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(54) A wheeled luggage

(57) A wheeled luggage including a case (A) formed with a recess (41) at two lower aligned corners, a pair of outer tubes (11) vertically fitted in a rear side of said case (A) and having a pair of holes (110) at one end, a pair of sleeves (12) each including a tubular portion (120) having a flange (1201) at one end, a groove (1202) under the flange (1201), and a pair of protuberances (1203) under the groove (1202) adapted to engage the holes (110) of one of the outer tubes (11), and slots (1204) on both sides of each of the protuberances (1203), a pair of intermediate tubes (13) each formed at one end with two first holes (131) and two second holes (132) under the first two holes (131), and at another end with two third holes (133) a pair of split collars (14) each including a tubular portion (141) formed with a flange (1411) having same outer diameter as the intermediate tubes (13) at one end, an annular groove (1412) under the flange (1411), and a pair protuberances (1413) under the groove (1412) adapted to engage the first holes (131) of the intermediate tubes (13), an inverted U-shaped member (15) having two legs each inserted into one of the intermediate tubes (13), a C-retainer (121) engaged with the groove (1202) of each of the sleeves (12), and a plug (152) threadedly engaged with each of the legs of the inverted U-shaped member (15) and formed with a slotted flange (1522) slightly larger than an inner diameter of the intermediate tubes (13).

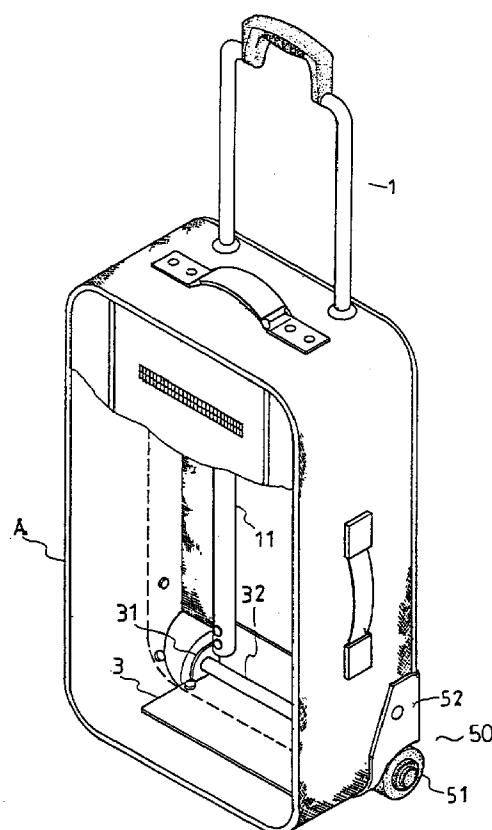


FIG. 1

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Description

This invention relates to an improved wheeled luggage.

It has been found that the conventional handles of luggage cases are unsatisfactory in use. However, such handles cannot be operated smoothly and steadily. Further, the conventional wheel assembly of luggage cases on the market is easily broken thereby often embarrassing the user and causing much inconvenience in use.

Therefore, it is an object of the present invention to provide an improved wheeled luggage which may obviate and mitigate the above-mentioned drawbacks.

This invention relates to an improved wheeled luggage.

It is the primary object of the present invention to provide a wheeled luggage having an extendable handle which can be steadily and smoothly extended and retracted.

It is another object of the present invention to provide a wheeled luggage having an extendable handle which can be firmly kept at an extended or retracted position.

It is still another object of the present invention to provide a wheeled luggage which has a multi-step handle.

It is still another object of the present invention to provide a wheeled luggage which is sturdy in construction and durable in use.

It is a further object of the present invention to provide a wheeled luggage which is fit for practical use.

Other objects and merits and a fuller understanding of the present invention will be obtained by those having ordinary skill in the art when the following detailed description of the preferred embodiment is read in conjunction with the accompanying drawings wherein like numerals refer to like or similar parts.

