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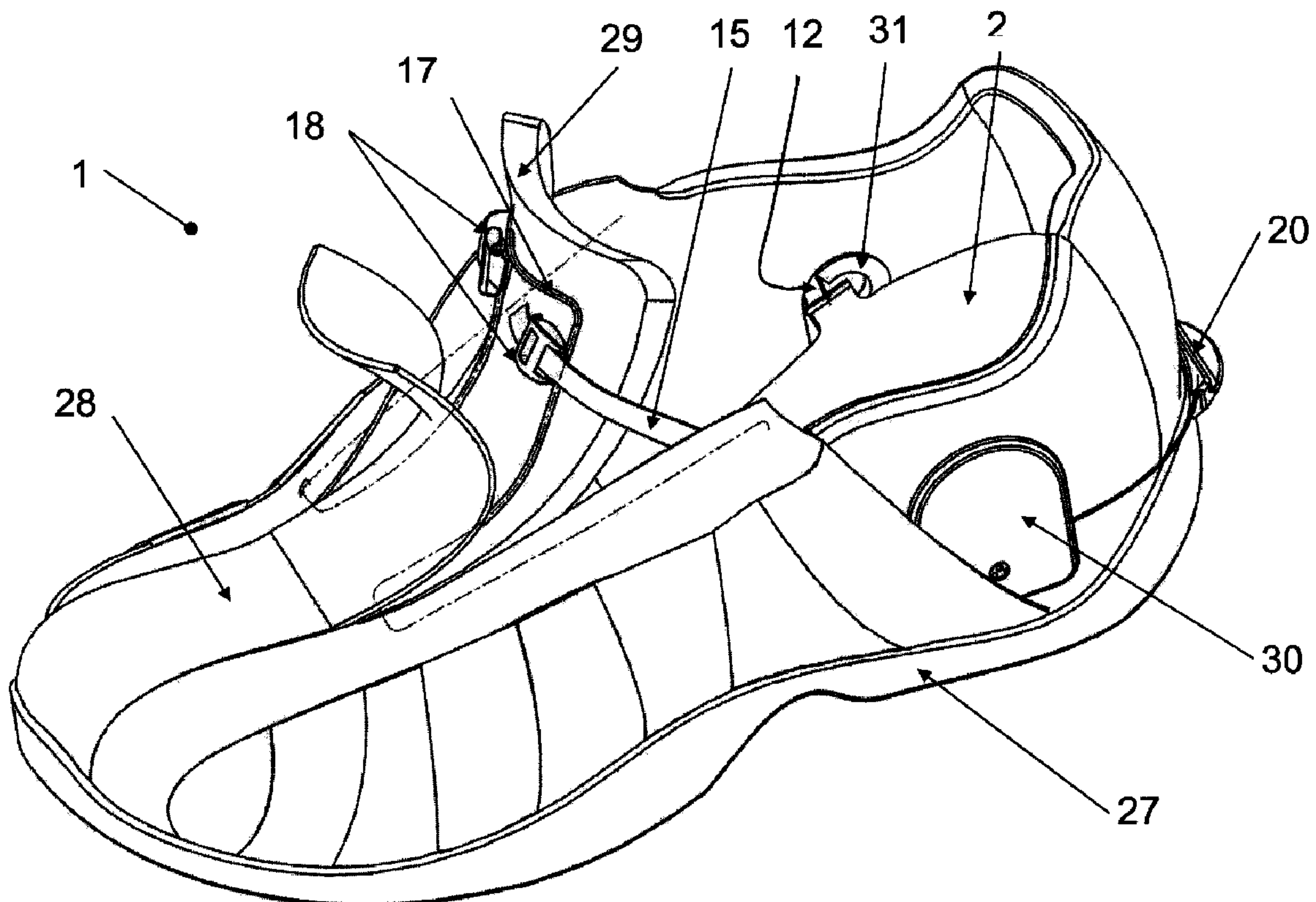
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(54) Titre : CHAUSSURE A LACAGE COMMANDE PAR LE POIDS

(54) Title: WEIGHT-ACTIVATED TYING SHOE



(57) Abrégé/Abstract:

A weight-activated tying shoe wherein user who, upon sliding his foot inside the shoe, will depress a movable inner sole. This activates a side mechanism composed of a winch with a cable system used to close the tongue of the shoe towards the user's foot, thus lacing the shoe. The user simply uses his weight to activate the mechanism. Using his other foot, the user can move a pedal to release the mechanism's tension. Most of the mechanical components are located on both sides of the shoe body.

Provisional patent application of

Frederick Labbe

ABSTRACT

A weight-activated tying shoe wherein user who, upon sliding his foot inside the shoe, will depress a movable inner sole. This activates a side mechanism composed of a winch with a cable system used to close the tongue of the shoe towards the user's foot, thus lacing the shoe. The user simply uses his weight to activate the mechanism. Using his other foot, the user can move a pedal to release the mechanism's tension. Most of the mechanical components are located on both sides of the shoe body.

