

①



LATVIJAS REPUBLIKAS
PATENTU VALDE

① LV 13191 B

⑤ Int.Cl. ⁷ E05B15/02

Latvijas patents uz izgudrojumu

1995.g. 30.marta Latvijas Republikas likums

②

Īsziņas

②	Pieteikuma numurs:	P-04-39
②	Pieteikuma datums:	01.04.2004
④	Pieteikuma publikācijas datums:	20.06.2004
④	Patenta publikācijas datums:	20.10.2004
③	Prioritāte:	
	0103185-5	25.09.2001 SE
⑧	PCT pieteikums:	
	PCT/SE02/01745	25.09.2002
⑧	PCT publikācija:	
	WO03/042474	22.05.2003

⑦ Īpašnieks(i):

ASSA AB; Box 371, S-631 05 Eskilstuna, SE

⑦ Izgudrotājs(i):

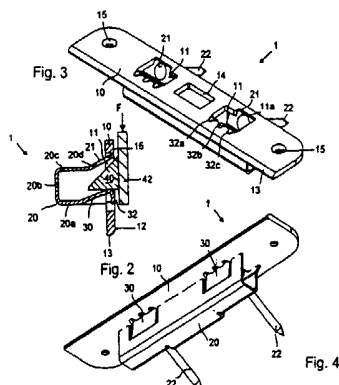
Jorma HIRVI (SE)

⑦ Pilnvarotais vai pārstāvis:

Guntis KAZAINIS,
Aģentūra "GUNTIS KAZAINIS"
Mālkaines prospekts, 29-59, Ogre LV-5003, LV

⑤ Virsraksts: AIZKRITŅA PLĀKSNE

⑤ Kopsavilkums: Aizkritņa plāksne (1) satur plākšņveida elementu (10), kuram būtībā ir plakana augšējā virsma (12, 16). Plākšņveida elementā ir atvere (11), lai uzņemtu aizsprūdbultu (40). Plākšņveida elementa apakšējā pusē ir kārba (20), kurai ir integrāla regulējama mēlīte (30). Mēlīte satur bīdāmu daļu (32a-c), kuras virsma atveres zonā būtībā ir vienā līmenī ar plākšņveida elementa augšējo virsmu. Bīdāmā plakanā virsma, vislabāk, ir aprīkota ar zobiem, kuri sakabinās ar atbilstošajiem ierobiem atverē. Plākšņveida elementa un bīdāmās zonas pārklāšanās aizsprūdbultas (40) kustības virzienā pasargā no tā, ka aizsprūdbulta ievirzās tuvākajā nevēlamajā pozīcijā.



Izgudrojuma formula

1. Aizkritņa plāksne (1), kas satur :
 - plākšņveida elementu (10), kuram ir pēc būtības plakana augšējā virsma (12, 16), un atveri (11), kas pielāgota aizsprūda bultas (40) uzņemšanai;
 - kārbu (20) , novietotu plākšņveida elementa apakšējā pusē, un
 - regulējamu mēli (30), kas ir integrāla ar kārbu un satur bīdāmu daļu (32) , kuras virsma atveres zonā pēc būtības atrodas vienā līmenī ar minētā plākšņveida elementa augšējās puses virsmu, atšķiras ar to, ka
 - plākšņveida elements (10) un minētā bīdāmā daļa (32) pārklājas aizsprūda bultas (40) kustības virzienā (r) un
 - minētā bīdāmā daļa (32) satur mēles (32a-c), vislabāk trīs mēles, un minētā atvere (11) satur mēles uzņemošus ierobus, pie kam mēles (32a-c) ir savtarpēji distancētas attālumā (b), kurš ir mazāks kā aizsprūda bultas (40) platums.
2. Aizkritņa plāksne saskaņā ar 1.punktu, kas atšķiras ar to, ka satur divas simetriski novietotas atveres (11).
3. Aizkritņa plāksne saskaņā ar 1.vai 2.punktu, kas atšķiras ar to, ka kārba (20) turpinās līdz minētā plākšņveida elementa (10) augšējās puses (12,16) līmenim vismaz minētās atveres vai atveru (11) rajonā.
4. Aizkritņa plāksne saskaņā ar 3.punktu, kas atšķiras ar to, ka minētā atvere vai atveres (11) ietver ierobus (11a) minētas atveres (11) rajonā.
5. Aizkritņa plāksne saskaņā ar 3. vai 4.punktu , kas atšķiras ar to, ka minētā kārba (20) satur montēšanas caurumu (21) vietā , kur kārba turpinās līdz minētajam plākšņveida elementa augšējās puses līmenim.
6. Aizkritņa plāksne saskaņā ar jebkuru no 1.līdz 5.punktam, kas atšķiras ar to, ka bīdāmā daļa (32) ir izliekta.
7. Aizkritņa plāksne saskaņā ar jebkuru no 1. līdz 6.punktam, kas atšķiras ar to, ka mēles (30) platums pēc būtības atbilst minētās atveres (11) platumam.

