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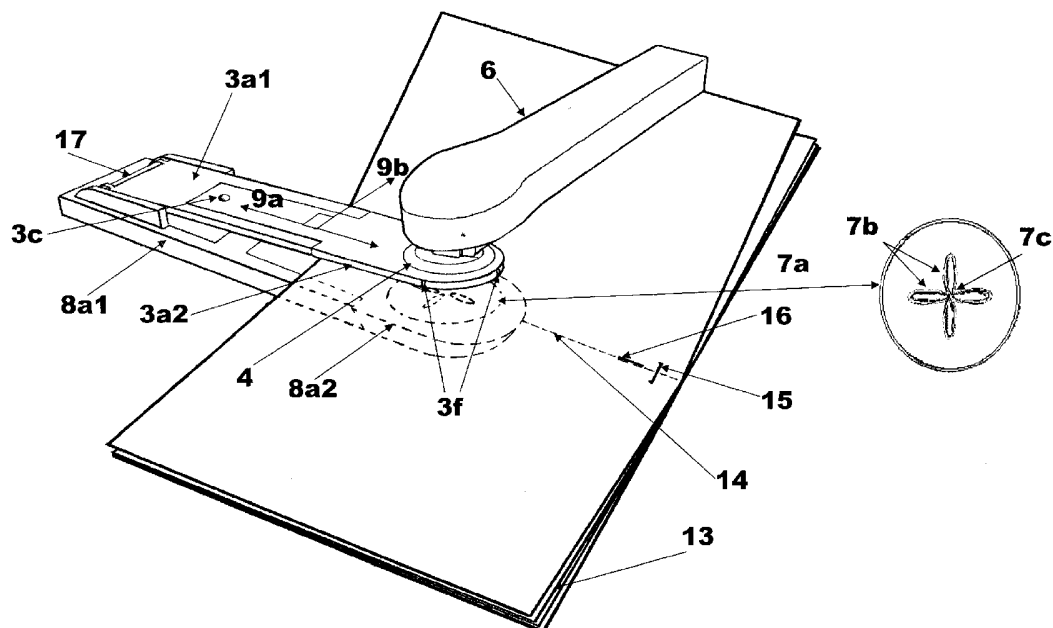
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INT CL⁷ **B25C**
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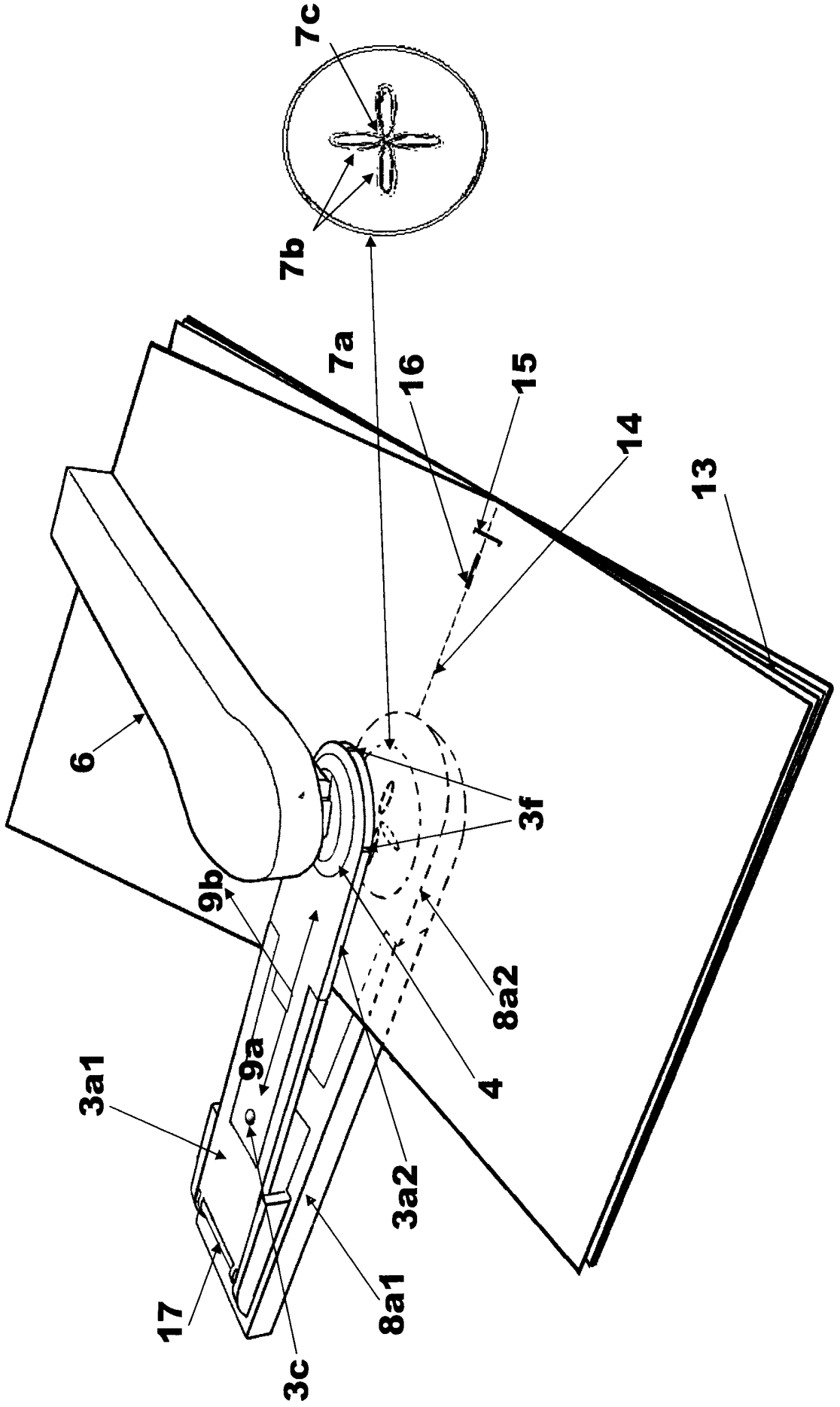
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(54) Abstract Title: **Stapler having rotatable arm**

(57) A stapler having a stapling containing arm 6 and a base 8a1, where the stapling containing arm is rotatable through 90° relative to the base, so that staples can be affixed to a workpiece either transversely to or parallel to the longitudinal axis 9a of the base. Staples can be added to the stapling containing arm at any of its rotatable positions. Preferably the stapler also comprises an intermediary arm 3a1 which is hinged to and sprung against the base, and is also rotatably connected to the stapling containing arm. The base may have a closure plate 7a with two sets of staple closing impressions 7b, to correspond to the two extreme positions of the staple containing arm. The base and intermediary arm are preferably extendable.

