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(54) **NAIL CLIP AND SYSTEM FOR USE IN NAIL POLISH REMOVAL**

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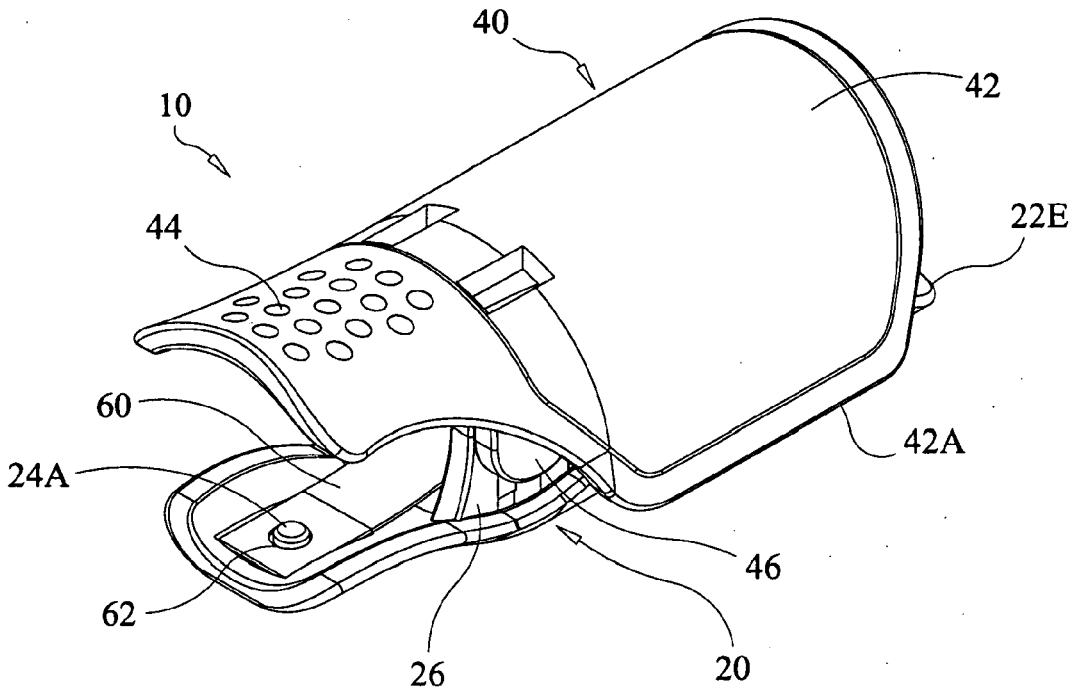
(57) **ABSTRACT**

A nail clip includes a base, a top, and a spring element. The base defines a bed, a first finger grip coupled to the bed, opposing slotted posts coupled to the base and extending therefrom where the bed meets the first finger grip, and a ramp disposed in the bed. The top defines a cap, a second finger grip coupled to the cap, and opposing support posts coupled to the cap and extending therefrom where the cap meets the second finger grip. Each support post includes a hinge pin extending therefrom for engagement with one of the base's slotted posts. The spring element is disposed between the base and the cap for biasing the first finger grip away from the second finger grip.



