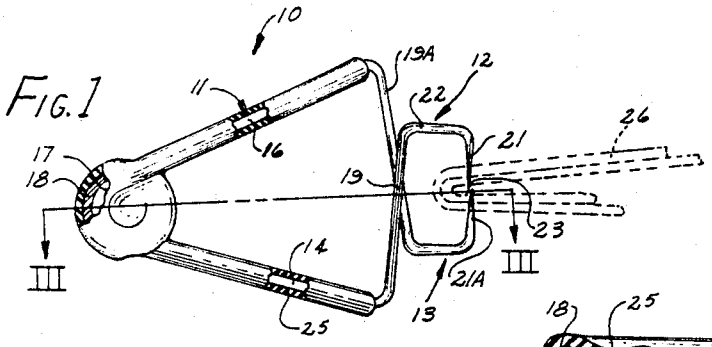
Oct. 1, 1968 M. B. SHEFFER 3,403,428

SAFETY FASTENER

Filed Jan. 10, 1967

FIG. 1



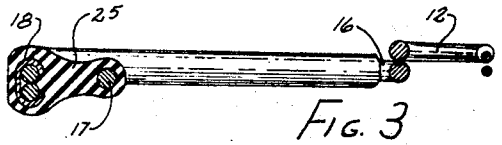


FIG. 3

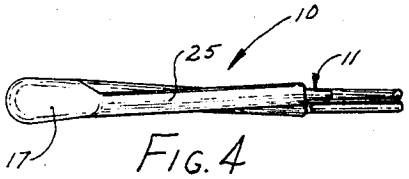


FIG. 4

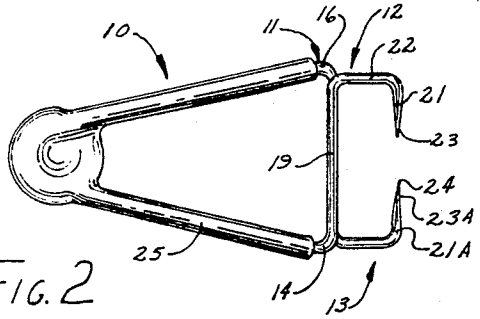


FIG. 2

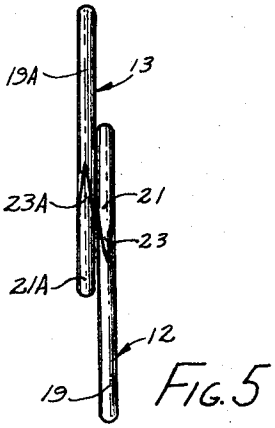


FIG. 5

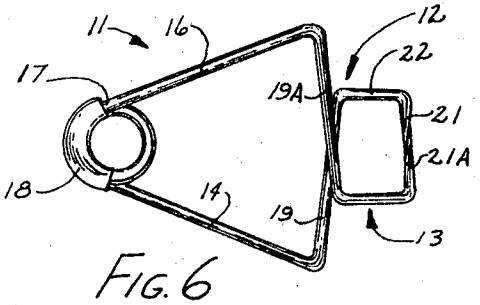


FIG. 6

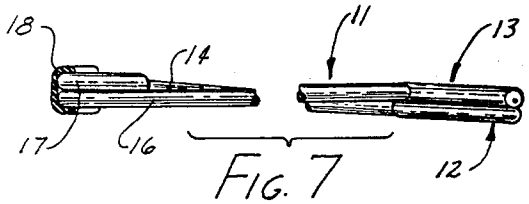


FIG. 7

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SAFETY FASTENER

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1 Claim. (Cl. 24—161)

ABSTRACT OF THE DISCLOSURE

This invention relates to a safety fastener having jaws for engaging materials, such as two or more sheets of fabric, and firmly holding them together or in a selected position. The fastener is comprised of a coil having integral, elongated elements extending substantially tangentially and divergently away from the coil. The jaws are preferably integral with the outer free ends of the elongated elements and they have U-shaped end portions opening toward each other. The outer legs of the U-shaped members are pointed and are overlapped when the fastener is in its untensioned position. Thus, by manually urging the elongated elements toward each other, the jaws are opened for insertion of the material to be engaged between the pointed legs. Release of the pin automatically permits such engagement. The coil and most of the elongated elements are covered with a coating of material which is preferably elastomeric and adheres to the coil and elements. Also, said coating provides a nonskid surface.