STRIKING PLATE

FIELD OF INVENTION

5

The present invention relates generally to a striking plate and more specifically to a striking plate that includes an adjustable tongue for adjustment of the engagement of a latch bolt or lock bolt with the striking plate.

10 BACKGROUND OF THE INVENTION

Several different types of striking plate that can be fitted to a doorframe are commercially available. In its simplest form, the striking plate includes a generally flat face plate that includes one or more openings in which a lock bolt or latch bolt can engage when the door
15 is closed. In addition to the actual face plate, security-type-striking plates also include a generally U-shaped or V-shaped so-called box that prevents access to said bolts from "behind" the striking plate. Known striking plates may also include an adjustable so-called tongue, which adjusts engagement between, e.g., a latch bolt and the striking plate. This engagement is set so that the door will not be spaced from the door frame when the bolt
20 engages the striking plate.

An example of a tongue-equipped striking plate 1' according to one known technique is shown in Fig. 1, which is a cross-sectional view of the plate at a level with a latch-bolt-receiving opening. The illustrated arrangement includes a striking plate element 10', a box
25 20' and a tongue 30' integral with said box. The tongue can be bent away with the aid of an appropriate tool, for instance, so as to obtain the correct tongue measurement, referenced "d" in the figure. In the case of this known solution, the tongue 30' does not extend up to the level of the upper side of the plate element, i.e. the side facing to the right in the figure. This results in a problem whereby a latch bolt is in danger of becoming
30 jammed or stuck in an intermediate position, indicated in broken lines in the figure.

A further example of known lock technology is described in Swedish Patent Publication SE 346 582. The striking plate described in this publication comprises a lip that includes two forwardly projecting and adjustable tongues whose outer end edges lie in the plane of

the striking plate and are bent along a short distance. The primary object of the invention according to SE 346 582 is to simplify fitting of the striking plate, and does not solve the aforesaid problem associated with the danger of a latch bolt fastening in an intermediate position in the opening defined between the ends of the tongues and the striking plate.

5

SUMMARY OF THE INVENTION

An object of the present invention is to provide a striking plate of the aforesaid kind with which the problem mentioned above associated with a striking plate that includes an adjustable tongue measurement is avoided.

10

The invention is based on the realisation that an adjustable tongue can extend up to the level of the upper surface of the striking plate post.

According to the invention, there is thus provided a striking plate that has the features set forth in the accompanying Claim 1.

15

Further preferred embodiments are defined in the dependent Claims.

Thus, there is provided a striking plate with which the drawbacks and problems associated with known techniques are avoided. Because the adjustable tongue extends to the upper surface of the plate element there is obtained a generally flat latch-bolt sliding surface that prevents the latch bolt from fastening or jamming in an undesired intermediate position.

20

In the case of a particularly preferred embodiment, the adjustable tongue and the plate element overlap mutually in the direction of movement of the latch bolt.

25

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in more detail by way of example and with reference to the accompanying drawings, in which

30

Fig. 1 is a cross-sectional view of a known striking plate;

Fig. 2 is a cross-sectional view corresponding to that of Fig. 1 but showing a striking plate constructed in accordance with the invention;

Figs. 3-5 are perspective views of the inventive striking plate shown in Fig. 2;

5

Figs. 6 and 7 are respectively a side view and a plan view of the inventive striking plate shown in Figs. 2-5;

10 Figs. 8a and 8b are respectively a plan view and a cross-sectional view of the inventive striking plate, showing an adjustable tongue in a first position; and

Figs. 9a and 9b are respective views corresponding to those of Figs. 8 and 8b, showing the adjustable tongue in a second position.

