Nov. 3, 1936. A. HUREWITZ 2,059,582

FINDING FOR A CLASP

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Fig. 1.

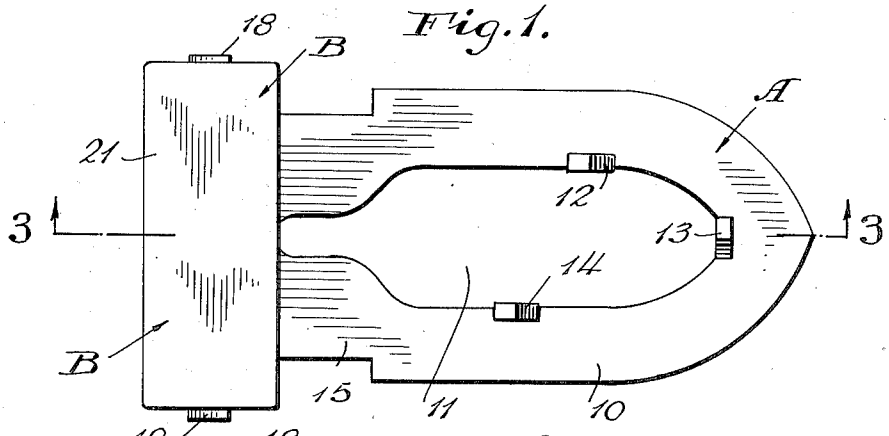


Fig. 2.

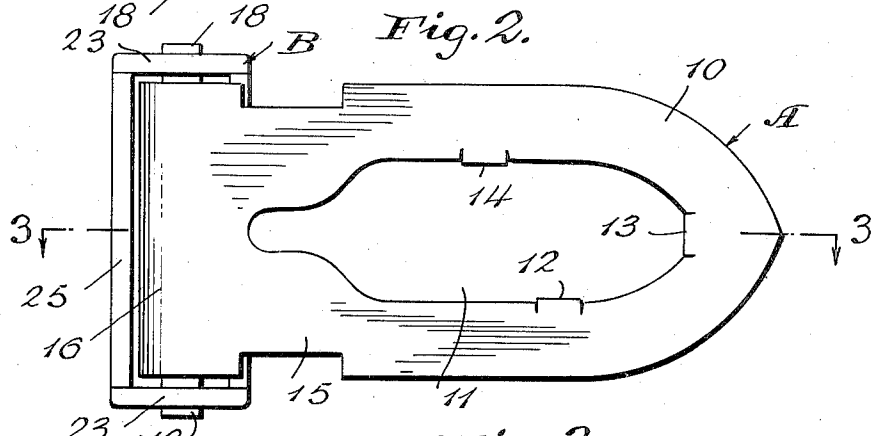


Fig. 3.

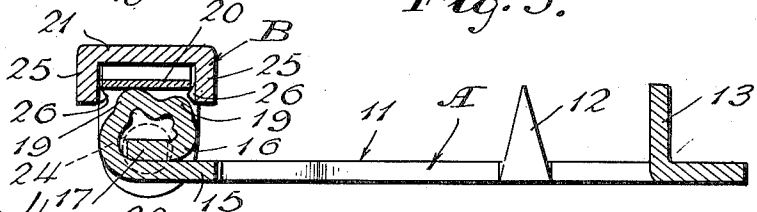


Fig. 4.

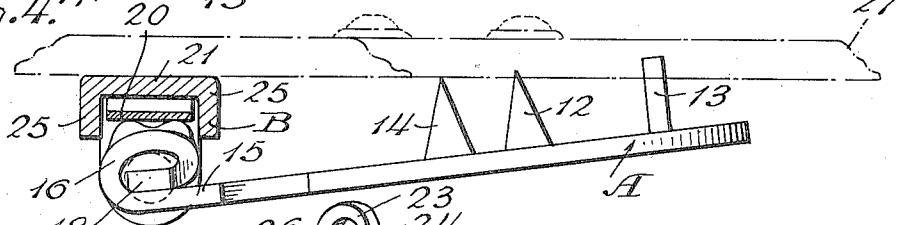
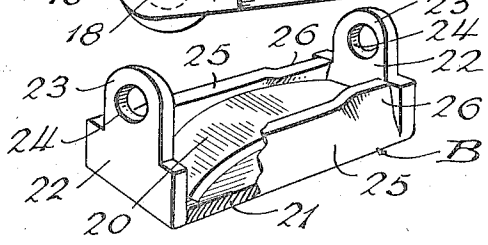


Fig. 5.



