

W. F. BEASLEY.
INDICATOR LOCK.

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INDICATOR-LOCK.

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To all whom it may concern:

Be it known that I, WILLIAM F. BEASLEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Locks and Indicating Mechanism Therefor; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in locks and in indicating mechanisms adapted to be used in connection therewith, or for any other purpose, and it consists in the construction, arrangement and combination of the several parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings in which corresponding parts are designated by similar marks of reference: Figure 1 is a side elevation of a padlock, constructed in accordance with this invention, a part of the casing thereof being broken away for the purpose of illustration. Fig. 2 is a cross section on line X X of Fig. 1. Fig. 3 is a detail view of a modified form of an indicating disk. Fig. 4 is a detail sectional view taken through the shackle and post of the lock shown in Fig. 1. Fig. 5 is a section on lines Y—Y of Fig. 1, showing a modified form of mechanism for preventing a backward forcing of the indicating disk.

My improved indicating device consists of a series of indicating disks 1, which have impressed on a visible part thereof (preferably their peripheries) any number of indicating marks, which may be arranged in any order and be of any size that may be desired, the said disks being driven by floating wheels, one of the said floating disks being driven by a projection or projections rigidly secured on a rotating barrel, each of the remaining wheels being driven by one or more projections secured on the disk 1, adjacent to the disk driven by it. The details of this construction may be stated as follows: A rotary barrel 3 has secured thereon, in any desired manner, a collar 6, rotating therewith and having an annular groove 7 in its periphery. One or more pins or projections 8 are placed

within the said groove, and immediately in the rear of each projection a notch 9 is cut in the periphery of the collar, the said projections 8, in case more than one be used, being by preference placed at regular intervals in the groove 7. Into the said groove, one, 10^a of the floating wheels projects, the said floating wheel 10^a, and the similar floating wheels 10^b, 10^c, &c., having their peripheries formed by a series of shoulders 11, and having projections from their sides in front of each shoulder a pin 12, all of the said floating wheels being journaled upon a suitable post 13. As the shoulders 11 of the wheel 10^a are contained in the groove 7 and are struck by the projections 8, the said floating wheel will be thrown forward upon a rotation of the barrel.

The indicating disks 1 are by preference mounted on the barrel 3, adjacent to the collar 6, although it is obvious that they may be mounted on any suitable support—they turning freely thereon. As shown in Figs. 1, 2, 5 and 6 of the annexed drawings, each of the said disks consists of a disk proper, having indicating marks upon its periphery, and notches 2^a therein between the marks, while a button 14 has its central parts formed in a cylinder 14^a, which is inserted in the central bore of the disk and surrounds the supporting barrel, while its flange 14^b projects outwardly and parallel with the side of the disk proper, forming an annular channel or groove 14^c, in which is contained a plurality of pins or projections 14^d, the projection being placed at irregular intervals in the channel, while an indentation 14^e is formed in the periphery of the flange 14^b. It is thus seen that the flange of one disk separates it from the adjacent disk, the indentation 14^e of the flange corresponding in shape to the indentation or notches 2^a in the adjoining disk. Each of the floating wheels 10^b, 10^c, &c., projects into the channel 14^c of one of the indicating disks and is thrown by the shoulders 11 thereon being struck by the projections 14^d of the disk, thus causing one of the pins 12 on the floating wheel, which engages one of the notches 2^a of the adjacent disk to move the latter forward, the pin being contained in the indentation 14^e of the flange of the disk 1, by which the said floating wheel is driven. As before stated the first

floating wheel is driven by the collar 6 rigidly secured to the barrel, the pins 12 on the said wheel throwing the first indicating disk, which in turn throws the second floating wheel, the pins of which react upon the second disk, and so on.

From the above it is obvious that owing to the number of projections 14^a on each indicating disk, and to their irregular positions thereon that each floating wheel and each indicating disk will be thrown, not on each completed revolution of the disk adjacent thereto, or at irregular intervals, as is the case with the indicating mechanism now in use—but that each wheel and each disk will be thrown upon a partial revolution of the disk immediately in front thereof, and at irregular intervals, whereby it is rendered impossible to foretell what combination of indicating marks will appear upon a rotation of the barrel, and at the same time as the projections 14^a on each side are placed at different points, the necessity for stopping the registering mechanism upon a completion of its cycle is obviated, as the same combination of indicating marks will not appear in such an indicating mechanism, as is described above, in any two successive cycles of rotations, although if desired, only one or two of the disks used may have the plurality of projections 14^a secured thereto, the remaining disks having one each of them, as is now the case.

The indicating wheel shown in Fig. 3 differs from that described above, inasmuch that a drum 14^f has secured on its opposite sides a disk and a button 14, the indicating marks being removed from the periphery of the disk and placed upon the periphery of the drum, which as it is without notches or other indentations, permits the mark to be made larger than is the case with the construction first described, the notches in the disks affording a means of rotation for the drum and the projections on the button driving the floating wheel.