Provisional patent application of

Frederick Labbe

for

Weight-activated tying shoe

BACKGROUND OF THE INVENTION:

Field of the invention:

The invention relates generally to footwear, but more particularly to a weight-activated system intended to tie shoes, boots and snow shoes.

Background of the invention:

Lacing shoes can be difficult or impossible for some people and several inventors have tried over the years to simplify the matter.

Some inventions involve a manual tightening mechanism which is integrated to the outsole area while others use retractable heels latched on the shoe. Still, another system uses a central closing device that implies manual winding. All these inventions need to be operated by hand. Another system involves the use of pneumatic means.

SUMMARY OF THE INVENTION

The present invention provides an efficient way to tie shoes using the weight of the user who, upon sliding his foot inside the shoe, will depress a movable inner sole. This activates a side mechanism composed of a winch with a cable system used to close the tongue of the shoe towards the user's foot, thus lacing the shoe. The user simply uses his weight to activate the mechanism. Using his other foot, the user can move a pedal to release the mechanism's tension.

The foregoing and other objects, features, and advantages of this invention will become more readily apparent from the following detailed description of a preferred embodiment with reference to the accompanying drawings, wherein the preferred embodiment of the invention is shown and described, by way of examples. As will be realized, the invention is capable of other and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not as restrictive.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 See through orthogonal view of the shoe unlaced with the inner sole in an upward position.

Fig. 2 See through orthogonal view of the shoe laced with the inner sole in a downward position.

Fig. 3 Orthogonal view of the interior mechanism with the inner sole in an upward

position.

Fig. 4 Orthogonal view of the interior mechanism with the inner sole in a downward position.

Fig. 5 See through side elevation with the inner sole in an upward downward position.

Fig. 6 See through side elevation with the inner sole in a downward position.

Fig. 7 Exploded view of the interior mechanism.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 A weight-activated lacing shoe (1) as illustrated is a conventional shoe having a sole (27) and a body (28), including a tongue (29) and a holding rod (17), which acts as a guide and keeps the tongue open when the side mechanisms (30-31) are released. The side mechanisms (30-31) are connected to the inner sole (2) by cable (12), currently in the up position and a holding rod (17) integrated within a standard tongue, typically found on a shoe, and two straps (15) preferably made of elastic material which makes them secured of over tension. The straps (15) passing through buckles (18) allow the user to adjust tension. An untying pedal (20), located on the back of the outer sole, acts as a release switch, which disengages the tightening mechanism. The holding rod (17) is a biasing means normally in an outward configuration, as illustrated, and which pulls on the straps (15).

Fig. 2 When the inner sole (2) is in a downward position, the straps (15) are tied. The side mechanisms (30-31) are connected to the inner sole (2) by cable (12), currently in the down position.

Fig. 3 The inner sole (2), currently in up position, is connected with cables (12) to the ratchet wheel (24) which is symmetrical to the ratchet wheel (5). The ratchet pawl (7), currently in release position, acts as a retainer to block the ratchet wheel (5) in downward position. The ratchet pawls (7) are connected by cable (6) to the untying pedal (20).

Fig. 4 The inner sole (2), currently in down position is connected with cables (12) to the ratchet wheel (24) which is symmetrical to the ratchet wheel (5). The ratchet pawl (7), currently in hold position, acts as a retainer to block the ratchet wheel (5) in downward position. The ratchet pawls (7) are connected by cable (6) to the untying pedal (20).

Fig. 7 The symmetrical side mechanisms (30-31) are composed of casing (4-23) in which fit the ratchet wheels (5-24), ratchet pawl (7), spring (8) cover (9-25) and screw (10). The ratcheted wheel (5-24) acts as a winch to wind the cables (12). The inside part of the cables (12) are connected through crimped sleeves (14) that link the link plate (3), which is preferably made of rigid material connected to the inner sole (2). When the weight of the user is applied on the inner sole (2), it creates tension in cables (12) which allows the ratchet wheels (5-24) to turn. When turning, the ratchet wheels (5-24) act as a winch to wind the outside part of cables (12). The straps (15) are connected to cables (12) by hangers (11). When turning sufficiently, the ratchet wheels (5-24) interfere with ratchet pawls (7) to block rotation and thus tying the shoe. Untying cables (6) with crimp sleeves (22) are connected between upper pedal (20) and lower pedal (19) which are assembled with screw (32). The spring (8) maintains

force on ratchets pawls (7) to ensure tying state. When the user pulls on pedal (19-20), it pulls on ratchet pawls (7) to allow the ratchet wheel (5-24) to turn freely, thus untying the shoe. The symmetrical side tracks (16-26) reduce side pressure and friction. The straps (15) passing through buckles (18) allow the user to adjust tension. A holding rod (17) acts as a guide and keeps the tongue open by creating reacting force in downward position.

