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(54) **A locking device for coupling containers and the like to railway trucks.**

(57) It is disclosed a locking device which allows the same single railway-truck to carry either containers and/or mobile boxes of traditional structure, having thus the standard flat bottom, or that special type of mobile boxes having a "tunnel" bottom which have a larger loading capability but, owing to said "tunnel" bottom, are presently susceptible and foreseen to be transported only by road by suitable road-trucks.

The height of the loading platform in conventional railway-trucks is in fact such as *not* to allow said special mobile boxes with a "tunnel" bottom to be transported because said special mobile boxes have a height exceeding that of the traditional containers and consequently the total height of said special boxes, once loaded upon a standard railway-truck, would be such as to exceed the standard allowed height in the railway-traffic.

The device according to the present invention, exploiting the form of the "tunnel" at the bottom of said special boxes, allows said special boxes to be transported by a railway-truck where the longitudinal main frame of said truck, which constitutes the loading platform, may be comprised inside the dimension of said "tunnel", i.e. inside the two longitudinal main frame members of said "tunnel" bottom.

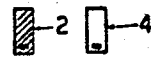
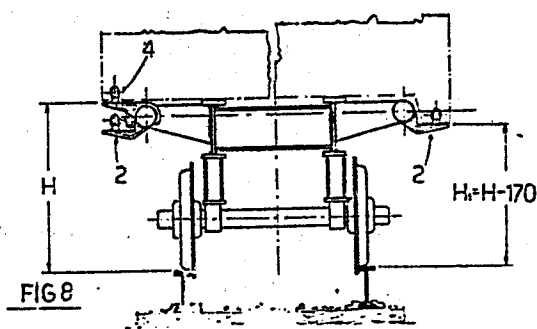
The locking device comprises two plates supporting each a dowel: the first one being a fixed plate (2) solidarily jointed to a supporting shaft and providing a lower-level loading surface whereby a fixed dowel (3) is provided for coupling said mobile boxes having a "tunnel" bottom on to said railway-trucks; the

second one being a mobile plate (4) carrying a mobile dowel (5), said mobile plate (4) being sliding fitted to said supporting shaft and providing a higher-level loading surface whereby said mobile dowel (5) is provided for coupling thereon containers and/or mobile boxes having the standard flat bottom. The mobile plate (4) supporting the mobile dowel (5) may assume various working and/or non-working positions whereby said working positions of said mobile plate (4) may or not overlap the position of said fixed plate (2).

Said mobile plate (4) may also be tilted in a non-working position so as to ensure said railway-trucks equipped with said locking device to provide the largest flexibility in carrying either standard or special containers and/or mobile boxes; said special containers and/or mobile boxes being presently foreseen for transport by road only being of the type with a "tunnel" bottom.

According to a preferred embodiment, said locking device makes it possible to lower the loading platform surface, for said special mobile boxes with a "tunnel" bottom, about 170 mm. below the standard level of a loading platform in a conventional railway-truck and this without any substantial modification to the standard main frame of said railway-trucks.

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Pos	GROUP CM	CONTAINER	LENGTH
1			6250
▲ 2			7150
		20°	6055
● 3			8050
■ 4	CM EMT		12190
		40°	12190

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TITLE MODIFIED
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A looking device for coupling containers and the like on
to railway-trucks.

The present invention relates to a coupling device-inten-
ded for looking, on standard railway-trucks, containers
5 and the like, i.e. standard containers as well as special
mobile boxes usually intended to be carried by road-trai-
ler-trucks or conveyors so as to allow the so called "in-
termodal" traffic, whereby goods are transported partial-
ly by road and partially by rail.

10 More particularly the present invention relates to a new
special coupling device to be mounted on standard railway-
trucks and so realised as to ensure not only the transport of
containers and the like having a standard flat bottom,
but also the transport of that special mobile boxes of
15 the so called "type or group 4" i.e. having 40 feet of
length and presently foreseen for being transported by road
only by suitable road-trailer-trucks.

Said special mobile boxes of the type 4 show a larger hei-
ght and a larger volume of the glove box, thus a larger
20 loading capability.

They show also supporting structures of the so called

"tunnel type" which allow said "type 4" mobile boxes to be transported by road only, by some special trailer-trucks, but do not allow said "type 4" mobile boxes to be transported by rail, by conventional railway-trucks for container carrying.

The so called "tunnel" bottom is defined by the fact that said special mobile boxes have a main frame structure whereby two longitudinal main frame members protrude from the bottom of said mobile boxes providing a suitable loading and resting surface when said boxes have to be transported by said road-trailer-trucks.

Said two longitudinal main frame members define the so called "tunnel" i.e. a longitudinal tunnel-shaped volume on the bottom of said special mobile boxes.

As it is known the conventional devices for coupling containers and the like on to railway-trucks, also known as locking devices, consist in four stop-pins having a vertical axis, also known as studs or dowels, for each container or the like to be coupled on to said trucks.

Said stop-pins are suitably located along the longitudinal edges of the loading platform of the railway-trucks and provide for stopping and retaining the containers on said railway-trucks by cooperating with housings, also having a vertical axis, which are provided along the edges of the bottom surface of said containers having a flat bottom. Such conventional locking devices, usually fixed, necessitate the container or the like to be supported at least along the whole perimetral edge of the loading platform and hence they may and do not have a supporting but only a retaining function.

It is further known that the level of the loading platform in conventional containers-carrying railway-trucks

and in freight-cars in general, is largely dependent upon the height of the bumpers and of the couplers which must be the same for all the railroad-cars, the passenger-cars being included, so as to allow an easy mutual coupling.

5 In the present discussion and in the following of the present specification, for "level" of the loading platform it is meant the vertical distance between the plane where said loading platform lies and the plane of both the rails of the railway-line.

10 Displacing the level of said loading platform to a lower level would require radical changes in the present standard criteria for building railroad-cars, with a consequent large rise in the manufacturing prices for said cars and more in general with an unacceptable rise of the
15 costs for transporting goods by rail when said goods have also to be transported by road in the intermodal traffic.

The displacement of the loading platform to a lower level could in fact be obtained by reducing the diameter of the
20 wheels which would cause for various grounds, and mainly on account of the increased stresses on the rails, a reduction of the van tonnage.

Alternatively said displacement of said loading platform level might be obtained by means of a longitudinal tank-
25 structure which would not allow to exploit, for supporting purposes, both the regions corresponding to the van's extremities i.e. the regions corresponding to the wheels-axles viz. to the bogies.

In the present situation, i.e. with the presently conventional means, it is practically impossible to transport by
30 rail said special mobile boxes of the so called "type 4"

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having the so called "tunnel type" bottom, on account of their height exceeds by 170 mm. the height of the traditional containers.

An inter-modal traffic is consequently impossible with

5 said special boxes.

The present invention, as it is claimed, has the aim of remediating the hereabove mentioned drawback of the looking devices according to the prior art.

It is therefore a first object of the present invention
10 to provide a solution to the problem of transporting by rail said "type 4" mobile boxes having said larger height without having to modify the present conventional level of the loading platform in railway-trucks and hence without having to change the presently standard building parameter
15 for said railway-cars, which parameters so largely depend upon the standard height of bumpers, couplers and anyway of the automatic coupling devices present usually in any railroad-car.

Simultaneously it is a further object of the present in-
20 vention to provide a new looking device for railway-trucks having thus a two-levels supporting function, i.e. a supporting function at a lower level for the containers and the like having a "tunnel type" bottom providing a lower level supporting platform for them, and respective-
25 ly a supporting function at an higher level for the containers and the like having a flat bottom providing a supporting platform for these later at a standard level. Said new looking device is conceived as specially adapted for mounting on that railway-trucks whereby the main fra-
30 me members, constituting the longitudinal supporting structure, show a transversal floor-space less than the width of the volume of the "tunnel" according to which

the bottom of said "type 4" special mobile boxes is shaped.