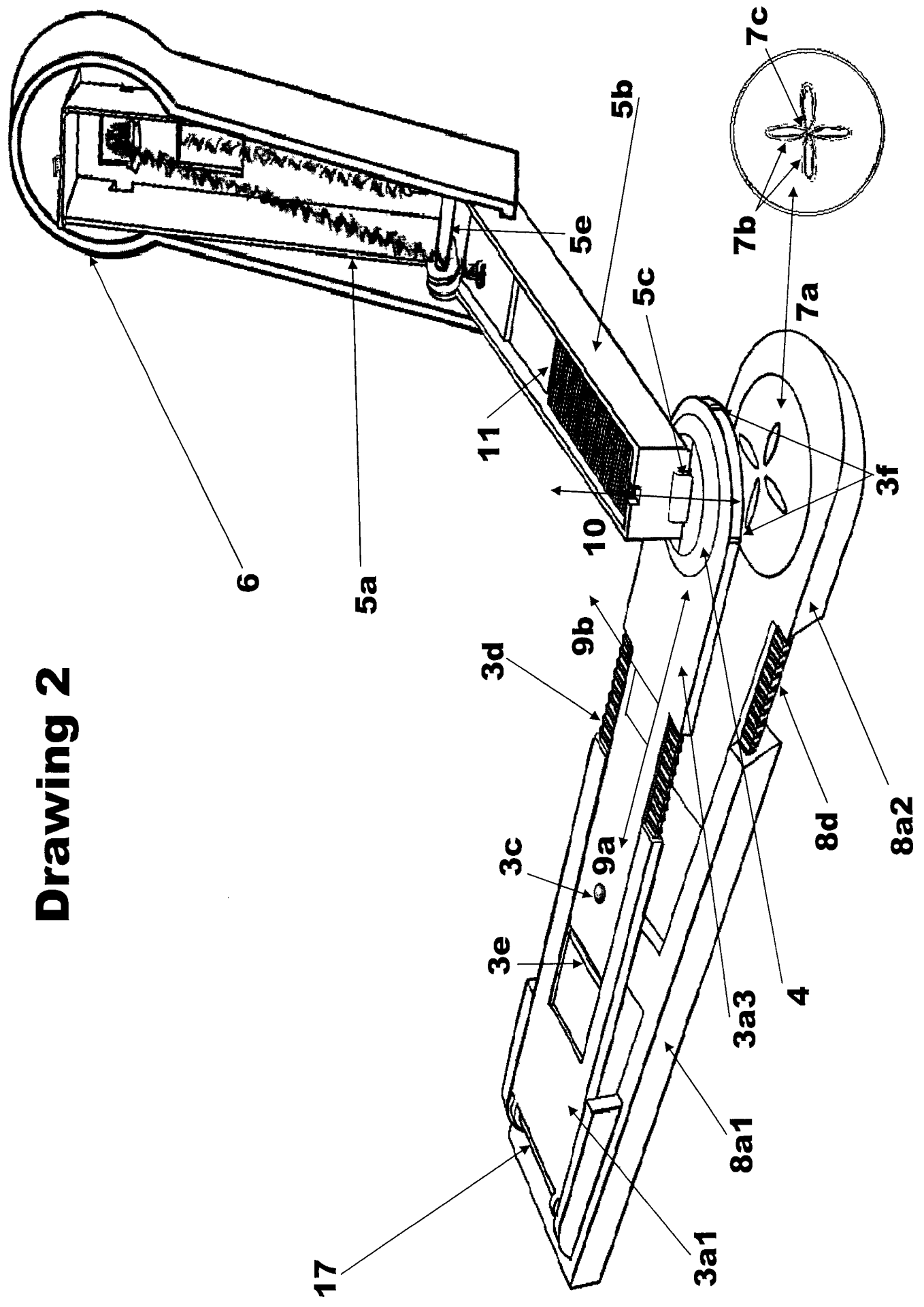


Drawing 1



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Drawing 2



Drawing 3

Fig. 1

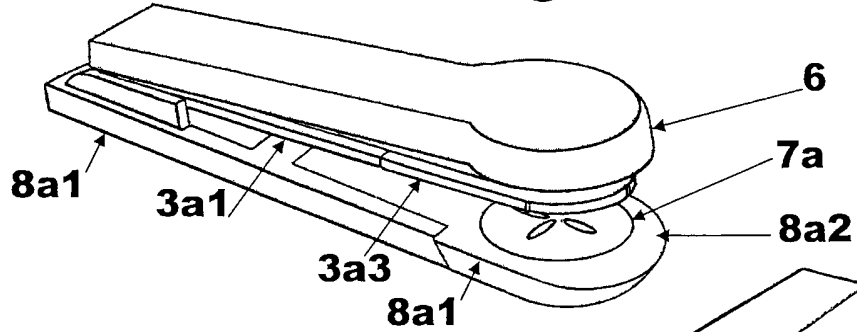


Fig. 2

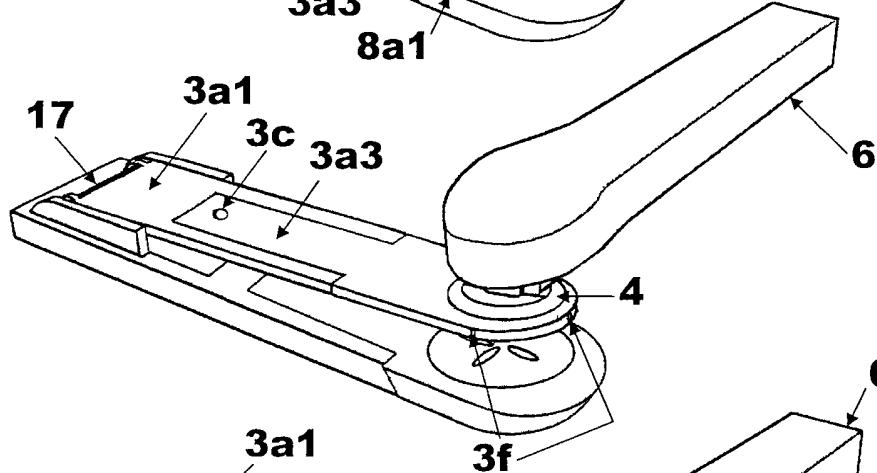


Fig. 3

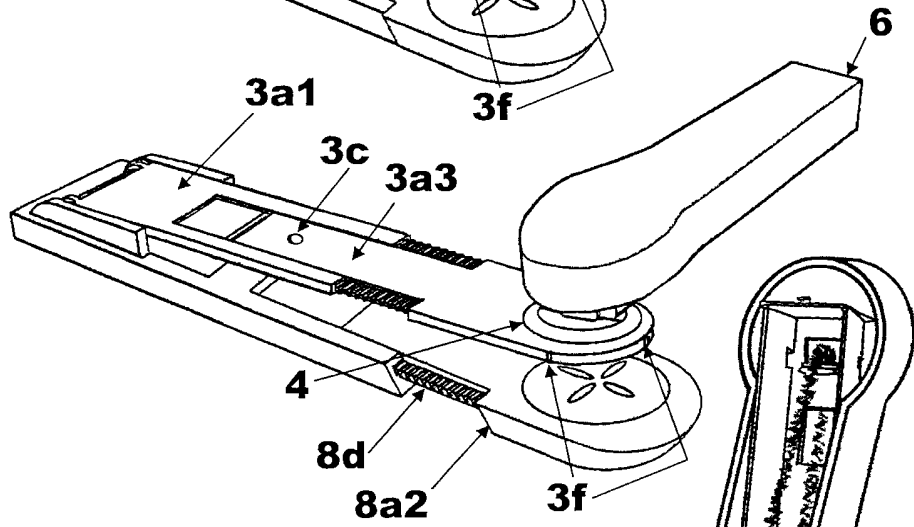
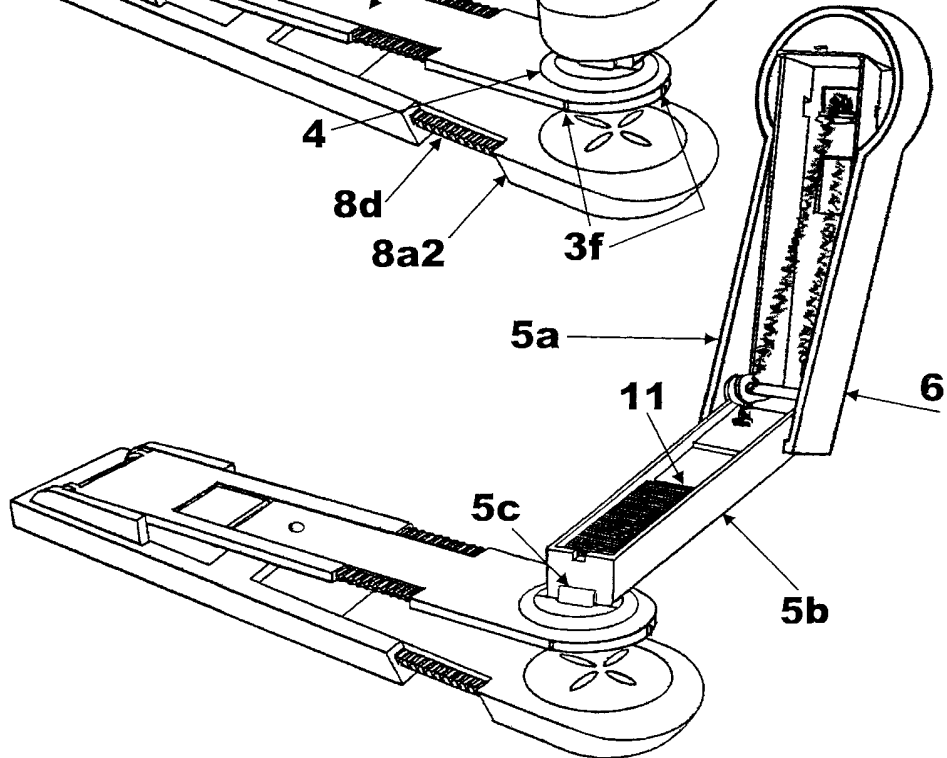
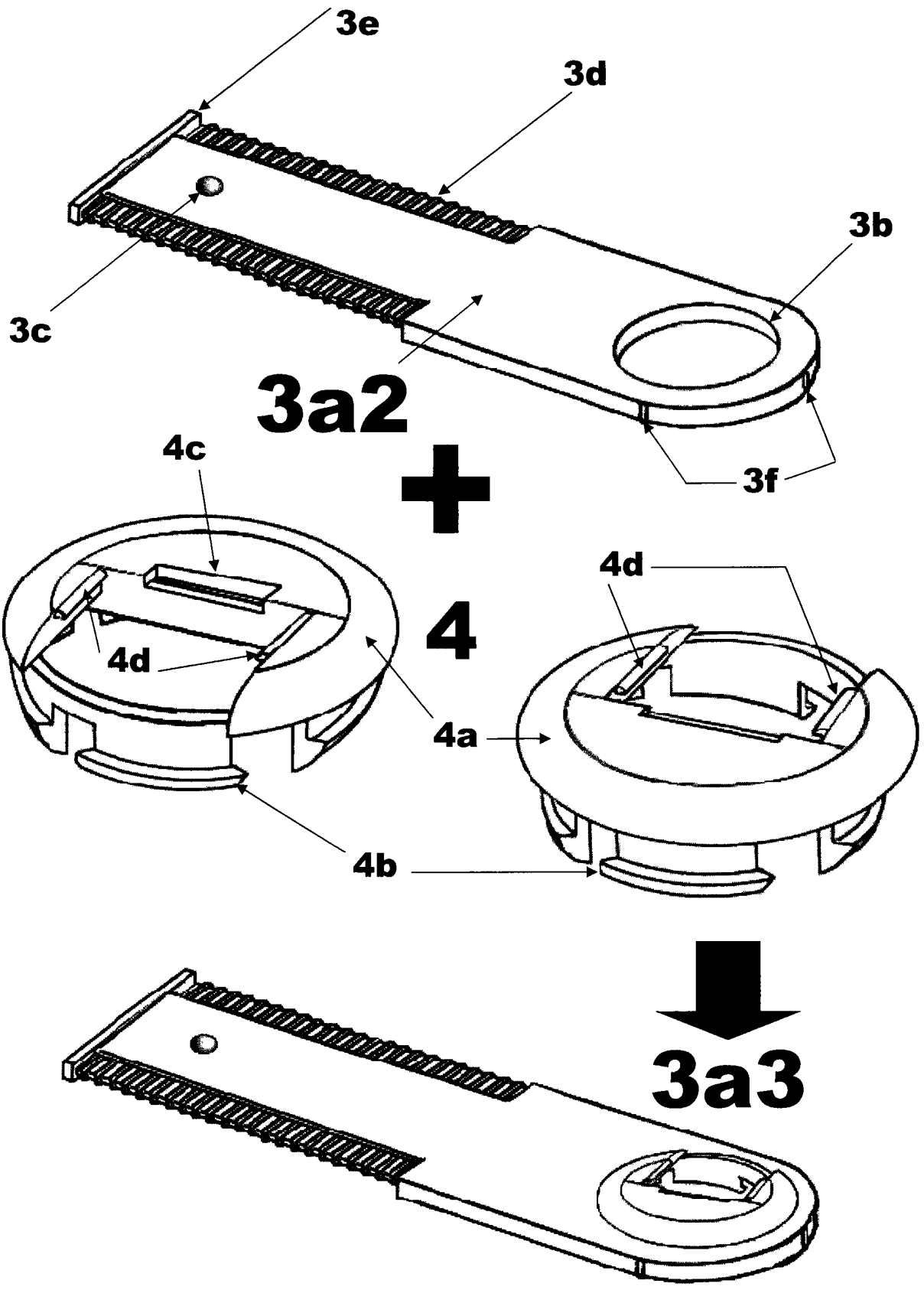