FIG. 1 is a perspective view of the present invention; FIG. 2 is an exploded view of the two-step extendable handle;

FIG. 3 is an exploded view of the three-step extendable handle;

FIG. 4 shows a second preferred embodiment of the three-step extendable handle;

FIG. 5 is a sectional view of the two-step extendable handle;

FIGS. 6A and 6B show the connection between the intermediate tube and the plug;

FIGS. 7A and 7B show the connection between the intermediate tube and the long plug;

FIG. 8 is a sectional view of the three-step extendable handle;

FIG. 9 shows a second preferred embodiment of the sleeve;

FIG. 10 shows the assembly of the second preferred embodiment of the sleeve;

FIG. 11 shows the connection between the second preferred embodiment of the sleeve and the luggage; and

FIG. 12 shows an exploded view of the wheel assembly.

With reference to the drawings and in particular to FIGS. 1, 2 and 3 thereof, the wheeled luggage according to the present invention mainly comprises a case A, two assemblies 50 mounted at an bottom edge of the case A, and an extendable handle 1 fixedly mounted on the rear side of the case A.

As illustrated, the extendable handle 1 mainly comprises a pair of outer tubes 11, a pair of sleeves 12, a pair of intermediate tubes 13, a pair of split collars 14, and an inverted U-shaped member 15. Each end of the inverted U-shaped member 15 is formed with a threaded hole 151 so that a first plug 152 is connected with the end of the inverted U-shaped member 15 by a screw 153 extending through the first plug 152 to engage the threaded hole 151 of the inverted U-shaped member 15. The first plug 152 is a cylindrical member 1521 formed at one end with a flange 1522 divided into a plurality of portions by slits 1523 and at another end with a recess 1524 adapted to receive the end of the inverted U-shaped member 15. The recess 1524 is formed at the center with a hole 1525 for the passage of the screw 153.

The intermediate tube 13 is formed at one end with two holes 131 and 132 for engaging the split collar 14 and at the other end with a hole 133 for engaging a second plug 134. The second plug 134 is a cylindrical member 1340 having a flange 1346 at one end and a pair of protuberances 1341 (only one of them is shown) at the other end. The flange 1346 is divided into a plurality of portions by notches 1347 and has a diameter slightly larger than the inner diameter of the outer tube 11. The protuberances 1341 is provided with a slot 1342 at both sides thereof. The second plug 134 is formed with a center hole having an inclined inner surface 1344 at one end and having threads 1345 at the other end. The threads 1345 are adapted to engage a screw 135.

The split collar 14 includes a tubular portion 141 the inner diameter of which is the same as the outer diameter of the inverted U-shaped member 15. The tubular portion 141 is formed at one end with a flange 1411 having the same outer diameter as the intermediate tube 13, a groove 1412 under the flange 1411 adapted to engage a C-retainer 143, and a pair of protuberances 1413 (only one of them is shown) adapted to engage the holes 131 of the intermediate tube 13. On both sides of the protuberance 1413 there is a slot 1414 thus forming a resilient portion 1415.

The outer tube 11 is formed with a first pair of holes 110 at one end for engaging the sleeve 12 and a second pair of holes 111 at the other end for engaging a stopper 112 (see FIG. 8).

The sleeve 12 includes a tubular body 120 the inner diameter of which is the same as the outer diameter of the intermediate tube 13. The tubular body 120 has a flange 1201 at one end, an annular groove 1202 under the flange 1201 for engaging a C-retainer 121, and a pair of protuberances 1203 (only one of them is shown)

adapted to engage the holes 110 of the outer tube 11. On both sides of the protuberance 1203 there is a longitudinal slot 1204 thus forming a resilient portion 1205.