INVENTOR
ALEXANDER HUREWITZ
BY Richards & Geier
ATTORNEYS

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Fig. 6.

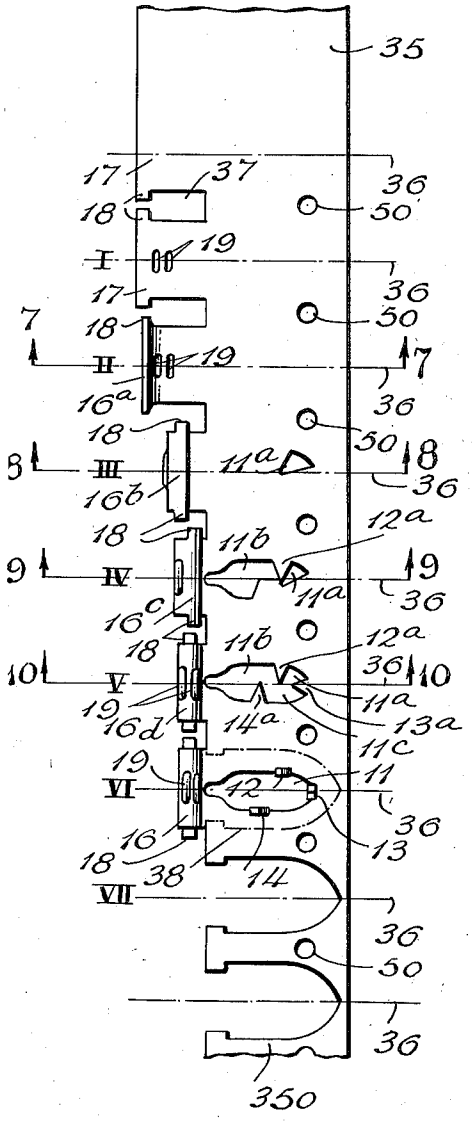


Fig. 7.

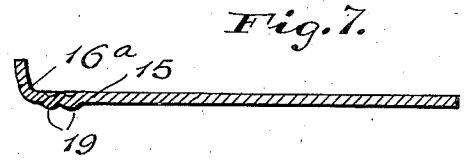


Fig. 8.

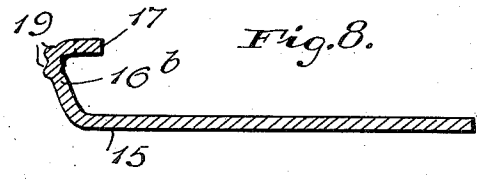


Fig. 9.

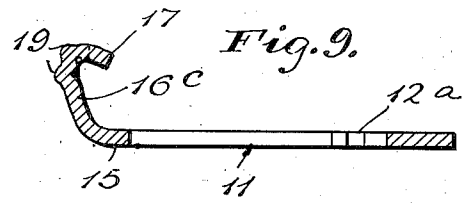


Fig. 10.

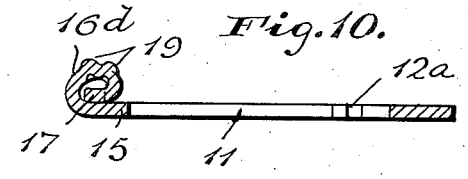
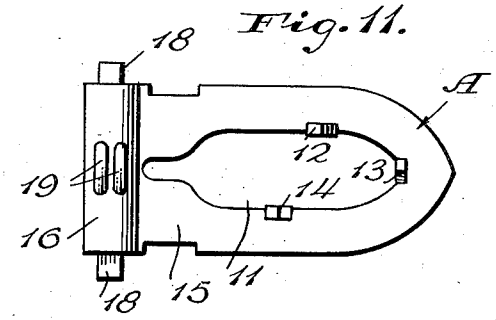


Fig. 11.



