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## Description

The present invention relates to an assembly of plastic attachments individually securable to material by being dispensed from an attachment dispensing device and to an attachment dispensing device. More particularly the invention is concerned with an attachment dispensing device of the kind having two hollow needles for penetrating the article to which an attachment is to be secured, and with an attachment assembly for use in a device of this kind.

Before modern tag attaching systems were commercialized, tags and the like were attached to garments and other soft goods by strings or straight pins. However, because of the vast number of items tagged by manufacturers and retail merchandisers and because of the relatively large amount of labor which is required to attach a tag by a string or a pin, new tagging systems were developed which increased the speed of the tagging operation and made it more efficient by decreasing the time and labor required.

The first tagging system was commercialized in the 1960's when Dennison Manufacturing Company of Framingham, Massachusetts began selling an assembly or clip of plastic attachments and an attacher therefore, both of which are disclosed in U.S. Patent No. 3,103,666 of September 16, 1963 to Arnold Bone entitled "Attaching Apparatus". Those attachments included a T-bar end and an enlarged paddled end connected by a flexible filament which is stretched to increase its strength. The attachments are injection moulded in clips or assemblies of 20 to 50 attachments each. The attachments are held together by means of a single connecting bar. The T-bar ends of the attachments are situated in spaced, parallel relation along the connecting bar.

The attaching device employs a hollow needle designed to penetrate the object to be tagged and the tag. After the needle was properly positioned, a single attachment was severed from the assembly and the T-bar end thereof is pushed through the channel in the needle such that the T-bar end of the attachment is situated on one side of the garment and the paddle end of the fastener on the other.

The attachments of the type described in the Bone patent became widely used in the industry. They were employed for attaching all kinds of tags and labels to articles to be sold at retail, where the attachments proved particularly effective in preventing unscrupulous shoppers from switching tags, that is, removing a tag from a low priced article and attaching it to a higher priced article. They are used as well for securing groups of articles together, such as shoes in a pair or match-

ing tops and bottoms. The attachments were also useful for many other purposes.

The attachments could be applied at an extremely rapid rate, even by relatively unskilled personnel, thus greatly reducing the cost of the tagging operation. Over the years, other companies have distributed similar types of attachments and attaching devices. This type of system has virtually supplanted all other attaching methods.

As the attachments became widely used, it was noticed that the ones with longer filaments especially had a tendency to become tangled with other attachments in the assembly and with the attachments in adjacent assemblies, particularly during shipping and handling. In order to overcome this problem, a structure was devised by which the attachments are connected together at their enlarged paddle ends, as well as at their T-bar ends. In the commercial embodiment of the so called "connected paddle" type, the enlarged paddle ends are connected together directly, instead of indirectly through the use of a connecting bar. The "connected paddle" attachment is disclosed in U.S. Patent No. 3,733,657 entitled "Assembly of Attachments and Methods for Manipulating the Same" issued to Gordon B. Lankton on May 22, 1973. It quickly became an industry standard.

The Lankton patent also discloses an embodiment, as far as I know never commercialized, which utilizes a connecting bar on the paddle end as well as on the T-bar end. However, unlike the T-bar ends, the enlarged paddle ends are connected directly without spacing elements, to the connecting bar.

In the 1970's, a new form of attachment and device for attaching same came into being. Instead of forming the attachments in clips of twenty or fifty parallel spaced attachments, strips of continuously connected co planar attachments are formed by elongated plastic side members with cross coupling links. In this case, the attachments were situated end to end in a single plane. The ends were connected directly together, eliminating the connecting bars altogether.

These coplanar attachments are disclosed in U.S. Patent No. 4,121,487 to Arnold Bone entitled "Continuously Connected Fastener Attachment Stock" issued October 24, 1978. That patent also discloses an attacher for the coplanar attachments. The commercial attacher sold by Dennison which uses this type of attachment is called the System 1000. The attachments in the System 1000 are supplied in a roll

Also with the 1970's another form of coplanar attachment was invented. The attachments consisted of two T-bar ends and where connected directly together at the tip of the T-bars to form continuous stock which could be rolled. These at-



attachments were designed to be used in a manner similar to that of staples or tacks because both T-bar ends are situated on one side of the object to be tagged with the filament on the other side. In order to accomplish this the attachments were structured to be dispensed through devices which include two needles such that the T-bars are fed through the needles simultaneously. Here again, no connecting bars are employed. U.S. Patent No. 3,875,648 entitled "Fastener Attachment Apparatus and Method" issued April 8, 1975 to Arnold R. Bone discloses such attachments and apparatus for attaching same. U.S. patent No. 4,533,076 to Bourque discloses an attachment dispensing device as described in the preamble of Claims 1 and 12, using an assembly of attachments of the kind referred to in the preamble of Claim 7; this device uses an attachment assembly in which the attachments have two T-bar ends connected at their tips in a continuous stock.

The present invention is concerned with attachment dispensing devices of the kind using two needles. What is now proposed is a differently configured attachment assembly to that disclosed in the Bone patent referred to in the previous paragraph and a specially designed device for dispensing the attachments. Each attachment has a first and a second T-bar end. The ends are joined by a flexible filament. However unlike the original Bone fasteners, the now proposed attachment assembly includes two connecting bars. Each of the T-bar ends is connected to a different one of the connecting bars. Unlike the Lankin converted paddle fasteners, the attachments now proposed have T-bars at both ends which are joined to two connecting bars. Unlike the continuous stock fasteners, the attachment assembly now proposed includes connecting bars. The assembly particularly described below has further features of difference with regard to these prior art assemblies as will emerge from the detailed description given below.

The attachment dispensing device embodying the present invention that is also described in detail hereinafter, includes a recess which has spaced portions adapted to accept the respective connecting bars of the attachment assembly. This structure permits the attachments to move through the attaching device with greater precision and reduced chance of jamming. The attachment dispensing device to be described includes simultaneously movable ejector rods, both of which are connected to a single actuator. In addition, dual indexing means co-operate with the attachment assembly, proximate each side thereof, such that the indexing operation is smooth and reliable.

The embodiment of the present invention described below is particularly useful in applying attachments for tacking or stapling labels or headers

to articles or packaging, or fastening a tag to a layer of material. However, those skilled in the art will appreciate that there are a multitude of other uses to which the described apparatus is suited. Any such item to which an attachment is to be secured or fastened may be conveniently referred to as an article.

In accordance with one aspect of the present invention, there is provided an attachment dispensing device loaded with an assembly of attachments as claimed in claim 1.

In accordance with a further aspect of the present invention there is provided an assembly of attachments individually securable to an article by being dispensed from an attachment dispensing device of the kind having two hollow needles, wherein each attachment comprises a pair of T-bar ends having a flexible filament therebetween, the assembly being characterised by two substantially parallel connecting bars between which the individual attachments are situated in substantially parallel, spaced relationship and to which the respective T-bar ends of each attachment are joined so as to be severable from the connecting bars in the attachment dispensing device.

In a preferred assembly each T-bar end is joined to the respective connecting bar by a part that spaces the T-bar end from the connecting bar. This part is advantageously used in advancing the attachment assembly through a dispensing device as will be described below.

In the attachment assembly described below the T-bar ends are substantially perpendicular to the connecting bars. Preferably, the connecting bars and the attachments are integral and composed of molded plastic.

In accordance with another aspect of the present invention, an attachment dispensing device is provided for dispensing individual attachments from an assembly of attachments which is as described above, the attachment dispensing device comprising a housing, two hollow needles providing channels through which the respective T-bar ends of an attachment are moved to dispense the attachment, means in the housing actuable to push the T-bar ends through said channels, a recess in said housing through which an assembly of attachments is advanceable to bring successive attachments to a dispensing position, and means actuable to advance an assembly of attachments through said recess, characterised in that the recess has respective spaced sections for receiving the connecting bars of an assembly of attachments and means are provided for severing the T-bar ends of an attachment to be dispensed from said connecting bars.

The means for pushing the T-bar ends preferably comprises a pair of rods movable along re-



spective ones of said channels. The device further comprises means for simultaneously moving the ejector rods.

The means for simultaneously moving the ejector rods may comprise a respective slide connected to each rod and means movable with a trigger mounted to the housing between a first position where the rods are and coacting with the slides to move them.

The rods in the embodiment to be described are movable from a rest position spaced from the needles to allow the next attachment to be dispensed to be advanced to the above-mentioned dispensing position. The housing preferably includes respective guide means for guiding lengthwise movement of the rods.