When desired to assemble a two-step handle, first fit a packing ring 142 over the tubular portion 141 of the split collar 14. Then, insert the split collar 14 into the intermediate tube 13, with the protuberances 1413 of the split collar 14 received in the holes 131 of the intermediate tube 13 and the annular groove 1412 of the split collar 14 not covered by the intermediate tube 13 (see FIG. 5). Thereafter, insert a leg of the inverted U-shaped member 15 into the intermediate tube 13 and engage the first plug 152 with the lower end of the leg. Then, insert the intermediate tube 13 into the case A through an upper panel A1 and engage the C-retainer 143 with the annular groove 1412 of the split collar 14 thereby keeping the intermediate tube 13 on the case A.

When desired to assemble a three-step handle (see FIGS. 3, 6, 7 and 8), first connect the intermediate tube 13 with the inverted U-shaped member 15 as described in the last paragraph. However, it is necessary to engage the packing ring 142 and the C-retainer 143 with the tubular portion 141 of the split collar 14. Then, insert the split collar 14 into the intermediate tube 13, with the protuberances 1413 of the split collar 14 received in the second holes 132 of the intermediate tube 13 and the flange 1411 of the split collar 14 contacting the upper edge of the intermediate tube 13. Then, insert the tubular portion 120 of the sleeve 12 into the outer tube 11. Thereafter, insert the intermediate tube 13 into the outer tube 11. Then, fit the plug 134 into the intermediate tube 13 and insert the outer tube 11 into case A through the upper panel A1 with the flange 1201 of the sleeve 12 on the upper panel A1. In the meantime, the groove 1202 of the sleeve 12 is located between the upper panel A1 and the outer tube 11. Then, engage the C-retainer 121 with the groove 1202 of the sleeve 12 thereby fixedly mounting the outer tube 11 on the case A. Thereafter, engage a plug 112 with the lower end of the intermediate tube 13 so as to prevent it from excessive retraction.

Referring to FIGS. 6A and 6B, when the screw 135 goes through the second plug 134, the inclined surface 1344 of the second plug 134 will be forced to go sideways thereby forcing the protuberances 1341 into holes 133 and fixing the second plug 134 in the lower end of the intermediate tube 13.

As the outer diameters of the flange 1522 of the first plug 152 and the flange 1346 of the plug 134 are slightly larger than the inner diameters of the intermediate tube 13 and the outer tube 11 respectively, there will be a positioning effect for the intermediate tube 13.

FIG. 4 shows another preferred embodiment of the second plug 134. As illustrated, the second plug 134 may be replaced with a long plug 136 which includes a tubular portion 1360 having a shoulder 1361, a flange 1362 having a larger diameter than the shoulder 1361, a plurality of longitudinal slots 1363, a pair of protuberances 1364, a recess 1365, and a threaded seat 1366. A inner plug 1367 is fitted into the long plug 136 and has a threaded

hole 3671 so that the inner plug 1367 can be fixed into the long plug 136 by a screw 135 extending through the threaded hole 1368 of the inner plug 1367 and the threaded seat 1366 of the long plug 136 (see FIGS. 7A and 7B).

FIG. 9 shows another preferred embodiment of the sleeve 12. As shown, the sleeve 12 may be replaced with a fitting member 2 including an annular member 22 and a head member 21. The head member 21 is formed with a tubular portion 211 and a flange 214 at the top of the tubular portion 211. From the flange 214 downwardly depend a plurality of leaves 212 each having a hook edge 213. The distance between of the leave 212 and the tubular portion 211 is slightly smaller than the thickness of the wall of the outer tube 11. The annular member 22 has a center hole adapted to receive the leaves 212 of the head member 21 and is formed with an inclined surface 221 at the outer edge (see FIG. 10). FIG. 11 illustrates the connection between the second preferred embodiment of the sleeve and the inverted U-shaped member 15.

