(No Model.)

G. S. ROBERTS.

KEY HOLDER.

No. 508,244. Patented Nov. 7, 1893.

Fig. 1

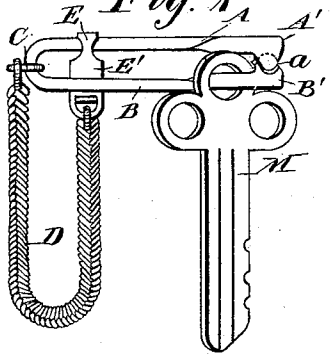

Fig. 2

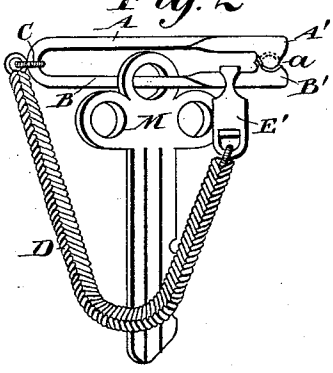

Fig. 4

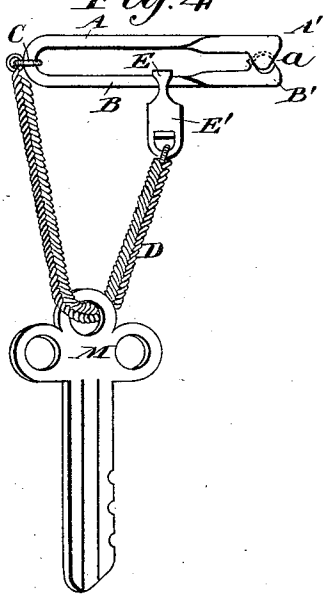

Fig. 3.

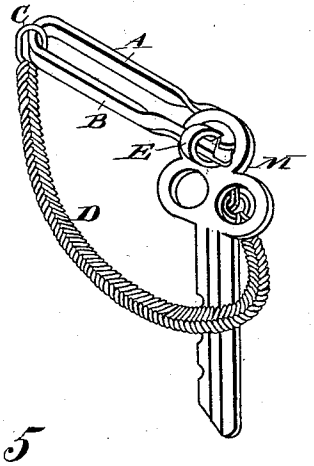

Fig. 5

Fig. 9

Fig. 10

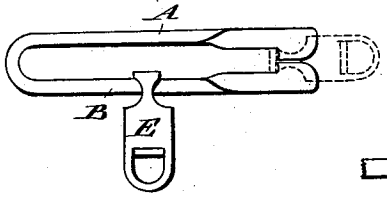

Fig. 6

Fig. 7

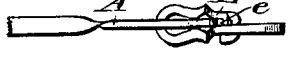

Fig. 8

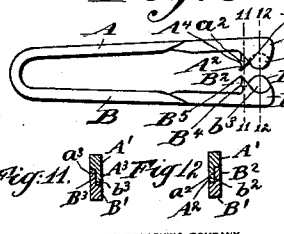

Fig. 11.

Witnesses

M. B. Harris

H. A. Johnstone.

Inventor

Gracie S. Roberts

By Thomas Dyer Slaton

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GRACIE S. ROBERTS, OF SPRINGLAND, NEW YORK.

KEY-HOLDER.

SPECIFICATION forming part of Letters Patent No. 508,244, dated November 7, 1893.

Application filed March 25, 1893. Serial No. 467,576. (No model.)

To all whom it may concern:

Be it known that I, GRACIE S. ROBERTS, a citizen of the United States, residing at Springland, in the county of Queens, in the State of New York, have invented a certain new and useful Improvement in Key-Holders, of which the following is a specification.

My improvement consists in a device for fastening the ends of chains or other flexible bands together so that without separating them keys, rings or other articles, which may be conveniently kept on a string, may be entered or removed. Metal key-holders, or key-rings, held together by the spring force of the metal, upon which keys may be inserted by a little effort and skill, have been long in use. They afford a marked advantage over an ordinary string or chain in the convenience of removing any key in the bunch, or adding one at any time without relasing the others. I use the term "ring" to indicate a piece of metal or other material extended around in a circuit without regard to its form. Such holders have been round, heart-shaped, triangular and perhaps of various other forms, but all have been rigid, only yielding by their elasticity. One objection to such rings is that they cannot by reason of their want of flexibility let the keys conform readily to the pocket. Another objection is that they necessitate a turning of the whole bunch when using a key in a lock.

I have devised a coupling device which gives a chain or flexible band all the advantages of the ring. My device consists of two parts: first, a long double hooked spring, which I shall designate as a lock-link; second, a broad basket-handled link, which I shall designate as the coupling-link. These links are fastened on the ends of the chains. The lock-link is formed of a spring having two hooks at the open end, which latter is V-shaped on the outside to facilitate entrance. These act together to allow the key to be entered by a direct pressure into the V-shaped notch, and to prevent them from being drawn back after having once entered. One side of a key-head having been entered the key is fast, but may be readily removed by passing the other side of the key-head also inward between the hooks. The coupling-link is so formed and engaged as to move easily along upon such link. It can also be easily shifted from one side to the other over the hooks,—flat hooks which form the joint,—but is not to be removed except in extraordinary cases, and then only by forcibly holding the hooks apart. Both links are made narrow so that the key-heads may pass readily over them, and any key on a bunch having been brought next to the coupling-link may be readily removed without loosening the end of the chain, or interfering with the other keys or causing any liability of their slipping off. And in the same manner keys may be entered without danger to the others.