INVENTOR
ALEXANDER HUREWITZ
BY Richards & Geier
ATTORNEYS

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FINDING FOR A CLASP

Alexander Hurewitz, New York, N. Y.

Application January 24, 1934, Serial No. 708,036

14 Claims. (Cl. 24—252)

The present invention relates to improved metal findings adapted for utilization in clasps, clamps, buckles and similar fastening devices.

Clasps, clamps, buckles and similar fastening devices are customarily formed of two jaw members pivotally connected to each other, one of which pivotal members may, if desired, be used to carry an ornamental facing or design plate to give the fastening device an artistic and decorative appearance.

In making these fastening devices of sheet metal parts, the pivotal elements or the jaw members are usually formed, so that they will receive at one end or side thereof a pivot mount consisting of a pin, encircled by a coil spring, the ends of which coil spring contact with the opposite jaw members to press them toward or away from each other, as may be desired.

The utilization of separate pivotal members, such as pins, and the further utilization of coil springs encircling said pins and cooperating with the jaw members has resulted in a substantial increase in the cost of the finished metal finding and it also necessitates many additional machine and manual operations in production thereof.

The coil springs usually associated with these pins are also usually not altogether satisfactory since they tend to press the jaws closely together and make it difficult to attach the front design or decorative plate or shield. Then in order to assemble decorative fronts or design plates on the jaw members, it is necessary either to provide special holding means to separate the jaws against the spring tension or to provide stop means upon one or both of the jaws to maintain the jaw member on which the design plate is to be mounted in a predetermined position in regard to the other jaw member so that a most satisfactory attachment of the design plate may be made. Neither of these expedients have proven altogether satisfactory in commercial practice.

It is an object of the present invention to provide improved findings for clasps which may be made by an inexpensive process and at low cost with automatic machinery and without substantial manual labor.

Another object of the present invention is to provide an improved metal finding suitable for utilization in clasps, clamps, buckles and similar fastening devices, which may be readily formed from sheet metal stampings to be pivotally mounted upon each other without the necessity of utilizing pin or other separate pivot mounts, and without the need of employing coil springs for pressing the pivoted members toward or away from each other.

Another object is to provide a metal finding to be used in clamps, clasps and similar fastening devices, which may be readily made by an inexpensive process and at low cost, and which, although it is provided with resilient means, may be most readily provided and assembled with a decorative facing plate or design member without the necessity of providing special clamping means or stopping means to prevent the resilient member from pressing the jaws or pivotal members closely together.

Other objects will be obvious and will appear during the course of the following specification.

In accomplishing the above objects it has been found most suitable to form the two pivotal or jaw members of the clasps, clamps or similar devices of sheet metal stampings. One of these jaw members is formed to receive or mount a decorative design or front facing plate and the other is provided with prongs or other holding means to grip the material to be inserted between the jaws.

One of the pivotal or jaw members, preferably the backing, gripping or non-mounting member in one embodiment, is formed so that it is integrally provided with projecting ears forming a pivotal mount, while the other jaw or pivotal member is provided with a recessed element to receive a resilient member preferably taking the form of a flat leaf spring.

Preferably the pivotal portion of the first-mentioned backing jaw member in addition to being provided with integral bearing elements is also provided with means to tension the spring and thus enable correct resilient operation of the device.

The above and other objects will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing a preferred embodiment of the inventive idea.

In the drawings:

Fig. 1 is a top plan view of the finding for a clasp without the decorative or ornamental facing being applied thereto.

Fig. 2 is a bottom plan view.

Fig. 3 is a side sectional view upon the line 3—3 of Figures 1 and 2.

Fig. 4 is a side view similar to the finding of Figs. 1 and 2, with the decorative face or ornamental facing being indicated as being positioned thereupon.

Fig. 5 is a perspective view upon a slightly en-

larged scale of the mounting jaw member or pivotal jaw element.

Fig. 6 is an operational plan view indicating how the backing or rear pivotal member of Figs. 1 to 3 may be formed and stamped out from a strip of metal by automatic machinery.