Referring to FIG. 12, there is shown an exploded view of the wheel assembly 50 of the present invention. As can be seen, the case A is formed with a recess 41 at both corners for receiving a L-shaped base member 31. An axle 32 has two ends each extending through the L-shaped base member 31 into the recess 41 of the case A. A wheel protector 52 is mounted on the axle 32, with its hole 525 receiving the axle 32. Further, the wheel protector 52 has a contour adapted to the case 1 and has a first protecting side 521 and a second protecting side 522 on which there are a plurality of holes 523. The case 1 is also provided with corresponding holes 42 in alignment with the holes 523 so that the wheel protector 52 can be firmly mounted on the case A by rivets 53. In addition, the wheel protector 52 is formed with a recess 524 so that the wheel 51 can be disposed in the recess 524 and pivotally connected with the axle 32 by engaging a screw 211 with the threaded end 321 of the axle 32.

Claims

1. A wheeled luggage comprising:
 - a case formed with a recess at two lower aligned corners;
 - a pair of outer tubes vertically fitted in a rear side of said case and having a pair of holes at one end;
 - a pair of sleeves each including a tubular portion having a flange at one end, a groove under the flange, and a pair of protuberances under the groove adapted to engage the holes of one of said outer tubes, and slots on both sides of each of the protuberances;
 - a pair of intermediate tubes each formed at one end with two first holes and two second holes under the first two holes, and at another end with two third holes;
 - a pair of split collars each including a tubular

portion formed with a flange having same outer diameter as said intermediate tubes at one end, an annular groove under the flange, and a pair protuberances under the groove adapted to engage the first holes of said intermediate tubes;

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an inverted U-shaped member having two legs each inserted into one of said intermediate tubes;

a C-retainer engaged with the groove of each of said sleeves; and

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a plug threadedly engaged with each of the legs of said inverted U-shaped member and formed with a slotted flange slightly larger than an inner diameter of said intermediate tubes.

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2. The wheeled luggage as claimed in Claim 1, wherein each of said split collars is formed with a plurality of longitudinal slots.

3. The wheeled luggage as claimed in Claim 1, wherein said plug is formed with a pair of protuberances, longitudinal slots, and a center hole, said center hole having threads at one end and a convergent surface at another end.

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4. The wheeled luggage as claimed in Claim 1, wherein each of said sleeves is replaced with a fitting member including an annular member having a center hole and a head member engaged with the center hole of the annular member, said head member being formed with a tubular portion and a flange at an upper end of said tubular portion, said flange being provided with a plurality of downwardly depending leaves each having a hook edge.

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5. The wheeled luggage as claimed in Claim 1, wherein said plug is replaced with a long plug including a tubular portion having a shoulder, a plurality of longitudinal slots, a pair of protuberances, a recess, a threaded seat, and an inner plug fitted into the recess and threaded engaged with the threaded seat.

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6. The wheeled luggage as claimed in Claim 1, further comprising a wheel assembly including an axle mounted across the two lower aligned corners of said case, two wheel protectors each fitted in the recess of said case, two wheels each pivotally connected with an end of said axle.