15 DESCRIPTION OF PREFERRED EMBODIMENTS

A preferred embodiment of an inventive striking plate will now be described in more detail. Referring first to Fig. 2, which is a cross-sectional view of an inventive striking plate, the plate 1 includes a plate element 10, a box 20 and a box-integral tongue 30. The plate element includes an opening 11 adapted to receive a latch bolt 40 of a lock (not shown) fitted to a door 42. The plate element has a generally flat upper surface 12, 16 which faces outwards when the striking plate is fitted to a door frame, i.e. faces towards the door and the latch bolt 40 included in a door lock.

25 The tongue 30 includes a sliding part 32, which has a surface that lies essentially on a level with the upper side 12 of the plate element. As the latch bolt 40 engages the striking surface, designated 13 in Fig. 2, of the plate element when closing the door, the latch bolt is caused to slide over said upper surface 12 and then to glide over the tongue portion 32 prior to reaching the position shown in the figure when the door is fully closed.

30

The slide portion of the tongue 30 includes three teeth 32a-c. (see Fig. 3), the shape of which is adapted to corresponding notches in the aperture 11. The mutual spacing b between the teeth (see Fig. 7) is smaller than the width of the latch bolt 40. This results in an overlap between the slide portion 32 and the plate element 10 in a direction r of the

movement of said latch bolt 40, therewith preventing the bolt from sinking down into or fastening in a gap between tongue and plate element. Thus, the latch bolt has a smooth sliding surface all the way from the striking surface 13 to the opening 11.

5 As will be seen from the perspective views of Figs. 3-5, the plate element 10 has two mirror-imaged latch bolt openings 11. Located centrally between these openings is a lock bolt opening 14. The plate element 10 also includes two symmetrically disposed screw holes 15. Because the entire striking plate is symmetrical, the same striking plate can be used for fitting both left-hand and right-hand locks. The box 20 has a generally U-shaped
10 cross-section (see Fig. 2) and includes a generally flat first side 20a, a generally flat second side 20b and a third side which includes two flat parts 20c, 20d, where the part 20c is generally parallel with the first side 20a and the second part 20d is angled to said first part. The second part 20d has two holes 21 for screws 22. These screws will extend obliquely into the doorframe, as clearly shown in the figures. The significance of this will become
15 apparent from the following description, particularly from the description made with reference to Figs. 2, 8 and 9.

It will be seen from Fig. 2 that the box 20 extends up to a level with the upper side of the plate element 10, in the region of the mounting hole 21. Those forces acting on a door, and
20 therewith also on the latch bolt 40, act essentially in the direction of the arrow F in Fig. 2, i.e. downwardly in the figure. A screw 22 fitted in the hole 21 (see, for instance, Fig. 8b) will therewith take-up these forces in a satisfactory manner, by virtue of the fact that the box 20 extends into the opening 11 in the plate element, and also by virtue of the fact that the mounting hole 21 lies very close to that part of the box which extends into the plate
25 element. As will be apparent from Fig. 3, for example, the screw 22 can be screwed-in by virtue of a recess 11a provided in the edge of the opening 11, said recess enabling the mounting holes to be placed close to the bolt post. The central positioning of the lock bolt opening 14 results in uniform loading of the two oblique mounting screws 22, which is advantageous from a strength aspect. The closer the screws to the plate element, the better
30 the fastening of the screws 22.

The adjustability of the tongue 30 will now be described with reference to Figs. 8a, 8b and 9a, 9b. Figs. 8a and 8b illustrate a position in which the tongue measurement "d" is a minimum. The teeth 32a-c are essentially adjacent the plate element 10 in the absence of

any clearance. Figs. 9a and 9b, on the other hand, show the tongue at maximum tongue measurement. In this case, the teeth 32a-c are in a border position in which they do not overlap the plate element in the direction of movement of the latch bolt, shown by the arrow "r" in the figures. A practical setting range is as large as 3 millimetres, or still greater in certain cases. The tongue 30 is adjusted preferably with the aid of an appropriate tool, such as a screwdriver or the like, with which the tongue can be inclined at a desired angle relative to the first side 20a of the box.