The means for advancing the assembly of attachments through the recess in the housing may comprise respective gears intersecting the recess to engage the assembly proximate each of the connecting bars thereof. More particularly where the attachment assembly has a respective spacer part between each T-bar end and the proximate connecting bar, the gears are situated to engage the respective spacer parts. The gears may be intermittently moved by an indexing mechanism that is coactable with further slides movable by actuation of the trigger which also actuates the rods. More particularly in the embodiment to be described, depressing the trigger causes movement of the rods and releasing the trigger causes movement of the gears.

The present invention will now be described further with reference to an embodiment of an assembly of attachments and a device for dispensing same (referred to as an attacher) illustrated in the accompanying drawings, wherein like numerals refer to like parts and in which:

Fig. 1 is an isometric view of the attacher of the present invention showing an attachment anchored in sheets of material;

Fig. 2 is a cross-sectional view showing the internal mechanism of the attacher of the present invention;

Fig. 3 is an enlarged cross-sectional view of the forward portion of the attacher of the present invention showing the indexing mechanism before actuation of the trigger;

Fig. 4 is a view similar to Fig. 3 but showing the indexing mechanism after actuation of the trigger;

Fig. 5 is a top cross-sectional view of the portion of the attacher shown in Fig. 3;

Fig. 6. is a top view of the attacher showing an attachment being anchored;

Fig. 7 is a top view similar to Fig. 6 but showing a more advanced stage in the anchoring process;

Fig. 8 is a top cross-sectional view of this portion of the attacher shown in Fig. 4;

Fig. 9 is an isometric view of an assembly of attachments in accordance with the present invention.

As shown in the figures, the attacher of the present invention includes a housing, generally designated A, which has two halves 10 and 12. The housing halves 10, 12 are substantially mirror images of each other and are fastened together by a series of screws 14.

Housing A is generally pistol shaped and has a handle 16 with a depressable trigger 18 extending from its forward portion. The front of housing A has a pair of oppositely oriented needles 20, 22 extending therefrom in spaced parallel relation. The forward portion of housing A is provided with a recess 24 which extends there through in a direction generally perpendicular to the plane of needles 20 and 22. Recess 24 has a generally "H" shaped configuration and includes spaced portions 26, 28 adapted to receive the connecting bars 30, 32, respectively, of the assembly of attachments, generally designated B.

As shown in Figs. 1 and 9, each assembly B of attachments includes a plurality of attachments 36 situated in a substantially spaced, parallel relation and connected between connecting bars 30 and 32. Each of the attachments includes first and second T-bar ends 38, 40. The T-bar ends are connected by a thin stretched plastic flexible filament 39.

In order to anchor an attachment to layers of material 42, 44, such as a tag and an article of clothing, the layers are held in face-to-face relation. The attacher is manipulated such that the material and attacher are moved relative to each other until needles 20, 22 penetrate the layers. Trigger 18 is actuated causing T-bars 38 and 40 to move through hollow needles 20 and 22.

As is apparent from Figs. 6 and 7, as the T-bar ends 38 and 40 travel down the channels in needles 20 and 22 they are substantially parallel to each other. The needles 20 and 22 are parallel and have longitudinal openings facing one another. As they release from the channels, the T-bar ends pivot back to their original orientation, parallel to the surface of the layers, as filaments 39 bows. The T-bar ends thereafter lodge adjacent the rear surface of the layers, as shown in Fig. 1. The attacher and material are then moved away from each other, leaving the attachment anchored. As Trigger 18 is released, the internal indexing mechanism of the attacher advances the assembly of attachments through recess 24 in housing A such that the next attachment in the assembly achieves a dispensing position in which its T-bar ends align with needles 20 and 22.



As seen in Figs. 2, 3, 4, 5 and 8, trigger 18 is pivotally mounted to the housing by pin 46. Trigger 18 is pivotally connected to lever 48 by pin 50 located near the lower end of lever 48 which cooperates with slot 49 in lever 48 to provide for a lost motion connection. Lever 48 is movably mounted to housing A proximate its mid section by pin 52. Lever 48 and thus trigger 18 are spring loaded towards the undepressed position shown in Fig. 2 by means of a tension spring 54 connected between lever 48 at point 56 and housing A at point 58.

The upper end of lever 48 is bifurcated, with the legs 48a and 48b associated with a different one of two slides 60a, 60b. Each slide 60a, 60b is situated between a pair of guides 62 and 64 on each housing half 10, 12 for movement within housing A. Slides 60a, 60b have apertures adapted to accept the ends of ejector rods 66, 68 respectively. Each of the ejector rods 66, 68 is bent at a right angle near its rear end so as to fit into the respective apertures in slides 60a, 60b. It will be appreciated from Fig. 2 that the upper end of leg 48a of lever 48 has an elongated opening 70 therein so as to accommodate the ejector rod and its sleeve as lever 48 is pivoted about pin 52.

As best seen in Figs. 3 and 5, before trigger 18 is actuated, ejector rods 66 and 68 are in a rest position situated behind needles 20 and 22, a distance sufficient to permit the T-bar ends 38, 40 of an attachment to be positioned in alignment with the channels of the respective needles 20, 22. When trigger 18 is actuated, lever 48 rotates about pin 52 and slides 60a, 60b move forward. As slides 60a, 60b move forward, ejector rods 66 and 68 are simultaneously moved toward needles 20, 22 such that the rods cause the T-bar ends 38, 40 of the attachment to move through the channels of needles 20 and 22, respectively.

Each housing half 10, 12 is provided with two ejector rod guide members 61 or 63. Members 61, 63 function to guide the movement of ejector rods 66, 68 to insure accurate movement and to eliminate jamming or bending of the rods.

Each half 10, 12 of housing A is provided with a knife blade 72 which is preferably removable from the housing so that it can be replaced when dull. The function of knife blade 72 is to sever the T-bar ends of the attachments from their respective connecting bars as the ejector rod pushes the T-bar end of the attachment through the needle.

As best seen in Fig. 9, the T-bar ends 38, 40 of the attachments 36 are connected to and spaced from the respective connecting bars 30, 32 by bridge elements 74 which is relatively thin. Elements 74 are long enough to space the T-bar ends from the connecting bar associated therewith a distance sufficient to permit engagement of the

bridge element by the gear wheels which make up the indexing mechanism. As seen in Figs. 3 and 4, bridge elements 74 cooperate with the teeth of indexing gears 78 to advance the assembly of attachments through the housing. Two indexing gears 78 are provided, one on each side of the housing. Each cooperates with the bridge element 74 on a different side of the attachment.

The fastener indexing means includes first and second parallelly situated mechanisms one of which is illustrated in Figs. 1, 2 and 3. For simplicity, the operation of only one indexing mechanism will be described, it being understood that both mechanisms are operated simultaneously by the movement of a single trigger 18.

Each indexing mechanism includes an indexing gear 78 rotatably mounted to the housing half. Gear 78 cooperates with lower and upper spring loaded pawls 80, 82 also mounted in that housing half. Each of the lower pawls 80 is pivotally mounted on a portion 84 of slide 86 by pin 87. A spring 81 urges the pawl 80 clockwise, such that tooth 83 normally engages gear 78. Slide 86 is reciprocated relative to the housing as trigger 18 is depressed, moving pawl 80 between the position shown in Fig. 3 and that shown in Fig. 4.

As best seen in Fig. 2, slide portion 86 has a recessed portion 88 into which the upper portion of one of the legs of lever 48 is received forming a lost motion connection with lever 48 such that a relatively large amount of movement of lever 48 results in a relatively small movement of slide 86 and hence slide portion 84. At the bottom of slide 86 is a downwardly projecting finger 90 which cooperates with a spring loaded lever 92 to limit the movement of the slide. As lever 48 is moved forward, lever 92 is cammed out of the way so that slide 86 and slide portion 84 can move forwardly. As slide portion 84 moves forward, finger 83 on pawl 80 is cammed over one of the teeth of gear 78, against the action of spring 81, until slide portion 86 reaches its forward most position, as shown in Fig. 4. During the forward motion of slide 86, gear 78 is held motionless by upper pawl 82 which is spring loaded towards the gear by spring 95.

As trigger 18 is released, lever 48 is rotated clockwise due to the action of spring 54, slide 86 moves rearwardly. Spring 81 urges tooth 83 of pawl 80 into engagement with the teeth of gear 78, and gear 78 rotates through an arc sufficient to bring the next attachment 36 into alignment with the needles. This occurs because pawl 82 is cammed against the action of spring 95, allowing gear 78 to rotate in the counterclockwise direction.