Said new looking device is thus such to allow the "tunnel" to be housed when the special mobile box rests on the lower level supporting platform provided by said looking device.

A preferred embodiment of the looking device object of the present invention will now be described in the following specification taken together with the accompanying drawings in which:

fig. 1 shows an overall sight of the looking device comprising a mobile dowel fastened to a fixed dowel in a position such that said mobile dowel overlaps said fixed dowel;

fig. 2 shows the looking device deprived of the mobile dowel so as to ensure the looking function only for the mobile boxes with a "tunnel" bottom;

fig. 3 shows the mobile dowel fastened on a position non-overlapping that of the fixed dowel as well as the details of the fastening means;

fig. 4 shows the mobile dowel as tilted in a non-working position;

fig. 5 shows an overall view of a first embodiment for a cylindrical member supporting the looking device, said member being intended to be mounted overhanging at the van's extremities;

fig. 6 shows a second embodiment of said supporting cylindrical shaft provided with the mobile dowels only and intended to be mounted overhanging in the middle section of the railway-truck;

fig. 7 shows an example whereby the looking devices are mounted on a railway-truck specially conceived by

the Applicants, whereby the use of said looking devices allows said special railway-truck to ensure the so called intermodal traffic, i.e. whereby the carried containers and/or mobile boxes may be also of the type normally carriable only by road;

5 fig.8 shows a transversal sectional view of a truck whereby the two loading surfaces having different levels are indicated in association with the respective type of carriable containers and/or mobile boxes;

10 fig.9 shows a second embodiment of the mobile plate and the supporting shaft allowing said shaft to be jointed to said plate.

The looking device shown in fig.1, comprises a cylindrical supporting member(1).

Said cylindrical supporting member(1) may be either a steel pipe or a massive steel shaft having a suitable mechanical strength.

20 Said cylindrical supporting element(1), as well as the supporting shaft(10) described hereafter, are intended to be overhanging connected and fastened parallel to the longitudinal framework of a standard railway-truck by means of means of supporting brackets(12).

25 A fixed plate(2) supporting a fixed dowel(3), which is integral part of said fixed plate(2), is made integral part of said cylindrical supporting member(1) e.g. by welding.

Said fixed supporting plate(2) is provided with fastening means which allow a mobile plate(4), carrying a dowel(5) which is integral part of said mobile plate(4), to be fastened in a position where said mobile plate(4), and consequently said mobile dowel(5), overlap said fixed plate(2) and consequently said fixed dowel(3).

The surface(2a) of the plate (2) supporting the fixed dowel 3 (fig.1c.) is at a lower level than the surface(4a) of the mobile plate(4) supporting the dowel (5).

Said surfaces (2a) and (4a) provide respectively the surfaces of the two loading platforms whose levels differ, from each other, by nearly 170 mm.

The loading platform defined by the surfaces (2a) of the fixed plates (2) is intended for carrying the special boxes with a "tunnel" bottom and has a lower level (see fig.8) while the loading platform defined by the surfaces(4a) of the mobile plates (4) is intended for carrying the standard flat bottom containers and has an higher level over the plane where both the rails of the railway-line lie.

The reciprocal interlocking of the mobile plate(4) on the fixed plate(2) is obtained, on one side, by means of a protruding nose(6a) making integral part of a handle(6) which is hinged to the mobile plate(4) by means of a hinge-pin or bolt(6b)(fig.1c).

Said protruding nose (6a) is intended to cooperate with an opening(2c)(figs.1d - 2b) foreseen for this purpose in the body of said fixed plate(2).

The reciprocal interlocking of the mobile plate(4) on the fixed plate(2) is completed, on the other side, by means of a gib(7)(figs.1c and 1d) against which abuts a stop-peg(4c) at the opposite end of said same mobile plate(4).

The fixed plate(2) further shows a horizontal edge(2d), contacting said supporting shaft(1), which is so shaped as:

- a) to cooperate to the reciprocal interlocking of plates(2) and (4);
- b) to provide support and housing for stiffening webs (4e), provided on said mobile plate(4), when said mobile plate(4) is mounted on said shaft(1) in a working position

where it overlaps said fixed plate (2).

When not mounted in said working position where it overlaps said fixed plate (2), said mobile plate (4) is sliding fitted to said supporting cylindrical shaft (1) as described hereafter.

Hence the mobile plate (4), when unclamped from the fixed supporting plate (2), may slide on the shaft (1) and assume a new working position non-overlapping that of the fixed plate (2) (figs. 3a and 3c) and may be there fastened by

means of a first gib (7) similar to hereabove mentioned one, against which abuts the same stop-peg (4c), and of a second gib (9) so shaped as to have simultaneously a supporting function for the stiffening webs (4e) of said mobile plate (4) and a locking function when cooperating with the protruding nose (6a) of the handle (6).

The gib (7) has a length d such that it may be inserted between the laterally extending bosses (4f) of the stop-peg (4c) (fig. 3d).

In the middle section of the railway-truck the overhanging connected supporting shaft (1) (fig. 5) is replaced by a differently embodied supporting shaft (10) (fig. 6) because in said middle section of the railway-truck the locking device is used without the fixed supporting plate (2) for the fixed dowel 3; in fact in said middle section the locking device is not foreseen for the transport of the mobile boxes with a "tunnel" bottom and having the conventional length less of 40 feet (group 4) (see fig. 7).

In opposition to the embodiment for the supporting shaft 1, said shaft (10) is provided with suitable means to allow the supporting mobile plates (4) of the mobile dowels (5) to be tilted (figs. 4a and 4c), avoiding thus that said supporting plates (4) may prevent the containers to rest upon, as well

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the flat bottom containers as the containers both with flat bottom or with "tunnel" bottom, but having a length exceeding one half of the length of the truck, i.e. a length exceeding 20 feet and anyway a maximum length of 40 feet.

5 Said means for allowing the supporting plates(4) of the mobile dowels(5) to be tilted by pivoting around said supporting shaft(10) consist in the gibs(11) against which abuts the edge (4g) of the mobile plate (4) when this later is pivoted around said supporting shaft(10) into the tilted position.

10 A cam-like piece (8), pivotably hinged at the end(4d) of the mobile plate(4) on a hinge-pin or bolt (8a) (figs. 3c and 3d), has the function of allowing said mobile plate 4 and said cylindrical supporting shaft 1 or 10 to be received and housed within each other and simultaneously of ensuring a stable sliding-fitting of said mobile plate(4) on said shaft (1 or 10), once they are housed within each other.

15 Said mobile plate (4) (figs. 1c and 3c) in fact forms for this purpose a collar (4b) having the form of a nearly half-cylindrical housing in which, between the closest points, there is a distance C1 exceeding the external diameter ϕ 1 of the shaft or pipe (1 or 10) so as to allow it to be received and housed inside said nearly half-cylindrical housing (4b).

20 Then, by applying the camlike piece (8), the length of the arc of circle on the external surface of the shaft (1 or 10) embraced by said collar (4b), is increased up to a length exceeding the length of the half circumference of said shaft (1 or 10) and consequently a distance C2' is obtained between the closest points of the collar's mouth, which is less than the diameter ϕ 1 of the pipe or shaft (1 or 10).

By means of this structure the supporting mobile plate 4, on account of its nearly half-cylindrical housing(4b), may either be housed around said supporting shaft(1 or 10) and there fastened when said cam-like piece(8) is in active position, or withdrawn from said shaft(1 or 10) when said cam-like piece(8) is in non-active position. By means of said structure the mobile plate(4) will be, in any case, fastened and even not fastened in that tilted, retained around said supporting shaft(1 or 10).