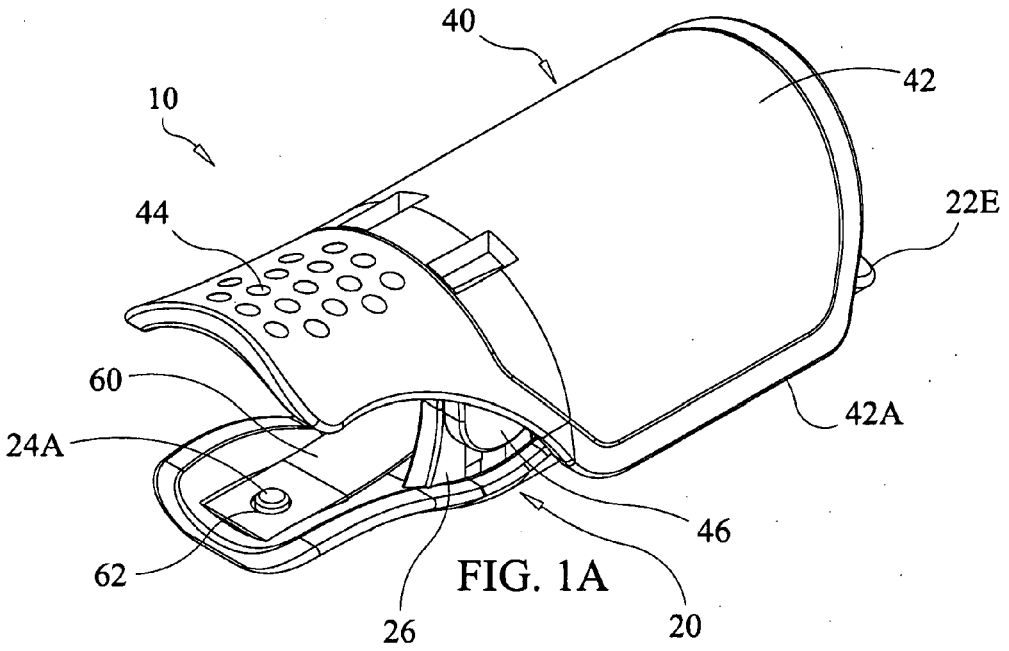

40
10
42
44
22E
60
42A
24A
46
62
26
20

FIG. 1A

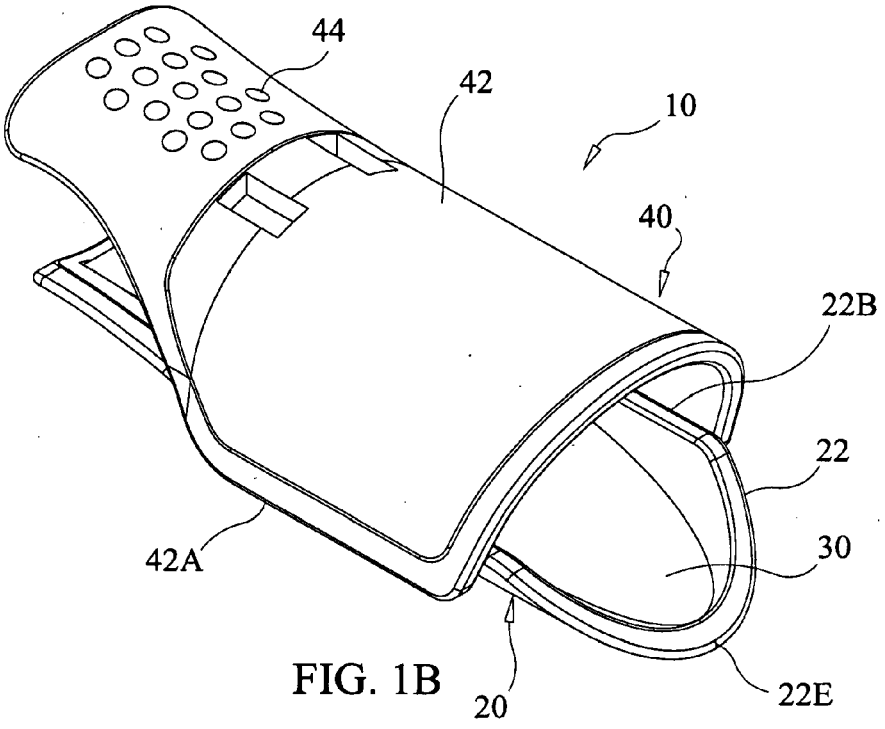

44
42
10
40
22B
22
42A
30
20
22E

FIG. 1B

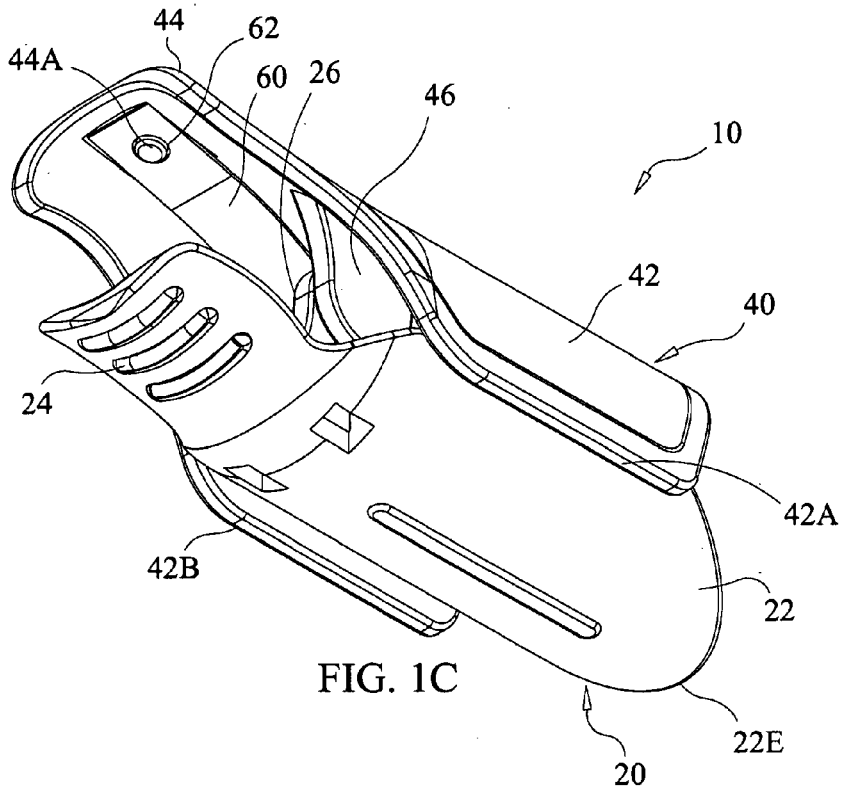


FIG. 1C

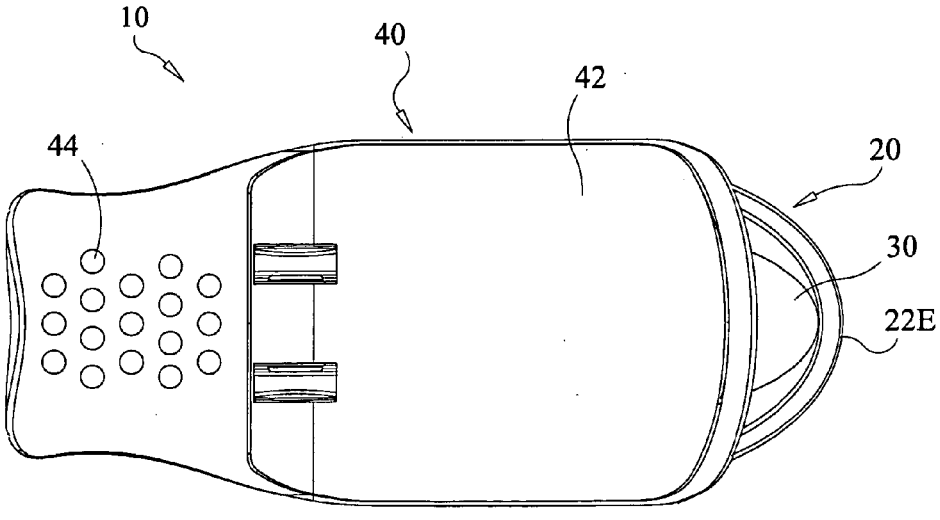


FIG. 1D