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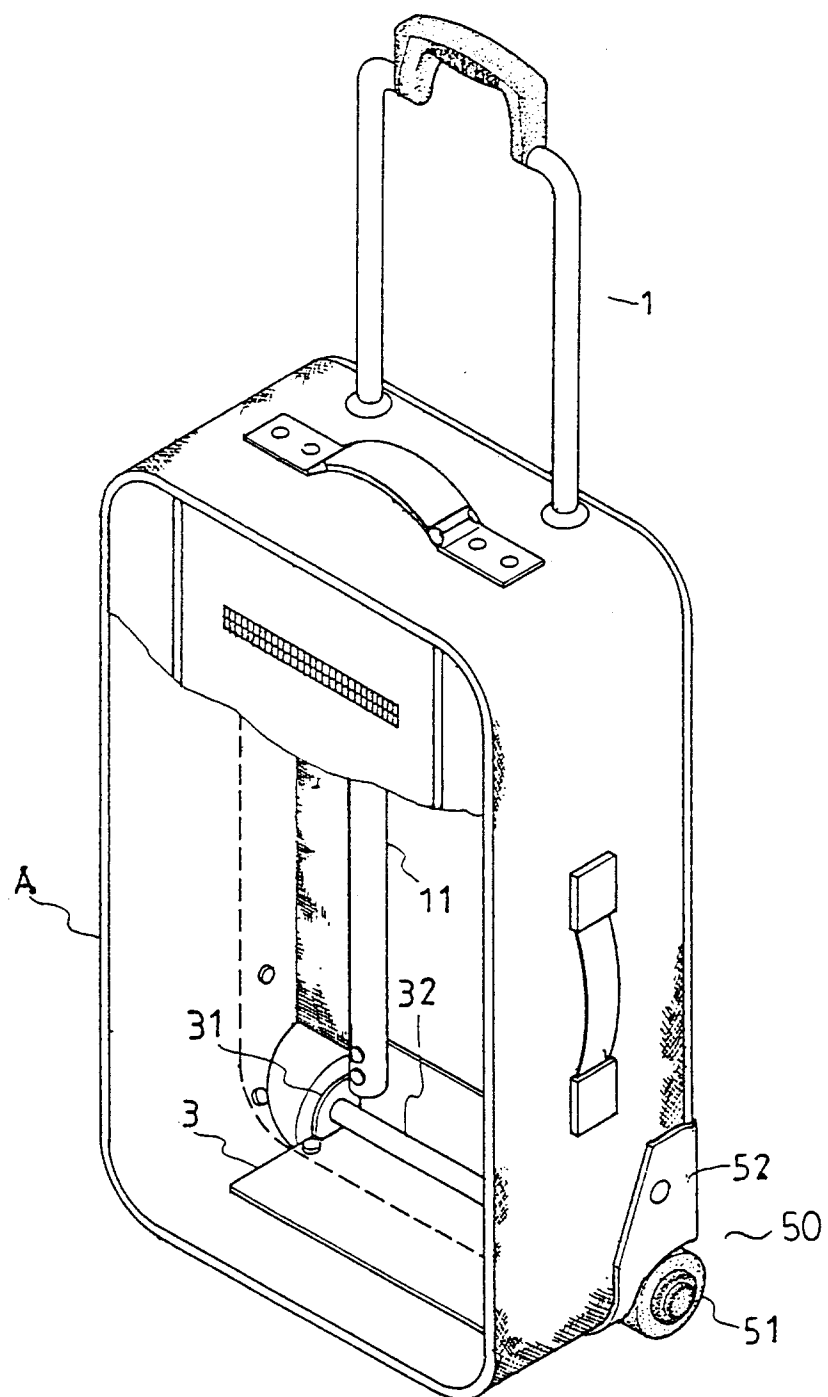