10 From the preceding disclosure it is to be appreciated that, for the transport of the "type 4" mobile boxes with a "tunnel" bottom, if between the two main frame members constituting the supporting frame of the railway-truck the transversal distance is less than the

15 "tunnel's" width, i.e. if said distance is such that the main frame members and the brackets(12) supporting the shaft(1 or 10)(see figs.7 and 8) may find place inside the "tunnel" itself, then the mobile boxes with a "tunnel" bottom may support themselves with their

20 two longitudinal side frame members, constituting the frame of the "tunnel", into the fixed plates(2) supporting the fixed dowels(3).

In this situation said mobile boxes with a "tunnel" bottom may support themselves on a loading platform formed by the surfaces(2a) of said fixed plates(2) and which is located at a level, over the plane where the rails lie, which is reduced by 170 mm. over the standard known level in railway traffic and which is thus nearly

25 at a distance of 1000 mm. from the surface of the rails instead of 1170 mm.

30 In fig.8 the difference between the supporting levels H1 of the fixed dowels and H of the mobile dowels is

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clearly pointed out, i.e. the difference between the level H of the loading surface where the containers with a flat bottom have to lie and the level H1 of the loading surface where the containers with a tunnel bottom have to lie in order to be both inside the maximum allowed standard height in the railway traffic.

By way of example in fig.7, which is to be read according to the explaining table there joined, there are shown the transport facilities of one of the modules of a multiple truck having (5) modules and (6) bogies, said truck being particularly specialized and optimized for transporting mobile boxes and containers in the inter-modal traffic.

On said truck the complete locking devices i.e. having a fixed (2) and a mobile plate (4) with the corresponding dowels, are mounted per pairs only on both the extremities of the truck so as to allow the transport of mobile boxes with a "tunnel" bottom or with a flat bottom both of the type 4: the distance (marked with a ■) between the fixed plates (2), i.e. between the corresponding dowels, is of m. 11.985 ± 5 .

The position of the locking device on the supporting cylindrical shaft (1) must be such that the fixed plate (2) and the corresponding dowel will be on that side which is the nearest to the middle of the truck so as to allow, when necessary, the mobile plate (4) and the corresponding dowel to be glided only towards the corresponding extremities of the truck.

This avoids the necessity of tilting the mobile plates 4 and the corresponding dowels at the van's extremities when whatever container either with a flat bottom or with a "tunnel" bottom has to be loaded on the truck.

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Said tilting of said mobile plate (4) and dowel (5) is, on the contrary, necessary when considering the mobile plates (4) mounted on the cylindrical shaft or pipe (10) which is overhanging connected by brackets (12) on the middle section of the truck and when mobile boxes or container have to be loaded whose length exceeds the half length of the truck.

In any case the pairs of shafts (1) supporting the complete locking devices showing both the fixed and the mobile plates and dowels have to be mounted at a distance from each other such as required by the length of the mobile boxes with a "tunnel" bottom.

The new locking device provides for further economical and technical advantages when used with the modular railway-truck expressly developed by the Applicants for the intermodal traffic.

In fact by means of four complete locking devices, showing both the mobile and the fixed plates and dowels, and by means of only four mobile plates and dowels, it is possible to look on to the truck alternatively:

- special containers (mobile boxes) of the group 4 with a "tunnel" bottom, or - with a flat bottom, or
- a 40 feet long container (as marked with a ■ on fig. 7), or
- two 20 feet long containers simultaneously, or
- two mobile boxes either of the group 1 or 2 (as marked with a ▲ on fig. 7), or
- a single container of the group (3) (as marked with a ● on fig. 7).

The sliding fitting between the mobile plate (4) and the cylindrical supporting shaft (1 or 10) may be realised also when the nearly half-cylindrical housing 4b surrounds the external surface of said cylindrical shaft (1 or 10)

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along a sector of circle subtended by an angle at the center exceeding 180° .

In this case, in order to allow said half-cylindrical housing(4b) to receive and house inside itself said supporting shaft(1 or 10), it is necessary that on the external surface of said supporting shaft(1 or 10) a cylindrical sector 13 is taken-off whose length exceeds the maximum width 1 of the mobile plate(4)(fig.3d) and whose transversal section is a segment of circle of suitable dimensions i.e. of suitable height, so as to suitably reduce the diameter ϕ 1 of said shaft(1 or 10) to a length C2' corresponding to the dimension of the mouth of the half-cylindrical housing (4b) of said mobile plate (4) whereby this later may receive and house within itself said supporting shaft (1 or 10) or may be withdrawn when for any reason necessary. Once the supporting shaft is received and housed within the half-cylindrical housing (4b), the previously taken-off cylindrical sector (13) may be reinserted in its seat and there fastened by means of screws or any other suitable fastening means.

While the invention has been herein specifically described with respect to a preferred embodiment thereof, it will be understood that plenty of variations may be made therein e.g. in the shapes to be given:

- a) to the fixed and mobile plates and dowels,
- b) to the fastening and tilting means, and
- c) in the materials to be used for the mechanical parts whereby the use of high resilient non-ferrous materials may be easily conceived, all without departing from the scope and purpose of the present invention.

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CLAIMS

1. A looking device for coupling standard and/or special containers and/or mobile boxes on to standard railway-trucks whereby said special containers and/or mobile boxes, presently forseen for being transported by road only, may also be transported by rail alone or together with said standard containers and/or mobile boxes, characterised by the provision of a fixed dowel (3), a mobile dowel (5) and a cylindrical supporting element (1, 10) to be overhanging connected parallel to the longitudinal framework of said trucks; said fixed dowel (3) being supported by a fixed plate (2) having been made integral part of said cylindrical supporting element (1,10); said mobile dowel (5) being supported by a mobile plate (4) adapted to be sliding fitted to said cylindrical supporting element (1, 10) either in a position overlapping the position of said fixed dowel (3) or in another working and/or non-working position; said cylindrical supporting element (1, 10) being for this purpose provided with clamping means for clamping said mobile plate (4) in other working and/or non-working positions; said fixed plate (2) being so shaped as to provide a loading surface located at a level which is lower than the level of the loading surface provided by said mobile plate (4) supporting said mobile dowel (5); said fixed dowel (3) being intended for providing a suitable loading surface whereupon said special containers and/or mobile boxes having a "tunnel" bottom and a larger than standard height may be looked on to said railway-trucks, while said mobile dowel (5) is intended for providing a suitable loading surface whereupon said containers and/or mobile boxes having both standard flat

bottom and standard height may be looked on to said railway-trucks.

2. A locking device according to Claim 1 whereby said fixed plate (2) supporting said fixed dowel (3) and having been made integral part of said cylindrical supporting shaft (1,10) is provided with fastening means allowing that said mobile dowel (5) is jointed to said supporting shaft (1, 10) in a position overlapping the position of said fixed dowel (3); said fastening means consisting in the shape of an horizontal edge (2d) of said fixed plate (2) contacting said supporting shaft (1, 10); said horizontal edge (2d) being so shaped as to provide support and housing for stiffening webs (4e) provided on said mobile plate (4); said fastening means further comprising an opening (2c) whereby a protruding nose (6a), making integral part of a handle (6), may be inserted; said handle (6) being pivotably hinged to said mobile plate (4) on a hinge-pin 6b; the fastening action is completed by the provision of a gib (7), located nearly diametrically opposed to said horizontal edge (2d) of said fixed plate (2), having been made integral part of the surface of said supporting shaft (1,10), extending parallel to the axis of said supporting shaft (1,10) and having such a length d as to allow said gib (7) to be inserted in a housing formed by a stop-peg (4c) and by lateral extending bosses (4f) of the extremity of said mobile plate (4) nearly diametrically opposed to the point of said mobile plate (4) where said handle (6) is pivotably hinged on said hinge-pin (6b).
3. A locking device according to Claim 1 whereby said mobile plate (4) comprises a nearly half-cylindrical housing (4b) for receiving and housing said

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supporting shaft (1, 10); the minimum distance (C1) between two opposed generating lines of the internal cylindrical surface of said half-cylindrical housing (4b) exceeding the diameter ($\emptyset$ 1) of said supporting shaft (1, 10) in order to allow said supporting shaft (1,10) to be inserted and withdrawn from said half-cylindrical housing (4b).