CLAIMS:

1. A weight activated tying shoe comprising:

A symmetrical mechanism located on each side of the shoe that maintains functionally, casing, ratchet wheel, ratchet pawl, biasing means and cover;

A said casing which integrates ratchet wheel, ratchet pawl, biasing means and cover;

A said ratchet wheel acting as a winch to wind cable around itself;

A said ratchet pawl that engages said ratchet wheel in tying position;

A biasing means that pushes towards ratchet pawl causing it to engage said ratchet wheel in tying state in downward position;

A said cover to maintain side mechanism in casing;

An inner sole attached to a link plate connected to ratchet wheel by cable;

A said inner sole, preferably made of a flexible material;

A said link plate, preferably made of rigid material;

A side track that protects, guides and reduces pressure of side straps;

At least one side strap, but preferably two, acting as tying laces;

A said strap preferably made of elastic material to prevent over tension;

A said strap passing through adjustment buckles to allow tension adjustment;

A guide rod integrated within a standard shoe tongue, which creates reacting force in downward position;

An untying pedal located on the back of the outer sole to pull on ratchet pawl and release ratchet wheel to untie straps.

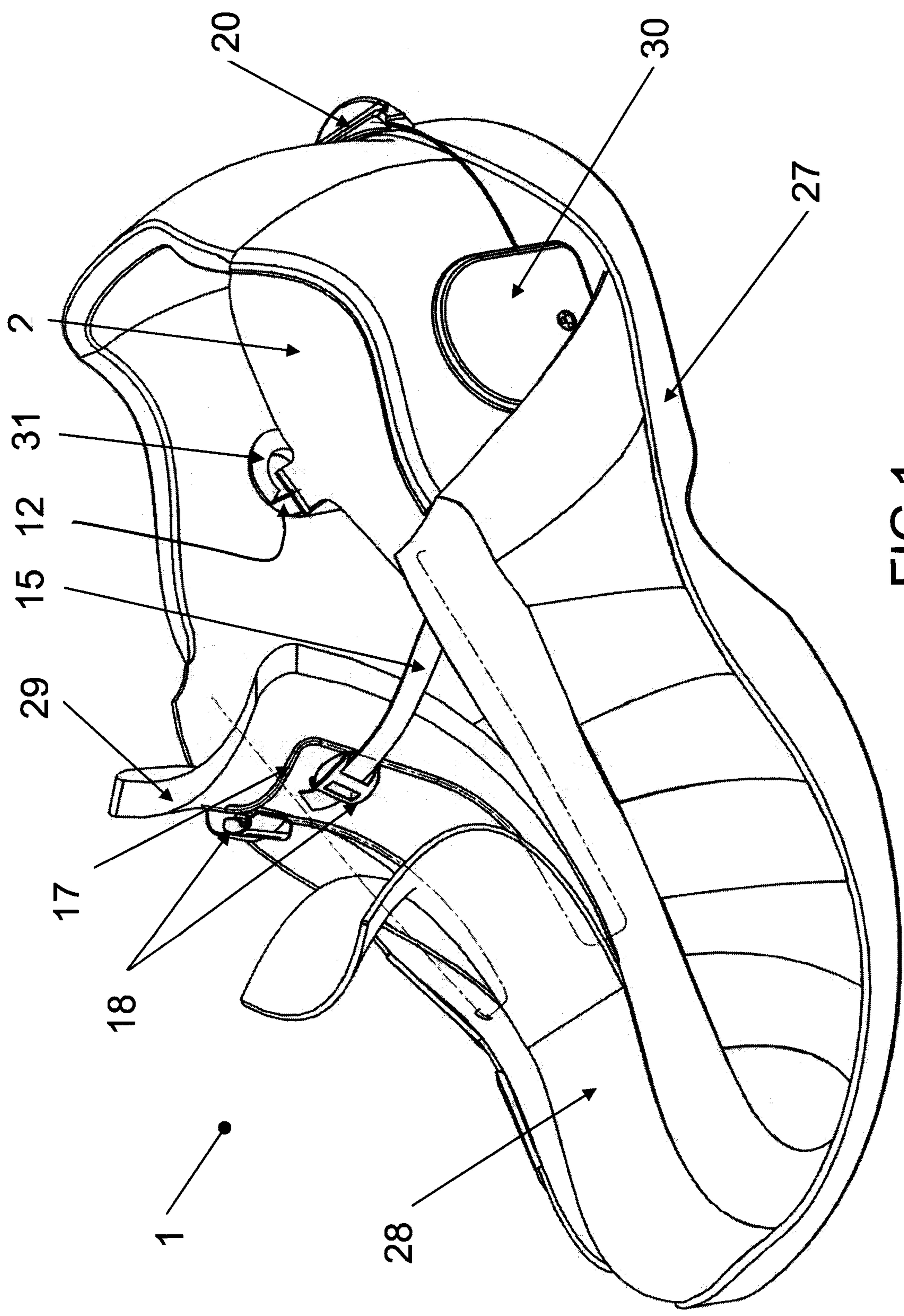


FIG.1

