for tipping said locking member on said fulcrum to engage said recess, said locking member being positioned for engagement by a key to release it by spring action from said recess.

5. A lock comprising a case composed of two sections, a fulcrum formed in one of said sections, a locking member of spring metal resting on said fulcrum, a shackle comprising a long arm extending into said case and having a recess, and a lug on one section of the case to engage said locking member and tip it on its fulcrum to engage said recess, said locking member being positioned for engagement by a key to release it from said recess.

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