Upper pawl 82 normally prevents movement of the gear 78 in the clockwise direction unless it is manually pivoted in a clockwise direction by de-



pression of projection 98. Projection 98 extends above the housing such that it is manually accessible. When projection 98 is depressed, finger 85 of pawl 82 and finger 83 of pawl 80 (because extension 96 of pawl 82 contacts extension 94 of pawl 80 to rotate the latter in a clockwise direction) are no longer enmeshed in the teeth of gear 78, such that gear 78 can move freely. This permits the assembly of attachments to be removed from the housing.

The indexing mechanism and the ejector mechanism illustrated in the drawings are modified versions of typical corresponding mechanisms which have been widely used in single needle attachers. With regard to the present invention, the important aspect is that the mechanism provides for simultaneous election and indexing of specially configured attachments with dual T-bars 38, 40.

There has been described an assembly of attachments which includes attachments with T-bars at either end. The attachments are situated in substantially parallel, spaced relation between first and second substantially parallel connecting bars.

The attacher which has been described includes a recess having spaced sections adapted to receive the connecting bars and a pair of oppositely oriented, parallel needles extending from the front thereof. Simultaneously displaceable ejector rods serve to move the respective T-bar ends through the needles to dispense an attachment. Means are provided for indexing the assembly through the housing as each attachment is dispensed. The attachments are automatically severed from the connecting bars as they are dispensed.

## Claims

1. An attachment dispensing device (A) loaded with an assembly (B) of attachments and actuatable to dispense individual attachments (36) from said assembly, each attachment of said assembly having T-bar ends (38, 40) with a flexible filament (39) therebetween, the attachment dispensing device (A) comprising a housing (10), two hollow needles (20, 22) providing channels through which the respective T-bar ends (38, 40) of an attachment (36) are moved to dispense the attachment, means (66, 68) in the housing (10) actuatable to push the T-bar ends (38, 40) through said channels, a recess (24) in said housing (10) through which said assembly (B) of attachments is advanceable to bring successive attachments (36) to a dispensing position, and means (78) actuatable to advance said assembly (B) through said recess (24), characterised in that:

said assembly (B) comprises two substantially parallel connecting bars (30, 32) between

which the individual attachments (36) are situated in substantially parallel, spaced relationship and to which the respective T-bar ends (38, 40) of each attachment are joined so as to be severable from the connecting bars (30, 32) in the attachment dispensing device, and

the recess (24) in the device (A) has respective spaced sections (24, 26) for receiving the connecting bars (30, 32) of said assembly of attachments and the device (A) comprises means (72) provided for severing the T-bar ends (38, 40) of an attachment (36) to be dispensed from said connecting bars (30, 32).

2. An attachment dispensing device as claimed in Claim 1 in which said T-bar ends (38, 40) of each attachment (36) are substantially perpendicular to said connecting bars (30, 32).
3. An attachment dispensing device as claimed in Claim 1 or 2 wherein each T-bar end is joined to the respective connecting bar by a part (74) that spaces the T-bar end from the connecting bar, and said means (72) for severing the T-bar ends (38, 40) of an attachment (36) acts to sever said part (74).
4. An attachment dispensing device as claimed in Claim 1 or 2 in which each T-bar end is joined to the proximate one of the connecting bars of said assembly (B) by a spacer part (74), and in which said means (78) for advancing the assembly through the recess comprises respective gears which are situated to engage the respective spacer parts (74) between each T-bar end (38, 40) and the proximate connecting bar (30, 32).
5. An attachment dispensing device as claimed in Claim 1, 2, 3 or 4 in which said recess in the device extends perpendicularly to the plane of said needles.
6. An attachment dispensing device as claimed in Claim 5 in which said device comprises a trigger mechanism manually-actuatable to provide the power to operate the device, the squeezing of said trigger mechanism being operable to sever an attachment from said assembly of attachments and push the T-bar ends of the severed attachment through said needles and the release of said trigger mechanism being operable to actuate said means to advance said attachment assembly.
7. An assembly of attachments individually securable to an article by being dispensed from an attachment dispensing device of the



kind having two hollow needles, wherein each attachment (36) comprises a pair of T-bar ends (38, 40) having a flexible filament (39) therebetween, the assembly being characterised by two substantially parallel connecting bars (30, 32) between which the individual attachments (36) are situated in substantially parallel, spaced relationship and to which the respective T-bar ends (38, 40) of each attachment are joined so as to be severable from the connecting bars (30, 32) in the attachment dispensing device.

8. An assembly as claimed in Claim 7 in which said T-bar ends (38, 40) are substantially perpendicular to said connecting bars (30, 32).

9. An assembly as claimed in Claim 7 or 8 wherein each T-bar end is joined to the proximate connecting bar by a part (74) that spaces the T-bar end from the connecting bar.

10. An assembly as claimed in Claim 7, 8 or 9 in which said attachments and connecting bars constitute an integral assembly.

11. An assembly as claimed in Claim 7, 8, 9 or 10 in which said attachments and connecting bars are of moulded plastics material.

12. An attachment dispensing device for dispensing individual attachments from an assembly of attachments which is as claimed in any one of Claims 7 to 11, the attachment dispensing device (A) comprising a housing (10), two hollow needles (20, 22) providing channels through which the respective T-bar ends (38, 40) of an attachment (36) are moved to dispense the attachment, means (66, 68) in the housing (10) actuable to push the T-bar ends (38, 40) through said channels, a recess (24) in said housing (10) through which an assembly (B) of attachments is advanceable to bring successive attachments (36) to a dispensing position, and means (78) actuable to advance an assembly (B) of attachments through said recess (24), characterised in that the recess (24) has respective spaced sections (24, 26) for receiving the connecting bars (30, 32) of an assembly of attachments and means (72) are provided for severing the T-bar ends (38, 40) of an attachment (36) to be dispensed from said connecting bars (30, 32).

13. An attachment dispensing device as claimed in Claim 12 in which said push means (66, 68) comprises a pair of rods movable along respective ones of said channels, and further

comprising means (60a: 48a) for simultaneously moving said rods.

14. An attachment dispensing device as claimed in Claim 13 in which said rods (66, 68) are movable from a rest position spaced from said needles to allow the next attachment (36) to be dispensed to be advanced to said dispensing position.

15. An attachment dispensing device as claimed in Claim 13 or 14, in which the housing (10) includes respective guide means (61, 63) for guiding lengthwise movement of said rods (66, 68).

16. An attachment dispensing device as claimed in Claim 13, 14 or 15 further comprising a trigger (28) mounted to said housing (10) and in which said means (60a, 48a) for moving said rods comprises a respective slide (60a, 60b) connected to each rod and means (48a, 48b) movable with said trigger (18) and coacting with said slides (60a, 60b) to move same.

17. An attachment dispensing device as claimed in any one of Claims 12 to 16 in which said means (78) for advancing the assembly through the recess comprises respective gears intersecting said recess (24) to engage said assembly (B) of attachments proximate each of said connecting bars (30, 32) thereof.

18. An attachment dispensing device as claimed in Claim 17 for dispensing attachments from an assembly of attachments which is as claimed in Claim 9, wherein said respective gears are situated to engage the respective spacer parts (74) between each T-bar end (38, 40) and the proximate connecting bar (30, 32).

19. An attachment dispensing device as claimed in Claim 17 or 18 as appended to any one of Claims 12 to 15, further comprising a trigger (18) mounted to said housing (10), respective slides (86) movable by actuation of said trigger (18) and an indexing mechanism (80, 82) coactable with said slides for intermittently moving said gears (78) to advance the assembly of attachments.

20. An attachment dispensing device as claimed in Claim 17 or 18 as appended to Claim 16 comprising further slides (86) movable by actuation of said trigger (18) and an indexing mechanism (80, 82) for intermittently moving said gears (78) to advance the assembly of attachments.



21. An attachment dispensing device as claimed in Claim 20 wherein actuation of said trigger (18) by depressing same causes movement of said rods (66, 68) into said channels and actuation of said trigger (18) by releasing same causes movement of said gears (78).