The device is complete in itself and does not require the use of the finger-nails or any implement for the entrance or removal of keys. The inner faces of the hooks at the joint are each formed with two projecting tongues which lap past the corresponding tongues opposite, one on the right and the other on the left, so as to interlock and prevent the hooks from being displaced laterally. The retention of the keys is well insured, because two passes of the key have to be made to remove it from the bunch. Should some accidental movement cause one of these passes to be unintentionally made, there is still required a change in position of the chain and then a second pass of the key. There is practically no risk of these movements occurring in the required succession. The manipulations for entering or removing a key are easily acquired,—keys may be introduced or removed in the dark.

My holder has the essential requirements of safety and convenience for the carriage and use of keys.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figures 1, 2, 3 and 4 represent my holder with one key. Fig. 5 is a perspective view of the blank for the loop before it is folded. Fig. 6 is an edge view showing the same after it has been fully completed. Fig. 7 shows the same in the act of being slipped around the joint of the lock-link. Fig. 8 is a side view and represents the lock-link strained

open to better show the construction of the interlocking joint. Fig. 9 shows a modified form of the blank for the loop. Fig. 10 shows the lock-link with a modification,—a plainer form,—of the joint. The dotted lines show the coupling-link in the act of being shifted from one side to the other of the joint. It will be understood that if the arms, Fig. 8, are allowed to spring together the tongues shown thereon will interlock, as shown in Figs. 11 and 12. Fig. 11 is a cross-section on the line 11—11 in Fig. 8, and Fig. 12 is a cross-section on the parallel line 12—12 in that figure, with the joint thus allowed to close.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A and B are the two arms of the lock-link. A′ and B′ are the corresponding parts of the joint which can be opened by the elastic action of the lock-link to allow the heads of keys to be introduced and removed. The outline at this end is important. The exterior contour presents a re-entering angle or V-shaped recess *a*. Pressing the head of a key M into this recess with sufficient force compels the joint to open and allow the key-head to move foward past it. Such movement can be made to effect either the engagement or the disengagement of the key with the lock-link. Thus when the head of a key is presented edgewise to the recess *a* and pressed inward so as to open the joint and move the first side of the key-head past the joint, the movement will engage the key-head with the lock-link. It may be turned about into various positions either on the arm A or B, but it remains engaged. And it will be further understood that by moving the key farther inward and holding the other side of the key-head against the recess *a*, and forcing it again inward so as to move the second side of the key-head inward past the joint, the key will be liberated.

C is a clamp, which may be a properly compressed tie of wire attached to the fork or junction of the arms A and B. To this clamp is attached one end of a flexible chain D. The other end of this chain is attached to a coupling-link E, the form of which is determined with care, and which serves important functions. The parts A′ and B′ are flattened and the coupling-link E is formed with an opening *e* which is of such length as allows the coupling-link to be carried across the joint from the lower arm B up on to the upper arm A and back again, at will. At and near the mid-length of the coupling-link E, the aperture *e* is of only sufficient width to correspond with the flattened parts A′, B′, as shown in Fig. 6. But at this part the sides E′ are made broad (see Figs. 1, 2, 4 and 10). The form allows the coupling-link to be transferred easily over the joint but not to be pressed or twisted through it.

The aperture *e* is widened and rounded near the end of the coupling-link which hangs upon the lock-link (see Figs. 3, 6 and 7), so that it may move freely upon the sides thereof. The sides of the loop thus formed in the coupling-link are cut out so as to facilitate small key-heads passing over the coupling-link and the hooks, as shown in Fig. 3, and the metal at the bight of the loop is broadened so that when the coupling-link is passing over the joint it shall be held in the center so that the V-shaped opening *a* will be entirely covered by the broad portions E′ at the mid-length of the coupling-link.

Figs. 1, 2, 3 and 4 show the parts in successive positions in the act of engaging a key upon the holder. Fig. 1 shows the chain adjusted to allow the key-head to be introduced into the elongated lock-link, and the key having been so far introduced by slipping one side of its head through the notch *a* between the hooks. Fig. 2 shows the key in substantially the same position, the only change being a shifting of the position of the coupling-link and chain, so as to bring the coupling-link between the entering joint and the key.

Fig. 3 shows an interesting stage of the manipulation. The key-head has been turned so as to cover the loop of the coupling-link, and furthermore has been moved outward to the entering joint and is held with its side in the notch *a*. Holding the parts in this position, a movement of the key inward enters it a second time through the joint of the lock-link. This movement disengages the key from the lock-link and leaves it suspended on the chain in the condition for use. Fig. 4 shows such position. The reversion of this movement removes the key. Both operations are effected without detaching the chain.

The edges of the hooks A′, and B′ which are pressed against each other are each formed with two overlapping tongues engaging in corresponding recesses or rabbets in the opposite part.

A^2, A^3, are the tongues on the hook A′. They are arranged on opposite faces (see Fig. 8). A^2 is on the nearest face and A^3 on the farthest face. The tongue A^2 matches in a rabbet b^2 and the tongue A^3 in a rabbet b^3.

The hook B′ in which the rabbets b^2 and b^3 are formed has also tongues B^2 and B^3 reversely arranged, the tongue B^2 on the farthest face and the tongue B^3 on the nearest face. They engage respectively in rabbets a^2 and a^3 in the hook A′. The interlocking of these tongues and rabbets guards the hooks A′, B′, against being displaced laterally in either direction by any force while allowing them to open and close freely. The inner edges of these hooks are formed each with double points A^4, A^5, and B^4, B^5, which serve for the better retention of the coupling-link, but one hook on each may serve, if required.

The narrow form of the lock-link A, B, and coupling-link E, allows key-heads to be passed readily over them as well as along the chain, so that any key selected may be brought into position and be removed at pleasure.

The broad part of the coupling-link spans the V-shaped recess *a* while being moved across it so as to prevent the coupling-link from being pressed inward between the hooks. This also insures that it has a good grip on the second hook before leaving the first.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. Fig. 9 shows the blank which is to form the coupling-link E, with its mid-length having the same width as the widest part near the ends, but with a rectangular notch in each edge. When the loop is formed from such blank, the end which takes hold of the lock-link and is moved successively upward and downward past the joint A′, B′, can be operated in about the same way, as before described, but the notches will afford an additional safeguard against a possibility of twisting the coupling-link so that it will become disengaged when it is in the act of passing the joint. It may for this reason be esteemed a preferable form. The effect can be appreciated by conceiving that end of the link to be widened, as shown in dotted lines in Fig. 10. But the other admits of freer action. I prefer for general use the form shown in the other figures.

I have used the term "key-head" to designate the large end of a key, which is usually formed in one or more rings, and have described such head as directly engaged; but there may be a special ring of wire or other thin material attached to the key-head to be passed through the joint and thus to be engaged and disengaged. Such attachment is necessary only for keys having unusually small heads.

My key-holders may be made of various sizes for different uses, such as house, store or pocket. Large keys having heads too thick to pass through a small lock-link may be entered upon the chain by sacrificing for that special case the advantages of my invention, uncoupling it as in ordinary chain key-holders.

I prefer that the clamp C shall take such hold of the junction of the arms A and B so as to avoid much movement thereon. The lock-link, if preferred, may be shaped by dies or otherwise with an increase of width each side of the clamp C to prevent its movement.

An ordinary use of the device is to make pocket-key-holders, but longer ones may be made either by lengthening the chain or by coupling two or more of the pocket holders together so that a large bunch of keys would have more than one point for entrance or removal.

Instead of the clamp C, I can attach that end of the chain D to the lock-link by a coupling-link similar to the link E. Such an arrangement can be readily understood without an additional figure. It would give the advantage that there would be two coupling-links which might serve alternately, or one might serve after the other had become crushed or in any way distorted out of the proper form. It would, however, sacrifice the advantage due to the fixity of the clamp C. The form shown is preferable.

I claim as my invention—

1. In a key-holder, the lock-link described, having two arms A, B, having separable hook-ends A′, B′, in combination with a flexible chain D having both ends permanently attached to said link, one end by means of a movable coupling link which can be shifted across the open end of the lock-link without liability of getting off, substantially as and for the purposes herein specified.

2. In a key-holder, the elongated lock-link described, having two arms A, B, having separable hook-ends A′, B′, with a V-shaped recess *a* at the exterior of the joint, with the ends A′, B′, flattened, in combination with the chain D permanently attached to the opposite end of the lock-link and with the coupling-link E, having a narrow aperture *e* and broad surfaces E′ adapted to prevent its being passed through the joint while in the act of being shifted with its attached chain across the joint A, B, all arranged to serve relatively to each other and to a key-head M adapted to engage and disengage the latter without releasing the hold on the chain, all substantially as herein specified.

3. In a key-holder, the combination with the chain D, and a suitable coupling-link E of the elongated lock-link having arms A, B, and flattened hook-ends A′, B′, the latter being formed with projecting tongues A^2, A^3, B^2, B^3, arranged to overlap alternately on each side so as to resist strains in both directions, all substantially as herein specified.

4. In a key-holder, the flattened hook-ends A′, B′, formed with double hook points A^4, A^5, B^4, B^5, on the inner edges in the arms of the elongated lock-link A, B, in combination with the chain D and a suitable coupling-link E, adapted to serve substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

GRACIE S. ROBERTS.

Witnesses:
THOMAS DREW STETSON,
H. A. JOHNSTONE.