Fig. 4

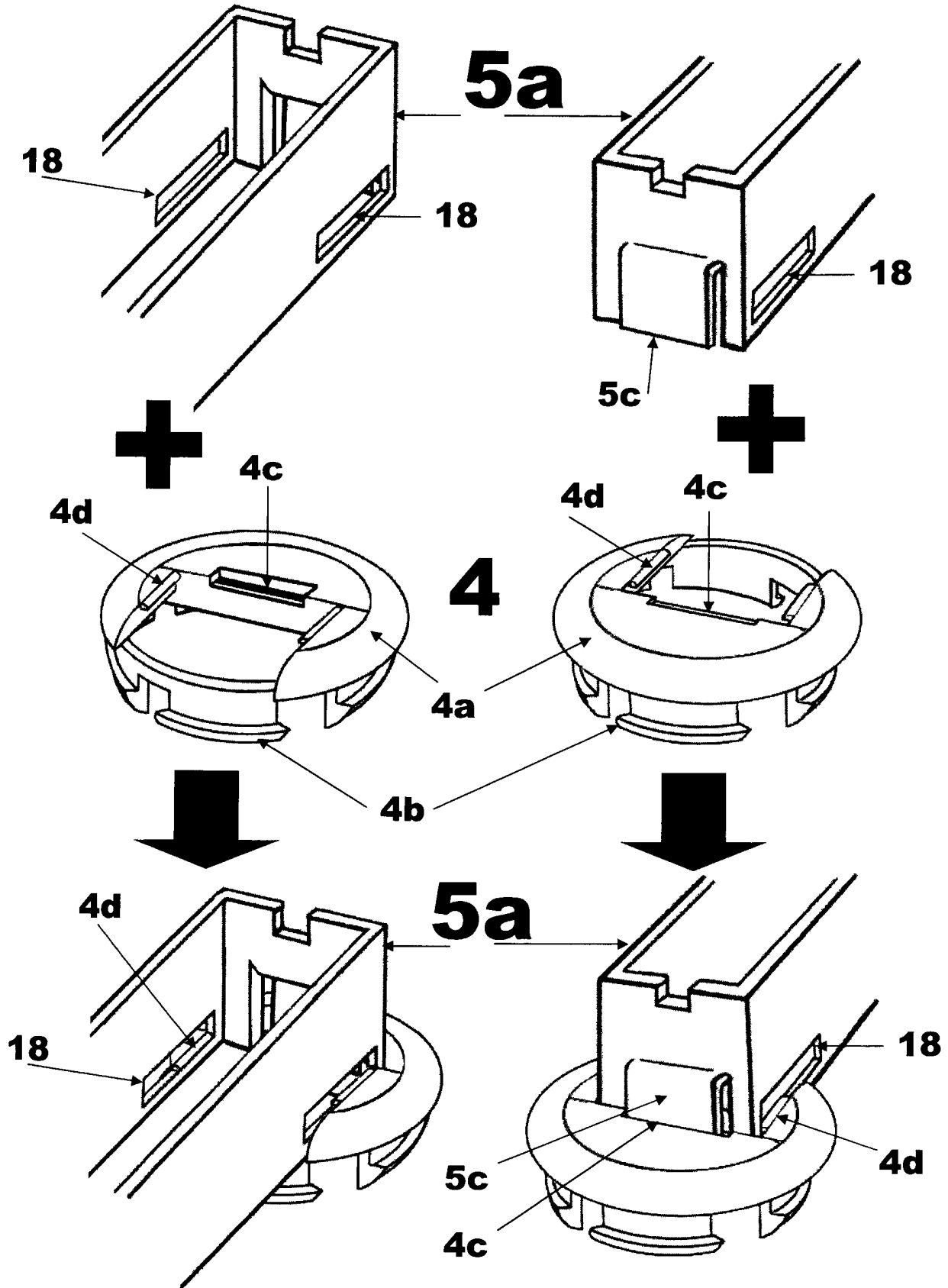


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Drawing 4

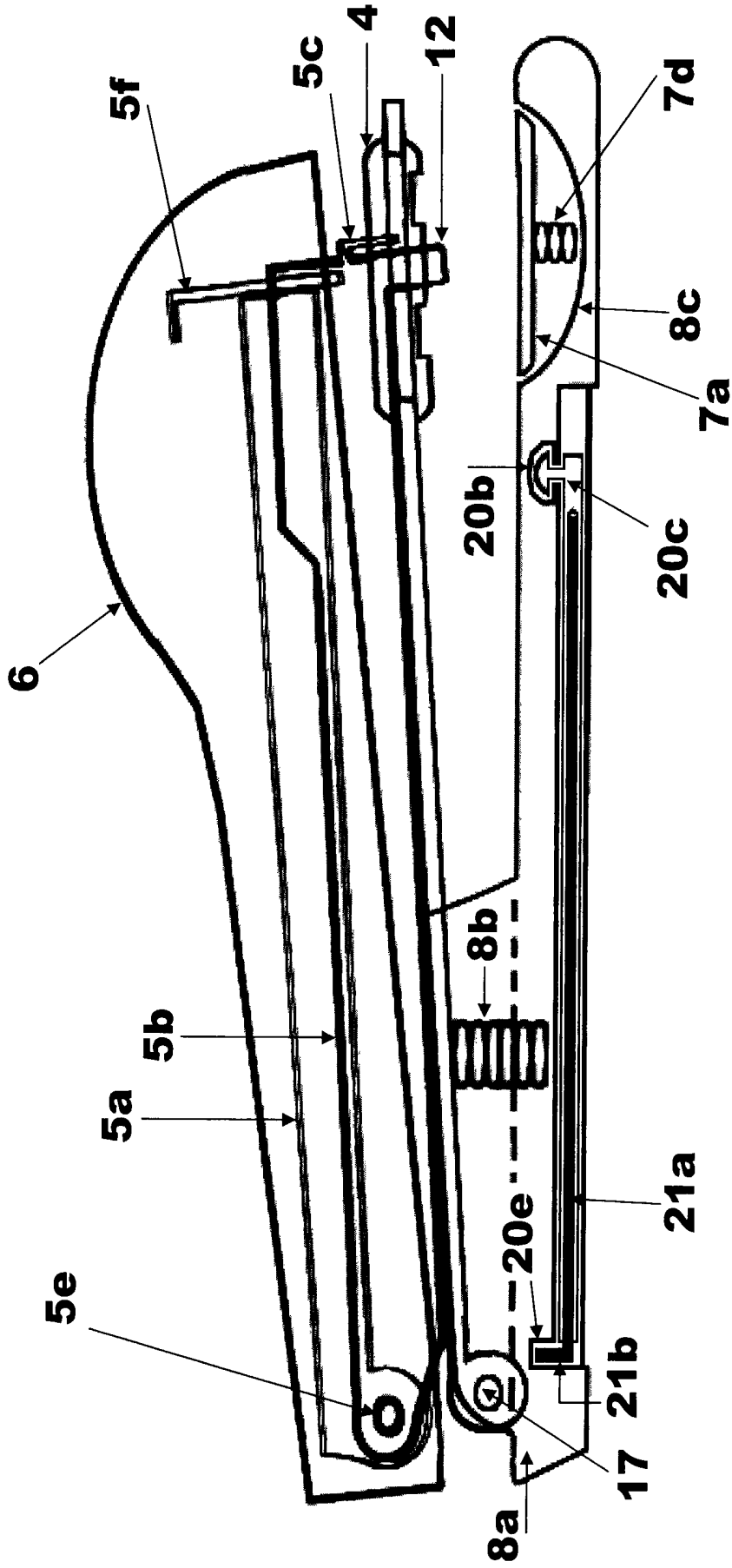


Drawing 5



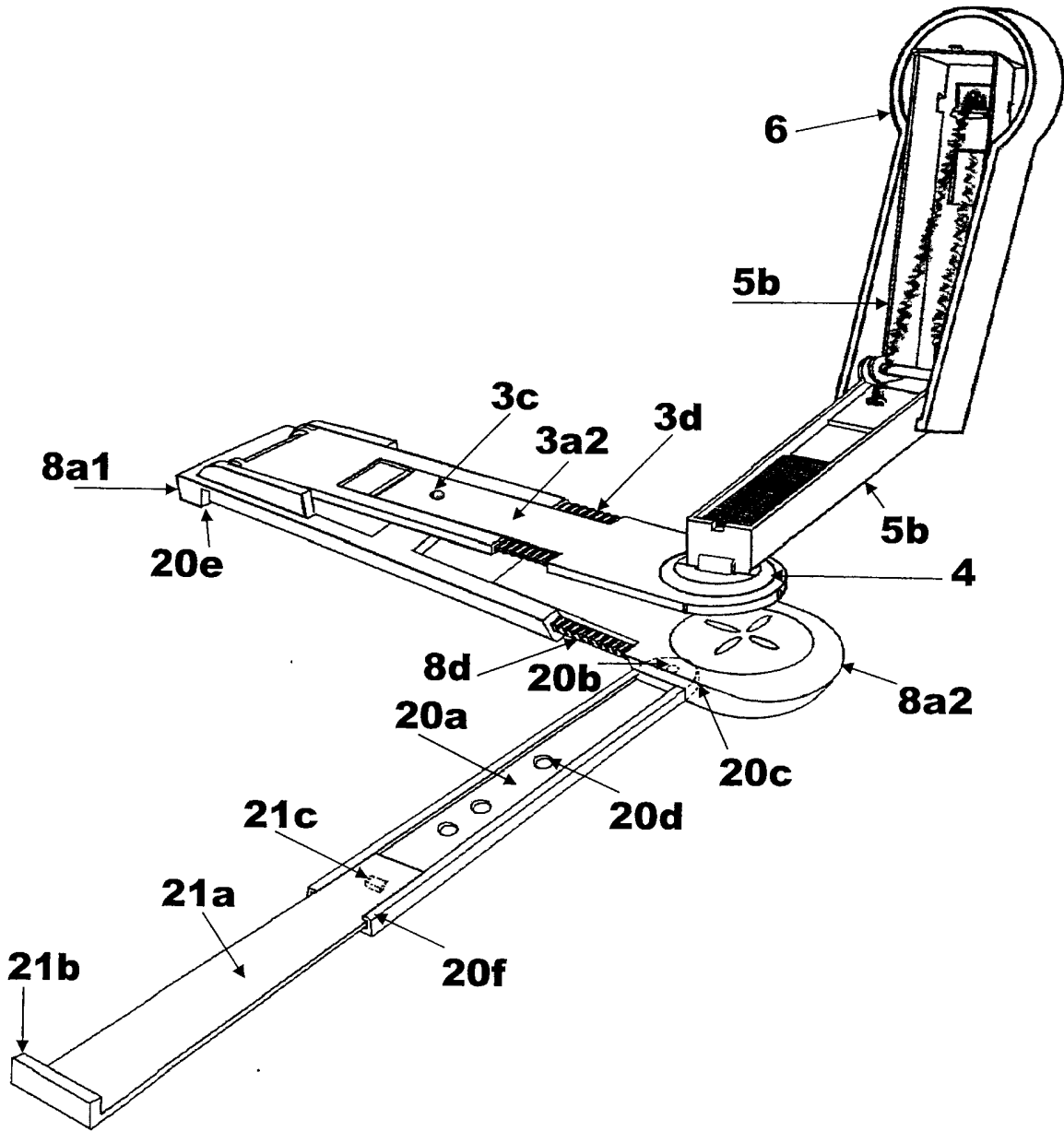
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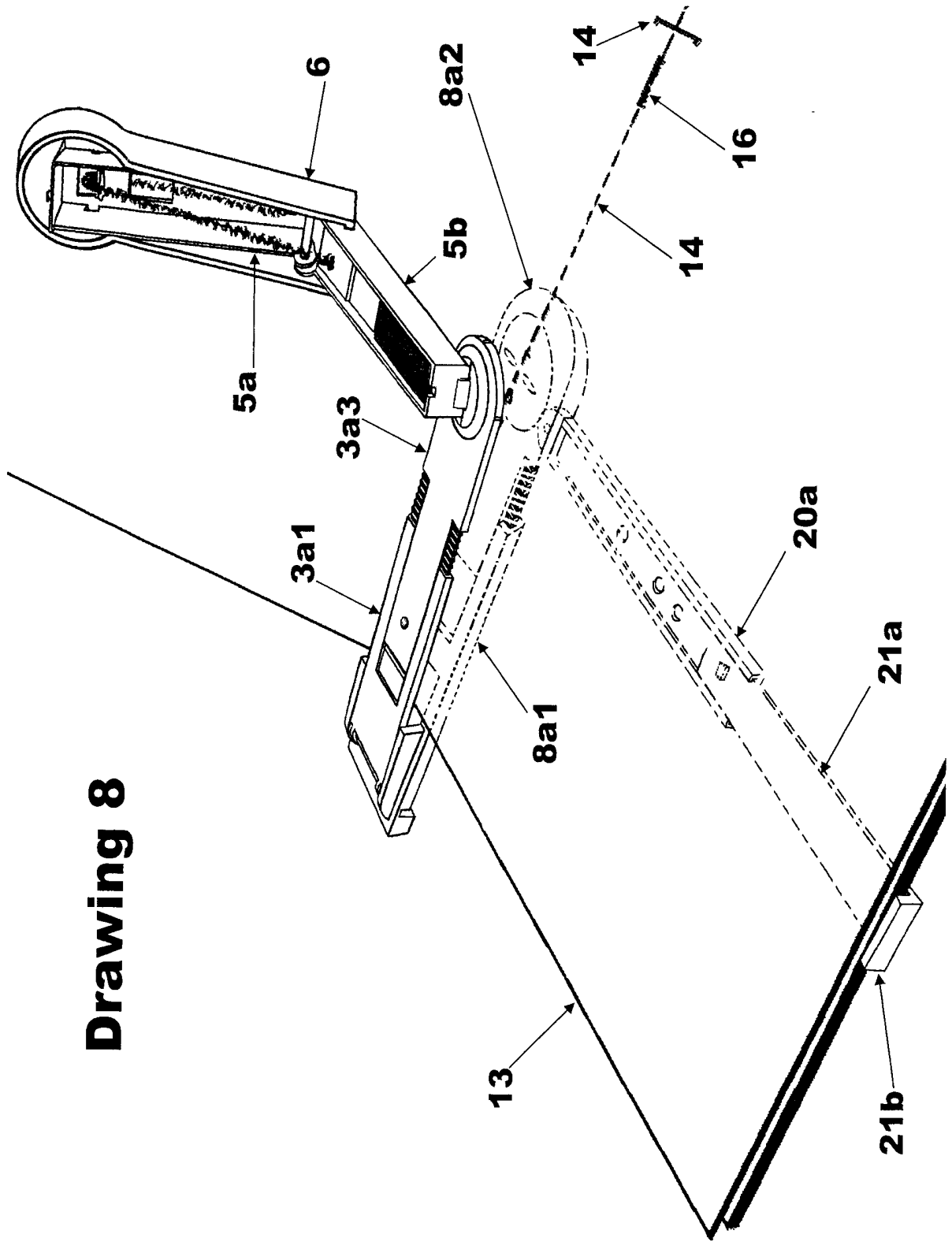
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Drawing 7