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### Patentansprüche

1. Befestigungseinrichtungs-Abgabevorrichtung (A), die mit einer Anordnung (B) von Befestigungseinrichtungen bestückt ist und zum Abgeben einzelner Befestigungseinrichtungen (36) von der Anordnung betätigbar ist, wobei jede Befestigungseinrichtung der Anordnung T-Stückenden (38, 40) mit einem dazwischen befindlichen flexiblen Filament (39) aufweist, wobei die Befestigungseinrichtungs-Abgabevorrichtung (A) ein Gehäuse (10), zwei hohle Nadeln (20, 22), die Kanäle schaffen, durch die die jeweiligen T-Stückenden (38, 40) einer Befestigungseinrichtung (36) zur Abgabe der Befestigungseinrichtung hindurchbewegt werden, eine in dem Gehäuse (10) vorgesehene Einrichtung (66, 68), die zum Hindurchdrücken der T-Stückenden (38, 40) durch die Kanäle betätigbar ist, eine in dem Gehäuse (10) vorgesehene Aussparung (24), durch die sich die Anordnung (B) der Befestigungseinrichtungen voranbewegen läßt, um aufeinander folgende Befestigungseinrichtungen (36) in eine Abgabeposition zu bringen, sowie eine Einrichtung (78) aufweist, die zum Voranbewegen der Anordnung (B) durch die Aussparung (24) hindurch betätigbar ist, dadurch gekennzeichnet, daß die Anordnung (B) zwei im wesentlichen parallele Verbindungsstäbe (30, 32) aufweist, zwischen denen die einzelnen Befestigungseinrichtungen (36) im wesentlichen parallel zueinander und im Abstand voneinander vorgesehen sind und mit denen die jeweiligen T-Stückenden (38, 40) jeder Befestigungseinrichtung derart verbunden sind, daß sie von den Verbindungsstäben (30, 32) in der Befestigungseinrichtungs-Abgabevorrichtung abtrennbar sind, und daß die Aussparung (24) in der Vorrichtung (A) jeweils voneinander beabstandete Abschnitte (24, 26) zum Aufnehmen der Verbindungsstäbe (30, 32) der Anordnung von Befestigungseinrichtungen aufweist und die Vorrichtung (A) eine Einrichtung (72) aufweist, die zum Abtrennen der T-Stückenden (38, 40) einer abzugebenden Befestigungseinrichtung (36) von den Verbindungsstäben (30, 32) vorgesehen ist.

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2. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 1, wobei die T-Stückenden (38, 40) jeder Befestigungseinrichtung (36) im wesentlichen rechtwinklig zu den Verbindungsstäben (30, 32) sind.

3. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 1 oder 2, wobei jedes T-Stückende mit dem jeweiligen Verbindungsstab durch einen Teil (74) verbunden ist, der das T-Stückende von dem Verbindungsstab beabstandet, und wobei die Einrichtung (72) zum Abtrennen der T-Stückenden (38, 40) einer Befestigungseinrichtung (36) ein Abtrennen des Teils (74) bewirkt.

4. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 1 oder 2, wobei jedes T-Stückende mit dem benachbarten der Verbindungsstäbe der Anordnung (B) durch ein Abstandsteil (74) verbunden ist, und wobei die Einrichtung (78) zum Voranbewegen der Anordnung durch die Aussparung hindurch jeweils ein Zahnrad aufweist, wobei die Zahnräder derart angeordnet sind, daß sie mit den jeweiligen Abstandsteilen (74) zwischen jedem T-Stückende (38, 40) und dem benachbarten Verbindungsstab (30, 32) in Eingriff treten.

5. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 1, 2, 3 oder 4, wobei sich die Aussparung in der Vorrichtung rechtwinklig zu der Ebene der Nadeln erstreckt.

6. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 5, wobei die Vorrichtung einen von Hand betätigbaren Auslösemechanismus aufweist, der zur Schaffung der Kraft zum Betätigen der Vorrichtung vorgesehen ist, wobei ein Eindrücken des Auslösemechanismus ein Abtrennen einer Befestigungseinrichtung von der Anordnung von Befestigungseinrichtungen sowie ein Hindurchdrücken der T-Stückenden der abgetrennten Befestigungseinrichtung durch die Nadeln hindurch bewirkt und ein Freigeben des Auslösemechanismus eine Betätigung der Einrichtung zum Voranbewegen der Befestigungseinrichtungs-Anordnung bewirkt.

7. Anordnung von Befestigungseinrichtungen, die sich einzeln an einem Gegenstand befestigen lassen durch Abgabe derselben von einer Befestigungseinrichtungs-Abgabevorrichtung der Art, die zwei hohle Nadeln aufweist, wobei jede Befestigungseinrichtung (36) ein Paar T-Stück-



- kenden (38, 40) mit einem dazwischen befindlichen, flexiblen Filament (39) aufweist, wobei die Anordnung gekennzeichnet ist durch zwei im wesentlichen parallele Verbindungsstäbe (30, 32), zwischen denen die einzelnen Befestigungseinrichtungen (36) im wesentlichen parallel zueinander und voneinander beabstandet angeordnet sind und mit denen die jeweiligen T-Stückenden (38, 40) jeder Befestigungseinrichtung derart verbunden sind, daß sie in der Befestigungseinrichtungs-Abgabevorrichtung von den Verbindungsstäben (30, 32) abtrennbar sind.
8. Anordnung nach Anspruch 7, wobei die T-Stückenden (38, 40) im wesentlichen rechtwinklig zu den Verbindungsstäben (30, 32) sind.
9. Anordnung nach Anspruch 7 oder 8, wobei jedes T-Stückende mit dem benachbarten Verbindungsstab durch einen Teil (74) verbunden ist, der das T-Stückende von dem Verbindungsstab beabstandet.
10. Anordnung nach Anspruch 7, 8 oder 9, wobei die Befestigungseinrichtungen und die Verbindungsstäbe eine integrale Anordnung bilden.
11. Anordnung nach Anspruch 7, 8, 9 oder 10, wobei die Befestigungseinrichtungen und die Verbindungsstäbe aus geformtem Kunststoffmaterial bestehen.
12. Befestigungseinrichtungs-Abgabevorrichtung zum Abgeben einzelner Befestigungseinrichtungen von einer Anordnung von Befestigungseinrichtungen, wie sie in einem der Ansprüche 7 bis 11 beansprucht ist, wobei die Befestigungseinrichtungs-Abgabevorrichtung (A) ein Gehäuse (10), zwei hohle Nadeln (20, 22), die Kanäle bilden, durch die die T-Stückenden (38, 40) einer Befestigungseinrichtung (36) zum Abgeben der Befestigungseinrichtung hindurchbewegt werden, eine in dem Gehäuse (10) vorgesehene Einrichtung (66, 68), die zum Hindurchdrücken der T-Stückenden (38, 40) durch die Kanäle betätigbar ist, eine in dem Gehäuse (10) vorgesehene Aussparung (24), durch die sich die Anordnung (B) von Befestigungseinrichtungen voranbewegen läßt, um aufeinanderfolgende Befestigungseinrichtungen (36) in eine Abgabeposition zu bringen, sowie eine Einrichtung (78) aufweist, die zum Voranbewegen einer Anordnung (B) von Befestigungseinrichtungen durch die Aussparung (24) hindurch betätigbar ist, dadurch gekennzeichnet, daß die Aussparung (24) jeweils voneinander beabstandete Abschnitte (24, 26) zum Aufnehmen der Verbindungsstäbe (30, 32) einer Anordnung von Befestigungseinrichtungen aufweist, und daß eine Einrichtung (72) zum Abtrennen der T-Stückenden (38, 40) einer abzugebenden Befestigungseinrichtung (36) von den Verbindungsstäben (30, 32) vorgesehen ist.
13. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 12, wobei die Drückeinrichtung (66, 68) ein Paar Stangen aufweist, die entlang der Kanäle bewegbar sind, sowie weiterhin eine Einrichtung (60a, 48a) zum gleichzeitigen Bewegen der Stangen aufweist.
14. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 13, wobei die Stangen (66, 68) ausgehend von einer Ruheposition beweglich sind, in der sie von den Nadeln beabstandet sind, um eine Voranbewegung der nächsten abzugebenden Befestigungseinrichtung (36) in die Abgabeposition zu ermöglichen.
15. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 13 oder 14, wobei das Gehäuse (10) jeweils eine Führungseinrichtung (61, 63) zum Führen der in Längsrichtung verlaufenden Bewegung der Stangen (66, 68) beinhaltet.
16. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 13, 14 oder 15, wobei außerdem eine an dem Gehäuse (10) angebrachte Auslöseeinrichtung (28) vorgesehen ist und wobei die Einrichtung (60a, 48a) zum Bewegen der Stangen jeweils ein mit der betreffenden Stange verbundenes Gleitstück (60a, 60b) sowie eine Einrichtung (48a, 48b) aufweist, die zusammen mit der Auslöseeinrichtung (18) bewegbar ist und mit den Gleitstücken (60a, 60b) zusammenwirkt, um diese zu bewegen.
17. Befestigungseinrichtungs-Abgabevorrichtung nach einem der Ansprüche 12 bis 16, wobei die Einrichtung (78) zum Voranbewegen der Anordnung durch die Aussparung jeweils ein Zahnrad aufweist, das die Aussparung (24) kreuzt, um an der Anordnung (B) von Befestigungseinrichtungen nahe eines jeden Verbindungsstabs (30, 32) derselben anzugreifen.
18. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 17 zum Abgeben von Befestigungseinrichtungen von einer Anordnung von



Befestigungseinrichtungen, wie sie in Anspruch 9 beansprucht ist,

wobei die jeweiligen Zahnräder derart angeordnet sind, daß sie mit den jeweiligen Abstandsteilen (74) zwischen jedem T-Stückende (38, 40) und dem benachbarten Verbindungsstab (30, 32) in Eingriff treten.

19. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 17 oder 18 bei deren Abhängigkeit von einem der Ansprüche 12 bis 15, weiterhin mit einer Auslöseeinrichtung (18), die an dem Gehäuse (10) angebracht ist, jeweils einem Gleitstück (86), das durch Betätigung der Auslöseeinrichtung (18) bewegbar ist, und mit einem Fortschaltmechanismus (80, 82), der zum Zusammenwirken mit den Gleitstücken ausgelegt ist, um die Zahnräder (78) zum Voranbewegen der Anordnung von Befestigungseinrichtungen in intermittierender Weise zu bewegen. 10 15 20
20. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 17 oder 18 bei deren Abhängigkeit von Anspruch 16, weiterhin mit Gleitstücken (86), die durch Betätigung der Auslöseeinrichtung (18) beweglich sind, und mit einem Fortschaltmechanismus (80, 82) zum intermittierenden Bewegen der Zahnräder (78) zum Voranbewegen der Anordnung von Befestigungseinrichtungen. 25 30
21. Befestigungseinrichtungs-Abgabevorrichtung nach Anspruch 20, wobei die Betätigung der Auslöseeinrichtung (18) durch Niederdrücken derselben eine Bewegung der Stangen (66, 68) in die Kanäle hinein verursacht und eine Betätigung der Auslöseeinrichtung (18) durch Freigabe derselben eine Bewegung der Zahnräder (78) hervorruft. 35 40

## Revendications

1. Appareil (A) distributeur d'attaches susceptible d'être chargé par un assemblage (B) d'attaches et manoeuvrable pour distribuer une par une des attaches (36) à partir dudit assemblage, chaque attache possédant des tiges à extrémités en T (38,40) ayant entre elles un filament flexible (39). L'appareil (A) comprenant un boîtier (10), deux aiguilles creuses (20,22) munies de canaux dans lesquels les tiges à extrémités en T (38,40) sont placées pour permettre de dispenser l'attache, des moyens (66,68) dans le boîtier (10) au travers duquel l'assemblage (B) est susceptible d'être chargé pour amener chaque attache (36) en position d'être dispensée une par une et un moyen (78) 45 50 55

manuel pour faire avancer ledit assemblage (B) au travers de l'évidement (24), caractérisé en ce que :

l'assemblage (B) comprend en parallèle deux tiges de liaison (30,32) entre lesquelles les différentes attaches séparées (36) sont placées également en parallèle et liées aux extrémités des tiges en T (38,40) de manière à pouvoir être détachées des tiges de liaison (30,32) par l'appareil (A), et l'évidement (24) de ce dernier a des sections séparées (24,26) recevant les tiges de liaison (30,32) de l'assemblage (B) et l'appareil (A) comprend un moyen (72) de séparation des tiges à extrémités en T (38,40) des attaches (36) susceptibles d'être dispensées par ces tiges de liaison (30,32).

2. Appareil distributeur d'attaches selon la revendication 1 dans lequel les tiges à extrémités en T (38,40) de chaque attache (36) sont perpendiculaires aux tiges de liaison (30,32).
3. Appareil distributeur d'attaches selon les revendications 1 ou 2 dans lequel chaque tige à extrémité en T est attachée à sa tige de liaison respective par une pièce (74) qui maintient la tige à extrémité en T espacée de la tige de liaison, et dans lequel le moyen (72) de détachement des tiges à extrémité en T (38,40) de l'attache (36) agit pour détacher la partie (74).
4. Appareil distributeur d'attaches selon les revendications 1 ou 2 dans lequel chaque tige à extrémité en T est jointe à la plus proche des tiges de liaison de l'assemblage (B) par une pièce d'espacement (74), et dans lequel le moyen (78) pour faire avancer l'assemblage au travers de l'évidement comprend des engrenages disposés pour engager les pièces respectives d'espacement (74) de chaque tige à extrémité en T (38,40) et la tige de liaison (30,32) la plus proche.
5. Appareil distributeur d'attaches selon les revendications 1, 2, 3 ou 4 dans lequel l'évidement de l'appareil s'étend perpendiculairement au plan des aiguilles.
6. Appareil distributeur d'attaches selon la revendication 5 dans lequel ledit appareil comprend un mécanisme de gâchette manoeuvrable à la main pour transmettre la force nécessaire au fonctionnement de l'appareil, la pression dudit mécanisme de gâchette permettant la libération d'une attache et la poussée des tiges à extrémités en T de celle-ci dans les aiguilles tandis que le relâchement du mécanisme met



en mouvement les moyens d'avancement de l'assemblage (B).

7. Assemblage d'attaches susceptibles de fixer un article par dispense, attache par attache, à partir d'un appareil distributeur du type possédant deux trous d'aiguilles, dans lequel chaque attache (36) comprend une paire de tiges à extrémité en T (38,40) chaque tige étant reliée par un filament flexible (39), l'assemblage étant caractérisé par deux tiges de liaison (30,32) en parallèle entre lesquelles les différentes attaches (36) sont placées également en parallèle et espacées, et auxquelles les tiges à extrémité en T (38,40) de chacune d'entre elles sont liées de manière à être détachées des tiges de liaison (30,32) dans l'appareil distributeur (B). 5 10 15
8. Assemblage selon la revendication 7 dans lequel les tiges à extrémité en T (38,40) sont perpendiculaires aux tiges de liaison (30,32). 20
9. Assemblage selon les revendications 7 ou 8 dans lequel chaque tige à extrémité en T est reliée à la tige de liaison la plus proche par une pièce (74) qui tient éloignée la tige en T de la tige de liaison. 25
10. Assemblage selon les revendications 7, 8 ou 9 dans lequel les attaches et tiges de liaison constituent un assemblage intégral. 30
11. Assemblage selon les revendications 7, 8, 9 ou 10 dans lequel les attaches et tiges de liaison sont en matériau plastique moulé. 35
12. Appareil distributeur d'attaches pour dispenser séparément des attaches à partir d'un assemblage selon l'une quelconque des revendications 7 à 11, l'appareil distributeur (A) comprenant un boîtier (10), deux aiguilles creuses (20,22) munies de canaux dans lesquels les tiges à extrémités en T (38,40) d'une attache sont placées pour libérer celle-ci, des moyens (66,68) dans le boîtier (10) manoeuvrables pour pousser les tiges à extrémités en T (38,40) au travers des canaux, un évidement (24) dans le boîtier (10) au travers duquel l'assemblage (B) est susceptible d'être chargé pour amener des attaches (36) en position d'être libérées l'une après l'autre, et un moyen (78) manoeuvrable pour faire avancer ledit assemblage (B) au travers de l'évidement (24), caractérisé en ce que celui-ci a des sections espacées (24,26) pour recevoir les tiges de liaison (30,32) de l'assemblage (B) et un moyen (72) mis en place pour détacher les tiges à extrémités en T (38,40) d'une attache 40 45 50 55

(36) afin que celle-ci soit dispensée à partir desdites tiges (30,32).