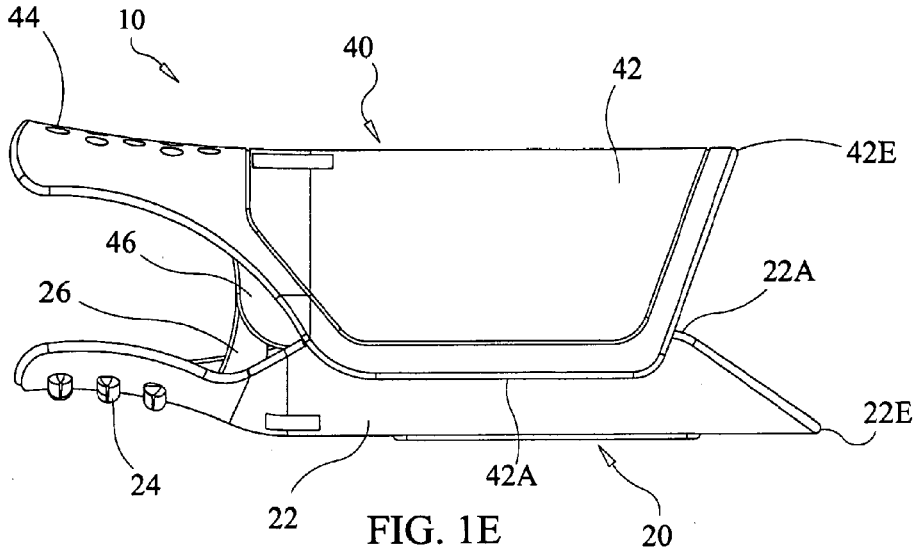

44
10
40
42
42E
46
26
22A
22E
24
22
42A
20

FIG. 1E

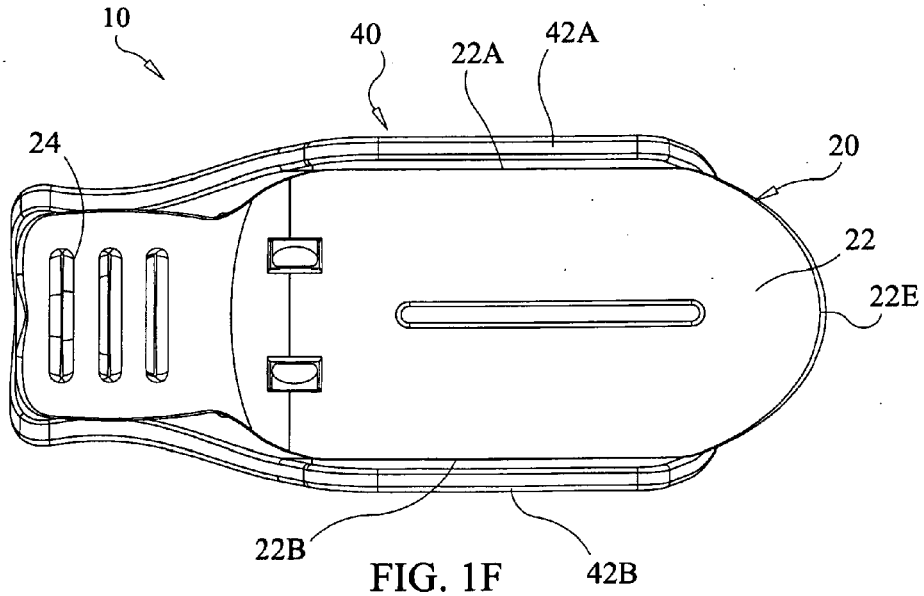

10
40
22A
42A
24
20
22
22E
22B
42B

FIG. 1F

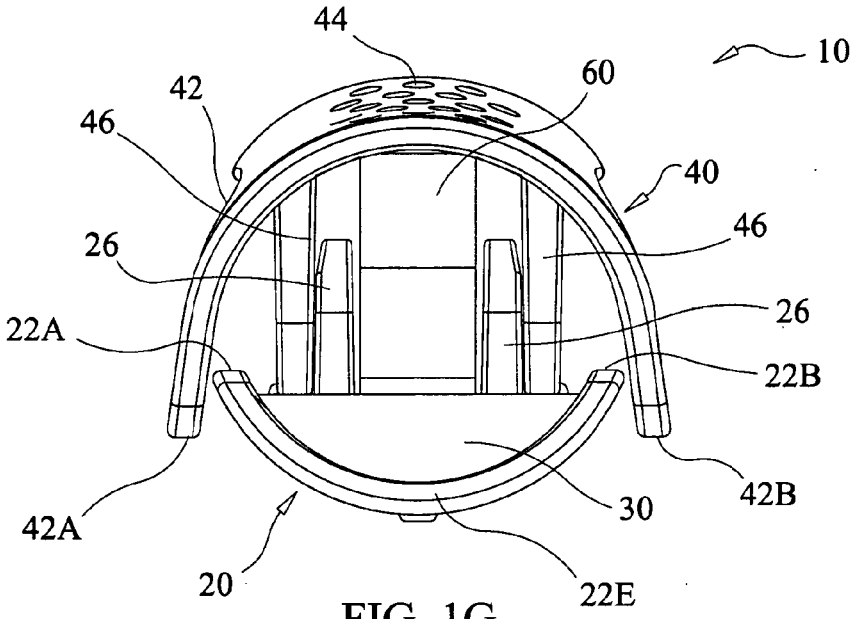

44
10
60
42
46
40
46
26
26
22A
22B
42B
30
42A
20
22E

FIG. 1G

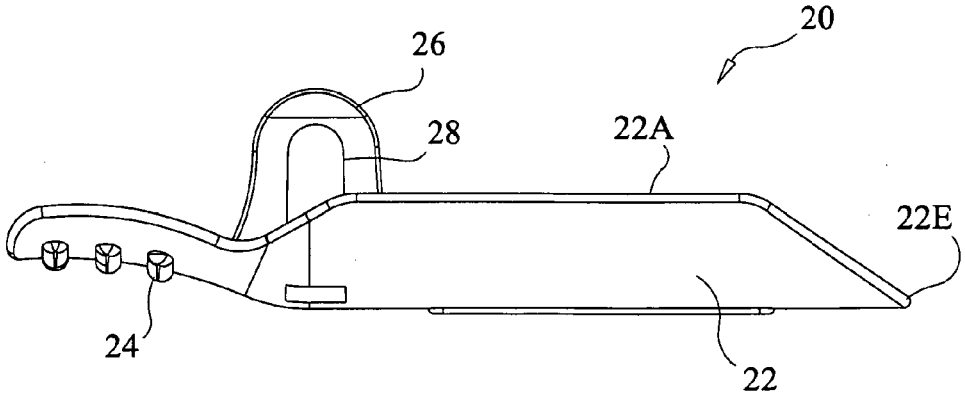