4. A locking device according to Claim 3 whereby said mobile plate (4) is sliding fitted to said supporting shaft (1, 10) by means of a cam-like piece (8) pivotally hinged on a hinge pin to said mobile plate (4) at its extremity (4d) nearly diametrically opposed to the point of said mobile plate (4) where said handle (6) is pivotally hinged on said hinge-pin (6b); said cam-like piece (8) is so shaped as to increase the length of the sector of circle embraced by said half-cylindrical housing (4b) on said cylindrical supporting shaft whereby the length (C2) of the subtended chord is less than the diameter ($\emptyset$ 1) of said supporting shaft.

5. A locking device according to Claim 3 whereby said mobile plate (4) is sliding fitted to said supporting shaft by means of a cam-like piece (8) pivotally hinged on a hinge-pin to said mobile plate (4) at its extremity (4d) nearly diametrically opposed to the point of said mobile plate (4) where said handle (6) is pivotally hinged on said hinge-pin (6b); said cam-like piece (8) is so shaped as to increase the length of the sector of circle embraced by said half-cylindrical housing (4b) on said cylindrical supporting shaft whereby the length of said sector of circle so embraced and defined by a chord (C2) exceeds one-half of the circumference of said supporting shaft.

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6. A locking device according to Claim 1 whereby said mobile plate (4) comprises a nearly half-cylindrical housing (4b) for receiving and housing said supporting shaft, said nearly half-cylindrical housing (4b) embracing a sector of circle on the external surface of said supporting shaft which is subtended by an angle at the center exceeding 180°.

7. A locking device according to Claim 6 whereby:
a) in order to allow said supporting shaft to be received and housed within said nearly half-cylindrical housing (4b), a cylindrical sector (13) is taken off in the external wall of said cylindrical supporting shaft, said cylindrical sector (13) having a cross section which is a segment of circle having an height such as to suitably reduce the diameter ($\emptyset 1$) of said cylindrical supporting shaft to a length (C 2') corresponding to the dimension of the mouth of said half-cylindrical housing (4b) and a length exceeding the maximum width of said mobile plate (4) when measured parallel to the axis of said cylindrical supporting shaft, and

b) in order to ensure that said nearly half-cylindrical housing (4b) is sliding fitted and retained on said supporting shaft once said shaft is received and housed within said nearly half-cylindrical housing (4b), said cylindrical sector (13), previously taken off, is reinserted at its place and there fastened by means of screws or other suitable fastening means once said cylindrical supporting shaft and said nearly half-cylindrical housing (4b) are housed within each other.

8. A looking device according to Claim 1 whereby said cylindrical supporting shaft (1,10) is further provided with additional fastening means to fasten said mobile plate(4) supporting said mobile dowel (5) in other working
5 positions not overlapping the position of said fixed plate (2) supporting said fixed dowel (3); said additional fastening means comprising first gibs (7) and second gibs (9) also having been made integral part of said supporting shaft (1, 10) but aligned along a generating line of
10 the external surface of said supporting shaft (1, 10) diametrically opposed to the generating line along which said first gibs (7) are aligned; said second gibs (9) being so shaped as to provide:

- a stable support and housing for stiffening webs (4e)
15 provided on said mobile plate(4), and
- a slot-like looking-up point intended to cooperate with a protruding nose (6a), making integral part of a handle (6) which is pivotably hinged to said mobile plate 4 on a hinge-pin (6b) whereby said handle (6) ensures the
20 correct fastening of said mobile plate(4) supporting said mobile dowel (5) on said supporting shaft (1,10) in working positions not overlapping the position of said fixed plate (2) supporting said fixed dowel (3).

9. A looking device according to Claim 8 whereby said
25 cylindrical supporting shaft (1,10) is further provided with third gibs (11) and whereby said mobile plate 4 may be tilted by pivoting around said supporting shaft (1,10); said third gibs (11) being nearly aligned with said second gibs (9) and so shaped as to provide a stable resting and housing abutement for said mobile plate (4)
30 when tilted by having pivoted around said supporting shaft (1, 10).

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10. Use of looking devices according to any preceding claim on railway-trucks for carrying standard containers and/or special mobile boxes with a "tunnel" bottom and of the group 4, said railway-trucks being either
5 with bogies or with two axles; whereby said looking devices are mounted per pairs and whereby said pairs of looking devices mounted at the extremities of said trucks comprise both the fixed plate (2) and the mobile plate (4), while said pairs of looking devices mounted
10 in correspondence of the middle-section of said trucks comprise said supporting shaft (10) deprived of said fixed plate (2) in order to allow said trucks to carry alternatively:
- containers having a length of 20 and 40 feet,
15 - mobile boxes of the groups 1,2,3, and 4, and even,
- mobile boxes with a "tunnel" bottom of the group 4 (fig.7).

11. Use of looking devices according to Claim 10 whereby the level (H) of the loading platform, measured with reference to the level of the rails surface,
20 red with reference to the level of the rails surface, may be reduced by 170 mm. whereby, when said mobile boxes with a "tunnel" bottom have to be carried, the level (H1) of said loading platform, measured with reference to said level of said rails surface, may be made
25 de nearly equal to 1,00 meter (fig.8).