13. Appareil distributeur d'attaches selon la revendication 12 dans lequel les moyens de poussée (66,68) comprennent deux tringles susceptibles d'être déplacées le long de chacun des canaux respectifs, et en plus des moyens (60a, 48a) pour mettre simultanément en mouvement lesdites tringles.
14. Appareil distributeur d'attaches selon la revendication 13 dans lequel les tringles (66,68) sont susceptibles d'être déplacées à partir d'une position de repos et espacées desdites aiguilles pour permettre à l'attache suivante d'être avancée en position de dispense.
15. Appareil distributeur d'attaches selon les revendications 13 ou 14, dans lequel le boîtier (10) comprend des moyens de guidage (61,63) pour guider dans le sens de la longueur le mouvement des tringles (66,68).
16. Appareil distributeur d'attaches selon les revendications 13, 14 ou 15 comprenant en plus une gâchette (28) montée sur le boîtier (10) et dans lequel les moyens (60a,48a) pour déplacer lesdites tringles comprennent chacun un coulisseau (60a, 60b) relié à chaque tringle et des moyens (48a,48b) actionnés par la gâchette (18) et mettant en mouvement lesdits coulisseaux (60a,60b).
17. Appareil distributeur d'attaches selon l'une quelconque des revendications 12 à 16 dans lequel le moyen (78) d'avancement de l'assemblage (B) à travers l'évidement (24) comprend des engrenages entrecoupant celui-ci pour engager ledit assemblage (B) entre ses tiges de liaison (30, 32).
18. Appareil distributeur d'attaches selon la revendication 17 pour la distribution d'attaches à partir d'un assemblage (B) selon la revendication 9, dans lequel les engrenages respectifs sont disposés pour engager les pièces d'espacement (74) situées entre chaque tige à extrémité en T (38, 40) et la tige de liaison (30, 32) la plus proche.
19. Appareil distributeur d'attaches selon les revendications 17 ou 18 se rattachant à l'une quelconque des revendications 12 à 15, comprenant en plus une gâchette (18) montée dans le boîtier (10), des coulisseaux (86) susceptibles d'être mus par action sur la gâchette (18) et un mécanisme digital (80, 81) agissant



en liaison avec lesdits coulisseaux pour mettre en mouvement de manière intermittente les engrenages (78) et faire avancer l'assemblage (B).

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- 20.** Appareil distributeur d'attaches selon les revendications 17 ou 18 se rattachant à la revendication 16 comprenant en plus des coulisseaux (86) susceptibles d'être déplacés par action sur la gâchette (18) et un mécanisme digital (80, 81) pour la mise en mouvement intermittente des engrenages (78) et faire avancer l'assemblage (B).

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- 21.** Appareil distributeur d'attaches selon la revendication 20 dans lequel l'action sur la gâchette (18), en diminuant la pression, provoque le mouvement des tringles (66, 68) dans les canaux et l'action de relâchement de la gâchette (18) déclenche le mouvement des engrenages (78).

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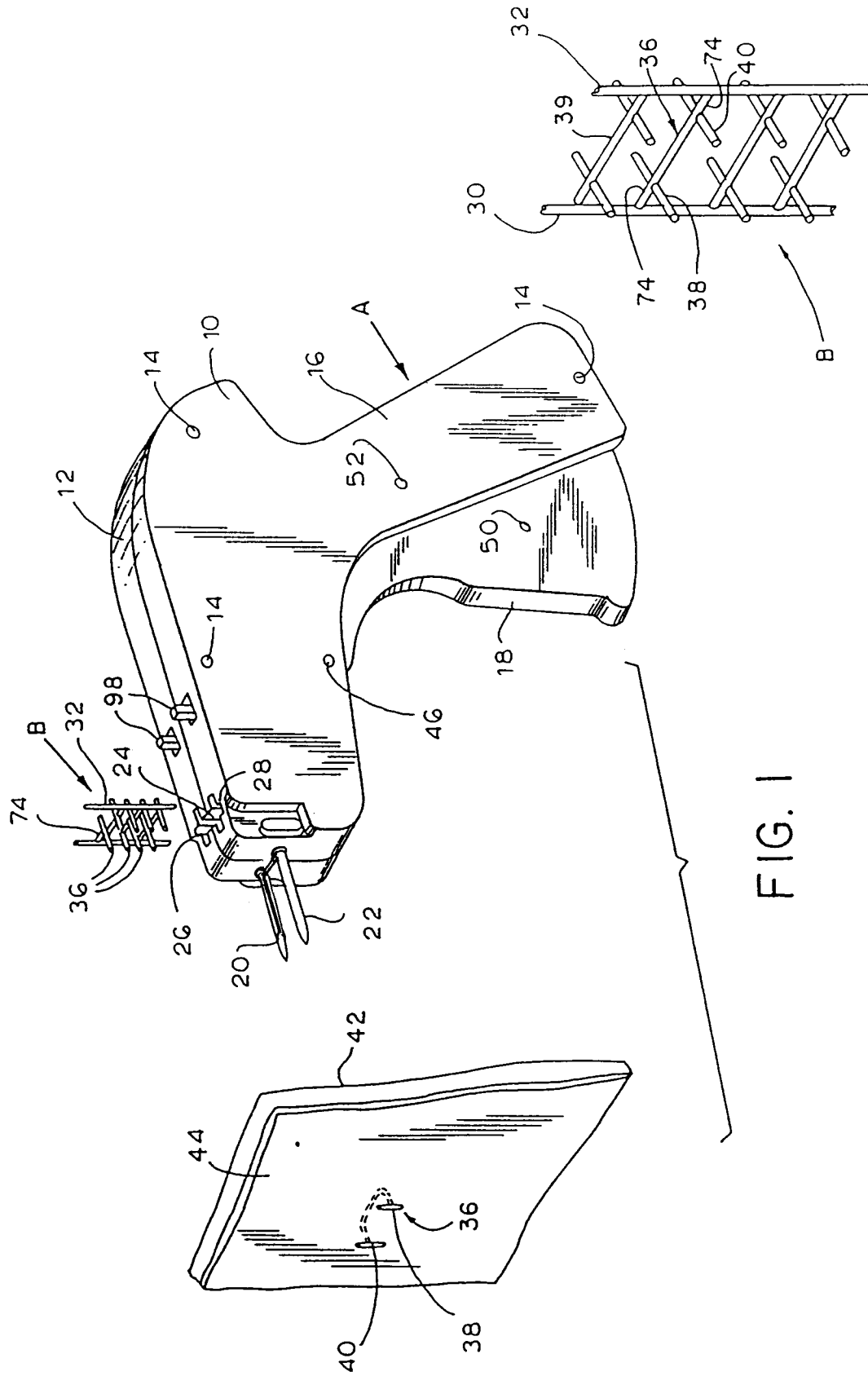