20
26
28
22A
22E
24
22

FIG. 1H

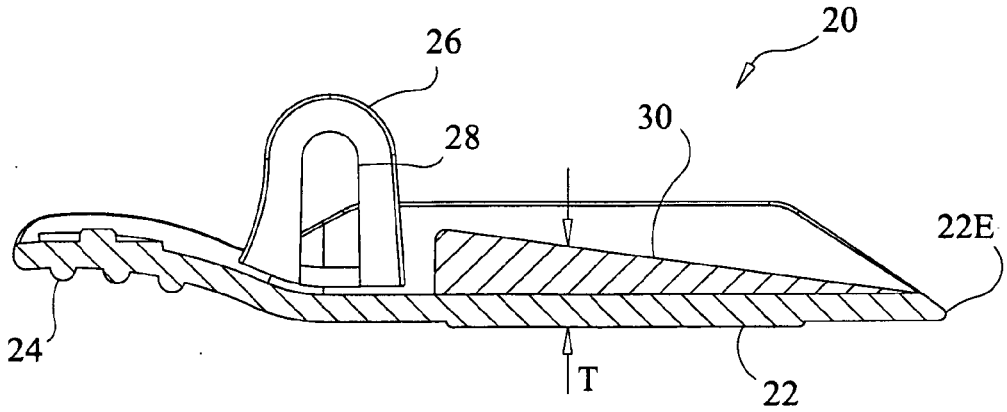


FIG. 1I

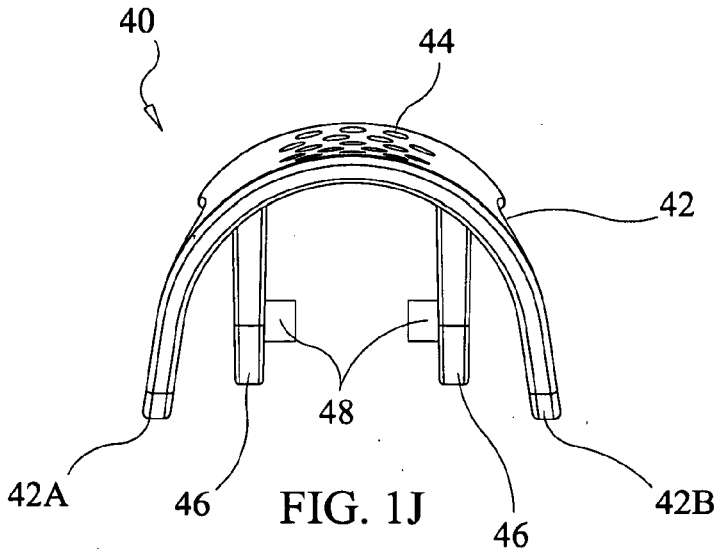


FIG. 1J

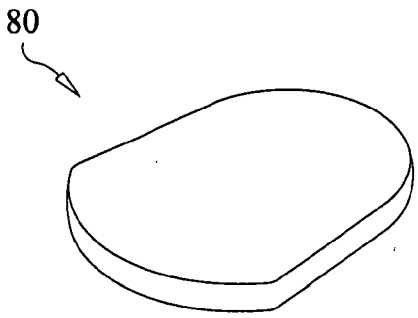


FIG. 2A

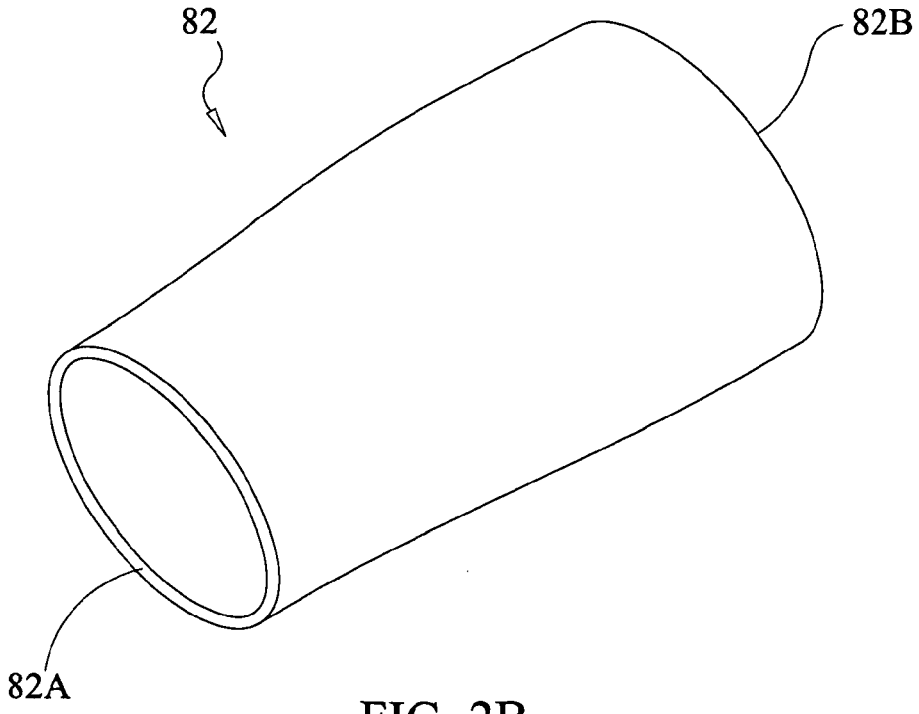


FIG. 2B

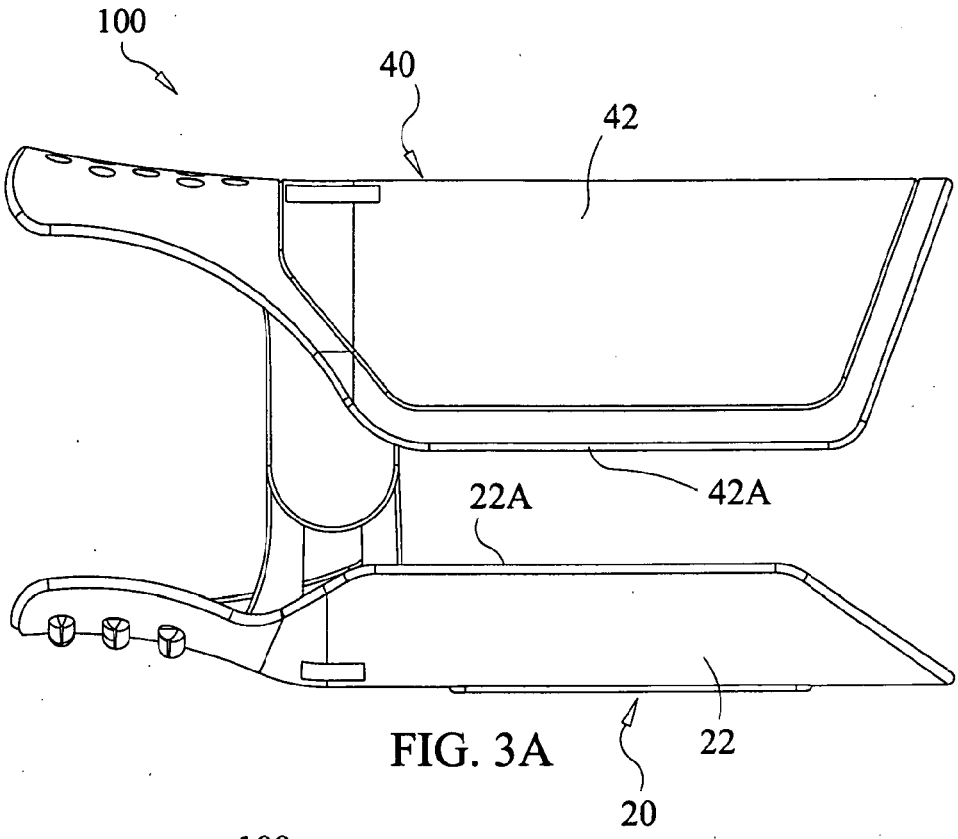