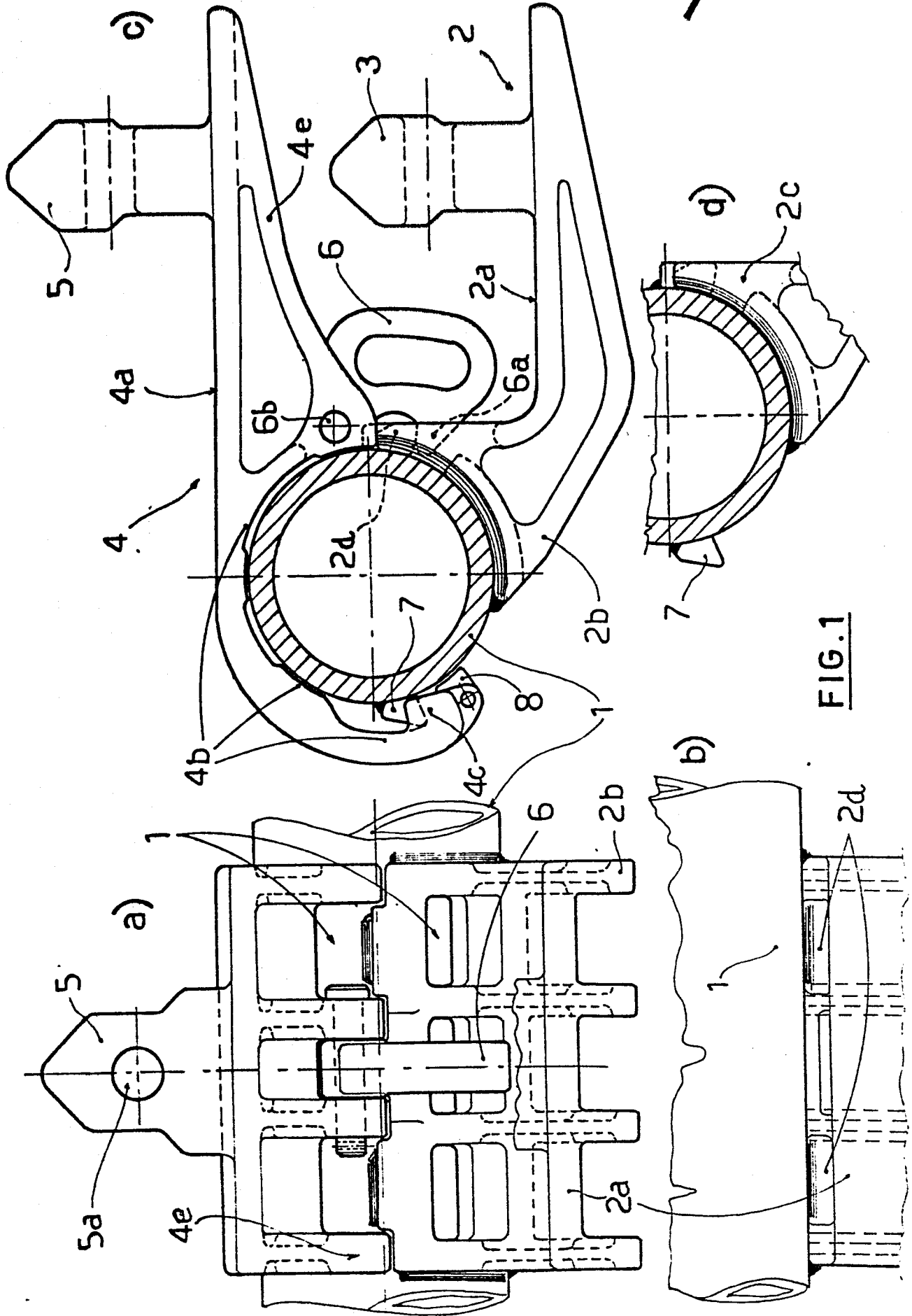


FIG. 1

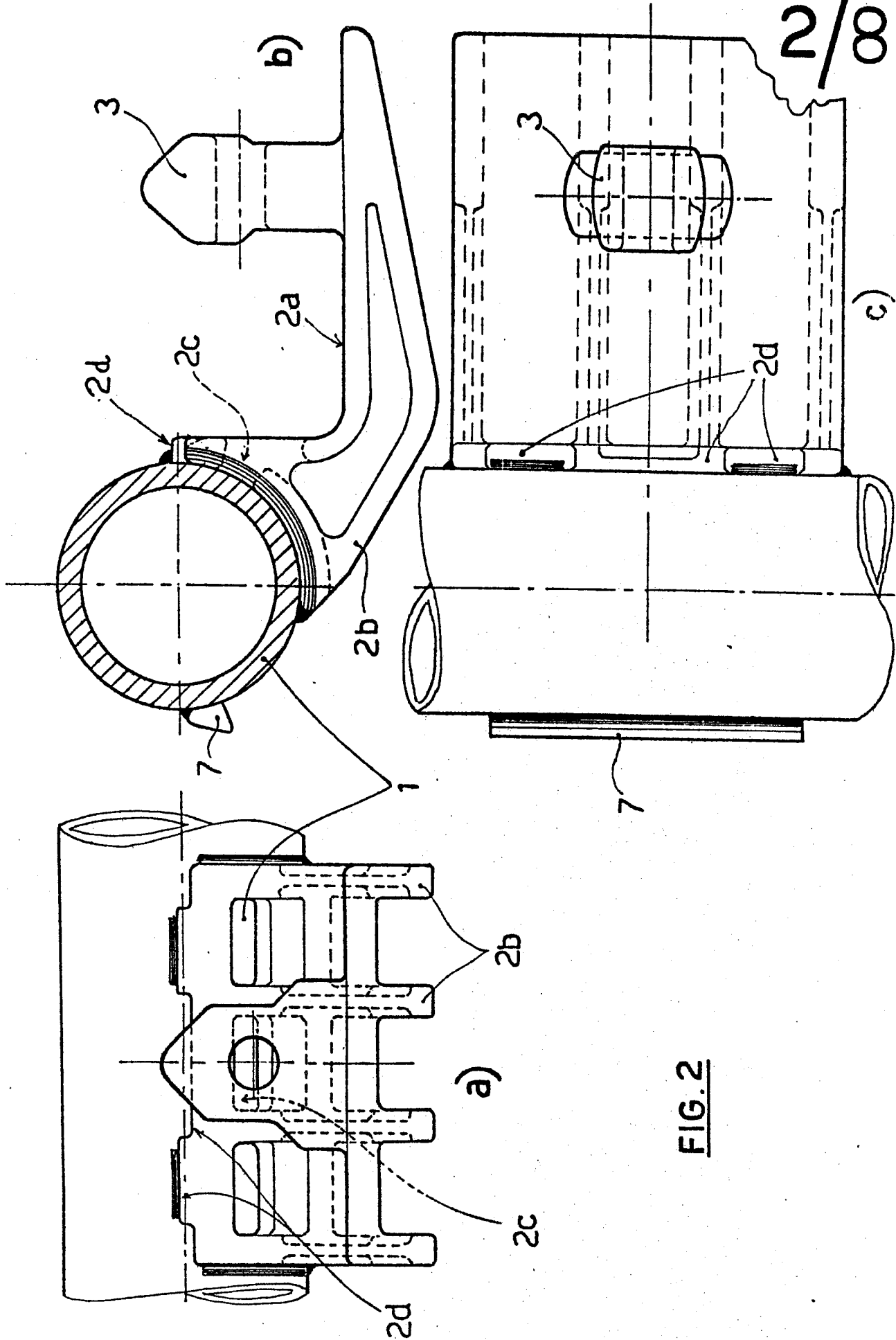