Drawing 8

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Drawing 9

Fig. 1

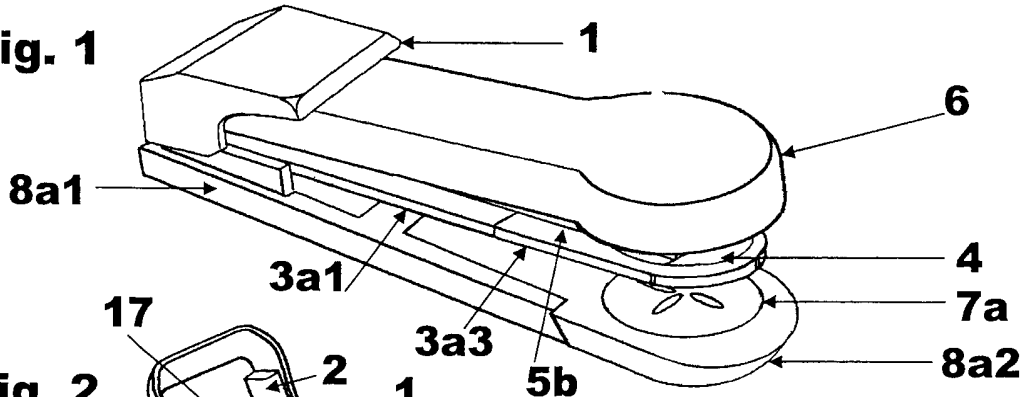


Fig. 2

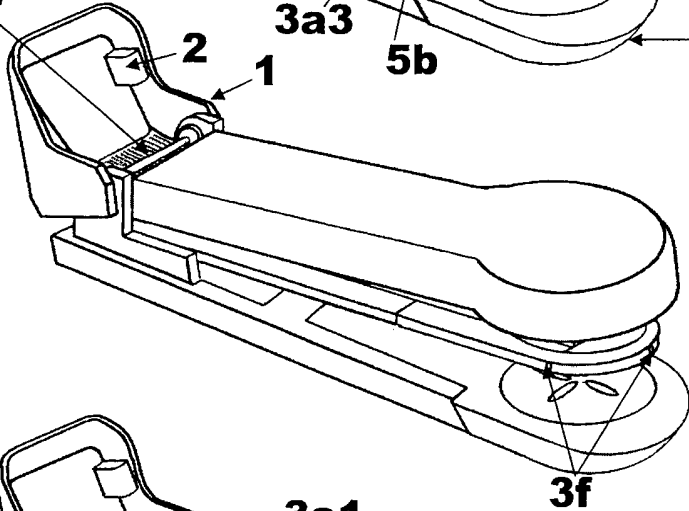


Fig. 3

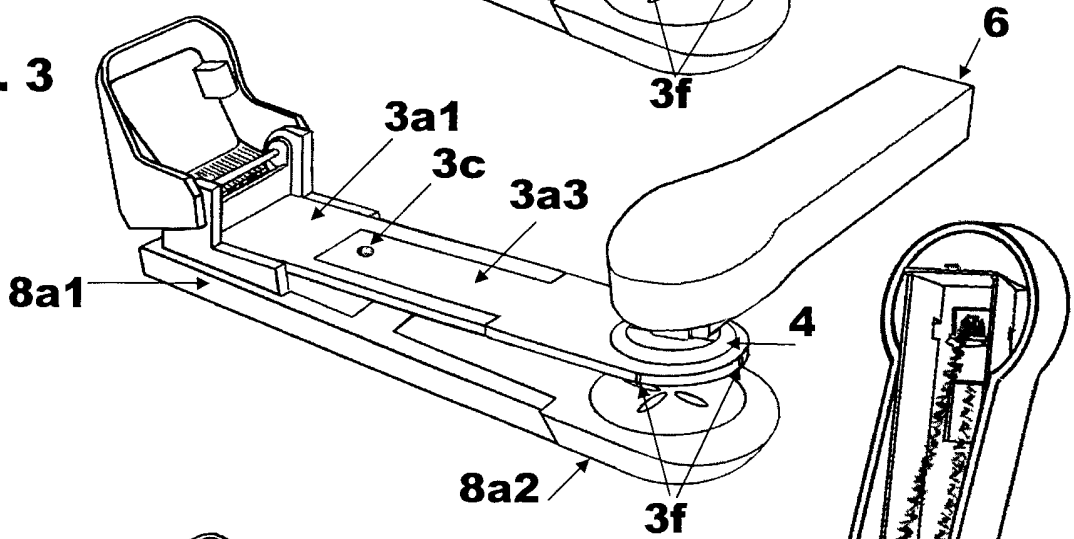
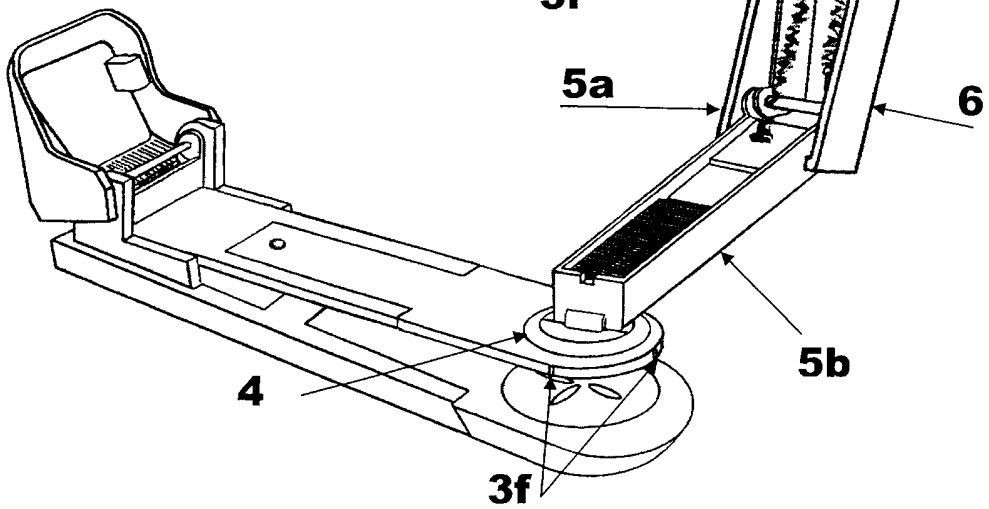
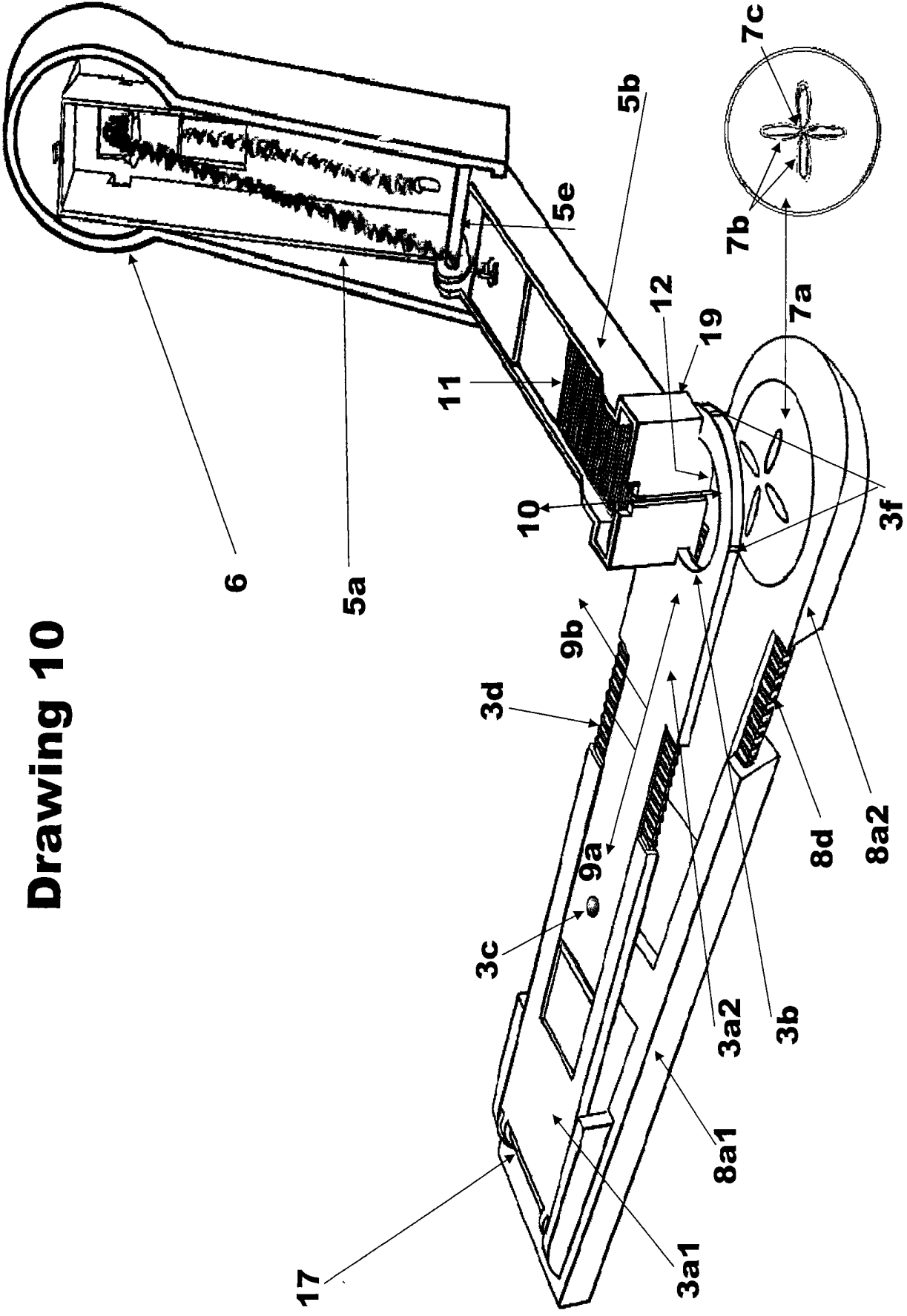