FIG. 3A

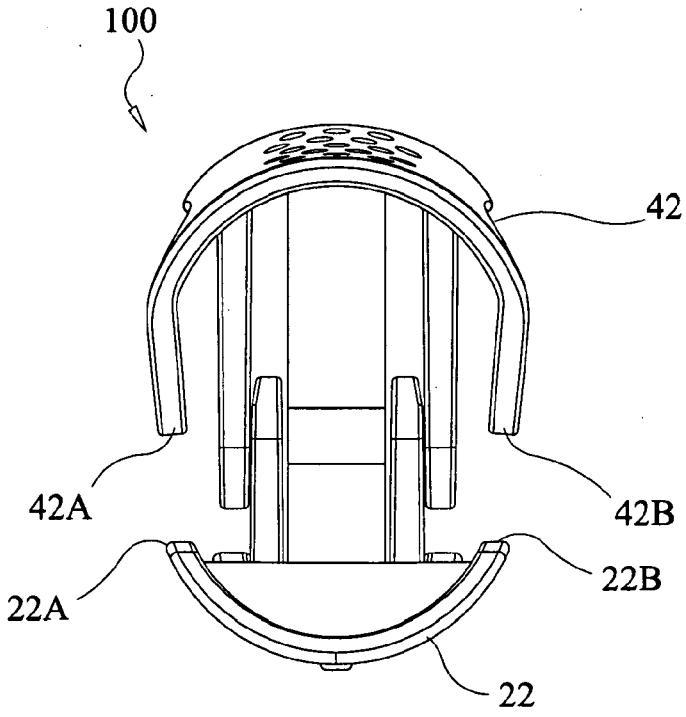


FIG. 3B

NAIL CLIP AND SYSTEM FOR USE IN NAIL POLISH REMOVAL

[0001] Pursuant to 35 U.S.C. §119, the benefit of priority from provisional application 61/851,309, with a filing date of Mar. 5, 2013, is claimed for this non-provisional application.