Figs. 7, 8, 9, and 10 are respectively side sectional views upon the lines 7—7, 8—8, 9—9, and 10—10 of the metal strip of Fig. 6 upon an enlarged scale, illustrating various stages in the formation of the backing or rear pivotal mounting of Figs. 1 to 4, and

Fig. 11 is a top plan elevational view of the bottom or rear pivotal or jaw mounting member upon a somewhat smaller scale than Fig. 1.

Referring to Figs. 1 to 5, the metal finding for the clasp, clamp, buckle and other similar fastening device consists of backing, gripping or rear pivotal jaw member A, and a forward or mounting pivotal jaw member B. The backing member A, see Figs. 1 to 4 and 11, is formed of sheet metal, in the manner indicated in Fig. 6, which has been punched and stamped out to leave the annular spade-shaped portion 10 having a central opening 11, from the edges of which upwardly project the prongs 12, 13 and 14.

The pivotal end 15 of the backing member or pivotal member A is rolled over to form a coil-like round or cylinder 16 (see Figs. 3 and 4). The ends 17 of the backing A enclosed in the roll 16, has two outwardly projecting ears 18, which serve to form the inner pivotal bearing member.

The upper portion of the round or roll 16 is provided with the cam or elevated portion or knob or the abutment 19 which is preferably thrown up from the roll 16, said knob or abutment 19 serving to tension the spring 20 of the upper, mounting or pivotal jaw member B.

The mounting or pivotal jaw member B shown best in Fig. 5 is also preferably formed of a sheet metal stamping having a rectangular-shaped base or mounting side 21, the ends of which have the downturned ears 22 with the encircling or outer pivotal bearing members 23. These members 23 are provided with the openings 24 for receiving the pivot ears or tangs 18. The sides of the base 21 are also provided with the upturned flanges 25 to form a cup to receive the convex spring member 20. Portions of the edges of the flanges 25 are inclined inwardly toward each other at 26, (see Fig. 5) to hold the leaf spring 20 in position.

As indicated, in dotted lines in Fig. 4, the face or ornamental front plate 27 may be connected to the face or base 21 of the upper or mounting pivotal mounting element B.

It will be noted that the pivotal connection between the front mounting and the back gripping pivotal or jaw members A and B is devoid of a separate pivot pin connection, and that the projecting ears or tangs 18 are formed integrally from the backing member A to form part of the pivotal connection. This eliminates the necessity of using a separate pin and substantially decreases the cost of metal findings.

The provision of a flat leaf spring 20 as illustrated in combination with the tensioning cam or abutment means 19 also substantially reduces the cost and improves the utilization and functioning of the finding.

It will be particularly noted that the finding of the present invention is devoid of stopping means, which are necessitated when coil springs are employed. These stopping means serve to limit the movement of the mounting element B either toward or away from the backing element A so that said mounting element will be in position to attach the decorative or ornamental facings or plates 27 to the mounting jaw member B.

It will be noted from Figs 3 and 4, even though no stopping means are employed, that it is readily possible to attach a face or decorative plate 27 to the mounting element B. It will be noted that the effect of the cam member or abutment 19 on the roll 16 upon the flat spring 20 is normally to position the member B about in the position in which the base 21 of the upper pivotal member B will be parallel to the plane of the rear pivotal member A.

The position shown in Fig. 3 may be very conveniently employed when attaching the element 27 to the mounting member B, while relative position of the mounting shown in Fig. 4 is the normal relative position of the elements A and B, after assembly with the plate 27.

A particular advantage residing in the clamps, clasps, or metal findings of the present invention is that both the front and rear pivotal members A and B may be most conveniently formed by automatic stamping and forming machines without involving any substantial manual effort and at very low cost.

The manner in which the upper or mounting pivotal element B is stamped out and formed is obvious from the construction thereof.

The formation of the backing or rear pivotal or jaw member A is illustrated in Figs. 6 to 10.

Referring to Fig. 6, the strip of metal 35 is fed into the stamping machine and is then subjected to a series of forming and stamping operations as it is advanced through the stamping machine.

The stamping die which need not here be described carries out the operations indicated by the Roman numerals I, II, III, IV, V, VI and VII in Fig. 6, the lines 36 representing the center lines of the backing member A in each position.