Fig. 4



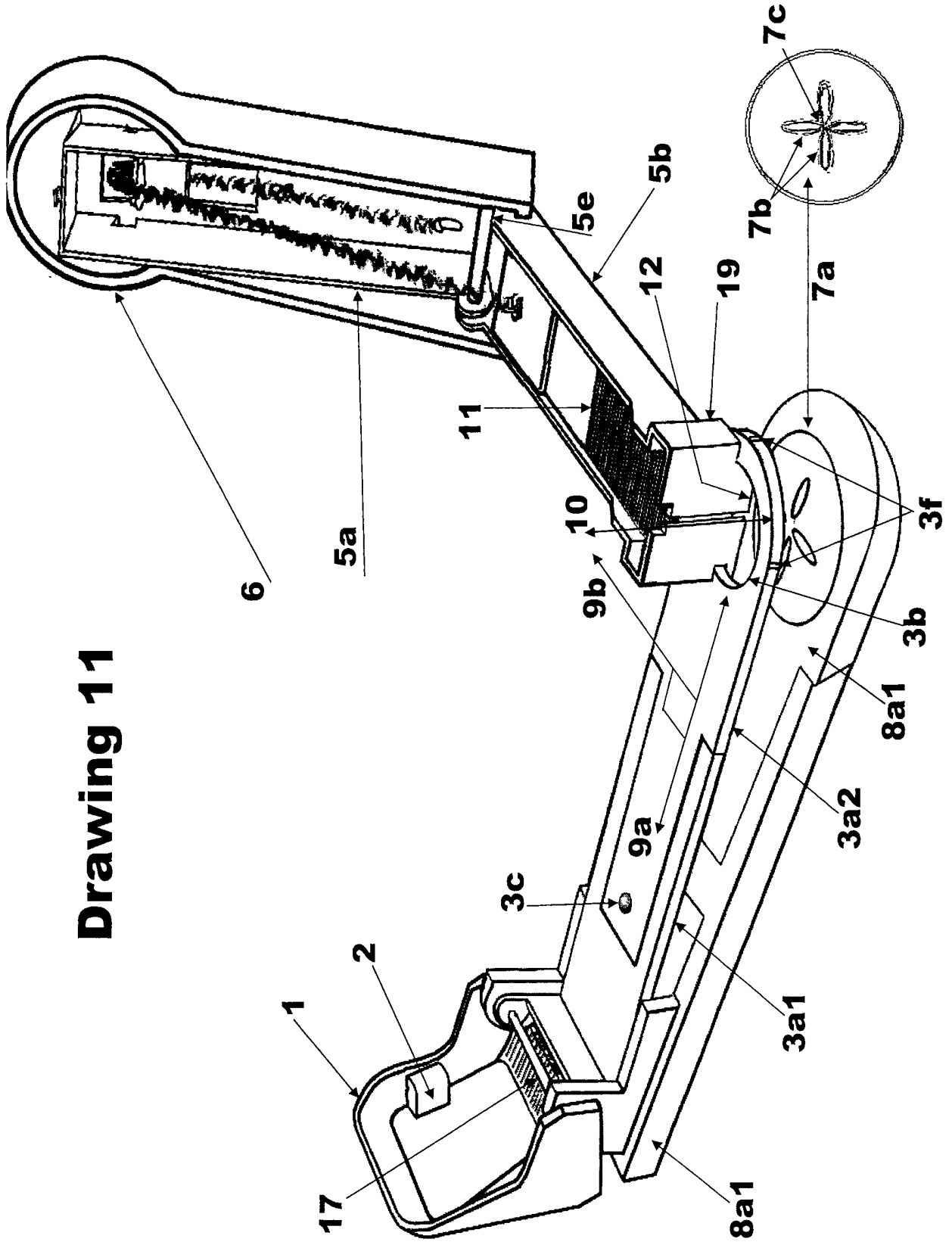
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Drawing 10