FIELD OF THE INVENTION

[0002] The invention relates generally to apparatus for use in the removal of nail polish, and more particularly to a nail clip and system that facilitates the removal of a variety of types of nail polish/art from finger nails or toe nails.

BACKGROUND OF THE INVENTION

[0003] Decorating one's fingernails and toenails has advanced beyond the use of natural coloring products (e.g., beeswax, egg whites, gelatin, vegetable dyes, and gum arabic) first introduced in ancient China. Today's nail polishes are essentially refined versions of vehicle paint designed to resist cracking and flaking once applied to a nail. These polishes are complex chemical compounds that are available in a wide variety of colors/finishes and can include decorative additives. Other types of decorations include those that are three-dimensional and applied to a base layer of polish. Another popular polish is a gel polish that is cured under ultraviolet (UV) or light emitting diode (LED) lighting with the resulting nail product being hard and long lasting.

[0004] Like any item of fashion, fingernail and toenail polishes/decorations are changed with some frequency. Old polishes are removed with a chemical product that typically includes acetone or is pure acetone. To remove longer-lasting gel polishes, polishes with decorative additives/adornments, and/or nail-applied decorations, a chemically-based nail polish remover needs to be in contact with the polish/art for some period of time (e.g., typically ten or more minutes) in order to be effective. However, acetone and acetone-based products can be harsh on one's skin. Accordingly, soaking one's fingers/toes in a bowl of acetone is not recommended. Typically, removal-resistant polishes are removed by positioning a polish-remover-soaked pad on a nail and then using tape or foil to hold the pad in place. This approach is messy, time consuming, difficult to do by oneself, and generates a lot of waste.

SUMMARY OF THE INVENTION

[0005] Accordingly, it is an object of the present invention to provide an apparatus that simplifies nail polish/art removal.

[0006] Another object of the present invention is to provide an apparatus that reduces the time it takes to remove long-lasting nail polish from a nail.

[0007] Still another object of the present invention is to provide an apparatus that facilitates the placement of nail polish remover on a nail.

[0008] Other objects and advantages of the present invention will become more obvious hereinafter in the specification and drawings.

[0009] In accordance with the present invention, a nail clip includes a base, a top, and a spring element. The base defines an arcuately-shaped bed, a first finger grip coupled to the bed, opposing slotted posts coupled to the base and extending therefrom where the bed meets the first finger grip, and a ramp disposed in the bed. The ramp extends from an outboard end of the bed to the first finger grip. The ramp increases in thickness with distance from bed's outboard end. The top defines an arcuately-shaped cap, a second finger grip coupled to the cap, and opposing support posts coupled to the cap and extending therefrom where the cap meets the second finger grip. Each of the support posts includes a hinge pin extending therefrom for engagement with one of the base's slotted posts such that the base and cap can be moved towards and away from one another. The spring element is disposed between the base and the cap for biasing the first finger grip away from the second finger grip.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Other objects, features and advantages of the present invention will become apparent upon reference to the following description of the preferred embodiments and to the drawings, wherein corresponding reference characters indicate corresponding parts throughout the several views of the drawings and wherein:

[0011] FIG. **1**A is a perspective view from the grip end of a nail clip in accordance with an embodiment of the present invention;

[0012] FIG. **1**B is a perspective view of the nail clip from the open end thereof;

[0013] FIG. **1**C is a perspective view of the nail clip from the underside thereof;

[0014] FIG. **1**D is a top view of the nail clip;

[0015] FIG. **1**E is a side view of the nail clip;

[0016] FIG. **1**F is a bottom view of the nail clip;

[0017] FIG. **1**G is an end view of the nail clip from the open end thereof;

[0018] FIG. **1**H is an isolated side view of the base of the nail clip;

[0019] FIG. **1**I is a cross-sectional view of the base of the nail clip;

[0020] FIG. **1**J is an isolated end view of the top of the nail clip;

[0021] FIG. **2**A is a perspective view of an absorptive pad for use with the nail clip in accordance with an embodiment of the present invention;

[0022] FIG. **2**B is a perspective view of an absorptive pad incorporated into a sleeve in accordance with another embodiment of the present invention;

[0023] FIG. **3**A is a side view of a nail clip in accordance with another embodiment of the present invention;

[0024] FIG. **3**B is an end view of the nail clip in FIG. **3**A as viewed from the open end thereof.

DETAILED DESCRIPTION OF THE INVENTION

[0025] Referring now to the drawings, simultaneous reference will be made to FIGS. **1**A-**1**J where a nail clip in accordance with an embodiment of the present invention is shown and is referenced generally by numeral **10**. Nail clip **10** will be used in combination with a "pad" (not shown) such as a cotton ball or tuft of cotton, gauze, tissue, or a specifically-designed pad (as will be described later herein) that has absorbed a suitable quantity of nail polish remover such as acetone. As is known in the art, acetone facilitates the removal of nail polishes to include UV-hardened and LED-hardened gels. Nail clip **10** simplifies the positioning

and holding of such a pad against a nail (i.e., fingernail or toenail), and also reduces the amount of time that such a pad needs to be in place to effectively remove hard-cure nail polish.

