(No Model.) 2 Sheets—Sheet 1.

E. S. SMITH.

SPRING CLASP.

No. 303,596. Patented Aug. 12, 1884.

Fig. 1.

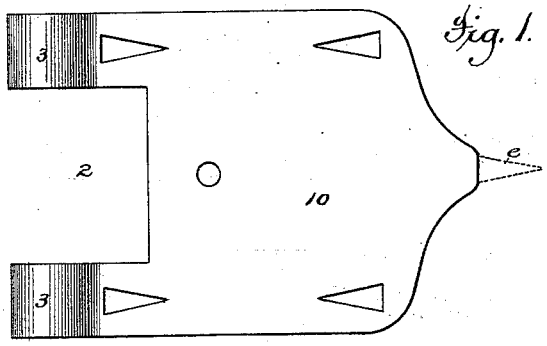


Fig. 5.

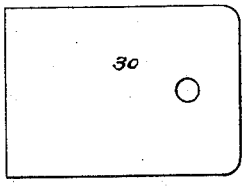


Fig. 2.

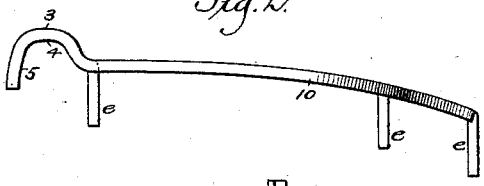


Fig. 6.

Fig. 3.

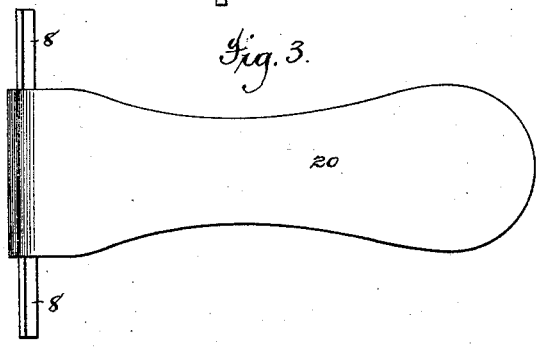
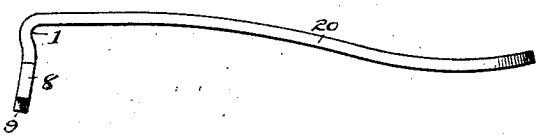


Fig. 4.



Attest:

Geo. H. Graham

A. C. Nuntemann

Inventor:

Edward S. Smith

by Munson & Philipp

Attys

(No Model.)

2 Sheets—Sheet 2.

E. S. SMITH.

SPRING CLASP.

No. 303,596. Patented Aug. 12, 1884.

Fig. 7.

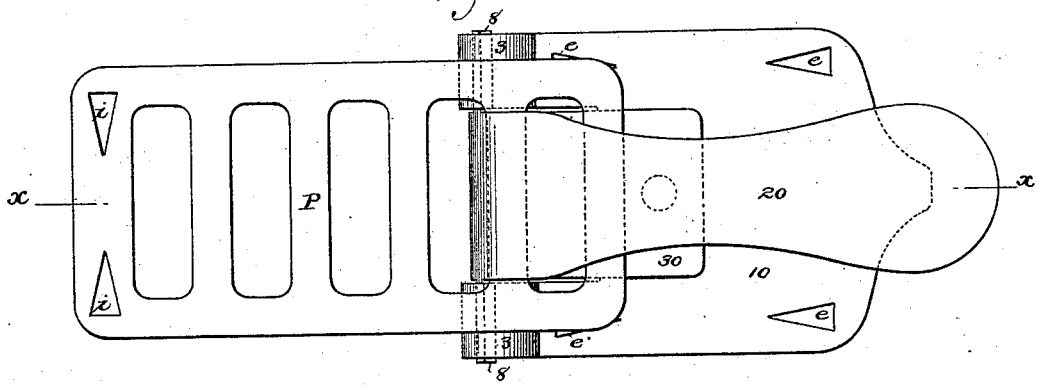


Fig. 8.