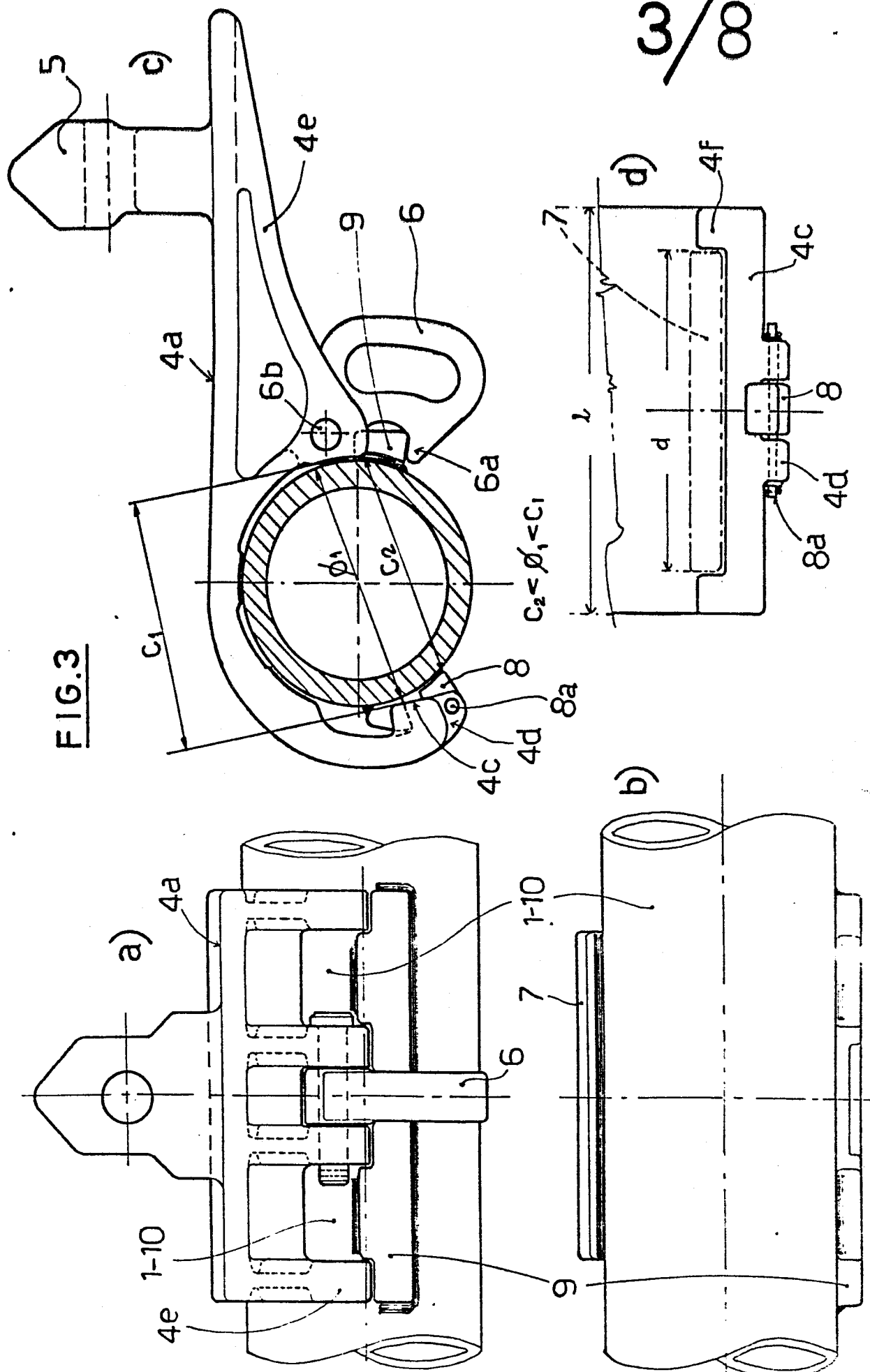
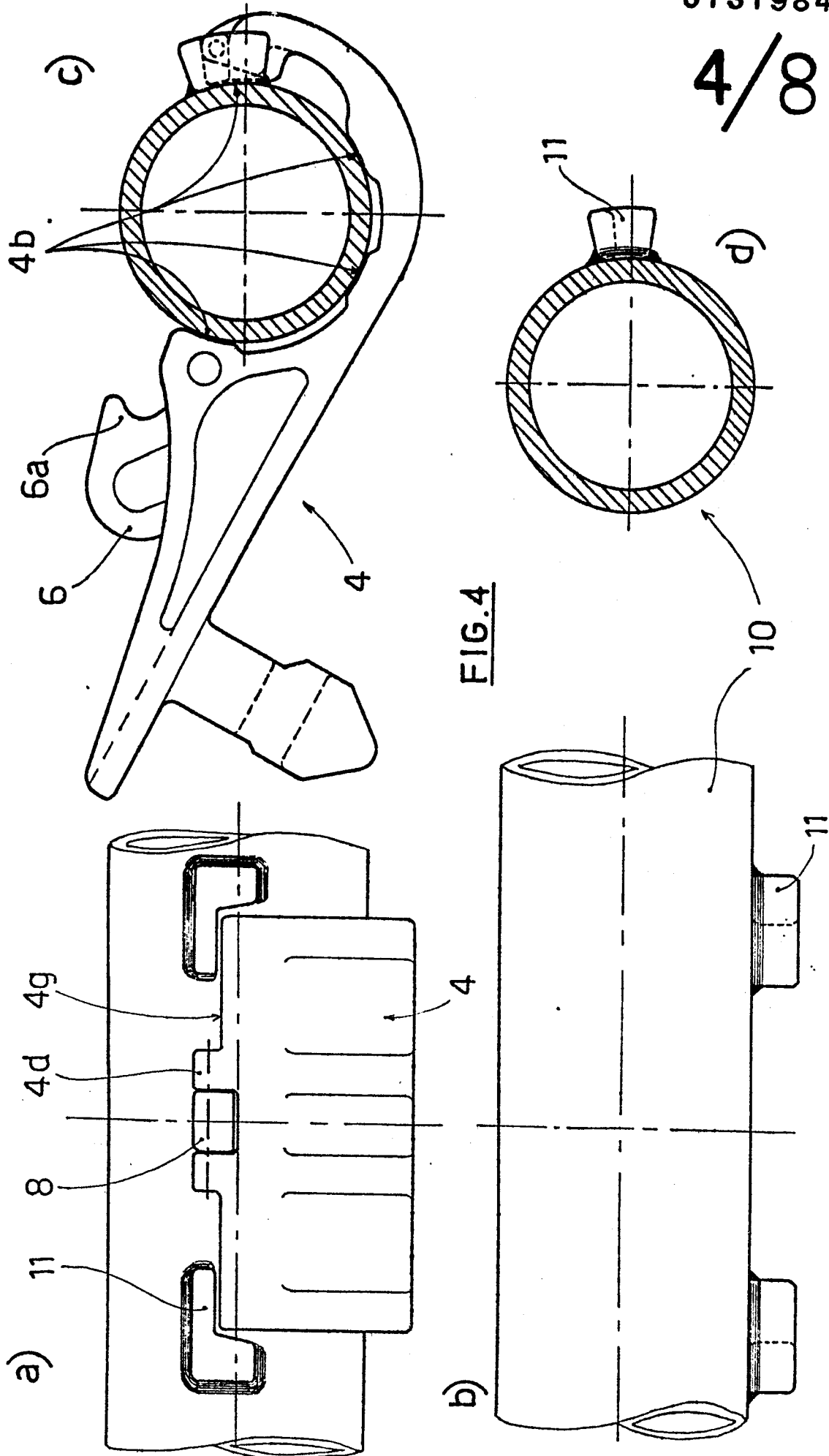


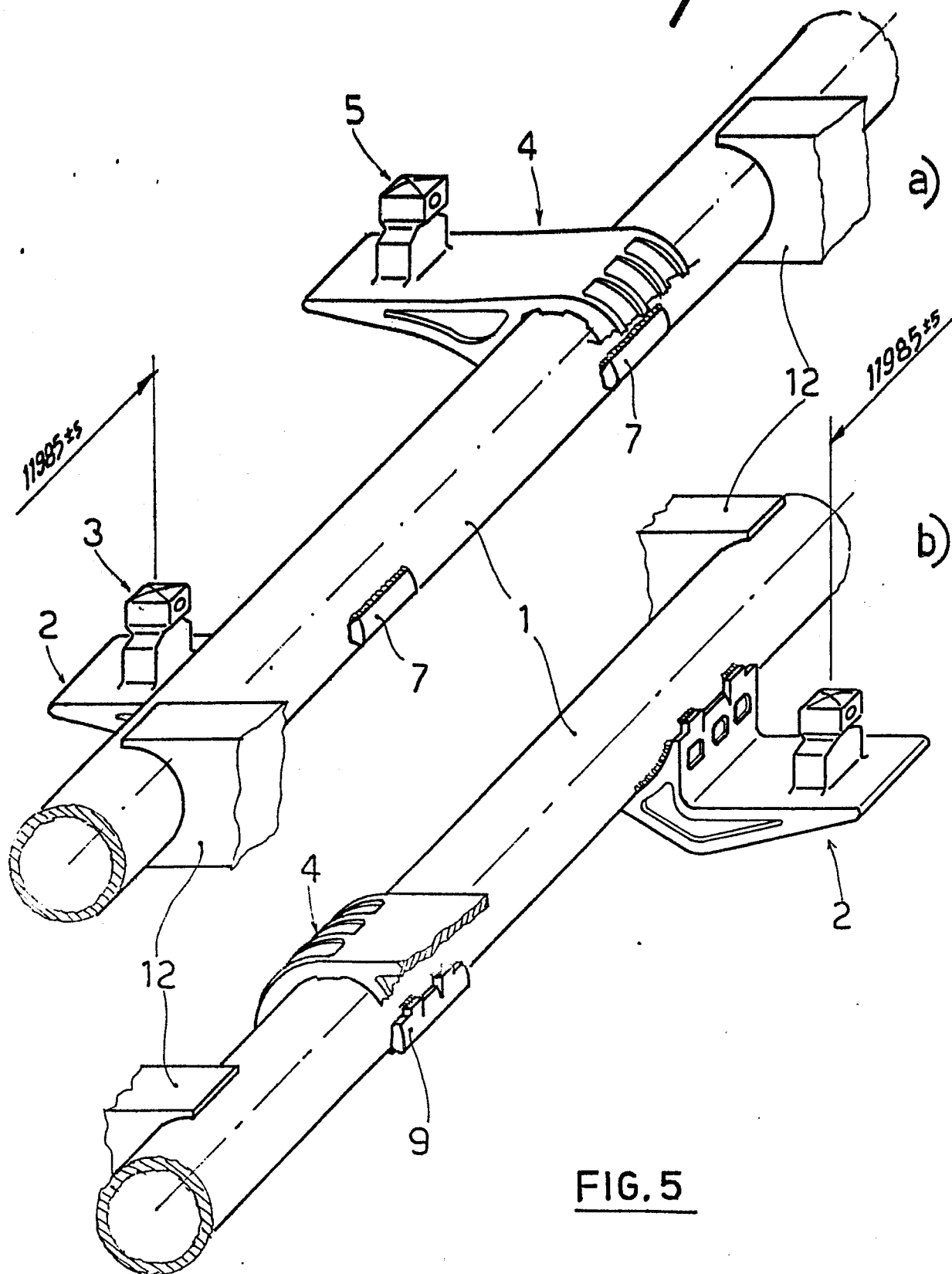
FIG. 2

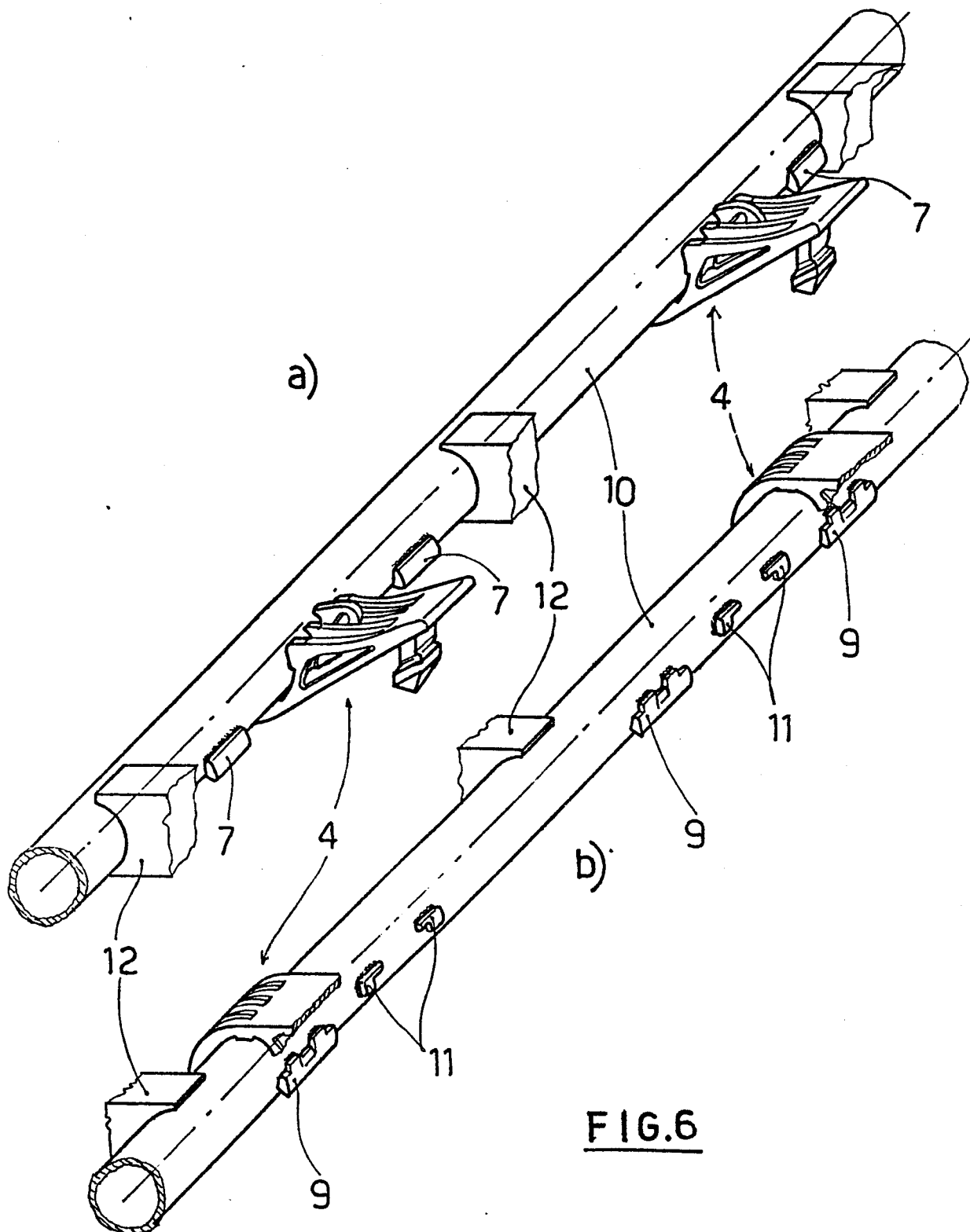
FIG. 3





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FIG. 5

FIG. 6

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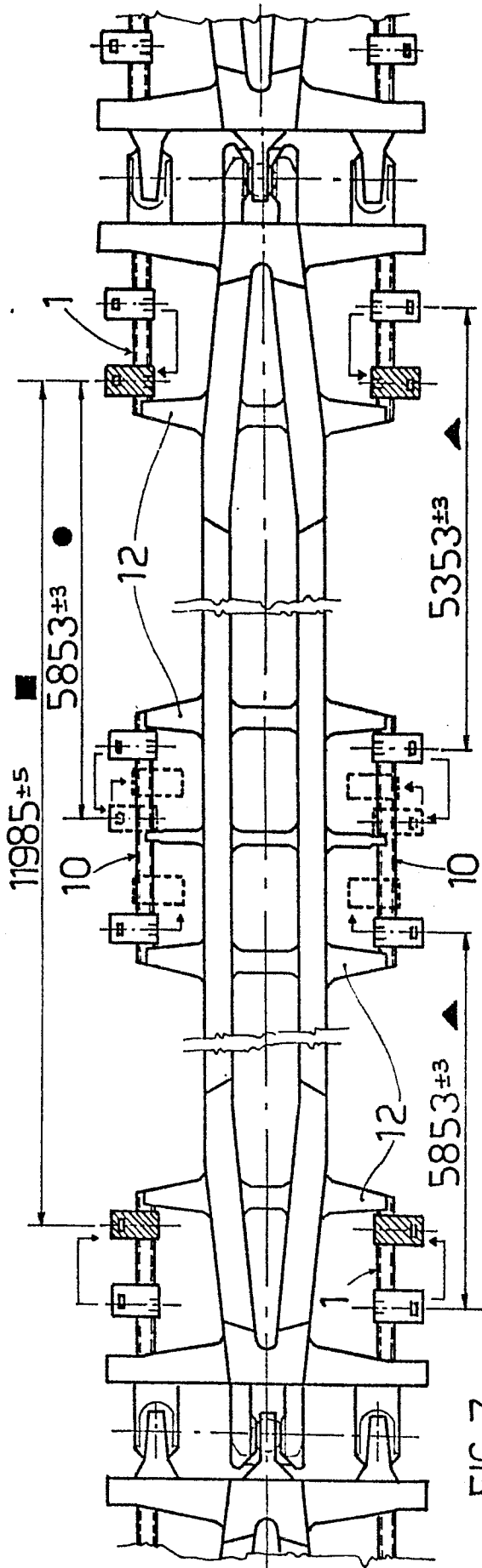