FIG. 9



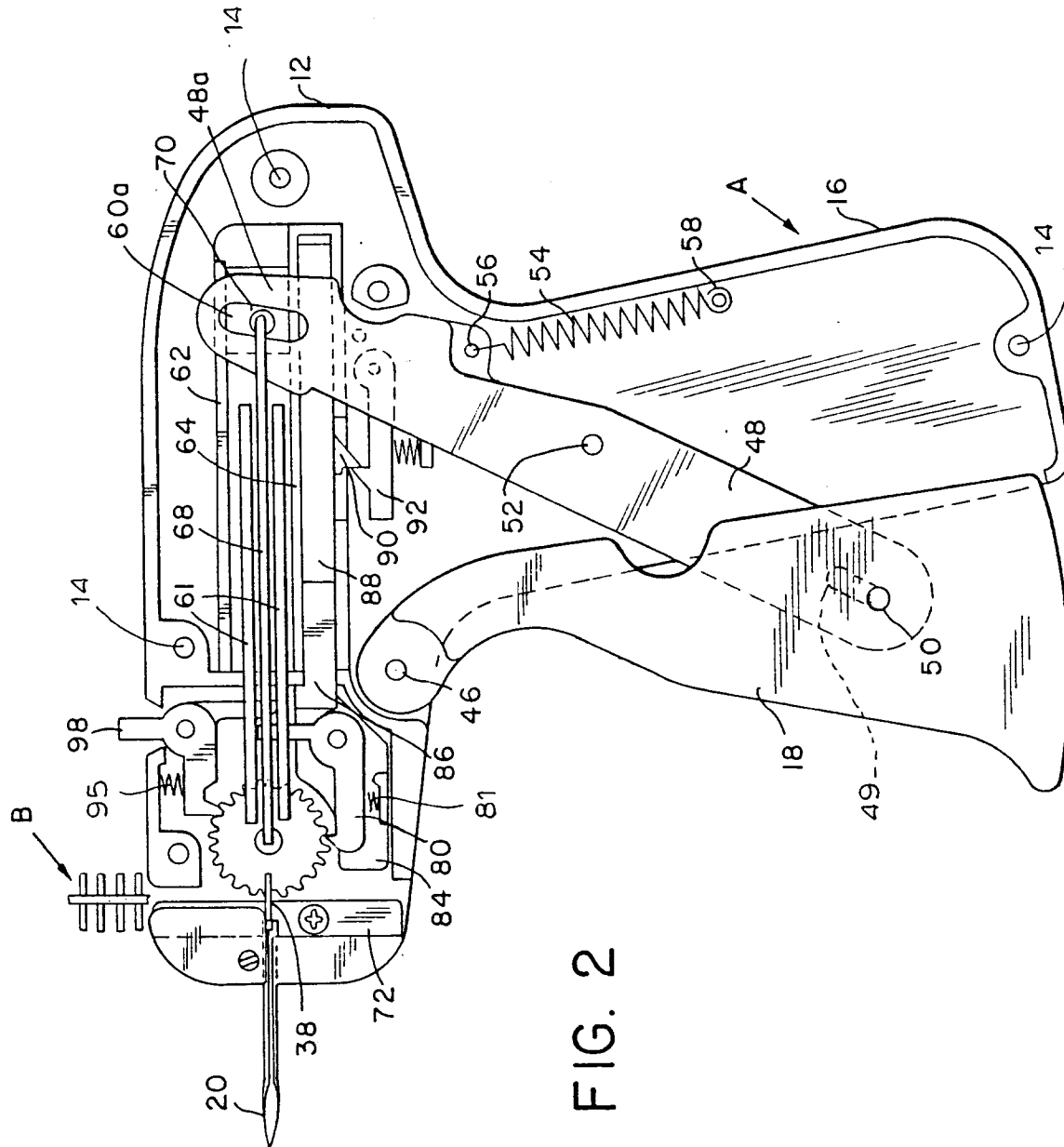
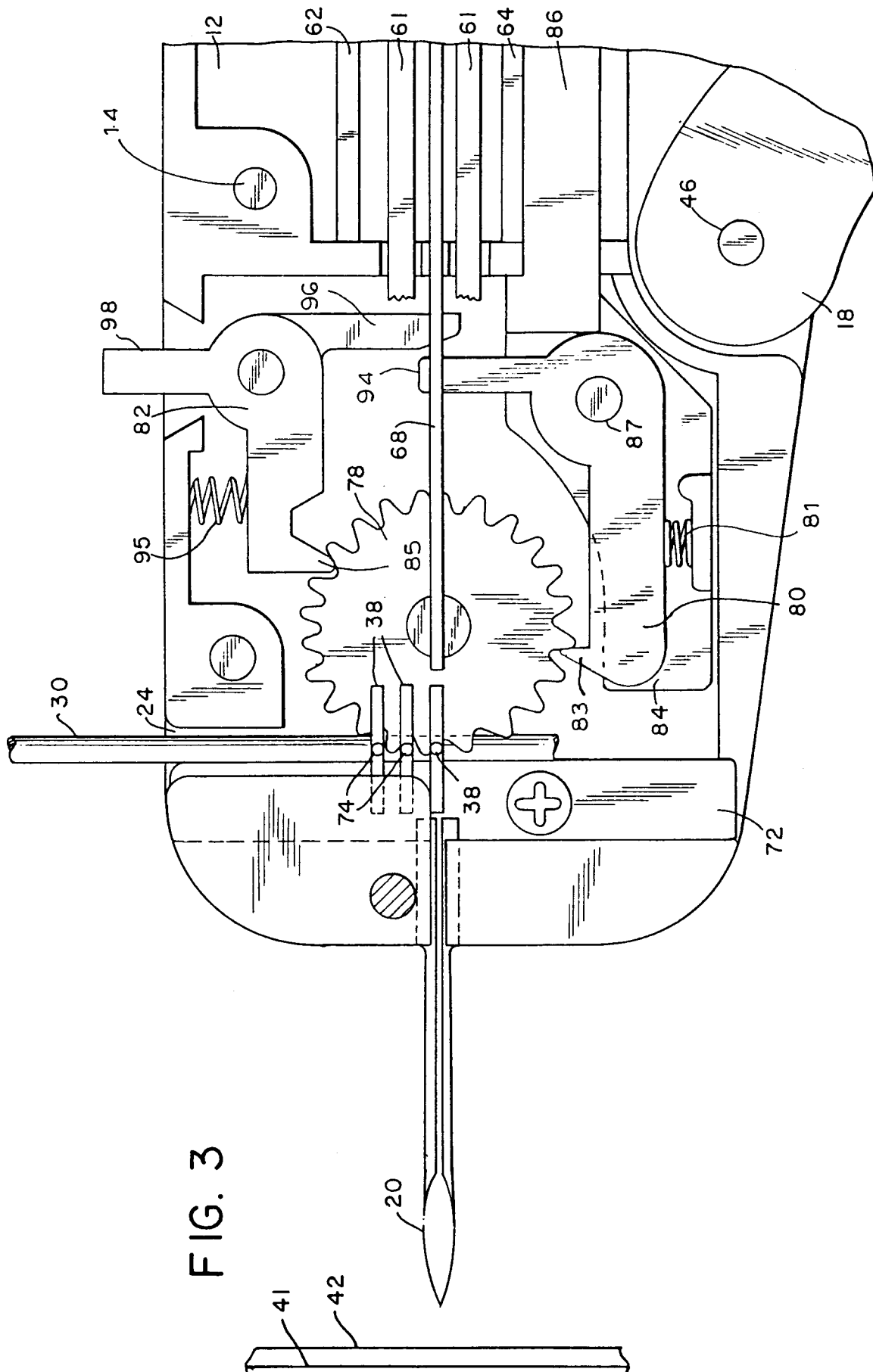