The locking devices shown in Figs. 1, 2 and 4 consisting of a padlock having a suitable inclosure casing 16, through which projects from top to bottom a barrel 3, the upper end of which has a head 17 in the form of a shackle, as is described in Letters Patent No. 220,124, granted to Henry Clarke, September 30, 1879, the end of the said shackle being shouldered as at 18, and engaging a shouldered post 19 on the top of the casing, as is described in Letters Patent No. 415,187, granted to me on the 19th day of November, 1889.

The indicating disks 1 and the collar 6 of the indicating mechanism are mounted on the barrel 3 within the casing 16, while the floating wheels 10 are journaled on the post 13 within the casing in the manner described in said patent to Clarke, the indicating disks showing through an aperture 16^a in the side of the casing 16. In order to lock the barrel against unauthorized rotation, I may use the device shown in the Clarke patent, which con-

sists of a series of spring pressed pins adapted to enter apertures in the barrel, while they are adapted to be disengaged from the barrel by the insertion of a key in a slot in the barrel, (indicated in dotted lines in Fig. 2.)

In case I use the hereinbefore described construction of locking mechanism, I prevent any possibility of a backward rotation of the barrel by forming a series of rearwardly facing shoulders 18 thereon, opposite the spring pressed pins, with which they are adapted to engage upon a rearward rotation of the barrel, as is described in Letters Patent, granted to me on the 4th day of November, 1890, and numbered 439,624. I, however, prefer to lock the end of the shackle directly to the post by any desired form of locking mechanism contained in the latter, and adapted to project from the top thereof and engage in a recess 19^a in the end of the shackle.

The construction which I show is as follows: A bolt 20, (see Fig. 4) is contained in a vertical recess 21 in the post, and has an indentation 22 in one of its sides, the bolt being pressed upwardly by a spring 23, contained in the recess below it, the forward face or side of the shackle being beveled, as at 24, in order that when it strikes the bolt 20 it will depress it. A transverse aperture 25 is formed in the post on one side of the vertical recess 21, a key 26 having a wing 27 thereon being adapted to be inserted in the aperture, the wing on the said key engaging the indentation 22 in the bolt 20, in order to retract it and disengage it from the end of the shackle. In this case I pivot dogs 28 on a shaft 29 in the casing, the said dogs being pressed against the indicating disks by springs 30, so that they will engage the notches 2^a therein and render a backward motion of the indicating mechanism impossible.

It is obvious from the above that instead of placing the designating marks upon the notched indicating disks, they may be placed upon any suitable disk connected with the notched disks and driven thereby, and I desire to be so understood in the annexed claims when indicating marks upon the disks are referred to, as I do not desire to limit my invention to either location of the designating marks.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lock, the combination with a barrel, of an indicating mechanism driven thereby, consisting of a series of suitably mounted disks, each of the said disks having a projection thereon adapted to throw the adjoining disk, one or more of the said disks having a plurality of the said projections irregularly arranged thereon, substantially as described.

2. In a lock, the combination with a casing having a post thereon, of a shackle journaled in the said casing, the free end of the said shackle moving adjacent to the said post, and a locking mechanism contained in one of the

last named parts and adapted to engage the other, substantially as described.

3. In a padlock, the combination with a casing having a projecting post thereon, of a
5 barrel passing through the said casing and having a shackle on the end thereof, indicating disks mounted on the said barrel within the said casing and driven thereby, spring
10 dogs engaging the said disks against backward rotation, and means for locking the said barrel against rotation, substantially as described.

4. In a padlock, the combination with a casing having a post thereon, of a barrel journaled
15 upon the said casing and having a shackle on the end thereof, and a bolt contained within the said post and adapted to engage the end of the said shackle, substantially as described.

5. The combination with a barrel, of a series
20 of suitably journaled disks, each of which has designating marks and a projection thereon and notches therein, one or more of the said disks having a plurality of the said projections irregularly arranged thereon, a floating
25 wheel adapted to be engaged by the projections upon each of the said disks, and having pins adapted to engage the notches in the ad-

joining disk, a shouldered floating wheel having projections thereon adapted to throw one
30 of the said indicating wheels, and a projection secured on the said barrel adapted to throw the last named floating wheel, substantially as described.

6. In a lock, the combination with a barrel having a head thereon, of a series of suitably
35 journaled disks, each of which has designating marks and projections thereon, one or more of the said disks having a plurality of the said projections irregularly arranged thereon, a floating wheel adapted to be en-
40 gaged by the projections upon each of the said disks, and adapted to engage the adjoining disk, a floating wheel adapted to throw one of the said indicating disks, and a projection secured on the said barrel adapted
45 to throw the last named floating wheel, substantially as described.

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

WILLIAM F. BEASLEY.

Witnesses:

VERNON M. DORSEY,
G. S. DAVIS.