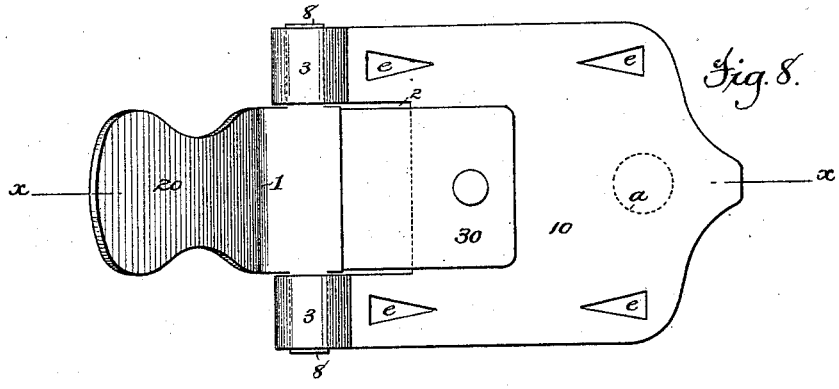


Fig. 9.

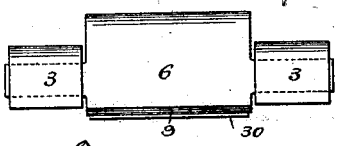


Fig. 10.

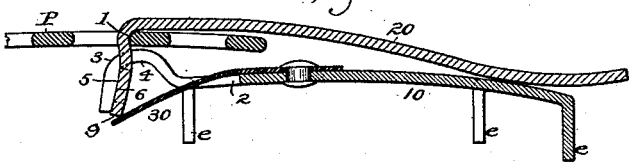


Fig. 12.

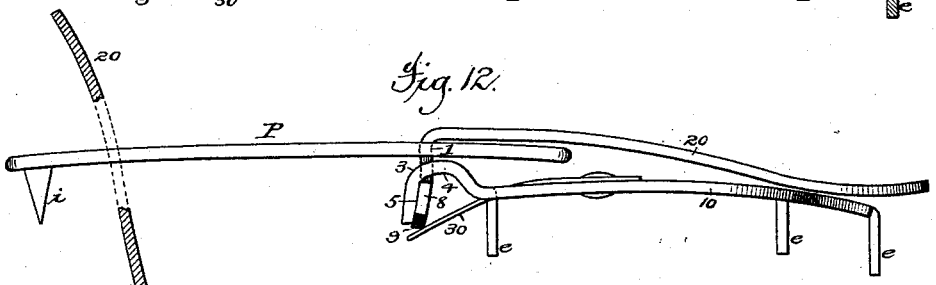
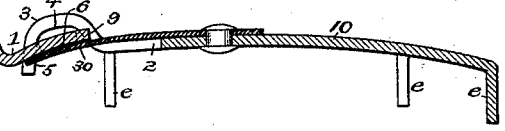


Fig. 11.



Attest:

Geo. H. Graham

J. H. Quintenwann

Inventor:

Edward S. Smith

by Munson & Philipp

Attys.

UNITED STATES PATENT OFFICE.

EDWARD S. SMITH, OF WATERBURY, CONNECTICUT.

SPRING-CLASP.

SPECIFICATION forming part of Letters Patent No. 303,596, dated August 12, 1884.

Application filed April 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. SMITH, a citizen of the United States, residing in the city of Waterbury, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Spring-Clasps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

These improvements relate to that class of clasps which have a spring-seated holding-lever that is adapted to be thrown open or closed by the manipulation of the fingers. Such clasps are especially useful as fastenings for overshoes, pocket-books, and like articles, and require to be of such construction for these uses as will enable them to lie closely to the surface to which they are attached and project but slightly therefrom, and they must be capable of retaining their open or closed position even after they have been subjected to long wear, and always strongly resist any tendency to open when in use.

To attain these objects, and at the same time produce at a minimum cost a clasp capable of great efficiency, durability, and easy manipulation, is the object of this invention; and the improvements accomplishing the same consist in a peculiar structure of the pivots of the holding-lever, and the bearings provided for them in hook-like side arms of the base-plate, and the structure of the bent forward end of the holding-lever, whereby effective bearings for the spring are obtained, also an improved means for fastening the parts of the clasp to the article with which it is to be used, all of which is more particularly hereinafter explained.