FIG. 1

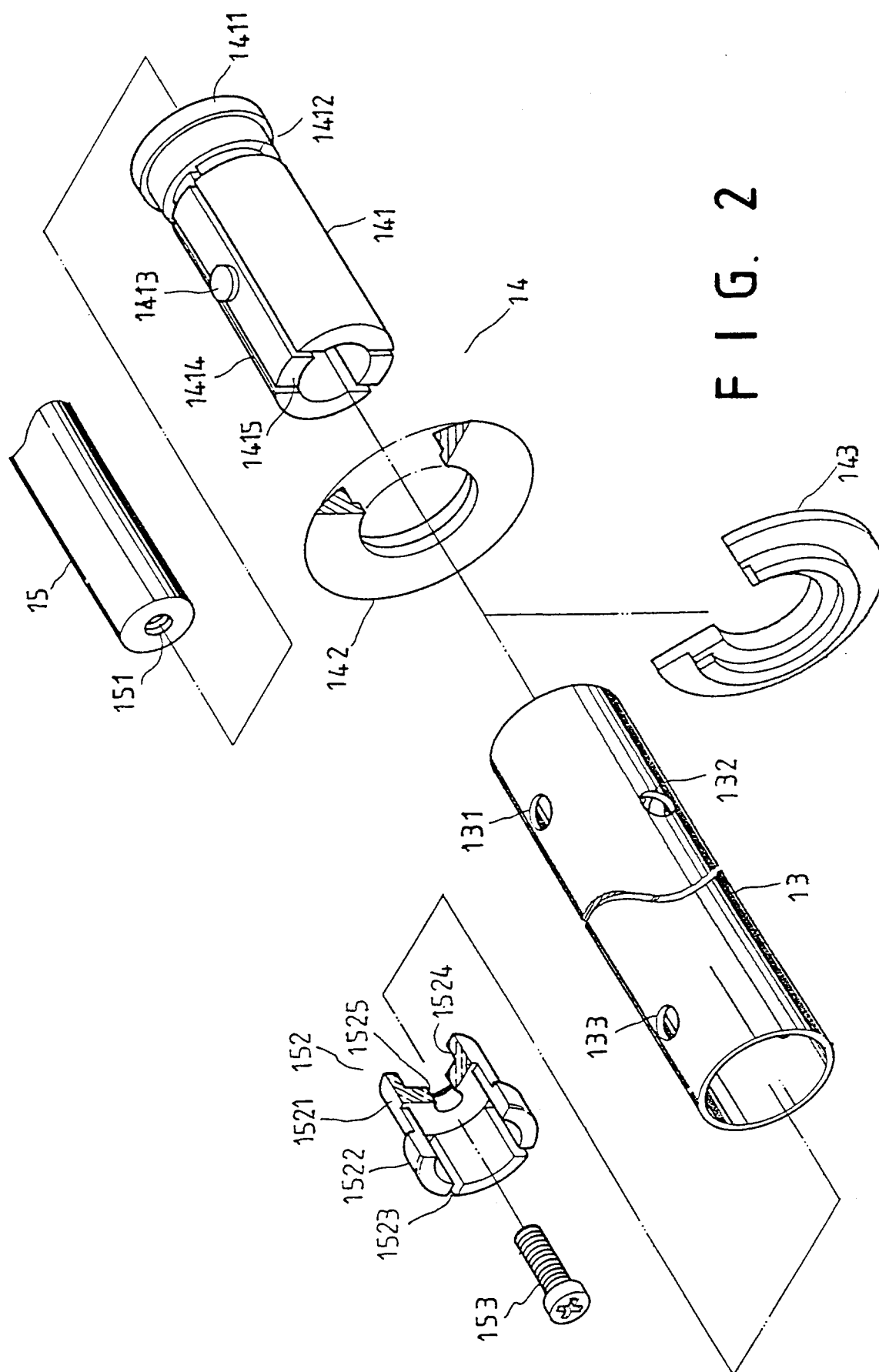