As will be apparent from Figs. 8b and 9b, the tongues 32b are bent or curved slightly upwards, i.e. to the right in the figures. The upper side of respective tongues will thereby lie essentially level with the upper side of the plate element, regardless of the tongue setting.

Although an inventive striking plate has been described with reference to a preferred embodiment thereof, the person skilled within this particular technical field will understand that variations are possible within the scope of the accompanying Claims. For example, although the attitude of the tongue 30 in the illustrated embodiment has been said to be set by means of a screwdriver or some other appropriate tool, it will be obvious that the attitude of the tongue can be adjusted and set with the aid of a setting screw that extends into the tongue.

Moreover, although the tongue 30 has been shown to include three teeth 30a-c, it is, of course, conceivable to use any number of teeth, provided that the mutual spacing of the teeth is smaller than the width of a co-acting latch bolt.

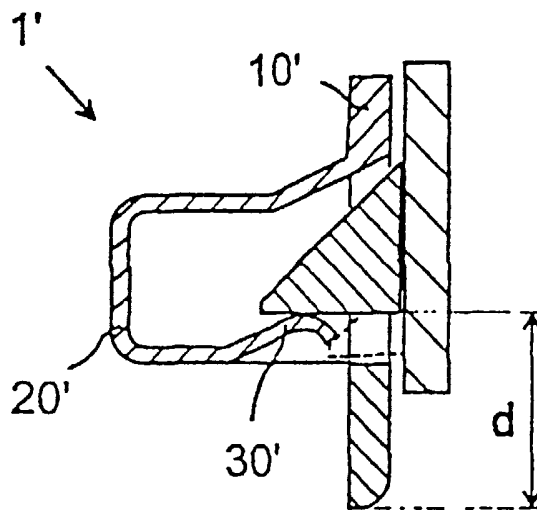
It will also be understood that although the box 20 has been shown to have a U-shaped cross-section, the box may be given shapes that deviate from the illustrated shape, such as a generally V-shape, etc.

The plate element has been shown as being generally flat, although it will be understood that the plate element may include a part which is angled to said upper side 12, as in the case of rebated doors, for instance.

CLAIMS

1. A striking plate (1) comprising:
- 5 - a plate element (10) that has an essentially planar upper surface (12, 16), and which includes an aperture (11) arranged to receive a latch bolt (40);
- a box (20) provided on the underside of the plate element; and
- an adjustable tongue (30) which is integral with the box and which includes a sliding portion (32) that has in the area of the aperture a surface which is essentially level with
- 10 the upper side of said plate element,
- characterised in that
- the plate element (10) and said sliding portion (32) overlap in the direction (r) of movement of the latch bolt (40), and
- said sliding portion (32) includes tongues (32a-c), preferably three tongues; and in that
- 15 said aperture (11) includes tongue-receiving notches, wherein the tongues (32a-c) are mutually spaced at a distance (b) smaller than the width of the latch bolt (40).
2. A striking plate according to Claim 1, comprising two symmetrically positioned apertures (11).
- 20
3. A striking plate according to Claim 1 or 2, in which the box (20) extends up to the level of said upper side (12, 16) of said plate element (10), at least in the region of said aperture or apertures(11).
- 25
4. A striking plate according to Claim 3, in which said aperture or apertures (11) includes a recess (11a) in the region of said aperture(s) (11).
5. A striking plate according to Claim 3 or 4, in which said box (20) includes a mounting hole (21) where said box extends up to the level of said upper side of the plate
- 30 element.
6. A striking plate according to any one of Claims 1-5, in which said sliding portion (32) is curved.
7. A striking plate according to any one of Claims 1-6, in which said tongue (30) has a width that corresponds essentially to the width of said aperture (11).

Abstract: A striking plate (1) comprises a plate element (10) having an essentially planar upper surface (12, 16). The plate element has an aperture (11) arranged to receive a latch bolt (40). On the underside of the plate element there is provided a box (20) having an integral adjustable tongue (30). The tongue comprises a sliding portion (32a-c), which in the area of the aperture has a surface essentially flush with the upper surface of the plate element. The sliding plane is preferably provided with teeth engaging corresponding notches in the opening. The overlapping of the plate element and the sliding portion in the direction of movement of the latch bolt (40) prevents that the latch bolt is stuck in an unwanted immediate position.