The operations II, III, IV, V, VI and VII take place along the center lines 36 and the forming or cutting devices carrying out these operations are also centered along the cutting die 16. The first operation I takes place somewhat off center, so as to partly cover one of the center lines and the die for the first operation I is somewhat offset from the center line 36 of the backing element A.

During the stamping and forming operation the main die with its series of sub-dies, one for each operation I to VII is reciprocated downwardly at a certain number of reciprocations per minute with a strip of metal being advanced the distance between two center lines 36 between each down stroke of the die. At one side of the machine a strip of metal 35 is fed in and at the other side, the completely formed backing members A and the perforated strip 350 are removed.

In the first operation (see Fig. 6) the opening 37 is formed and the cam or abutment member 19 is thrown up along the center line 36 as illustrated.

It will be noted by this operation that the inner pivotal bearing members or ears 18 are formed on two adjacent backing members A while the cut out 37 is provided to enable these ears and the rear portion 17 of the backing member to be rolled conveniently inwardly, as will be subsequently described.

In operation II (see Figs. 6 and 7) the roll 16

will be partly formed, as indicated at 16a, by the forming member on the die.

In operation III (see Figs. 6 and 8) the roll 16 will be further formed as indicated at 16b. At the same time the initial cut 11a will be formed in making the central opening 11 of the backing A.

In operation IV (see Figs. 6 and 9) the roll 16 will be further formed as indicated in 16c and the central opening 11 will be enlarged, as indicated at 11a and 11b. It will be noted in operation IV that the first tang 12a is completely formed in flat position.

In operation V (see Figs. 6 and 10) the round will be further formed into substantially final form, as indicated at 16d while the formation of the opening 11 will be substantially completed, as indicated at 11a, 11b and 11c. It will be noted in this operation that the tangs 12a, 13a and 14a have all been formed, but in plane with the strip of metal 35.

In operation IV the round 16d is subjected to a sizing operation to correct its size and put it in final form and the tangs 12, 13 and 14 are upturned. At the same time the backing A is stamped out along the dotted line 38 to form the backing of Fig. 11.

The openings 50 are adapted to receive dowel pins and thereby correctly position the strip 35 for the operations I to VII.

The residual strip of metal 350 then passes to waste or some other place of utilization.

As is apparent, the manufacturing operation is automatically accomplished and this continuous automatic operation involves no substantial manual effort.

The backing element A, together with its pivot mount 18—18 is integrally formed from a single strip of metal. This element A, as shown in Fig. 11, then may be conveniently combined with the stamping B of Fig. 5 to form the finding.

What is claimed is:

1. A clasp comprising a front mounting member and a rear jaw member, said members being provided with a pivotal connection at one side thereof and said mounting member being adapted to receive an ornamental facing plate; said mounting member being formed of a single metal sheet having a rectangular base, the ends of which of smaller dimension are provided with upturned ears, having extension portions provided with openings, said extension portions serving as outer pivotal bearing elements, and the sides of longer dimension also having upturned longer flanges, the outer edges of which are in part at least inturned, said upturned ears and flanges forming a box-like receptacle and a leaf spring being enclosed therewithin and held therein by said inturned portions of said longer flange members; said rear jaw element being formed of a stamping of substantial length and width to correspond to the length and width of the ornamental facing plate, said jaw member being provided with a central opening from the inturned edges of which project a plurality of spaced pointed prongs and the rear end of which is formed into a round, the interior of the round containing a pivotal edge of the backing member, said pivotal edge being integrally provided with a pair of outwardly projecting elements to be received in the openings in said extension portions of said ears of said jaw member and the outside of said round adjacent said jaw member being provided with an abutment to tension said leaf spring.

2. A clasp comprising a front mounting member and a rear jaw member, said members being provided with a pivotal connection at one side thereof and said jaw member being adapted to receive an ornamental facing plate; said mounting member carrying a flat spring and being provided with upturned ears, having extension portions provided with openings, said extension portions serving as outer pivotal bearing elements, said rear jaw element being provided with a plurality of spaced prongs and with a roll having a central embossed spring contact abutment, said roll being integrally provided with a pair of outwardly projecting tangs to be received in the openings in the extension portions of said ears of said mounting member.