[0026] Nail clip **10** can be used on any finger or toe. While one size of nail clip **10** will suffice for the vast majority of fingers or toes, smaller/larger sizes of nail clip **10** could be provided to handle smaller/larger digits. In addition, nail clip **10** could be modified slightly for use with shorter toes as will be described later herein.

[0027] Nail clip **10** includes three main elements that are assembled prior to use. The three elements are a base **20**, a top **40**, and a spring element **60**. Briefly, base **20** and top **40** are coupled to one another in a hinged fashion and spring element **60** biases base **20** and top **40** toward one another as shown. All three elements are made from material(s) that are readily sanitized after each use. In this way, nail clip **10** can be used multiple times thereby reducing waste. By way of example, base **20** and top **40** can be made from a plastic or polymer, and spring element **60** can be a metal. Base **20** and/or top **40** can be monolithic structures incorporating all of the features to be described herein.

[0028] Base **20** (shown in isolation in FIGS. **1**H and **1**I) includes an elongate and arcuately-shaped bed **22** that will receive/contact the underside of a finger or toe. The bow or arcuate shape of bed **22** is defined between its lateral edges **22**A/**22**B as best seen in FIGS. **1**F and **1**G. A finger grip **24** is coupled to and integrated with bed **22**. Opposing posts **26** (as best seen in FIGS. **1**G and **1**H) extend upward from base **20** and are located at the juncture of bed **22** and finger grip **24**. Each of posts **26** has a slot **28** formed there through. Each post **26** with its slot **28** forms part of a hinge between base **20** and top **40**. Bed **22** can incorporate a ramp **30** (FIG. **1**I) that increases in thickness "T" as it extends inward from the outboard end **22**E of base **22**. Ramp **30** can increase in thickness in a linear fashion as shown. Ramp **30** guides the tip of a finger/toe placed on ramp **30** up towards top **40**.

[0029] Top **40** includes an elongate and accurately-shaped solid cap region **42** that will cover the nail region of a finger/toe placed on bed **22**/ramp **30**. The bow or arcuate shape of cap region **42** is defined between its lateral edges **42**A/**42**B as best seen in FIGS. **1**C and **1**G. As will be explained further below, cap region **42** also holds a nail-polish-remover-soaked pad (not shown) securely in place on the nail of the finger/toe. A finger grip **44** is coupled to and integrated with top **40**. Opposing posts **46** (as best seen in FIGS. **1**C, **1**G and **1**J) extend downward from top **40** and are located at the juncture of cap region **42** and finger grip **44**. Each of posts **46** incorporates a hinge pin **48** designed to engage a respective one of slots **28** formed in posts **26**. As a result, base **20** and top **40** can be moved towards and away from one another. The relevance of this feature will be explained later herein in an operational description of the present invention.

[0030] In the illustrated embodiment, the length of bed **22** is longer than the length of cap region **42** such that a portion of ramp **30** is exposed as best seen in FIGS. **1**B and **1**D. More specifically, the outboard end **22**E of base **22** extends beyond the outboard end **42**E of cap region **42** as best seen in FIGS. **1**D and **1**E. By virtue of this structure, nail clip **10** can accommodate longer nails while bed **22** still provides underside support of the finger/toe.

[0031] Spring element **60** is any type of spring device that biases cap region **42** and bed **22** towards one another. In the illustrated embodiment, spring element **60** is a single piece of spring material shaped to form a leaf spring coupled to finger grips **24** and **44**. Such coupling can be achieved by providing holes **62** at either end of spring element **60** where holes **62** engage posts **24**A and **44**A formed on the inward facing portions of finger grips **24** and **44**, respectively. It is to be understood that other types of springs (e.g., coil, torsion, compression, etc.) could be used without departing from the scope of the present invention. Spring element **60** biases base **22** and cap region **42** towards one another when hinge pins **48** are engaged in slots **28**.

[0032] Cap region **42** is sized such that lateral edges **42**A/**42**B extend outside of and past lateral edges **22**A/**22**B of bed **22** when nail clip **10** is in its closed position. In other words, the distance between lateral edges **42**A/**42**B is greater than the distance between lateral edges **22**A/**22**B. In this way, cap region **42** will fully cover a digit's nail while capturing a nail-polish-remover-soaked pad (not shown) against a nail. The solid nature of cap region **42** retains heat generated during the reaction of nail polish remover with the nail polish to be removed. The retained heat accelerates the reaction thereby reducing the amount of time that is required to remove nail polish. Thus, nail clip **10** reduces one's skin exposure to nail polish remover and reduces the time it takes to remove nail polish.

[0033] As mentioned above, the nail clip of the present invention will be used with some type of pad that can absorb a liquid nail polish remover. Two such examples of pads are illustrated in FIGS. **2**A and **2**B. FIG. **2**A illustrates a shaped pad **80** that mimics the general nail shape and is made from an absorbent material. FIG. **2**B illustrates a sleeve **82** of absorbent material. Sleeve **82** is open at either end **82**A/**82**B so that it can readily slide onto the tip of a finger or toe after being soaked with a liquid nail polish remover. Sleeve **82** could be cut from a long, continuous tubular "strip" so that a user could size sleeve **82** as needed.

[0034] In operation, a nail-polish-remover-soaked pad **80** or sleeve **82** is positioned on a nail region. The finger grips **24**/**44** are squeezed together (against the bias of spring element **60**) as nail clip **10** is positioned over the nail region with the underside of the finger/toe resting on bed **22**/ramp **30**. Finger grips **24**/**44** are slowly released such that cap region **42** is biased towards bed **22** (by spring element **60**) to thereby encase the pad or sleeve placed on the nail region. The slots **28** in posts **26** in combination with spring element **60** allow top **40** to be wiggled up-and-down thereby ensuring that the nail polish remover makes good contact with all portions of the nail.