Almost every adult has experienced concern over a "lost" safety pin, of the conventional type, which was thought to have been attached to an infant's garments or bedding. In too many instances, the lost safety pin has been swallowed by the infant in an unfastened condition which makes its removal very difficult and dangerous, and has been known to cause death before it could be removed.

While the conventional safety pin, and the numerous substitutes for the conventional safety pin, have served their purposes well, there are certain disadvantages which have been encountered in their use which it has been the purpose of this invention to overcome. Particularly, existing safety pins and their known substitutes are difficult to handle if the user's hands are moist or oily, as they frequently are, when these fasteners are being applied to or removed from the garments of infants.

The conventional safety pin has an integral coil at one end which is intended to give an increased resilience and flexibility to the relative movements between the two elements of the pin which extend away from the coil. The areas of overlap in the coil create traps for contaminating material and rust. Often, the coil is partially enclosed by an end cap which merely aggravates this problem.

Accordingly, a primary object of this invention has been the provision of a pin-type, safety fastener which is especially designed for use on the garments and bedding of infants, which has built-in guards for shielding the pointed ends of the fastener whenever it is in its normal untensioned position, and which is coated with an elastomeric, nonskid material so that it can be positively gripped and thereby easily operated at all times.

A further object of this invention is the provision of a safety fastener, as aforesaid, which is easy to operate, positive in its action, simple in construction and easy to maintain in a sanitary condition.

Other objects and purposes of this invention will become apparent to persons familiar with the use and operation of safety fasteners upon reading the following descriptive material and examining the accompanying drawings, in which:

FIGURE 1 is a broken side view of the safety fastener when it is gripping some sheet material.

FIGURE 2 is a side view of said fastener with its gripping jaws in the open position.

FIGURE 3 is a sectional view taken along the line III—III in FIGURE 1.

FIGURE 4 is a top view of the fastener.

FIGURE 5 is a front view of the fastener with its jaws in the normal, closed position.

FIGURE 6 is a side view similar to FIGURE 1 without the coating of elastomeric, nonskid material.

FIGURE 7 is a broken top view of the fastener as appearing in FIGURE 6.

Detailed description

The safety fastener **10**, a preferred embodiment of which is illustrated in FIGURE 1, is comprised essentially of a V-shaped member **11** which is integral with a pair of oppositely facing U-shaped jaws **12** and **13**.

The V-shaped member **11** has a pair of elongated elements **14** and **16** (FIGURE 1) which are preferably integral with and extend tangentially away from the coil **17** at the apex of the member **11**. The construction of the coil **17** may vary, but the preferred embodiment will comprise about one and one-half turns of a coiled spring which is integral with the elements or arms **14** and **16**. When the spring coil **17** is in a relaxed condition, it tends to hold said arms in the V-shape, substantially as shown in FIGURE 6. The coiled spring **17** may be engaged along its rear edge by the end cap or keeper **18**, which retains the coils of the spring close to one another, while permitting a limited amount of uncoiling to provide the spring action. Said keeper additionally creates a stronger spring action beyond certain limits, which are imposed by its presence, such as the distance the arms **14** and **16** may move apart.

The U-shaped members or jaws **12** and **13** are preferably identical and therefore the following description of member **12** is equally applicable to member **13**. Jaw **12** has a pair of substantially parallel legs **19** and **21**, which are connected by a bight **22**. Leg **19** is integral with the outer end of arm **14** and may be located approximately at a right angle thereto. Leg **21**, as illustrated, may be sharpened to a point **23** in order to facilitate its penetration through the bedding or clothing **26** to be held by the fastener.

The jaws **12** and **13** are arranged so that they are closely adjacent and their U-shaped contours open toward each other. Thus, the legs **21** and **21A** of U-shaped members **12** and **13**, respectively, will lie close to each other and be overlapped when the fastener is in the relaxed position (FIGURE 6).

When viewed from the top, as shown in FIGURES 4 and 7, arms **14** and **16** are crossed between the coil **17** and jaws **12** and **13**. The normal elasticity of said arms is such that it tends to force said arms into a parallel alignment, thereby producing a force which is contrary to said crossing and which urges said U-shaped members **12** and **13** closely together. Accordingly, leg **19** of U-shaped member **12** is in slideable contact with leg **19A** of U-shaped member **13**. This arrangement facilitates the handling of the safety fastener **10** since said fastener has less tendency to twist and/or spread apart sidewardly as the elements **14** and **16** are urged together in preparation for use. Moreover, this arrangement resists a tendency for the jaws to separate sidewardly when they are holding bedding or clothing.