3. A clasp comprising a front mounting member and a rear jaw member, said members being provided with a pivotal connection at one side thereof and said jaw member being adapted to receive an ornamental facing plate; said mounting member being formed of a rectangular sheet metal base, the ends of which of small dimension are provided with pivotal ears serving as outer pivotal bearing elements, and also having intervening upturned side flanges, said upturned flanges and ears forming a box-like receptacle and a leaf spring being enclosed therewithin; said rear jaw element being provided with a plurality of prongs and with a pair of outwardly projecting integral tangs to be received by said ears, said jaw member being provided with cam means to tension said leaf spring.

4. A clasp comprising a front mounting pivotal jaw member and a rear jaw member, said pivotal jaw members being provided with a pivotal connection at one side thereof and said mounting pivotal jaw member being adapted to receive an ornamental facing plate; said mounting pivotal jaw member being formed of a single metal sheet having a rectangular base, the ends of which of smaller dimension are provided with upturned ears provided with openings, said ears serving as outer pivotal bearing elements, and the sides of longer dimension also having upturned flanges, said upturned flanges forming a receptacle and a leaf spring being enclosed therewithin, said rear jaw element being provided with a central opening from the inturned edges of which project a plurality of spaced prongs and rear end of which is formed into a round, the pivotal edge of the jaw member being integrally provided with a pair of outwardly projecting tangs to be received in the openings in said ears and the outside of said roll adjacent said jaw member being provided with means to tension said leaf spring.

5. A clasp comprising a box-like mounting containing a flat leaf spring, and a base member to which said mounting is pivotally connected, said member having a return bent round portion with an embossment engaged by said spring, and further having outside integral pivot-carrying arms.

6. A clasp comprising a mounting carrying a flat leaf spring, and a base member to which said mounting is pivotally connected, said member having a return bent round portion with an embossment engaged by said spring and tensioning said spring when said mounting is swung about its pivotal connection, said base member further having outside integral pivot-carrying arms.

7. A clasp comprising a mounting with a flat spring and a base member to which said mounting is pivotally connected, said member having a return bent round portion engaged by said spring with a stamped embossment when said

mounting is swung about its pivotal connection, said base member further having outside pivot-carrying arms.

8. A clasp comprising an open inverted box and a flat spring in said box, the ends of said box being provided with inturned portions to retain said spring in position, and a base member to which said mounting is pivotally connected and having abutment means to tension said spring.

9. A finding for a clasp comprising a jaw member having a work-engaging portion, a mounting member of a length less than that of said jaw member, carrying a flat spring and extending short of said work-engaging portion, means for pivotally connecting said members together, one of said members being provided with holed ears and the other with integral tangs fitting into the holes of said ears formed respectively from the stock thereof, said jaw member also carrying a round provided with an embossment therein to tension said spring.

10. A clasp comprising a mounting member, and a jaw member to which said mounting member is pivotally connected, said jaw member having a completely coiled round portion with an abutment and further having outwardly extending integral pivot-mounting arms.

11. A clasp comprising a mounting member carrying a flat spring, and a jaw member to which said mounting member is pivotally connected, said jaw member having a coiled round portion, said jaw member further having outwardly extending integral pivot-mounting arms and carrying an embossed abutment in said coil portion to tension said spring.

12. A clasp comprising a mounting member, a spring and a jaw member to which said mounting member is pivotally connected, said jaw member having a completely coiled round portion with a stamped abutment, said jaw member further having outwardly extending integral pivotal arms.

13. A clasp comprising a mounting member provided with a flat spring and a jaw member comprising a flat member having work engaging teeth, the end of the flat member having a completely coiled roll portion to contact said spring, the end of which lays on top of said flat member, which end is provided with integral outwardly extending ears.

14. A clasp comprising a mounting member provided with a flat spring and a jaw member for a clasp comprising a flat member having work-engaging teeth, the end of the flat member having a completely coiled roll portion, the ends of said roll having outwardly extending tangs and the top of said roll having an upwardly projecting portion to contact said spring.

ALEXANDER HUREWITZ.