That these improvements may be readily understood, their practical embodiment herein illustrated will be fully explained by the aid of the accompanying drawings, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of the base-plate. Fig. 3 is a plan view, and Fig. 4 a side elevation, of the holding-lever. Fig. 5 is a plan view, and Fig. 6 a side elevation, of the spring. Fig. 7 is a plan view of the complete clasp in its closed condition, and having associated with it a looped attaching-plate. Fig. 8 is a plan view of the clasp with its holding-lever thrown open. Fig. 9 is an end elevation of the clasp in its closed condition. Figs. 10 and 11 are, respectively, longitudinal sectional elevations of the clasp, as illustrated in Figs. 7 and 8. Fig. 12 is a side elevation of the clasp when closed.

The clasp consists of three parts, a bottom or base plate, 10, to which the other parts are secured, and by which it will be attached to one part of the article to which it is to be applied, a holding-lever, 20, by which another portion of the article to which it is applied is confined, and a spring, 30, by which the holding-lever is controlled.

The base-plate 10, preferably of slight curve horizontally, is bifurcated or cut away at the front end to provide a central recess, 2, and form the side arms, 3 3, which latter constitute a means for confining the holding-lever laterally, and are bent into hook-like form to provide open sockets, in which its pivots 8 are held and guided at all times, and these sockets have seats or bearings 4 5, upon which said pivots rest when the holding-lever is wholly opened or closed, one set, 5, of which seats or bearings are made flat to form a substantial support for the pivots when the lever is closed, while the other set, 4, may or may not embody this feature.

The main body of the holding-lever 20 has a curvature suited to that of the plate, and its front end is bent for a short distance at nearly right angles to its body, to form a shank, 1, against the inner surface of which a bar of the loop-like attaching-plate P is supported when embraced by the clasp, as in Fig. 10. From this shank 1 a somewhat curved and obtuse projection extends outward, and its front surface, 6, and end 9 constitute bearings for the spring 30. (See Figs. 9, 10.) At each side of this projection this lever is provided with pivots 8 8, that extend therefrom laterally, which pivots are substantially rectangular, or left in the form they have as the result of simply cutting the blank from sheet metal, thus retaining flat surfaces suited to rest snugly upon the bearings or seats 5, and also upon the bearings or seats 4, if desired. When mounted in place, the edges of this lever on each side of its pivots 8 rest in contact with the inner surfaces of the hook-like portions of the arms 3.

The spring 30 is a flat plate of steel, secured at its rear end by a rivet to the base-plate 10, and when its front end is entered through the recess 2 and passed beneath the lever 20, so that the end 9 of said lever may rest upon or be supported by the extremity of the spring, the latter will assume the curved form, as shown. When the clasp is closed, as in Figs. 10, 12, the spring will force the pivots against the seats 5, and when the clasp is open, as in Fig. 11, said spring will force the pivots onto the seats 4, (said pivots having more or less surface-contact with said seats, as may be desired,) and said spring will remain in pressing contact with said lever throughout all positions it has while being opened and closed.