The coil **17**, arms **14** and **16**, and jaws **12** and **13** of the safety fastener **10** may be constructed from a single piece of spring wire of substantially uniform cross section

The end cap or keeper **18** may be made of a suitable sheet material, such as steel, and pressed around the coil **17**.

The V-shaped member **11**, as illustrated in FIGURES 1 through 4, is coated with an elastomeric, nonskid material **25** which is preferably soft and resilient, thereby providing a superior grip when it is manually engaged to open said fastener. Said coating may be provided by dipping said V-shaped member into a suitable elastic material, which preferably adheres to the metal of the V-shaped member **11**. Thus, contaminating materials are prevented from entering between the coating and the surface of the member **11**.

The safety fastener **10** may be opened manually by grasping the arms **14** and **16** between the thumb and forefinger of a human hand and pressing them together. As a result, the U-shaped members **12** and **13** are caused to separate and provide an opening **24** between the sharpened points **23** and **23A** on the legs **21** and **21A**, respectively, into which the sheet material **26**, for example, may be inserted. When the pressure upon the arms **14** and **16** is released, said arms will spring apart toward the relaxed position, thereby causing the points **23** and **23A** to close upon and penetrate the material to be held.

It will be noted in FIGURE 6 that, as the jaws of the safety fastener approach their untensioned or gripping position, the legs **21** and **21A** of the jaws **12** and **13** tend to slope inwardly toward the coil **17** of the V-shaped member **11**, thus providing a more secure grip upon the clothing or bedding. If tension is applied to the clothing or bedding, it tends to imbed said points further into the material being held. Should safety fastener **10** become dislodged from the infant's garments, the same will assume the untensioned position of FIGURE 6, thereby shielding the sharp points **23** and **23A** so that an infant will not be injured by handling the fastener. The safety fastener **10** may be provided in various convenient sizes, with the range of from one to two inches in length being preferred for general use on clothing or bedding. Also the coating can be provided in attractive colors which also help to locate a mislaid fastener.

Although a particular preferred embodiment of the invention has been described above in detail for illustrative purposes, it will be recognized that variations or modifications of such disclosure, which lie within the scope of the appended claims, are fully contemplated.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A device for gripping an article, comprising:

a substantially V-shaped, resiliently flexible member having an integral coil of approximately one and one-half turns at the apex thereof and a pair of elongated elements extending outwardly from and integrally connected to said coil, said V-shaped member being formed from a single, elongated piece of spring steel of uniform, cross section substantially throughout its length;

a channel-shaped end cap clamped upon the overlapped turns of said coil for retaining the coils closely adjacent one another;

a pair of substantially U-shaped jaws opening toward each other and disposed in adjacent, substantially parallel planes, one of said U-shaped jaws being integrally connected to one of said elongated elements adjacent the end thereof remote from said coil, the other of said U-shaped jaws being integrally connected to the other elongated element adjacent the end thereof remote from said coil;

each of said U-shaped jaws having first and second straight, substantially parallel legs and a straight bight portion interconnecting said first and second legs, said bight portion being substantially transverse to and integrally connected to said first and second legs adjacent one end of each, whereby each of said jaws thus defines a substantially rectangular opening, the other end of said first leg of each of said jaws being integrally connected to its respective elongated element, and the other end of said second leg of each of said jaws being free and having a point formed thereon; and

a coating of elastomeric material having a high coefficient of surface friction completely enclosing said cap and V-shaped member up to points adjacent said U-shaped jaws, said elastomeric material adhering to said V-shaped member in tight sealing engagement therewith for preventing contaminating materials from entering between said coating and said V-shaped member.

References Cited

UNITED STATES PATENTS

217,719	7/1879	Wood	24—161 XR
553,049	1/1896	Boden	24—161
2,180,726	11/1939	Bradley	24—87 XR
2,284,004	5/1942	McCurdy	24—261.3 XR
2,585,089	2/1952	Caldwell et al.	24—261
2,711,637	6/1955	Wells	24—261.1 XR
3,293,712	12/1966	Mark	24—161

FOREIGN PATENTS

13,115	1904	Great Britain.

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