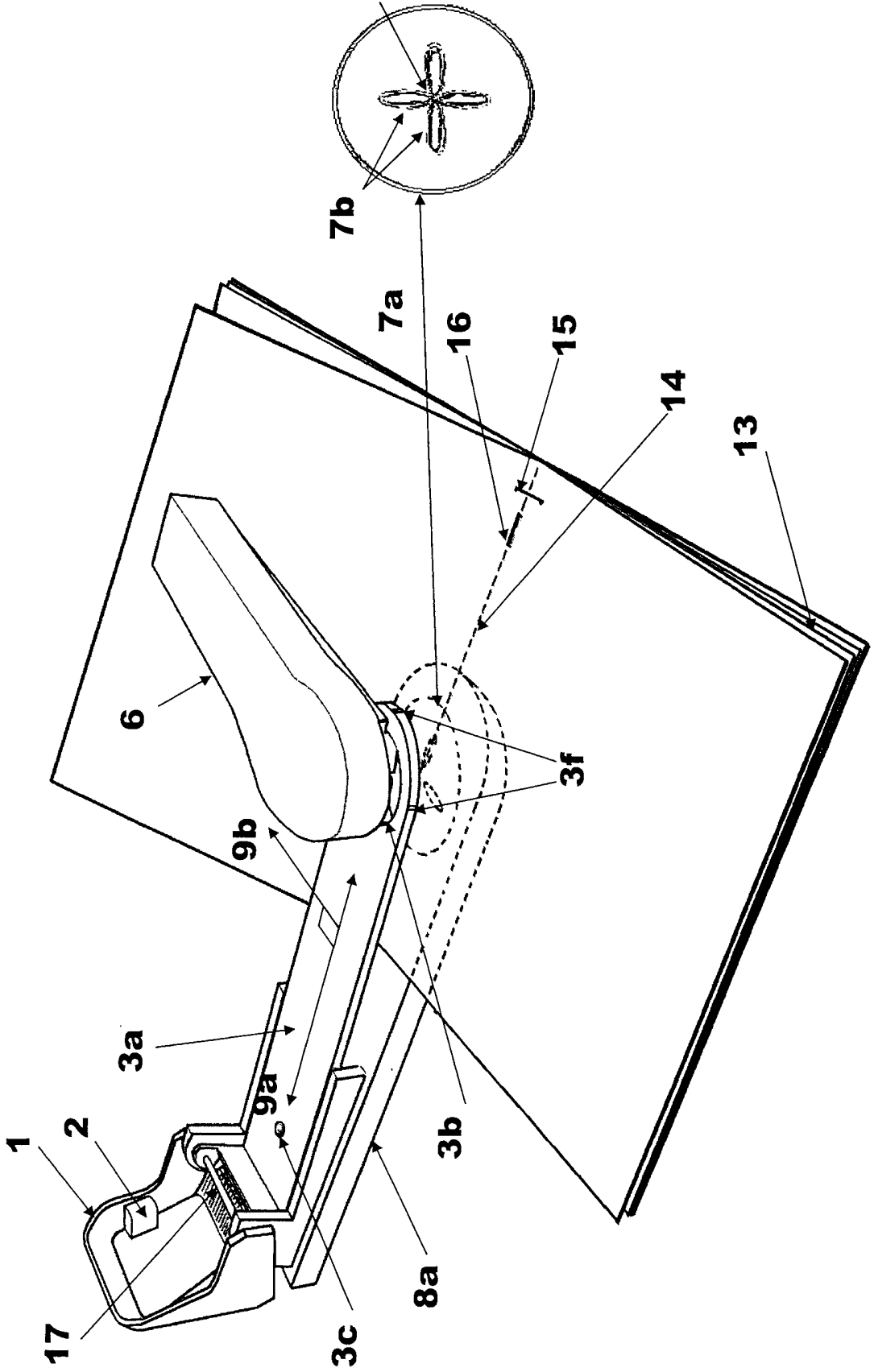


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Drawing 11

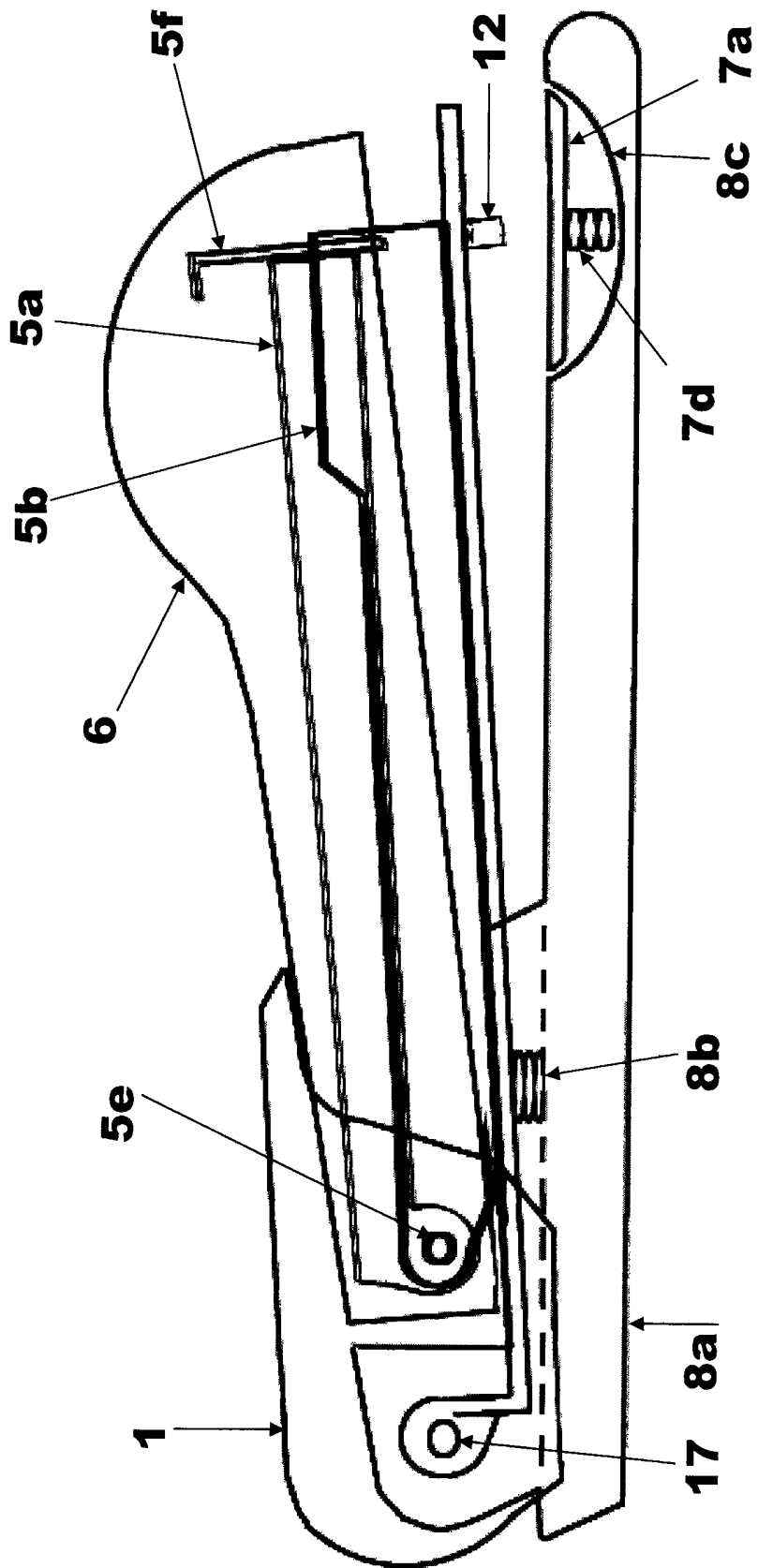


Drawing 12



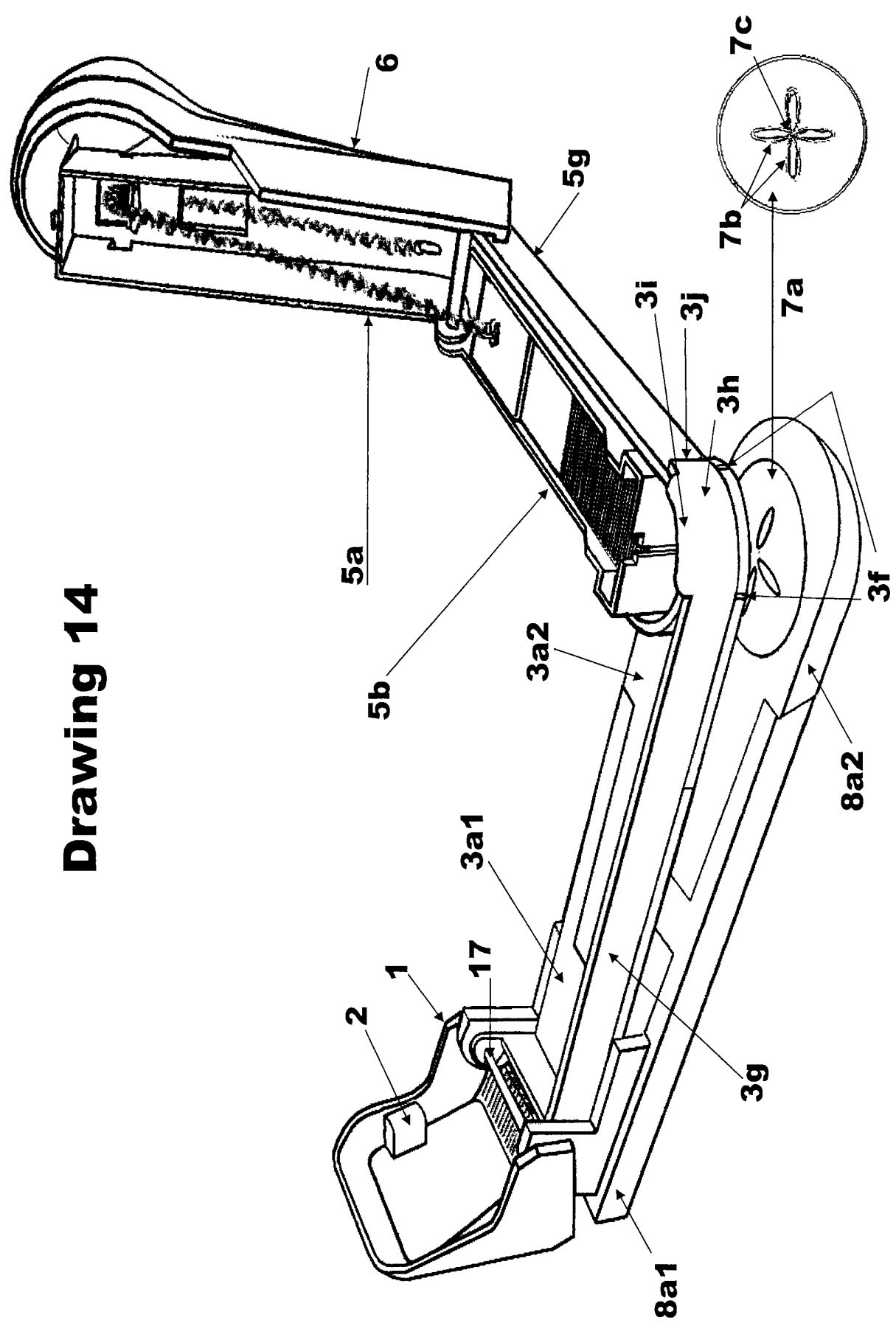
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Drawing 13



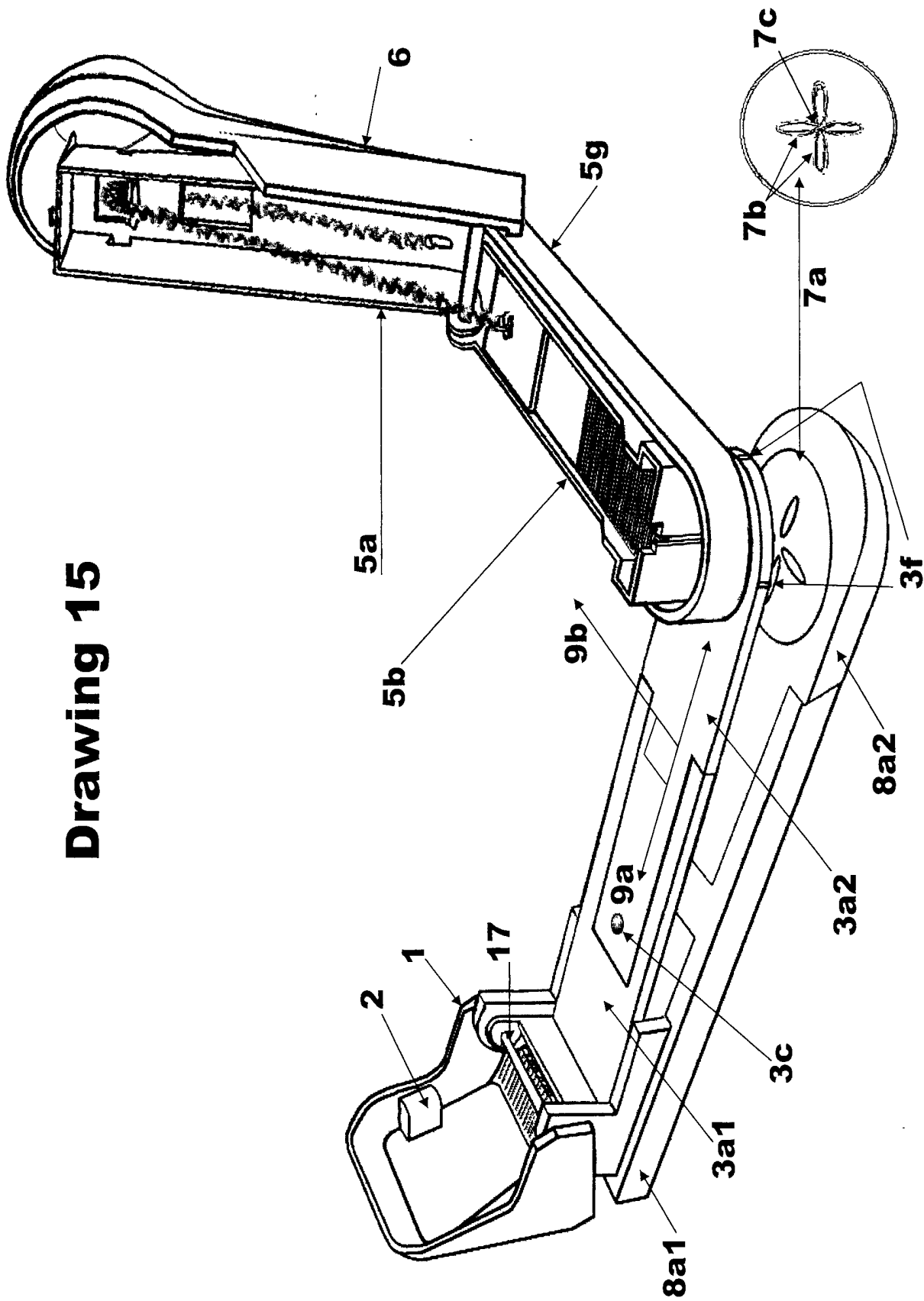
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Drawing 14



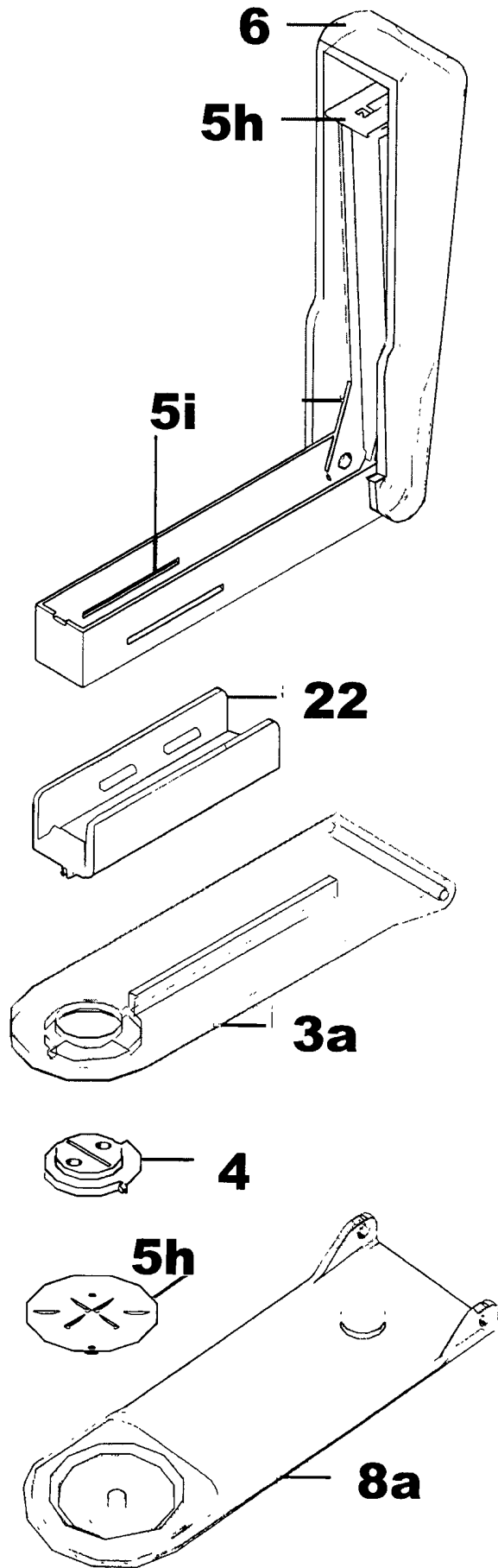
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Drawing 15



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Drawing 16



DUAL ANGLE ROTATABLE DESK STAPLER

The invention relates to a stationery stapler that can affix staples both transversely and parallel to its longitudinal axis of symmetry (represented by the symmetrical centre line of the stapler itself).

Conventional staplers are designed only to staple transversely [9b] to the longitudinal axis [9a] resulting in conventional style staples [15]. Thus it is difficult or impossible for them to create booklet style documents due to their limited reach as this would require them to stretch across the width of the paper from the sides in order to affix staples down the centre of the pages. Even long-arm or extendable staplers, which can stretch further, still have a finite reach and so are restricted to a maximum size or width of the pages. Furthermore they are unwieldy due to their size, especially for conventional everyday stapling use, and are much more expensive than the average desktop stapler.

An object of this invention is to enable the user to attach staples conventionally [15] (DRAWINGS 1, 8 & 12) as well as at 90° angles [16] to the conventional method, thereby enabling the user to staple pages along a fold down their centre to create booklet-style documents. The stapler achieves this by approaching the fold directly from the top and bottom and rotating the staple-containing component about an angle of 90° and affixing a staple in line with the fold instead of reaching across the pages from the side. This combines the practicality and ease-of-handling of conventional staplers with the special functionality of long-arm staplers into a single package that can sit conveniently on a desktop and will not cost much more to manufacture than a standard desktop stapler.

Essentially, the invention comprises of a base arm [8a] hinged [at 17] and sprung against [8b] an intermediary arm [3a] which is rotatably connected to the staple containing component [5a & 5b] in such a manner as to enable the staple container to rotate against this intermediary arm to an angle of 90° thereby aligning the staples along with the longitudinal axis [9a] of the stapler.

There are numerous methods by which to create a rotatable connection between the intermediary arm and the staple containing component. Preferably the method ultimately used would involve the axis of rotation to be centred around the midpoint of the front staple (the next staple in line available to be issued from the staple exiting slot [12] of the staple container), although this is only preferable and not by any means an essential factor of the mechanism used. No methods or mechanisms are being ruled out at this stage to create this rotatable connection between the intermediary arm and the staple containing component.