1/3

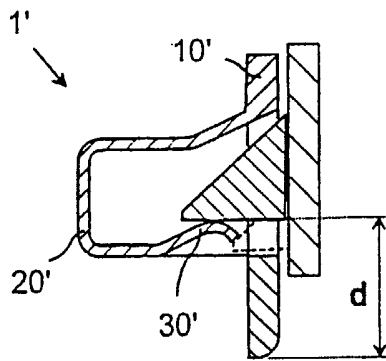


Fig. 1 (Prior Art)

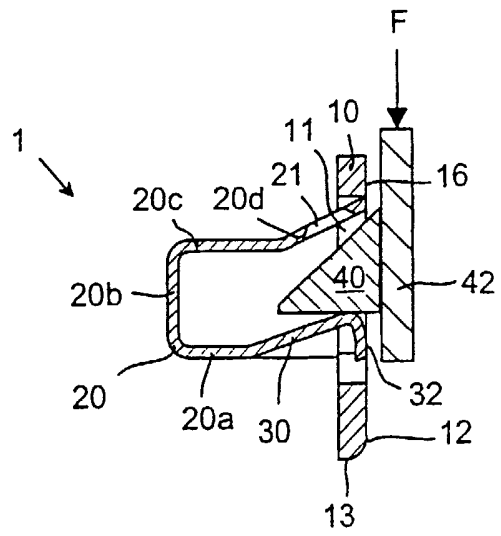


Fig. 2

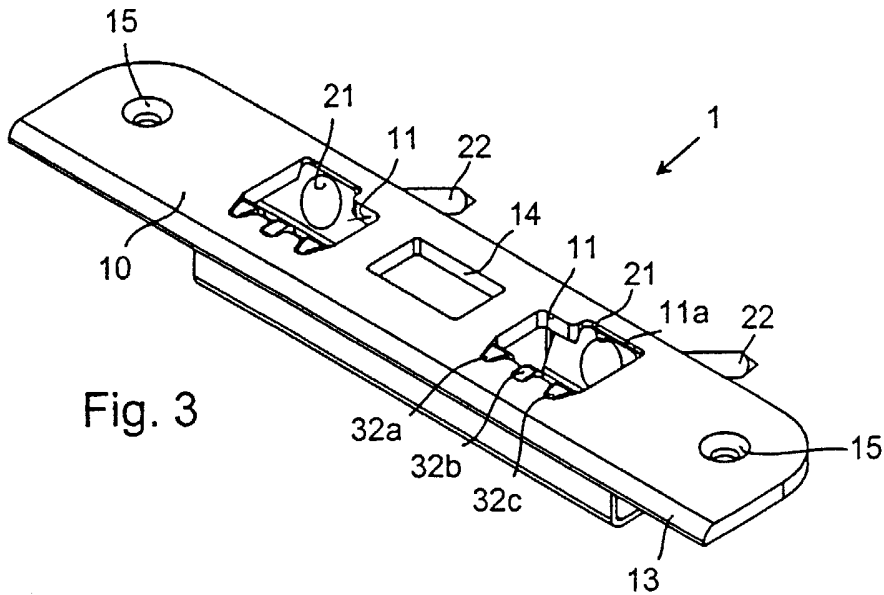