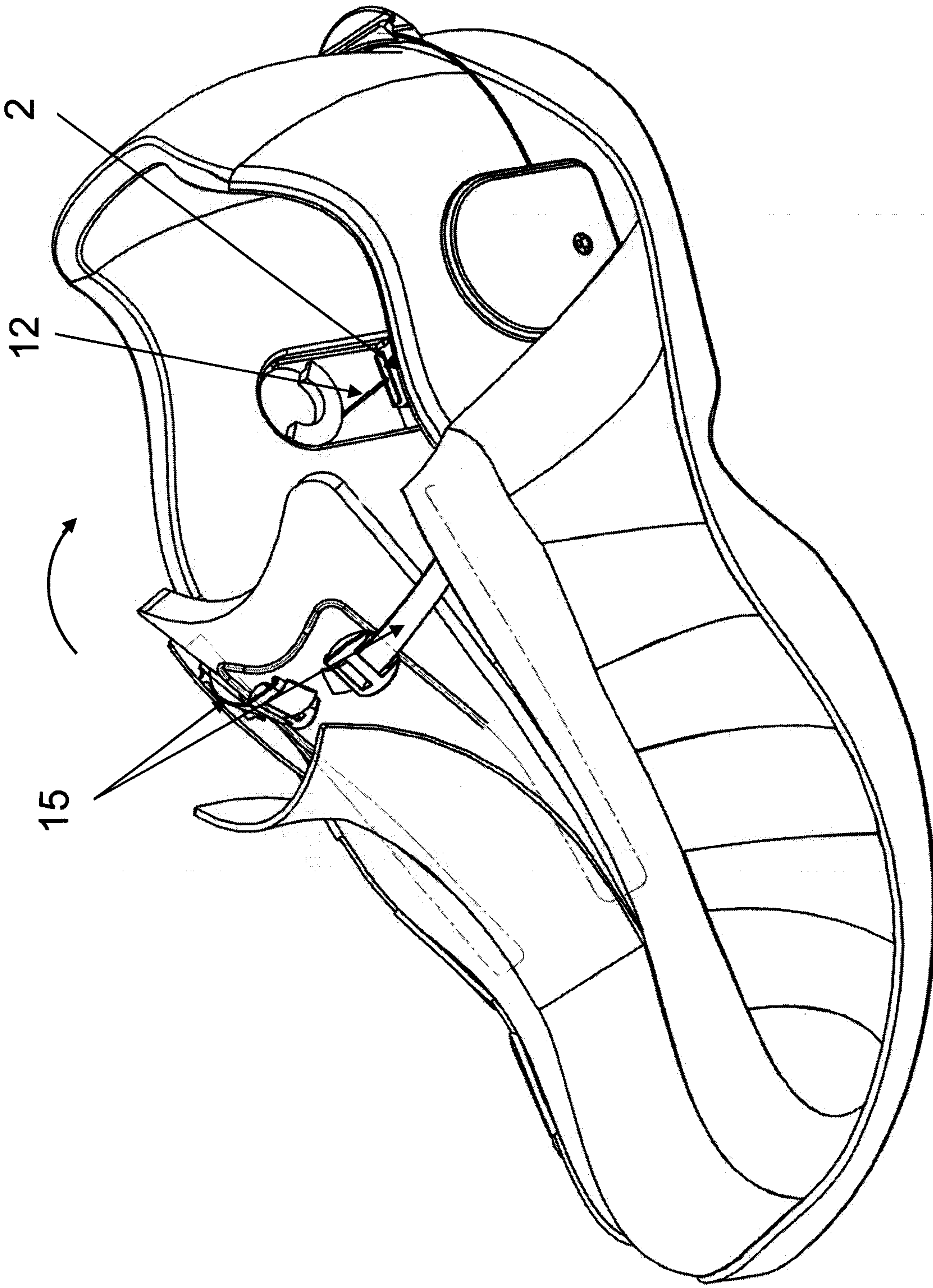


FIG.2

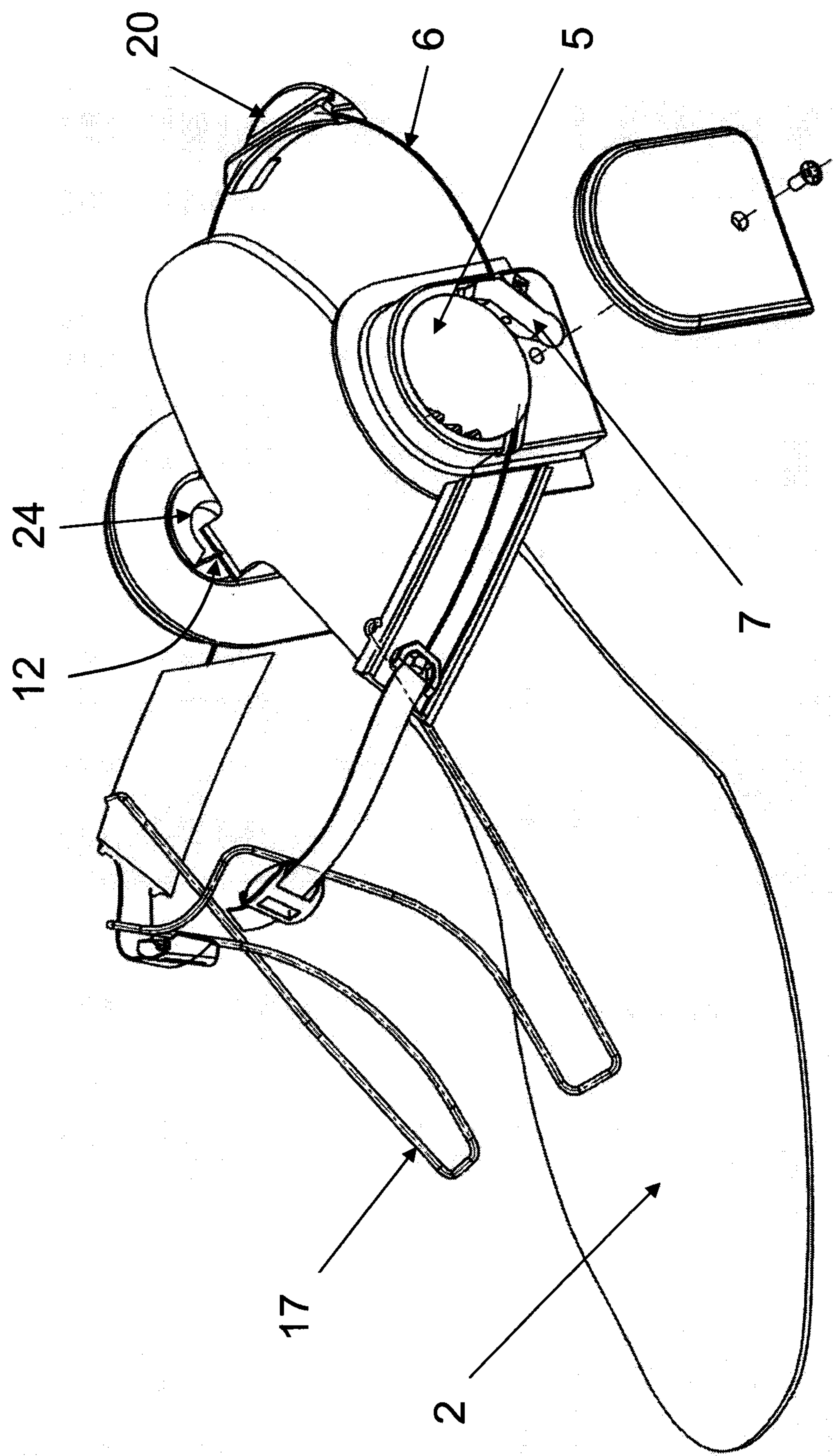


FIG.3

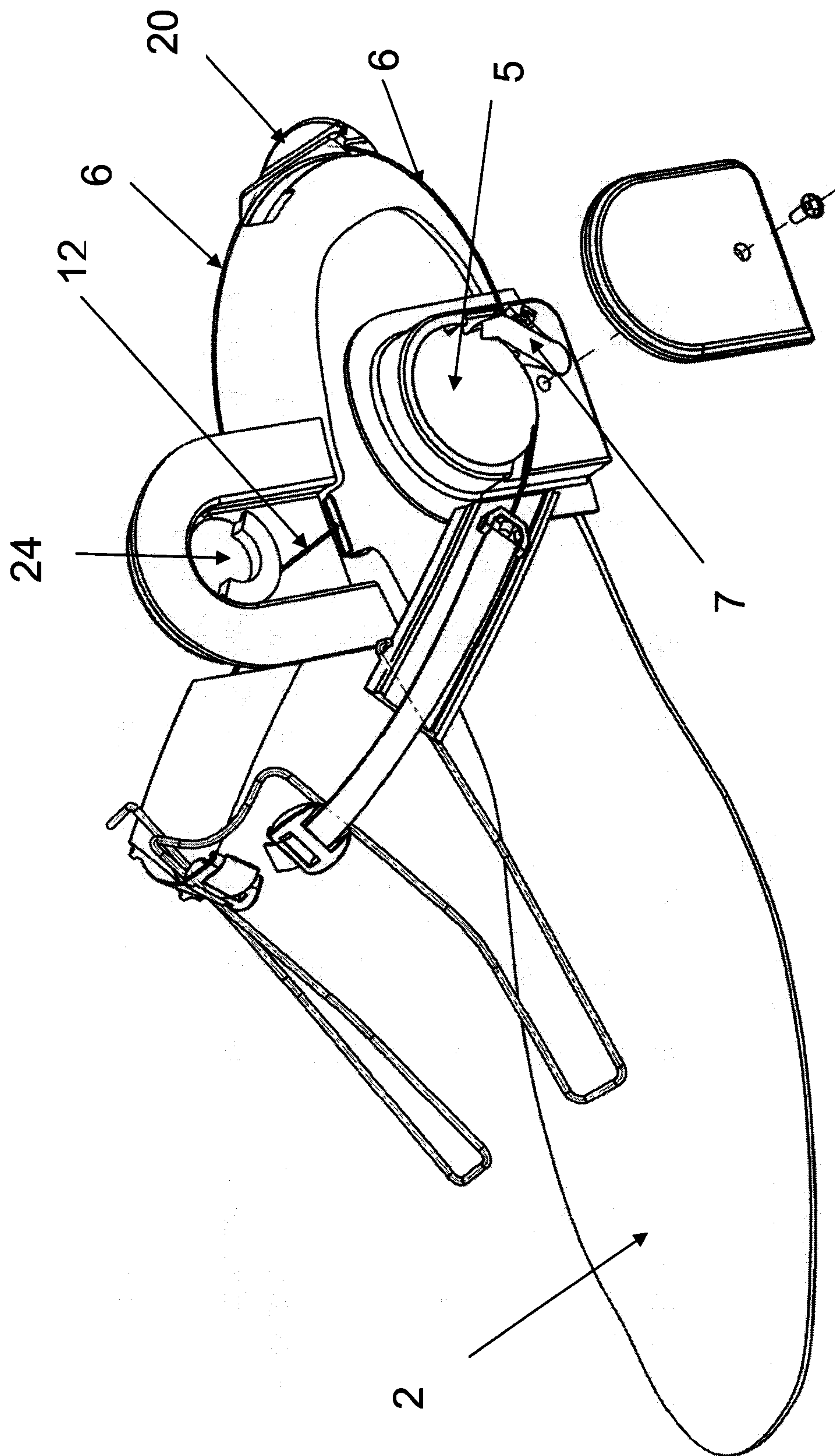


FIG.4

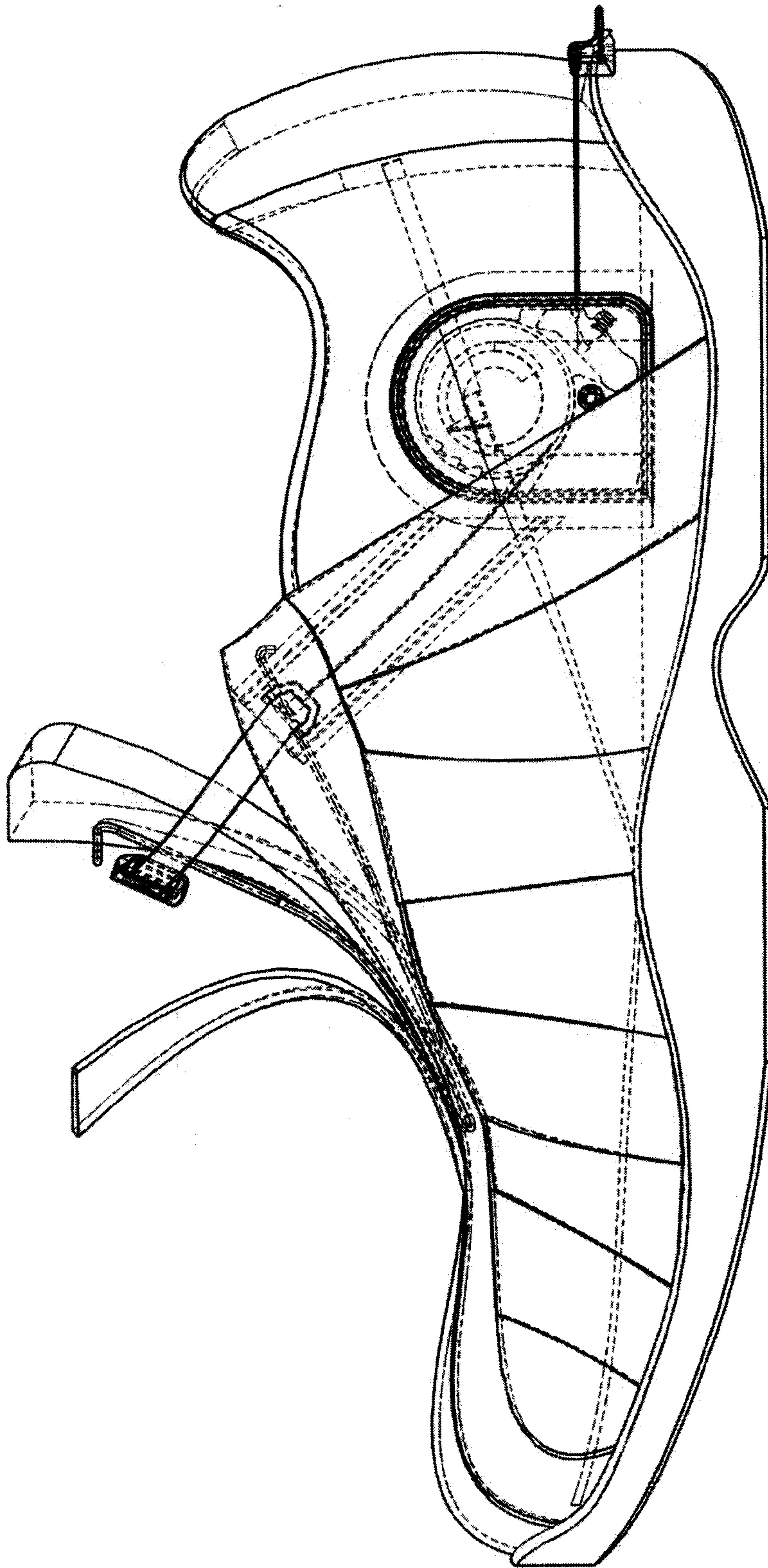


FIG.5

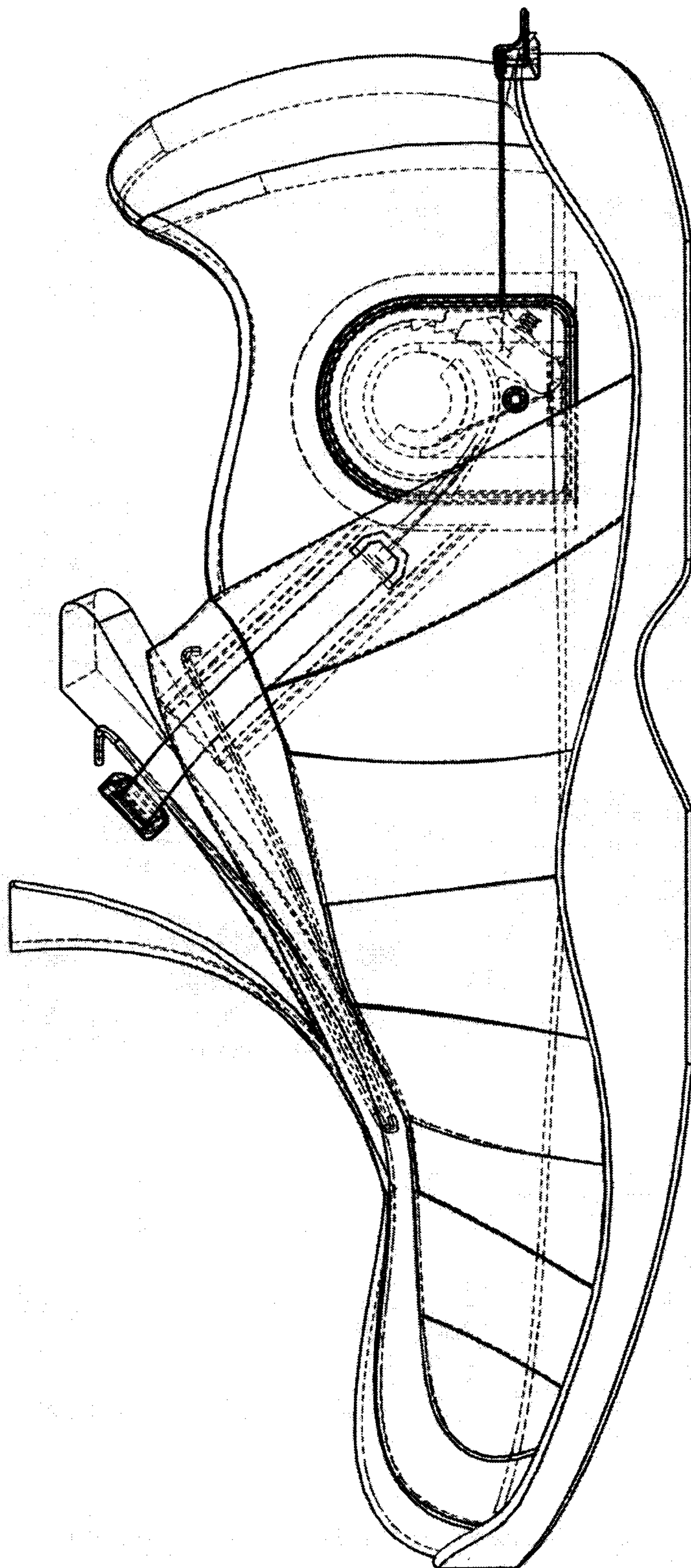


FIG.6

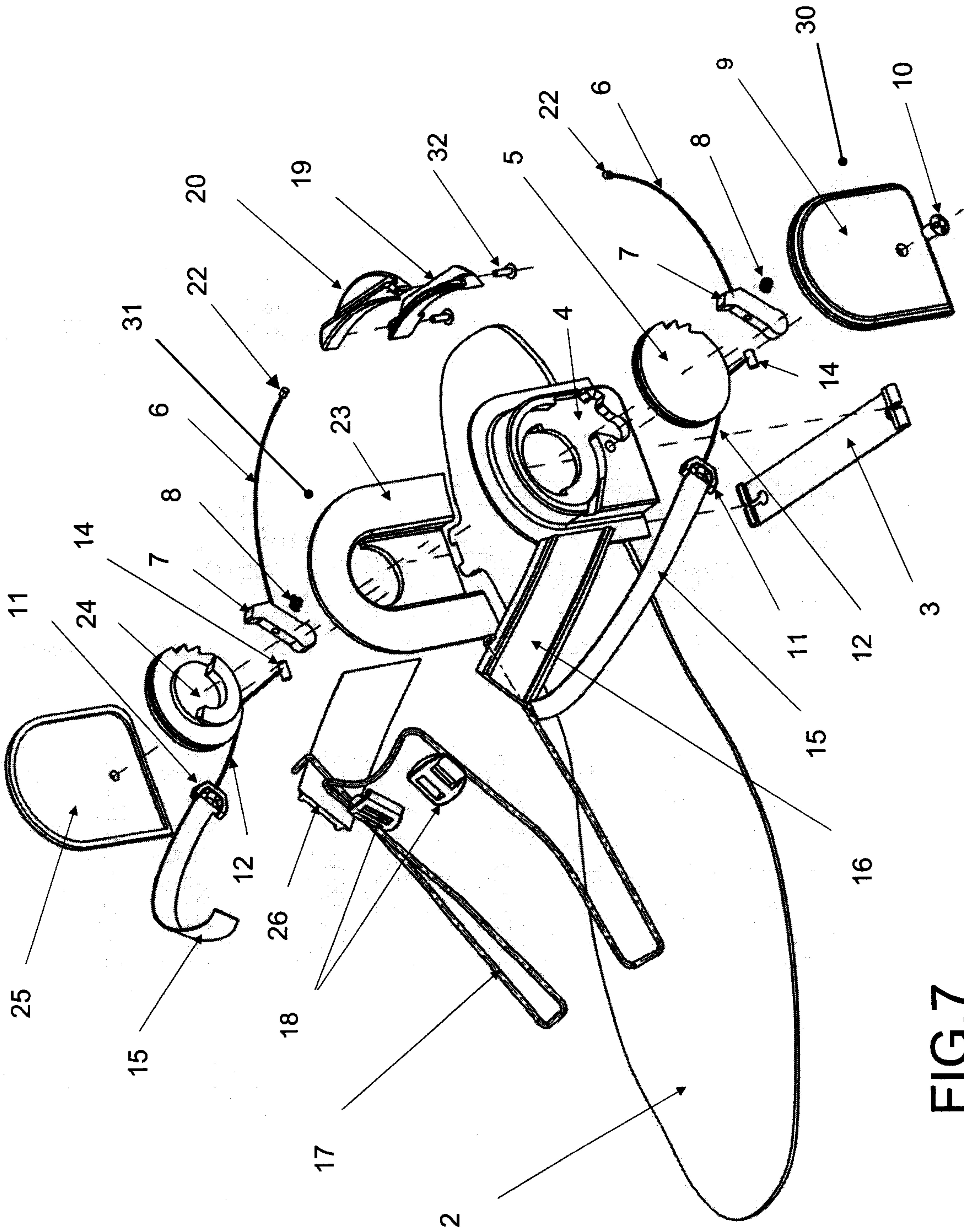


FIG.7