A preferred embodiment of the mechanism is described below and involves using a ring interconnector [4] to be placed within a circular hole [3b] cut through the front end of the intermediary arm, enabling the ring interconnector to rotate freely within this hole and to be held in place by an overlapping upper face [4a] as well as ridges [4b] on the underside that snap into place to overlap the sides of the hole on the underside of the intermediary arm. The lower section [5b] of the staple

container would be affixed to the upper face of the ring interconnector, with the staple exiting slot protruding through the ring completely so that contact can be made with the staple closing plate [7a] below (on the upper face of the front end of the base arm). The staple closing plate [7a] should have the necessary indentations required to close staples at both angles. Accordingly it is preferable that it incorporate two staple closing indentations [7b] intersecting each other at 90° through their midpoint [7c].

Using this method it is preferable that the staple containing component, including the pressing cover [6] which is affixed to the upper section [5a] of the staple container in the conventional manner, can be rotated in either direction, although this again is not essential to the invention. Further, it is preferable that the staple container be halted in its rotation once the rotation has reached an angle of 90°. It is intended and an important aspect of the invention that the pressing cover [6] rotates along with the staple container so that staples [11] may be refilled both while the staple container is in its conventional and fully rotated position.

To create booklet style documents, the centre of the stapler's longitudinal axis [9a] of the main device should be aligned with the fold [14] running down the centre of the pages to be stapled. Then the staple container and pressing cover should be rotated to their 90° position. The device would now be able to place a staple [15] parallel to its longitudinal axis [9a]. To help ensure accurate positioning of the staple, it is preferable that the intermediary arm incorporate staple alignment indicators [3f] which preferably take the form of markings aligned with the side profile of the front staple (the next staple in line available to be issued from the staple exiting slot [12] of the staple container), whether the stapler is in its conventional or fully rotated position. These indicators will aid the user in accurately lining up the expected staple with the fold of the pages to be stapled. The ultimate style of the alignment indicators may vary depending on the final mechanism chosen to render the staple container rotatable.

Preferably the invention should be made in fixed-reach and extendable form factors, meaning that the base arm [8a] and intermediary arm [3a] should come in both fixed length form and extendable length form to provide an even greater reach for larger sheets of paper.

The fixed length form factor entails that the arms be manufactured as a solid component of fixed length, whereas the extendable form factor entails that each arm is preferably divided into two parts – male and female – that slide against each other to extend the reach. Accordingly, the base arm [8a] would be preferably divided into the back base arm female component [8a1] and its corresponding front male component [8a2]. The same would preferably apply to the intermediary arm [3a] which would accordingly be split into its back female component [3a1] and front male component [3a2]. Preferably the degree of extension of the intermediary arm would be measured using a series of notching ridges [3d] on the sides of the male component which would extend the arm in a series of pre-defined measurable clicks, preferably with a numerical scale for ease of measurement. The base arm's male component would preferably have similar notching ridges [8d]. The intermediary arm's male component would also preferably have an extension terminating component [3e] that would halt any further extension of the male component once reached its fully extended limit, and thereby preventing it from being removed completely from the female component. The base arm will

preferably have a similar mechanism to achieve this also. However, no methods or mechanisms to render the arms extendable are being ruled out at this stage.

While the stapler containing component is in the conventional position it requires a means of securing it firmly in place and prevent it from any inadvertant rotational movement, as this would result in a misalignment with the staple closing indentations [7b] on the staple closing plate [7a]. A number of mechanisms could be employed to achieve this. One possible method is to use a cover lid [1] at the rear of the stapler that closes over the pressing cover [6] and holds it along with the staple-containing component in place when used conventionally. The cover lid should be designed appropriately so that it will guard against lateral movement of the pressing cover but without restricting downward movement. A suggested design is to affix holding pads [2] of the appropriate materials and dimensions on to the underside of the cover lid to grip the pressing cover [6] and therefore hold the staple container accurately in place. The rear cover plate can then be lifted upwards to release its grip whenever the device is required for stapling at 90°, and closed when the device is required for conventional stapling.

However, it is possible and perhaps even preferable to perform this securing task without a cover lid, by using another means such as using a ball and socket [3c] on the intermediary arm that will click into an appropriate slot on the underside of the staple container thereby securing it suitably whilst also enabling the user to exert a suitable pressure to overcome the resistance of the ball and socket for when the stapler is to be used in its fully rotated position. It may even be that a combination of a rear cover lid as well as a ball and socket be employed. However, no methods or mechanisms are being ruled out at this stage to achieve this objective.

It is also preferable for the stapler to incorporate paper aligners [20a & 21a] (see DRAWINGS 7 and 8) so that pages can be aligned and multiple booklets can be stapled quickly once initially set. Preferably the paper aligners will be in the form of paper aligning arms in two parts – the main female arm [20a] and the extension male arm [21a] that slides out from the main female arm to extend the total reach of the paper aligning arm as a whole. The male arm is preferably held together with the female arm using flaps [20f] on the main female arm that partially cover the top of the male arm. The male arm also preferably has a ridge [21a] at its furthest end that catches the edges of the papers to be aligned. The male arm has an extension catch [21c] which is a small protrusion on its underside at the opposite end of the aligning ridge. This protrusion catches onto a series of holes [20d] periodically cut out of the female arm that are measured to correspond to the position of the centre fold of booklet style documents to be created using various standard sizes of paper (A1, A2, A3, A4 etc) thus enabling the male arm to be quickly extended to the appropriate length for the size of paper to be stapled, whether in portrait or landscape orientation.

The female arm preferably has a curved innermost end [20c] centred by a rotatable hinge [20b] connected to the front end of the base arm. When not in use, the paper aligning arms are folded away into an indent [20e] in the base arm.

The intermediary arm is preferably held at a slight angle relative to the base arm as opposed to being parallel with it. This is because, if kept parallel, then when the staple container is in its fully rotated position and then depressed, the front end of next staple to be issued will be lower than the back end of the staple, as the front end of the intermediary arm is leaning down to meet the base arm whilst the back end remains at a fixed height from it. The proposed angle in the initial unpressed

state of the intermediary arm allows the intermediary arm to end up being parallel to the base arm when depressed thus resulting in the flat application of the staple to the pages.

Variations in paper thickness or in number of sheets to be stapled can alter the distance that the intermediary arm has to be depressed and by extension whether the staple will be applied completely flat. Accordingly, there will remain a small angular variance which will be relatively minor although may still affect the flat application of the staple. This can be countered by enabling the staple closing plate [7a] to tilt slightly to make up for this small angular variance and thus meet the front and back of the staple as equally as possible. Preferably therefore, the staple closing plate will be mounted on a spring [7d] (DRAWING 6 & 13) affixed to the base arm at the centre of a hollowed out bowl [8c] in the base arm to allow the staple closing plate to tilt within it. Again however, no methods or mechanisms are being ruled out at this stage to achieve this objective.

As stated, the mechanism used to render the staple container rotatable may come in many forms and has yet to be finally determined. The currently preferred method is with the use of an intermediary arm which has a ring interconnector slotted through a hole in the front end of the intermediary arm which it can rotate within and where the staple container is affixed to the ring interconnector. However, this preferred mechanism is proposed without prejudice to or the exclusion of an alternative means to render the staple container rotatable against the intermediary arm, whilst still enabling the staple container to be opened to insert more staples whilst it is in its fully rotated position.

Alternative mechanisms to achieve this same purpose have been considered, some of which are included within this material. One mechanism involves extruding the sides [19] of the lower section of the staple container (see DRAWINGS 10 & 11) to overlap the top and bottom of the circular hole at the front end of the intermediary arm. The extrusions maybe filled or left hollow, as illustrated.

An alternative mechanism involves the use of an intermediary sidearm [5g] which may be used in place of or additional to the intermediary arm described above. Preferably it would be used additional to the intermediary arm as it will provide additional support to the stresses applied upon the sidearm when it is depressed. The sidearm has a curved end [3h] with a extruded top lip [3i] which curves over the top edge of a curved cover [5g] which is affixed to and surrounds the sides and front of the staple container. The curved front end of this cover slots into the extruded top lip of the sidearm and rotates within it. The curved end [3h] of the sidearm curves around at 90° and then straightens off for a short distance [3j] to stop the inner curved container [5g] rotating beyond 90°.

Further mechanisms considered include a hinge between the sidearm and the staple container, either directly or via a cover over the staple container. Rotational mechanisms via a cylinder around a vertical post have been considered also. A number of rotational mechanisms connected to the top, side or bottom of the staple container or pressing cover have been considered. Such mechanisms include, but are not restricted to, an intermediary arm that connects to the top of the pressing cover, thereby enabling the staple container rotating below the intermediary arm. Using this method, the intermediary arm could hinge somewhere along its length to enable it to bend upward and therefore clear the staple container from the base arm allowing it to be opened whilst in its fully rotated position.

In any case, any methods described in these materials are not intended to preclude alternative mechanisms that enable the staple container and/or the pressing cover to be rotated (whether around an axis centred on the first staple available to be issued from the staple container, or centred around another axis) whilst retaining its ability to refill the staple container with staples whilst in its fully rotated position.

Preferably the stapler is made of metals, plastics or rubber materials, or from a combination of these materials, without exclusion to the use of any other material deemed appropriate.

All the above descriptions are made with reference to the accompanying drawings. The drawings include several possible alternative embodiments. These embodiments may vary according to the the options included (eg whether or not the base and intermediary arms are extendable or not; or whether or not a paper aligning mechanism is included) or by alternative mechanisms such as that to render the staple container rotatable. However, the alternative mechanisms are intended only to be indicative and not an exhaustive list of designs. Further alternatives may be explored to find the most suitable method to achieve the same functional objectives as the options listed in this document. The final design may be amended after development has progressed to a more suitably advanced stage and will depend both upon the practicalities and commercial viability of each method devised.

A separate table for the reference labels in the drawings is also attached to the end of this description.

DRAWING 1 demonstrates how the device may be used beneficially in practice, illustrating examples of both types of stapling (conventional and the new intended 'longitudinal' style for booklets).

The device is in its fully extended position stapling down the centre of several sheets of paper to create a booklet. Its embodiment involves a ring interconnector [4], extendable intermediary arm [3a1 & 3a2] and base arm [8a1 & 8a2] and uses a ball and socket instead of a cover lid. It also shows the top view of the staple closing plate [7a] and the staple closing indentations [7b].

DRAWING 2 shows the device as in DRAWING 1 in more detail. It shows the staple container in the open position displaying the inside of the pressing cover [6] and the upper section [5a] and lower section [5b] of the staple container. It also shows the intermediary and base arms in their extended positions, revealing the notching ridges [3d & 8d] and terminating plate [3e] of the intermediary arm.

DRAWING 3 shows the device as in DRAWINGS 1 & 2 in each of its four stages of extension.

Fig.1 shows the device in the fully closed position for conventional use.

Fig.2 shows the device with the staple container and pressing cover rotated to its 90° limit ready to staple longitudinally.

Fig.3 demonstrates the ability of the intermediary and base arms to extend to increase their reach.

Fig.4 shows the ability of the device to allow staples to be refilled regardless of the position of the staple container.

DRAWING 4 shows the ring interconnector [4] in detail along with how it fits into the circular hole at the front end of the intermediary arm. The drawing uses the intermediary arm in its extendable embodiment, and demonstrates the front intermediary arm (male component) both before [3a2] and after [3a3] the ring interconnector is fitted.

DRAWING 5 illustrates how the staple container's lower section [5a] is affixed to the upper face [4a] of the ring interconnector [4], by way of the staple container's front-connector [5c] slotting into the slot [4c] on the upper face of the ring interconnector, and the ridges [4d] of the ring interconnector clicking into the side slots [18] of the staple container.