Fig. 3

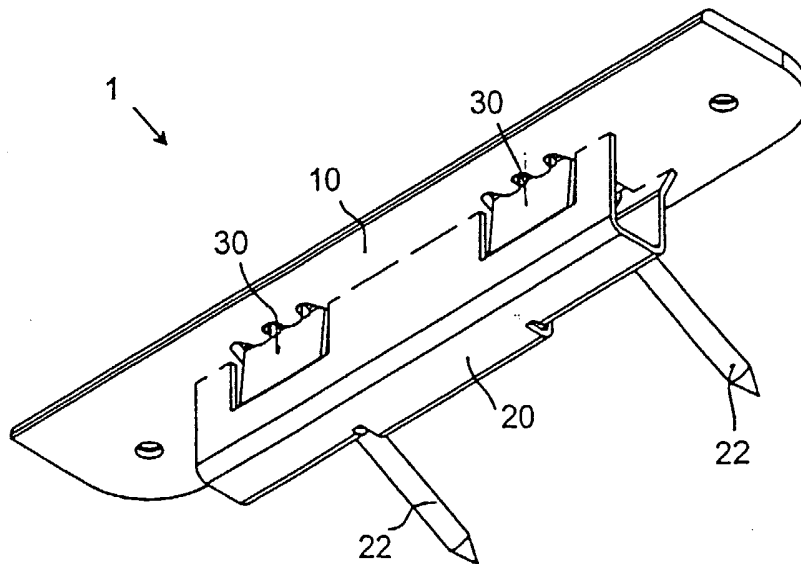


Fig. 4

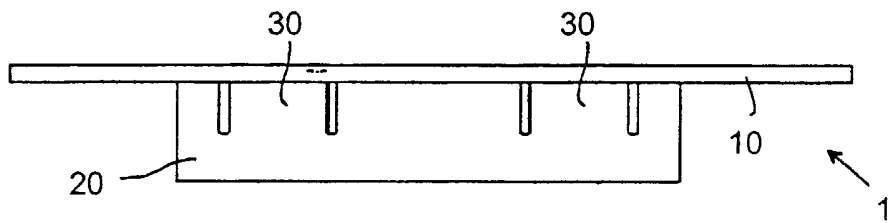
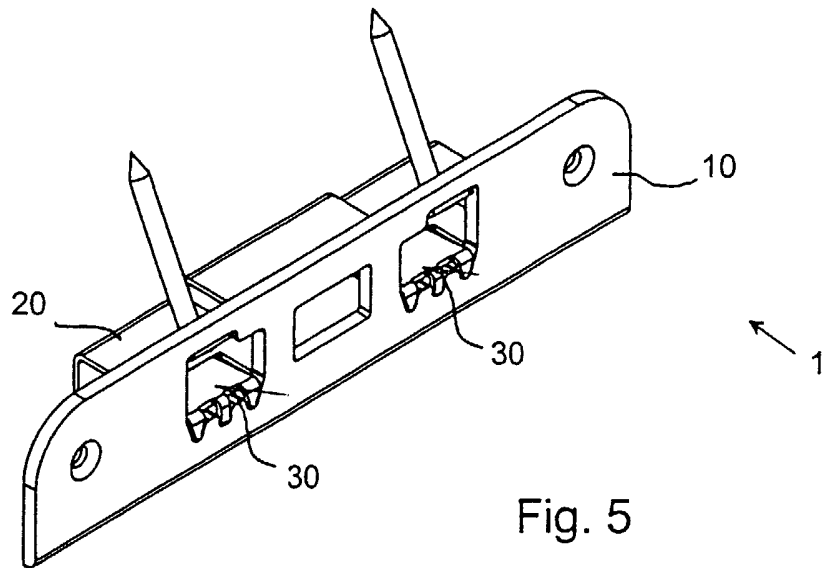