The plate 10, lever 20, and spring 30 are of such simple form that they may be readily blanked out of sheet metal and properly shaped in dies without requiring fitting or trimming to adapt them for the co-operative relation they have when attached together, and any bending or shaping in the operation of assembling and securing them together, as appears from the illustration of them in their detached condition in Figs. 1 to 6; and, as is obvious from an inspection of the drawings, their assemblage requires but the most ordinary skill, its accomplishment only necessitating the engagement of the lever 20 with the plate 10 by placing its pivots 8 8 in the hook-like ends or sockets of the arms 3 3 of the plate, followed by the insertion of the forward end of the spring 30 through the recess 2, and under the end of the lever 20, and then the riveting of the rear end of the said spring to the plate 10. Thus constructed and assembled the lever 20 will be held closed or open, and be firmly seated in both positions by the pressure of the spring. When closed, as in Figs. 7, 10, and 12, the pivots 8 8 will rest their flat faces against the flat seats 5, and the pressure of the spring 30 against the end 9 of the forward projection of the lever 20 will secure that relation of the parts with a pressure and leverage of such power as to resist any tendency of the lever to open, due to the draft of the attaching-plate P upon the shank 1, when such plate attached to a portion of the article to be fastened has been passed over the body of said lever and rests against said shank 1, as shown. In this position of the parts it will be observed that the complete surface-contact which the pivots 8 have upon the seats 5 affords strong and extensive bearings, directly opposing the draft upon the shank 1, which, aided by the spring, is capable of resisting any tendency of the lever 20 to be opened by such draft. When the lever is opened, as in Figs. 8 and 11, the pivots 8 8 will rest in the sockets of the arms 3, and bear upon the flat seats 4 to any extent their dimensions will permit. As shown, the outer edges of the pivots engage the sides of the sockets in the arms 3; but said sockets may be shaped to form flat bearings 4 and allow the flat faces of the pivots to rest thereon. When the clasp is open, the end of the spring 30 will conform to the shape of the seat 6 of the lever, which seat is so shaped to receive it that said lever may be extended forward at a convenient angle to receive the loop-like attaching-plate P upon its body, or have the same removed therefrom, and this position of the parts will be secured by the pressure of the spring. In both the closed and open positions of the clasp it will be observed that the structure is such that a powerful leverage of the spring is exerted to prevent displacement of the lever, and also that the flat bearings of the pivots, resting upon the flat seats of the plate, operate to oppose such displacement. In the opening and closing movement of the lever the power that may be exerted by the fingers is sufficient, aided by the resiliency of the spring, to overcome its resistance or leverage and that of the flat bearings of the pivots and like seats in which they rest, and carry the holding-lever from one position to the other. In thus being moved the spring will follow the end of the lever, and by its constant pressure always hold the pivots in contact with the inner surfaces of the hook-like ends of the side arms and prevent displacement of the parts or unseating of the lever, this construction avoiding any necessity of closing the sockets around the pivots, or the rounding of said pivots to suit closed sockets. When closed, the downwardly-bent rear end of the lever 20 forms a stop resting upon the plate 10, and performs the functions of preventing undue pressure upon the pivots, the slipping of the forward end of the lever off from the spring, and the escape of the looped attaching-plate P from within the embrace of the clasp if said plate should be detached or otherwise become free.

While the plate 10 may be secured to the article by a rivet or rivets, (indicated by dotted circle *a*,) it is of great consequence, both as an element of cheapness of structure and as affording the utmost simplicity and convenience, to provide both the base-plate 10 and the loop-plate P with means for attachment to the article, which means are integral with said plates. To this end the metal base-plate 10 is provided with a number of legs, *e*, formed by incisions, and capable of being bent at right angles to the plate, as in Figs. 10, 11, 12, in which position they are suited to be inserted through the article, and thereafter to be bent down parallel with the article, so as to clamp it between them and the under surface of the plate 10. The plate P is at convenient points supplied with similar legs, *i*, capable of operating in like manner, as appears from Figs. 7 and 12.

This structure of clasp is of course applicable to many other uses than those heretofore mentioned. Thus, if made of proper dimensions, it may be used as a fastener for harness, a cartridge-box, a trunk, carriage-curtains, and other articles requiring one part to be detachably secured to another. For some uses

it may be desirable not only to give its pivots flat bearings to rest in similar seats, but said seats may be depressed, so as to provide side walls to embrace the sides of the pivots, and thus render it more difficult to disturb its closed and open positions.

By means of the construction as herein set forth the parts of the clasp are brought within dimensions that occupy but little space, and hence project but slightly above the surface to which the device is applied, a desideratum of great consequence when the clasp is used as a garment-fastener, and of value in all of its uses.

What is claimed is—

1. A spring-clasp consisting of a base-plate having open sockets, a swinging lever with lateral pivots, and a shank rising above said sockets and pivots, and a supporting-spring, combined and operating substantially as described.

2. A spring-clasp the swinging lever whereof is provided with flat-sided pivots, and the base with corresponding seats or bearings, substantially as described.

3. The combination, with the arms 3, having flat seats or bearings 5, of the swinging lever having flat pivots, and a supporting-spring, substantially as described.

4. A spring-clasp consisting of a base-plate bifurcated to form side arms having hook-like ends or sockets, a swinging holding-lever having lateral pivots, a shank rising above said sockets and pivots, and a front end bent to form a seat, 6, and a spring, 30, extending between said side arms and co-operating with said seats to hold the lever in place, all substantially as described.

5. A spring-clasp consisting of a base-plate provided with side arms having hook-like ends or sockets with seats 4 5, a spring extending between said arms, and a holding-lever having a bent forward end provided with flat pivots 8 8, and with bearings 6 9 for said spring, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD S. SMITH.

Witnesses:
T. H. PALMER,
H. T. MUNSON.