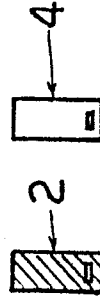


FIG. 7



Pos	GROUP CM	CONTAINER	LENGHT
▲	1		6250
	2		7150
●	3	20'	6055
■	4 ^{CH}		8050
		40'	12190
			12190

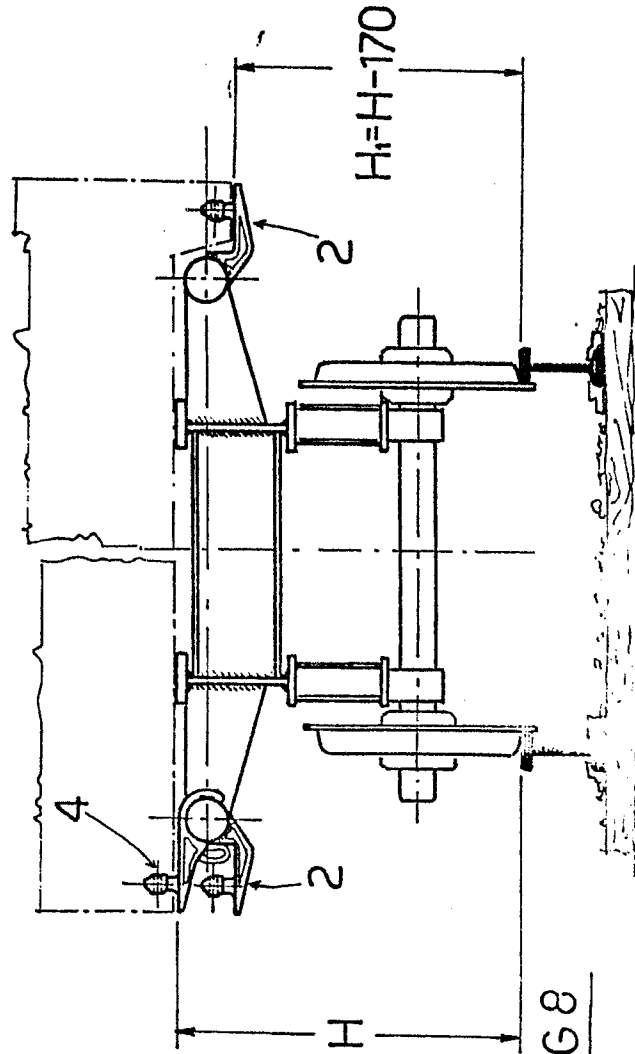


FIG. 8

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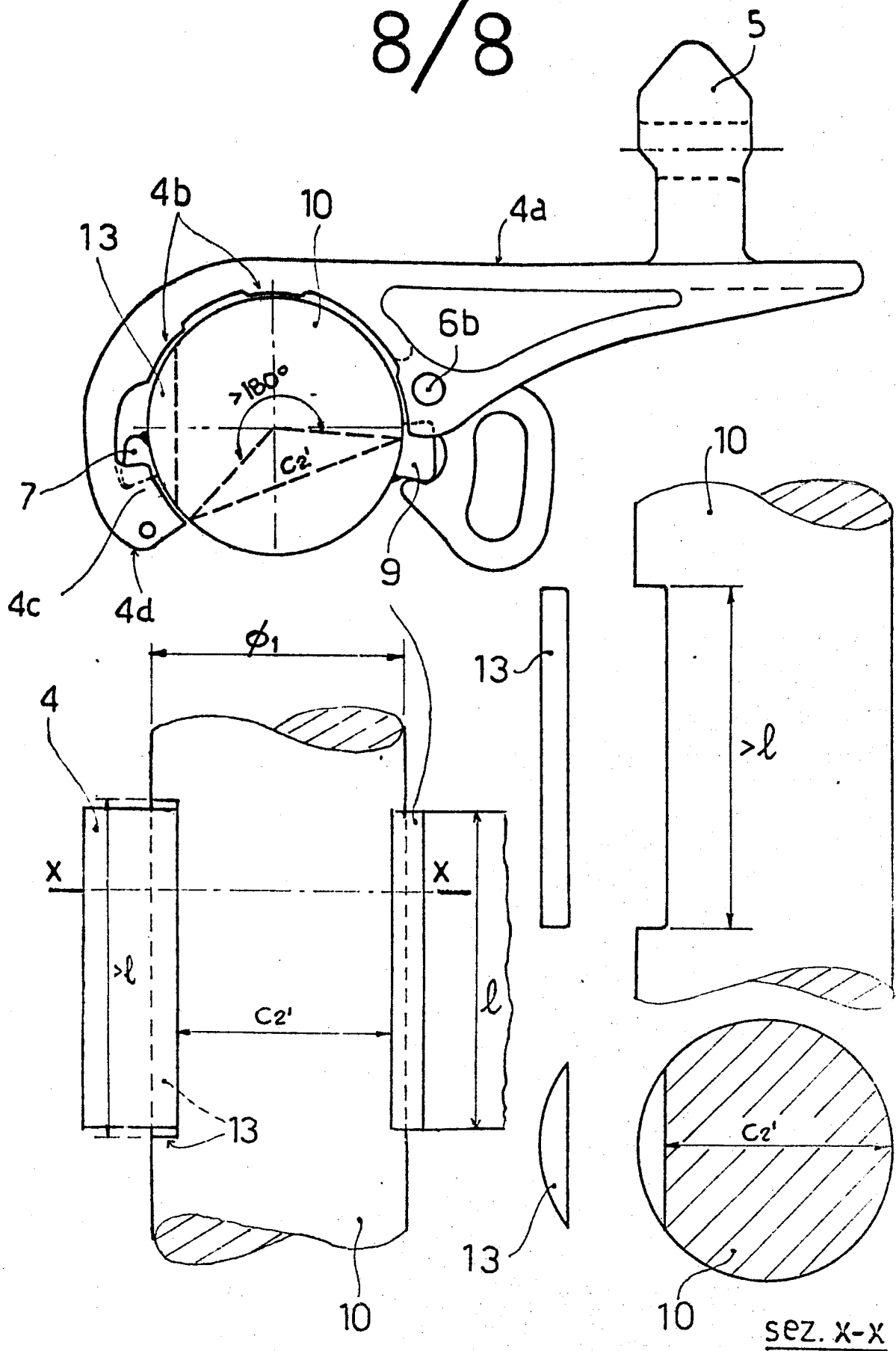


FIG. 9