[0035] Referring now to FIGS. **3**A-**3**B, another nail clip in accordance with the present invention is shown and is referenced generally by numeral **100**. Nail clip **100** is similar to nail clip **10**, but differs therefrom in two aspects. First, bed **22** of nail clip **100** is the same length as its cap region **42** allowing nail clip **100** to be used for shorter toes. Second, lateral edges **42**A/**42**B of cap region **42** do not extend past lateral edges **22**A/**22**B of bed **22** allowing nail clip **100** to fit comfortably between toes that are close together.

[0036] The advantages of the present invention are numerous. The nail clip will simplify and improve the nail polish removal process for both salon workers and the do-it-yourselfer. The nail clip properly positions the tip of a finger/toe for optimal contact with a remover-soaked pad while also retaining the heat of reaction. This will reduce the time it takes to remove even long-lasting nail polish/art

while simultaneously reducing one's exposure to toxic nail polish remover. The nail clip is reusable thereby making it cost effective and environmentally friendly.

[0037] Although the invention has been described relative to a specific embodiment thereof, there are numerous variations and modifications that will be readily apparent to those skilled in the art in light of the above teachings. It is therefore to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described.

[0038] What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A nail clip, comprising:

a base defining an arcuately-shaped bed, a first finger grip coupled to said bed, opposing slotted posts coupled to said base and extending therefrom where said bed meets said first finger grip, and a ramp disposed in said bed, said ramp extending from an outboard end of said bed to said first finger grip, said ramp increasing in thickness with distance from said outboard end;

a top defining an arcuately-shaped cap, a second finger grip coupled to said cap, and opposing support posts coupled to said cap and extending therefrom where said cap meets said second finger grip, each of said support posts including a hinge pin extending therefrom for engagement with one of said slotted posts wherein said base and said cap can be moved towards and away from one another; and

a spring element disposed between said base and said cap for biasing said first finger grip away from said second finger grip.

2. A nail clip as in claim **1**, wherein said thickness of said bed increases linearly.

3. A nail clip as in claim **1**, wherein said spring element is coupled to said first finger grip and said second finger grip.

4. A nail clip as in claim **1**, wherein said spring element comprises a leaf spring.

5. A nail clip as in claim **1**, wherein said spring element comprises a leaf spring coupled to said first finger grip and said second finger grip.

6. A nail clip as in claim **1**, wherein said base comprises a monolithic structure.

7. A nail clip as in claim **1**, wherein said top comprises a monolithic structure.

8. A nail clip, comprising:

a base defining an arcuately-shaped bed, a first finger grip coupled to said bed, opposing slotted posts coupled to said base and extending therefrom where said bed meets said first finger grip, and a ramp disposed in said bed, said ramp extending from an outboard end of said bed to said first finger grip, said ramp increasing in thickness with distance from said outboard end;

a top defining an arcuately-shaped cap having an outboard end, a second finger grip coupled to said cap, and opposing support posts coupled to said cap and extending therefrom where said cap meets said second finger grip, each of said support posts including a hinge pin extending therefrom for engagement with one of said slotted posts wherein said base and said cap can be moved towards and away from one another, and wherein said bed and said cap oppose one another with said outboard end of said bed extending beyond said outboard end of said cap; and

a spring element disposed between said base and said cap for biasing said first finger grip away from said second finger grip.

9. A nail clip as in claim **8**, wherein said thickness of said bed increases linearly.

10. A nail clip as in claim **8**, wherein said spring element is coupled to said first finger grip and said second finger grip.

11. A nail clip as in claim **8**, wherein said spring element comprises a leaf spring.

12. A nail clip as in claim **8**, wherein said spring element comprises a leaf spring coupled to said first finger grip and said second finger grip.

13. A nail clip as in claim **8**, wherein said base comprises a monolithic structure.

14. A nail clip as in claim **8**, wherein said top comprises a monolithic structure.

15. A nail clip as in claim **8**, wherein a distance between lateral edges of said cap is greater than a distance between lateral edges of said bed.

16. A nail clip, comprising:

a base defining an arcuately-shaped bed having lateral edges, a first finger grip coupled to said bed, opposing slotted posts coupled to said base and extending therefrom where said bed meets said first finger grip, and a ramp disposed in said bed, said ramp extending from an outboard end of said bed to said first finger grip, said ramp increasing in thickness with distance from said outboard end;

a top defining an arcuately-shaped cap having lateral edges, a second finger grip coupled to said cap, and opposing support posts coupled to said cap and extending therefrom where said cap meets said second finger grip, each of said support posts including a hinge pin extending therefrom for engagement with one of said slotted posts wherein said base and said cap can be moved towards and away from one another, and wherein a distance between said lateral edges of said cap is greater than a distance between said lateral edges of said bed; and

a spring element disposed between said base and said cap for biasing said first finger grip away from said second finger grip.

17. A nail clip as in claim **16**, wherein said thickness of said bed increases linearly.

18. A nail clip as in claim **16**, wherein said spring element is coupled to said first finger grip and said second finger grip.

19. A nail clip as in claim **16**, wherein said spring element comprises a leaf spring.

20. A nail clip as in claim **16**, wherein said spring element comprises a leaf spring coupled to said first finger grip and said second finger grip.

21. A nail clip as in claim **16**, wherein said base comprises a monolithic structure.

22. A nail clip as in claim **16**, wherein said top comprises a monolithic structure.

23. A nail clip as in claim **16**, wherein said bed and said cap oppose one another with said outboard end of said bed extending beyond an outboard end of said cap.

* * * * *