FIG. 2







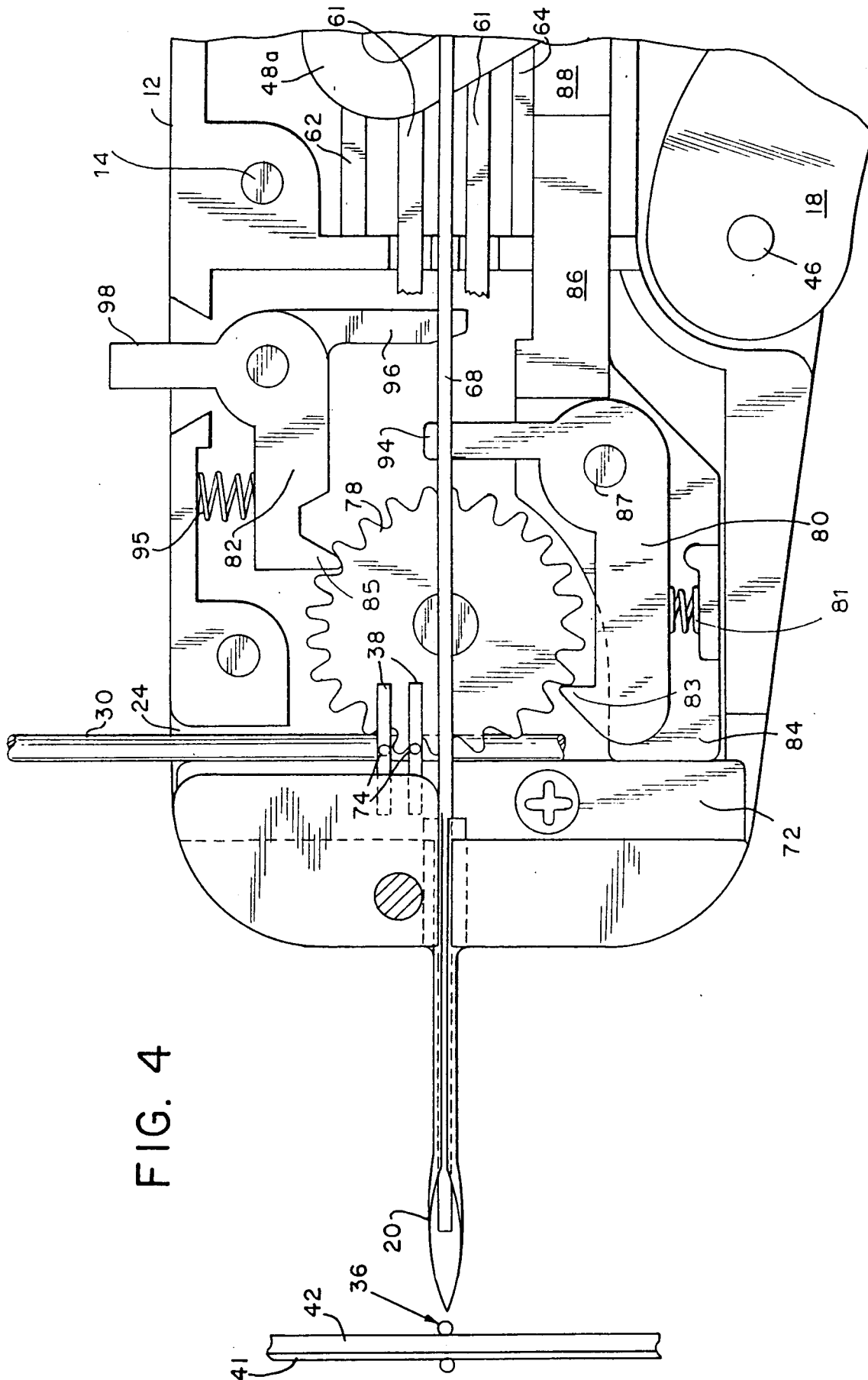


FIG. 4



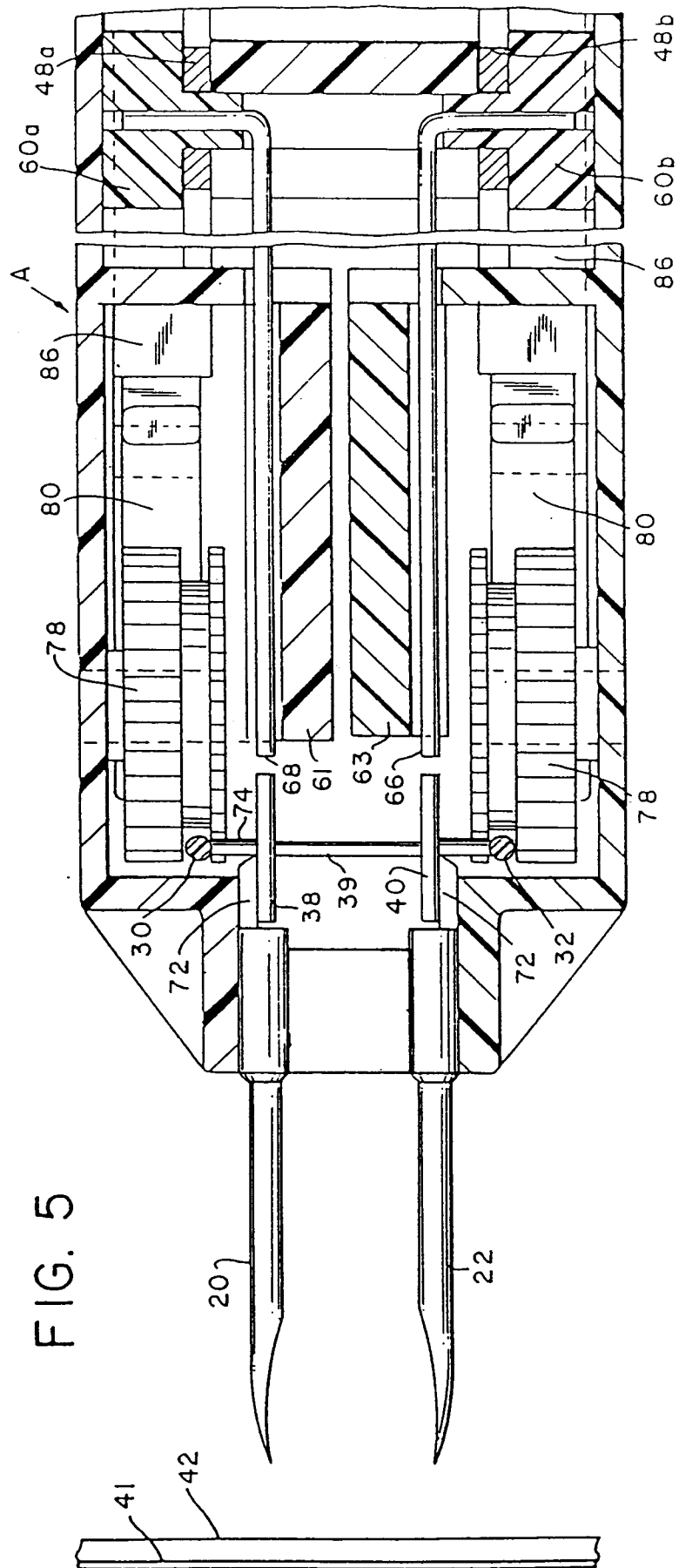




FIG. 6

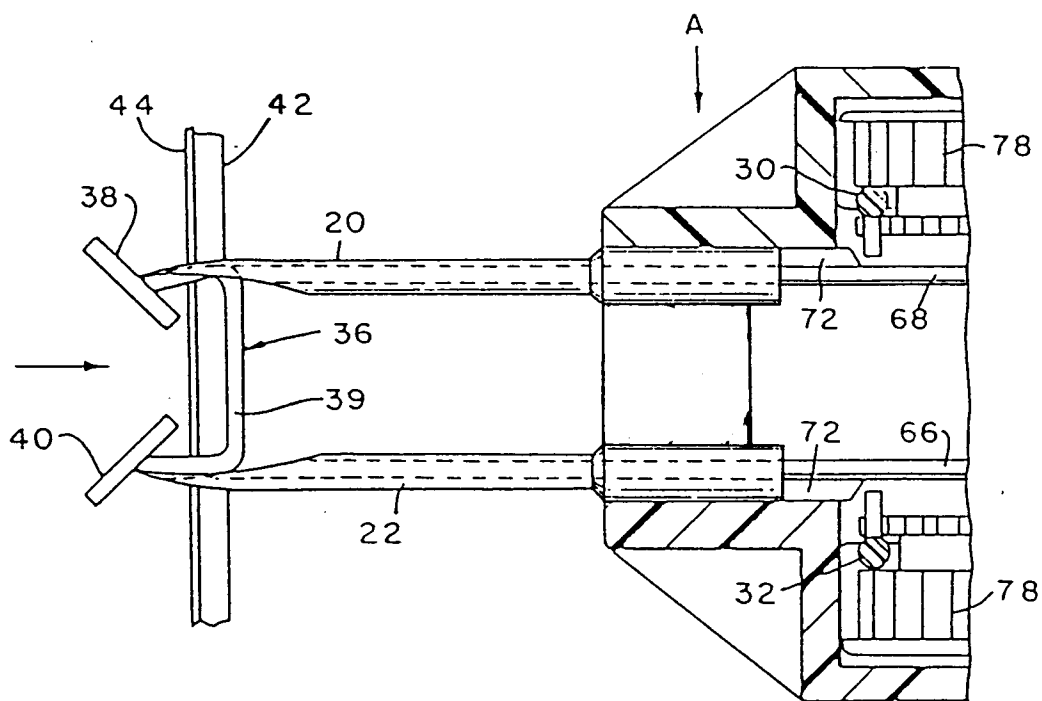
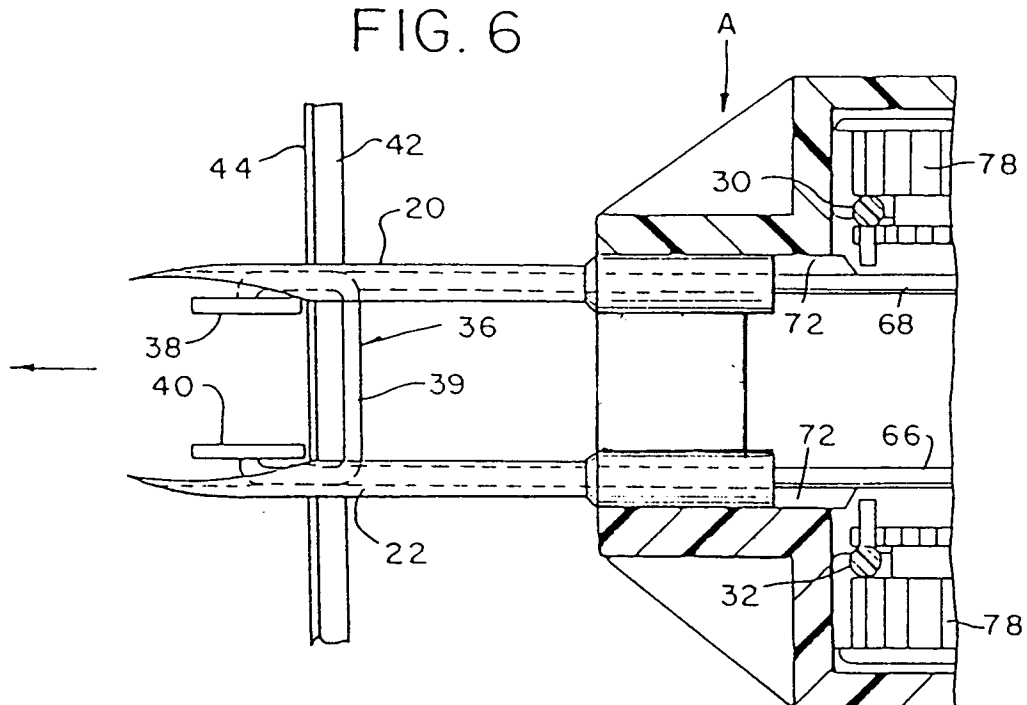


FIG. 7