DRAWING 6 shows the device as in DRAWINGS 1,2 & 3, including the paper aligning arms [20a & 21a], in a side cutaway view.

DRAWING 7 shows the device as in DRAWING 6 in a front-side perspective demonstrating the paper aligning arms [20a & 21a] fully extended, as well as the intermediary and base arms extended and the staple container open whilst in its 90° fully rotated position.

DRAWING 8 shows the device as in DRAWING 7 in operation whilst in its fully extended position, demonstrating how the extendable reach of its intermediary and base arms and paper aligning arms can be used for stapling down the fold of larger sized sheets of paper.

DRAWING 9 shows the invention through four stages of extension using the embodiment that involves the use of a rear cover lid [1], ring interconnector and extendable intermediary and base arms.

Fig.1 shows the device in the fully closed position for conventional use.

Fig.2 shows the device with the rear cover lid lifted to free the staple container for rotation.

Fig.3 shows the staple container and pressing cover rotated through 90° ready to be used to affix staples transversely.

Fig.4 shows the ability of the device to allow staples to be refilled regardless of the position of the staple container.

DRAWING 10 illustrates an alternative rotational mechanism for the device. The sides [19] of the lower section [5b] of the staple container are extruded above and below the circular hole [3b] at the front end of the intermediary arm to create an overlap which enables it to rotate within the hole. The embodiment displays the extrusions as hollow, but they may equally well be filled in.

DRAWING 11 illustrates how the rotational mechanism as described above for DRAWING 10 can be applied to various embodiments of the other components of the stapler. In the case of this drawing, the alternative rotational mechanism is displayed as part of an embodiment that includes the rear cover lid [1]

DRAWING 12 shows the device in operation ready to affix staples transversely along the fold down the centre of a number of pages to create a booklet style

document. It uses the embodiment as in Drawing 11 except with non-extendable intermediary and base arms.

DRAWING 13 shows the device as in DRAWING 12 in a side cutaway view of its fully closed position.

DRAWING 14 illustrates an alternative rotational mechanism for the device. It adds to the intermediary arm the use of a sidearm [3g] with a curved front end [3h] and a protruding top lip [3i] that hooks over the top edge of a separate curved cover which surrounds the sides and front of the staple container. This curved cover rotates within the sidearm's top lip. Its rotation is halted at 90° by a straight section [3j] at the furthestmost tip of the sidearm.

DRAWING 15 illustrates the rotational mechanism as described in DRAWING 14 with the sidearm removed. The sole purpose of this drawing is to show more clearly the curved cover [5g] of the lower section [5b] of the staple container. Therefore DRAWING 15 does not represent the alternative mechanism in its entirety.

DRAWING 16 illustrates another alternative rotational mechanism for the device where the ring interconnector [4] sits underneath the intermediary arm [3a] and where the ring interconnector is connected to the bottom face of a support bracket [22] via two screws (or other appropriate fastener). The support bracket then connects to the lower staple container via slots [5i] on either side of the lower staple container (or via another mechanism if appropriate) thus rendering the stapler rotatable. This drawing also shows the staple closing plate [5h] with indentations for rotatable pinning as well as stapling.

However alternative designs may be explored to find the most suitable method to achieve this objective. In particular, the means by which the staple container and its cover are to be rendered rotatable has yet to be finally determined, and will depend both upon the practicalities and commercial viability of each method devised. Several other possible alternative mechanisms are illustrated in DRAWING 4 and described below. In any case the final decision will await development progressing to a more suitably advanced stage.

REFERENCES

No.	Description
1	Rear Cover Lid [for staple container and pressing cover]
2	Holding Pads [Holds pressing cover and staple container in place]
3a	Intermediary Arm
3a1	Back Intermediary Arm: Female Component
3a2	Front Intermediary Arm: Male Component
3a3	Front Intermediary Arm: Male Component with Ring Interconnector affixed
3b	Circular hole in intermediary arm
3c	Ball and socket
3d	Front Intermediary Arm's Extension 'Notching' Ridges
3e	Front Intermediary Arm's Extension Terminating Plate (halts & limits the extension of front male intermediary arm to prevent complete removal from back female intermediary arm)
3f	Staple Alignment Indicator[s]
3g	Intermediary Arm Sidearm
3h	Curved front end of Sidearm
3i	Protruding top lip of curved front end of Sidearm
3j	Straight furthest tip of Sidearm
4	Ring Interconnector between staple container and Circular Hole at front Intermediary Arm
4a	Upper Face of Ring
4b	Snap-Affixing Ridges
4c	Slot to receive Staple-Container Front-Connector
4d	Ridges to connect to Staple-Container's Side-Slots (see 18)
5a	Staple Container [upper section]
5b	Staple Container [lower section]
5c	Staple Container [lower section] Front-Connector
5e	Hinge for Upper & Lower sections of Staple Container
5f	Connecting Component for upper arm and inside of pressing cover
5g	Staple-Container [lower section] Curved Cover
5h	Drive Blade
5i	Slots in Lower Staple Container for Support Bracket (22)
6	Pressing Cover
7a	Staple Closing Plate
7b	Staple Closing Indentations
7c	Intersection of Staple Closing Indentations
7d	Spring Affixed to both Base Arm & Staple Closing Plate enabling Staple Closing Plate to tilt
8a	Base Arm
8a1	Back Base Arm: Female Component
8a2	Front Base Arm: Male Component
8b	Base Affixed Spring
8c	Hollowed out bowl to allow movement within for Staple Closing Plate
8d	Front Base Arm's Extension 'Notching' Ridges
9a	Longitudinal Axis of Symmetry of Device
9b	Transverse Axis of Device [90° to longitudinal axis of symmetry of device's base arm [8] and intermediary arm [3]. Also same as longitudinal axis of symmetry of staple container and pressing cover when at 90° position to base arm

- 10 Axis of Rotation for Staple Container and Pressing Arm [centred around next staple in line to be issued from the device]
- 11 Staples
- 12 Staple Exiting Slot
- 13 Sheets of Paper
- 14 Fold [usually down centre of pages]
- 15 Example of Conventional Transverse Stapling
- 16 Example of New Longitudinal Stapling
- 17 Hinge for Base arm, Intermediate arm and optional Back lid
- 18 Side Slots of Staple Container [lower section] (see 4d)
- 19 Extruded Front end of Staple Container [lower section] (Drawings 10 & 11)
- 20a Paper Aligning Main Arm (Female)
- 20b Rotatable Hinge for Paper Aligning Arm against Base Arm
- 20c Curved end of Paper Aligning Main Arm
- 20d Holes in Paper Aligning Main Arm (see 21c)
- 20e Base-arm indent for Paper Aligning Arm
- 20f Paper Aligning Main Arm Cover Flaps

- 21a Paper Aligning Extension Arm (Male)
- 21b Aligning Ridge for Paper Aligning Extension Arm
- 21c Extension Catch for Paper Aligning Extension Arm (see 20d)
- 22 Support Bracket

CLAIMS

1. A stationery stapling device where the staple containing component is laterally rotateable through 90° , in one or either direction, enabling staples to be affixed conventionally (transverse to the longitudinal axis of symmetry of the stapling device), as well as at a second angle, at 90° to the first, enabling staples to be affixed parallel to the longitudinal axis of symmetry of the stapling device, and where the staple containing component can be refilled with staples while in either its rotated or unrotated position.
2. A stapling device as claimed in Claim 1 which has the conventional base arm and staple containing component (comprising of an upper section hinged to a lower section) and introducing a new intermediary arm which is hinged to and sprung against the base arm, and which is rotatably connected to the staple containing component.
3. A stapling device as claimed in Claim 1 or 2 where the intermediary arm has a hole in it through which passes the staple exiting slot of the staple containing component thereby enabling the staple exiting slot to make contact with the staple closing plate on the base arm underneath.
4. A stapling device as claimed in Claim 1, 2 or 3 where the hole in the intermediary arm is circular and into and within which is inserted and affixed a ring interconnector component which overlaps the top and bottom of the hole in the intermediary arm and can rotate within the hole to an angle of at least 90° , in one or either direction, after which further rotation may be halted.
5. A stapling device as claimed in any preceding claim where the lower section of the staple containing component can be affixed to the ring interconnector component, preferably at the front of the staple containing component preferably by means of a front connector sliding into a slot in the upper face of the ring interconnector component prepared to receive the front connector; and at the sides of the staple containing component preferably by means of slots in the side of that component into which click ridges of the ring inter connector, thereby enabling the full staple containing component to rotate, against the intermediary arm, by means of and along with the ring interconnector, and preferably around a virtual vertical axis positioned at the centre of the next staple available to be issued from the device.
6. A stapling device as claimed in any preceding claim where the staple closing plate situated at the front end of the base arm has on its surface two sets of staple closing impressions preferably intersecting each other at their centres enabling it to close staples at the different angles possible.
7. A stapling device as claimed in any preceding claim where there are indicators or markings on it, preferably on the intermediary arm or on some other appropriate component, that designate the alignment of the next available staple to be issued from the staple containing component when

viewed from a point directly above that next available staple, whether the stapling device is in its rotated or unrotated position.

8. A stapling device as claimed in any preceding claim where the base arm and intermediary arm are extendable to allow a greater reach across the edges of the paper to affix staples, preferably by means of splitting each arm into separate components and so accordingly where the intermediary arm has a front end male component which slides out from the back end female component preferably using ridges that notch out in a series of in measurable equidistant steps, and where the base arm extends in a similar manner, preferably using the same means described above for the intermediary arm.
9. A stapling device as claimed in any preceding claim where there is some means to secure it firmly in place when the device is to be used in the conventional position and inhibit unwanted lateral movement, preferably by way of a ball and socket on the upper face of the intermediary arm that catches onto a corresponding recess on the underside of the lower section of the staple container whilst also enabling the user to exert a suitable pressure to overcome the resistance of the ball and socket for when the stapler is to be used in its fully rotated position; or instead of or additional to this mechanism by way of an alternative mechanism such as a rear cover lid connected by a hinge mechanism such as a rear cover lid connected to and hinged against the rear of the base arm and intermediary arm designed specifically to guard against lateral movement of the pressing cover but without restricting downward movement, perhaps by affixing holding pads of the appropriate materials and dimensions on to the underside of the cover plate to grip the pressing cover and therefore hold the staple container accurately in place.
10. A stapling device as claimed in any preceding claim which is made from metals, plastics materials or wood, or from a combination of these materials.
11. A stapling device substantially as herein described and illustrated in the accompanying drawings.



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Application No: GB0502439.3

Examiner: Miss Carrie-Ann Elias

Claims searched: 1-11

Date of search: 17 May 2005

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-3,6,9,10	US 3451606 A (JACOBSON) see column 2 line 24 - column 4 line 8 and figures
X	1,2,8-10	GB 2148773 A (WANG) see page 2 lines 11-87 and figures
X	1,2,6,9,10	WO 85/00313 A1 (YIP) see page 6 line 14 - page 7 line 19 and figures
X	1-3,6,10	US 2358463 A (MASTERS) whole document relevant
X	1-3,6,10	FR 928437 A (LAULAGNET) see figures
X	1,2,9,10	CA 2116474 A1 (BROOKS) whole document relevant
X	1,2,9,10	BE 1009503 A6 (GUEULETTE) see WPI abstract accession no. 97-203405/19 and figures
X	1,2,7,10	US 3477628 A (MACEACHRON) see column 2 line 22 - column 3 line 2 and figures
X	1,2,6,10	US 3398872 A (MONAHAN) see column 2 line 31 - column 3 line 43 and figures

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application



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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^x :

B4C

Worldwide search of patent documents classified in the following areas of the IPC⁰⁷

B25C

The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC