L. A. BITTORF.

SASH FASTENER.

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900,079. Patented Oct. 6, 1908.

Fig. 1

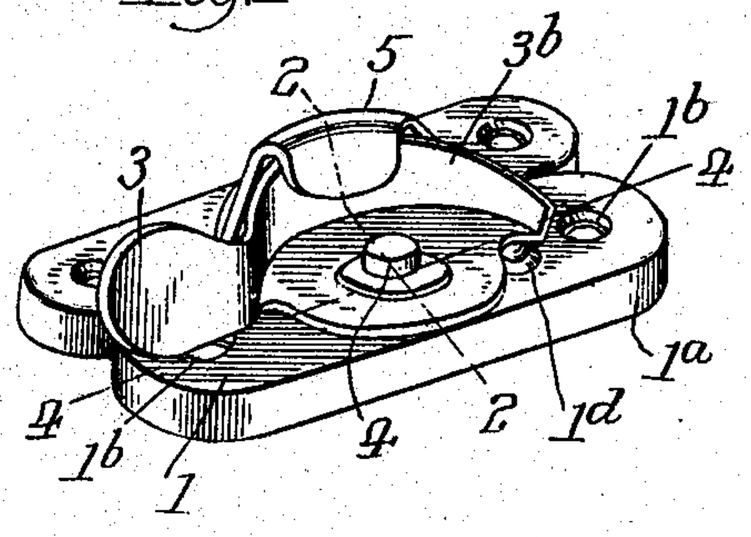

Fig. 2

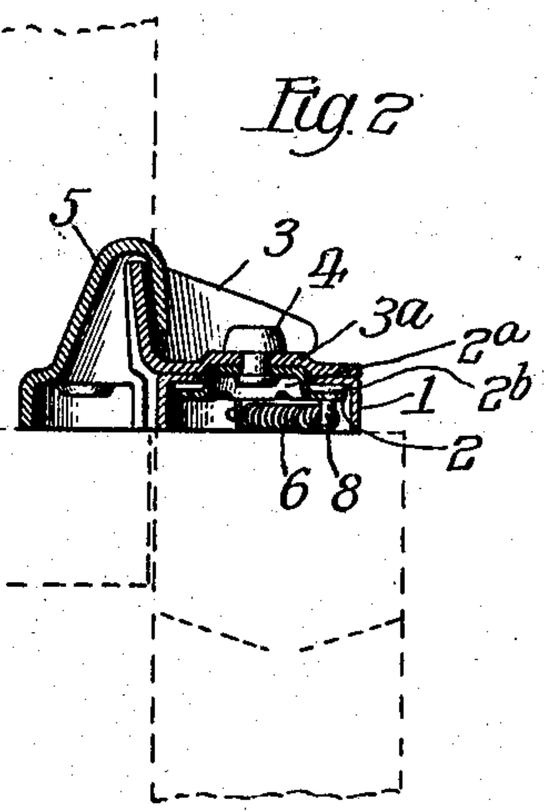

Fig. 3

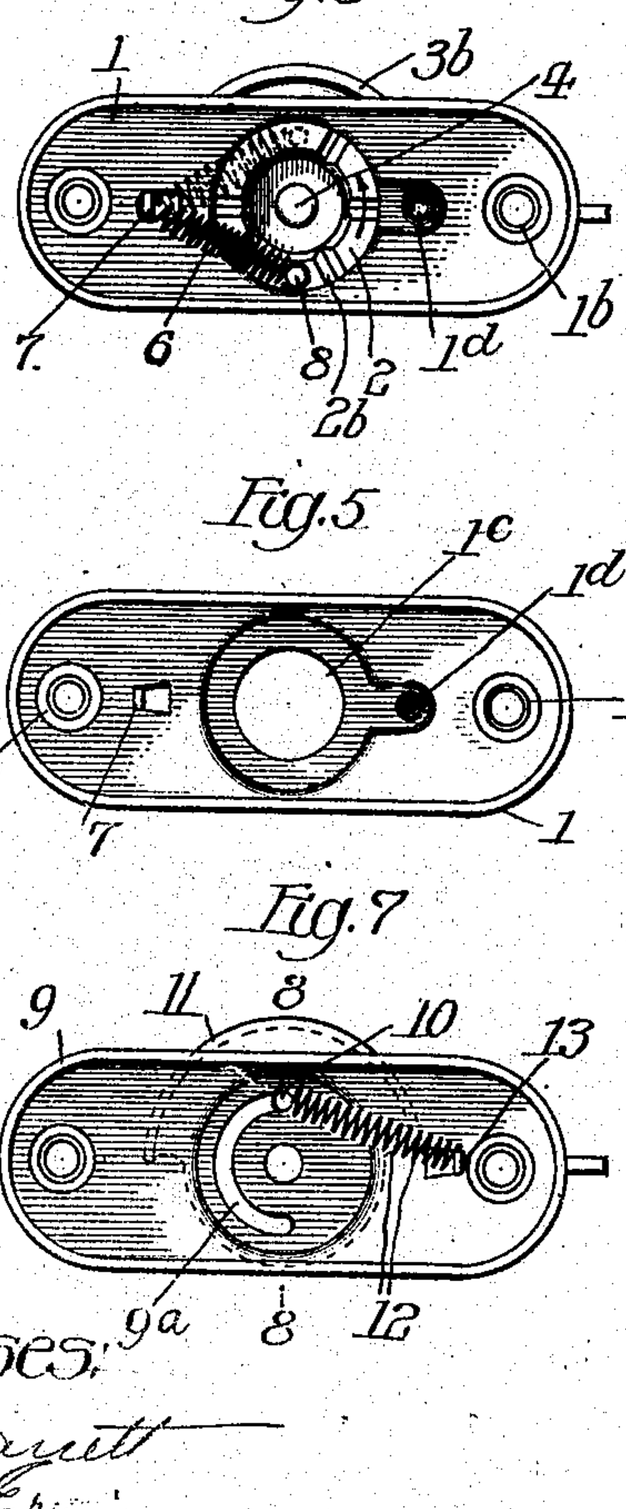

Fig. 4

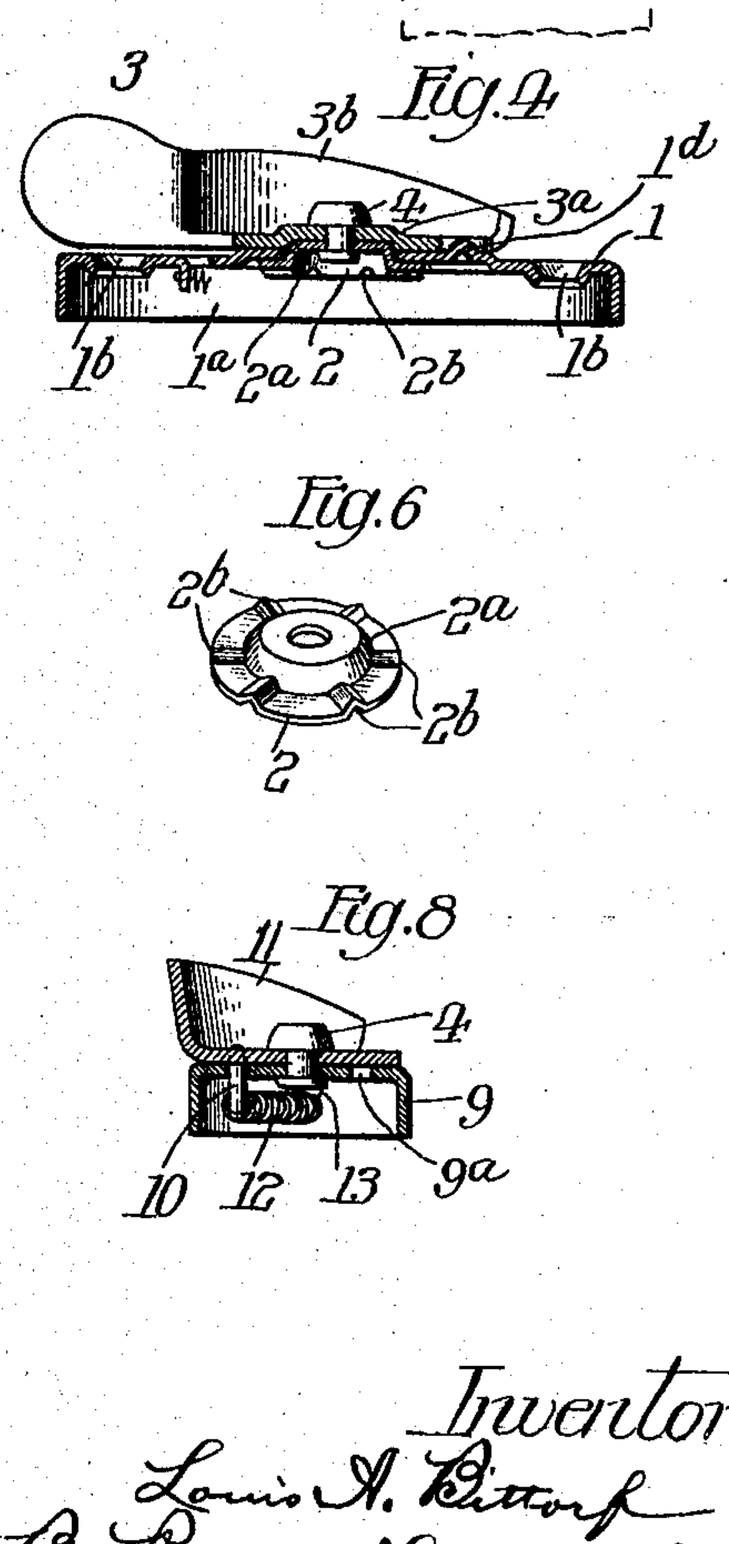

Fig. 5

Fig. 6

Fig. 7

Fig. 8

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UNITED STATES PATENT OFFICE.

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SASH-FASTENER.

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To all whom it may concern:

Be it known that I, LOUIS A. BITTORF, a citizen of the United States, residing at Sterling, Whiteside county, Illinois, have invented certain new and useful Improvements in Sash-Fasteners, of which the following is a specification.

My invention relates to sash fasteners and the object thereof is to produce a device of this character which shall be not only efficient and reliable in operation, but also simple and inexpensive.

In my improved sash fastener I employ a single spring which coöperates with the controlling lever of the sash fastener and is so mounted and arranged as to hold such lever in either one of its two positions except as against positive force of the user, but which nevertheless permits of the free movement or oscillation of the controlling lever from one of such positions to the other.

In my improved sash fastener I also provide for the reduction of the friction of the moving parts to the minimum.

In the accompanying drawing, Figure 1 is a perspective view of my sash fastener; Fig. 2 a section on the line 2—2 of Fig. 1; Fig. 3 a bottom plan view of the sash fastener proper with the operating lever shown in its open or disengaged position; Fig. 4 a section on the line 4—4 of Fig. 1; Fig. 5 a plan view of the base plate alone; Fig. 6 a perspective of the disk to which the operating lever is secured; Fig. 7 a bottom plan view of a modified form of construction showing the operating lever in its open or disengaged position; and Fig. 8 a section on the line 8—8 of Fig. 7.

Referring to the embodiment of my invention as illustrated in Figs. 1 to 6, the sash fastener proper comprises a base plate 1 of suitable size and dimensions and having a depending marginal flange 1^a, thereby forming therewithin a space or chamber in which some of the operating parts hereinafter described are located. This base plate is also provided with holes 1^b whereby the same may be secured to the rail of a window sash by screws in the usual manner. As shown more particularly in Fig. 5, the base plate is provided with a central circular opening 1^c of a suitable size to accommodate the centrally expanded portion 2^a of a disk or plate 2, whose flat portion or margin is adapted to bear against the under side or face of the base plate. In practice and by preference this expanded portion 2^a projects slightly through the opening 1^c of the base plate and enters a socket 3^a which is provided on the under side of the operating or locking lever 3. This lever is firmly secured to the disk 2 in suitable manner, as by means of a rivet 4 or the like, so that such parts move or oscillate in unison in the locking and unlocking operation of the fastener. This lever 3 is in other respects of the usual and well-known construction and therefore provided with the usual cam flange 3^b which coöperates with the usual form of keeper such as that shown at 5 in Figs. 1 and 2.

For the purpose of holding the operating or locking lever in either one of its two positions with a yielding pressure I employ a single coiled spring 6, one end of which is mounted stationarily at the point 7 which in practice is a tongue struck up from the base plate itself, and the other end of which is secured in suitable manner to the disk or plate 2 at a point near the periphery thereof. In the present instance I have shown such latter end of the spring as attached to a pin 8 projecting downwardly from the lower face of the disk or plate 2. As clearly indicated in Fig. 3, the two points of the spring attachment are on two right angle lines, both radial of the axis of rotation of the disk 2 when such disk is in either one of its two positions. It is now evident that when the disk is rotated in the direction indicated by the arrow in Fig 3 the spring is distended until its axis passes beyond a line corresponding with a diameter extending through the point of spring attachment 7 after which the spring tends to assume its normal condition and to exercise its stress upon the disk and operating lever. The movement of the disk and lever up to central position is therefore against the tension of the spring, after which the spring tends to bring the disk and lever to the position to which it is being moved. The operation to bring the disk and lever to its initial position is just the reverse of that described, in which operation

the spring will be moved from its dotted line position to the full line position shown in Fig. 3. Inasmuch as the tension of the spring increases gradually up to its central position and its full tension is not attained until such position is reached (instead of full tension operating on the controlling lever in all positions thereof), the movement of such lever is easy in operation and the latter is caused to move or snap into the position toward which it is being moved by the stress of the spring after its movable point of attachment has passed the center and when it is under its greatest tension. It will be understood that the operating lever is limited in its two movements in the usual way as by means of a projection 1^d on the top face of the base plate.

In order to reduce the friction of the disk or plate 2 and in order to prevent sticking of the parts after they have been lacquered, I provide such disk or plate with a series of radial grooves or corrugations 2^b, whose crowns only bear against the under side or surface of the base plate, thereby reducing the amount of the bearing or friction surface, the remainder of the margin of the disk or plate being of course separated from the lower face of the base plate. In this manner the friction is reduced and the possibility of sticking, which is liable to occur in the case of flat disks after being lacquered, is avoided.

The feature of my invention as regards the employment of the single spring coöperating with the locking lever may be embodied in other constructions of sash fastener, as illustrated in Figs. 7 and 8, wherein the disk or plate 2 is dispensed with and in which the spring is shown connected as to its movable or oscillating end directly with the locking lever instead of indirectly through the medium of the disk or plate 2 in the first described form of construction. In this modification the base plate 9 is the same as the base plate 1 with the exception of the provision of the semi-circular slot 9^a, in which travels a pin 10 depending from the lower side of the locking lever 11 and passing through such slot. This pin or projection from the lever constitutes a point of attachment for the movable or oscillating end of a spring 12 whose other end is secured to a stationary point 13 corresponding to the point or tongue 7 of the usual form of construction. The operation of this modified form of construction is obviously the same as the other form, but it will be noted that the pin 10 also serves as a stop for the movement of the lever, inasmuch as such movement is limited by the contact of such pin at either end of the semi-circular slot with the result that the projection 1^d of the other form of construction may be here dispensed with if desired.

I claim:

1. In a sash fastener, the combination of a base plate, an operating lever mounted to rotate thereon, and a coiled spring coöperating with the lever to hold it in either one of its two positions with a yielding pressure and arranged to be oscillated as to one end from one side to the other of the axis of rotation of such lever when the latter is operated.

2. In a sash fastener, the combination of a base plate, an operating lever mounted to rotate thereon, and a coiled spring coöperating with the lever to hold it in either one of its two positions with a yielding pressure, fixed stationarily as to one end at a point on a line radial of the axis of rotation of the lever and connected at its other end with such lever at a point on a radial line substantially at right angles to the first named radial line.

3. In a sash fastener, the combination of a base plate, an operating lever mounted to oscillate on one side thereof, a disk arranged to oscillate on the other side and connected with the lever, and a coiled spring fixed as to one end and secured as to the other end to the disk.

4. In a sash fastener, the combination of a base plate, an operating lever mounted to oscillate on one side thereof, a disk arranged to oscillate on the other side and connected with the lever, said disk having a series of projections on its inner side to decrease the amount of bearing surface between it and the plate, and means for holding the lever in either one of its two positions.

5. In a sash fastener, the combination of a base plate provided with a socket portion with an opening therein, a disk having a socket portion positioned in said opening, an operating lever secured to said disk, and a coiled spring connected at one end to the disk to hold the lever in either one of its two positions.

6. In a sash fastener, the combination of a base plate provided with a socket portion with an opening therein, a disk having a socket portion positioned in said opening and projecting partially above the outer surface of the plate, an operating lever secured to said disk and having on its inner side a socket to receive said projecting portion of the disk, and means for holding the lever in either one of its two positions.

7. In a sash fastener, the combination of a base plate provided with a socket portion with an opening therein, a disk having a socket portion positioned in said opening, and a marginal portion provided with projections on its inner side to decrease the

amount of bearing surface between it and the plate, and means for holding the lever in either one of its two positions.

8. In a sash fastener, the combination of a base plate provided with a socket portion with an opening therein, a disk having a socket portion positioned in said opening, an operating lever secured to said disk, and a coiled spring secured at one end to the plate and at the other end to the disk, the points of attachment of the spring being on right angled lines radial of the axis of oscillation of the lever.

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