Fig. 6

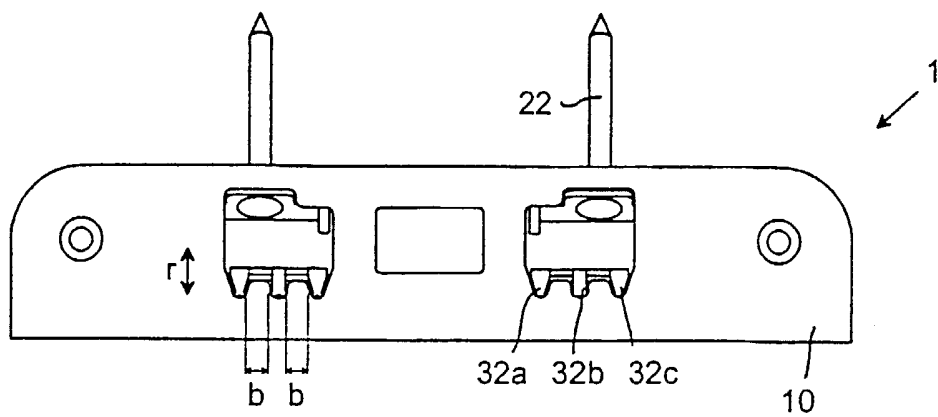


Fig. 7

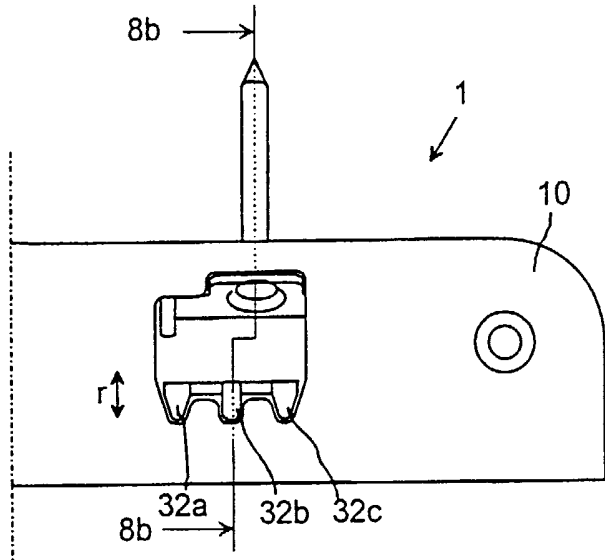


Fig. 8a

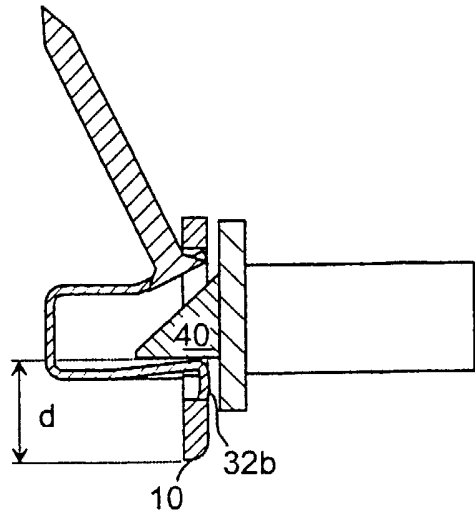


Fig. 8b

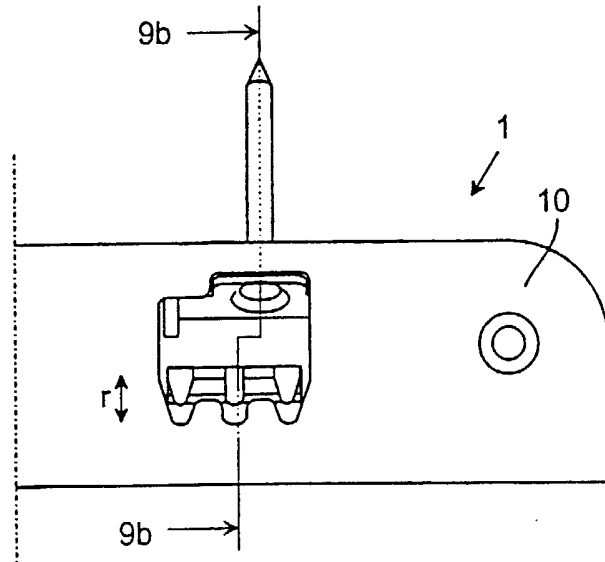


Fig. 9a

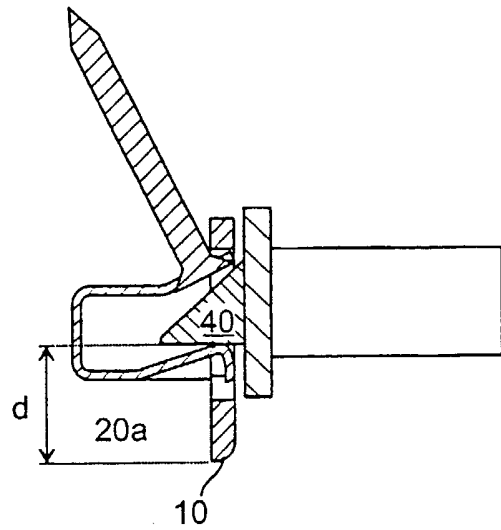


Fig. 9b