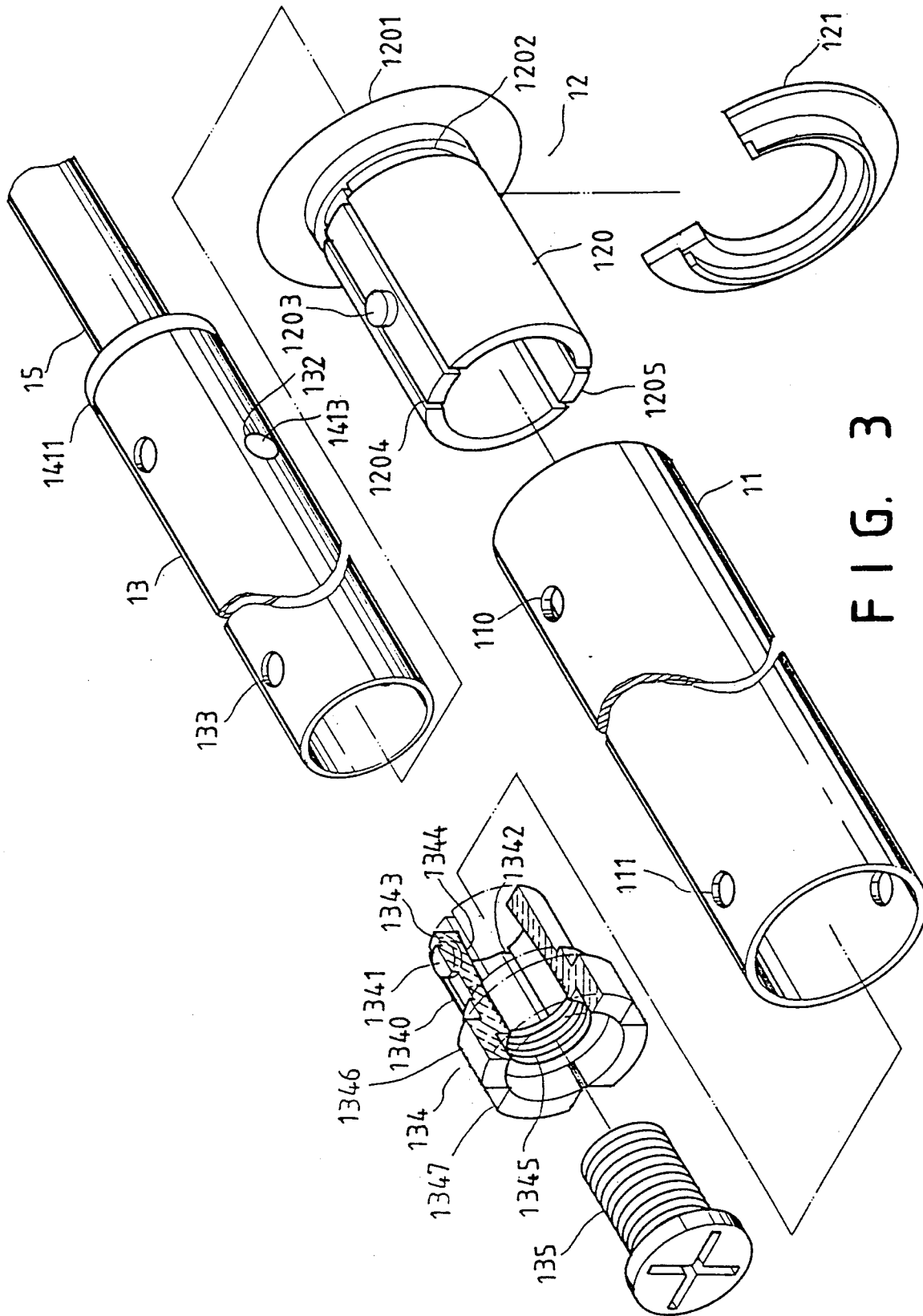
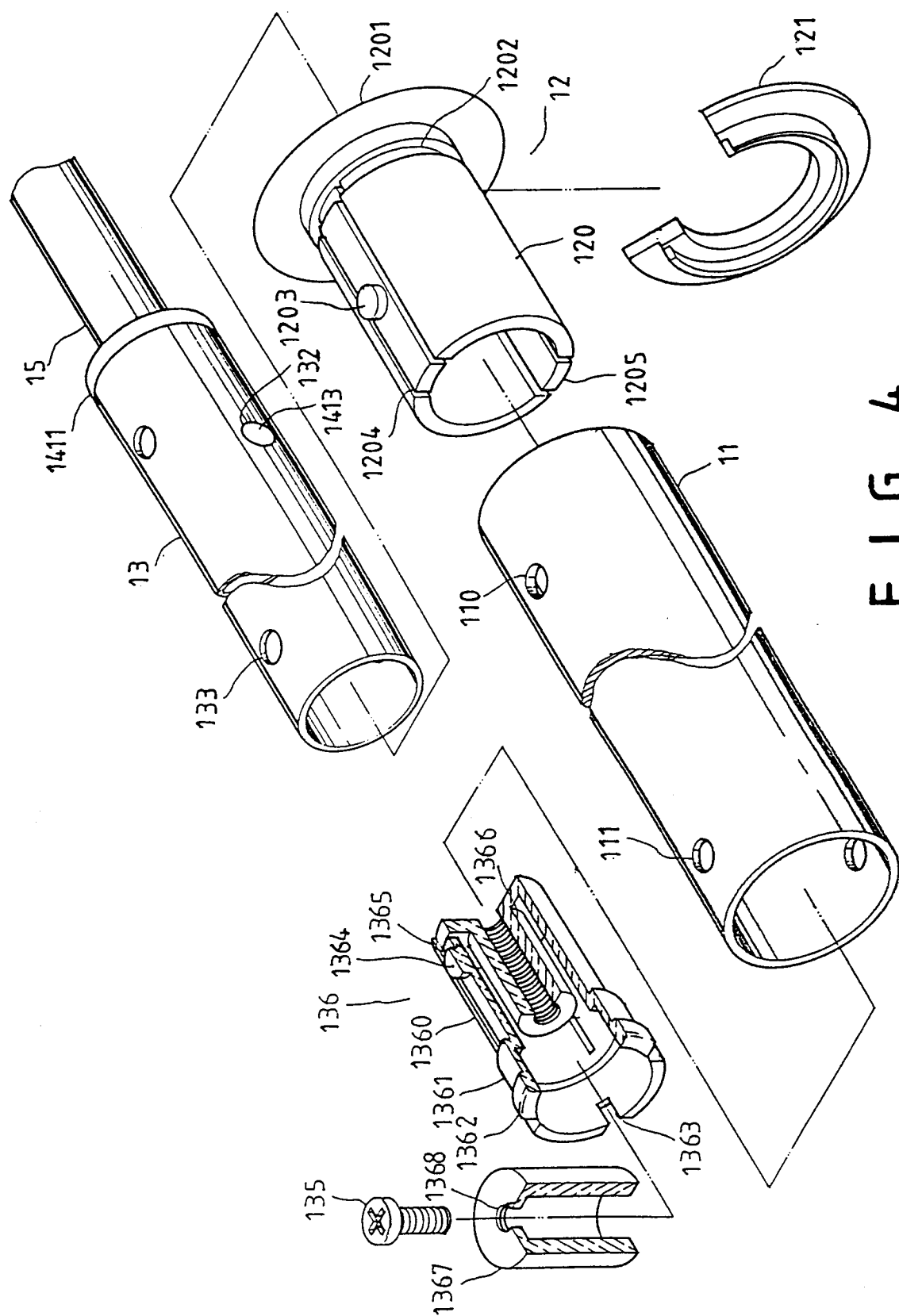
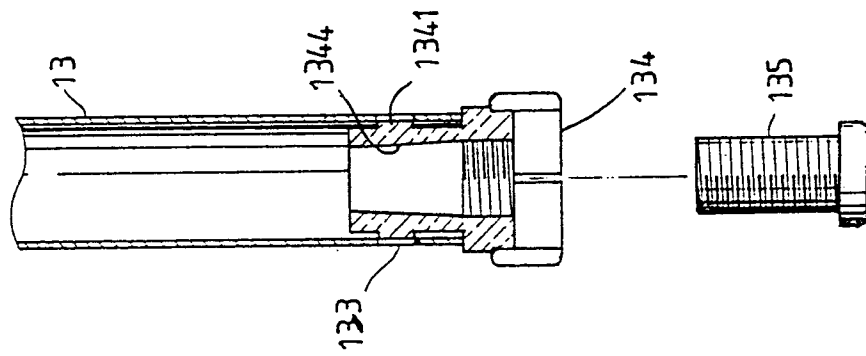
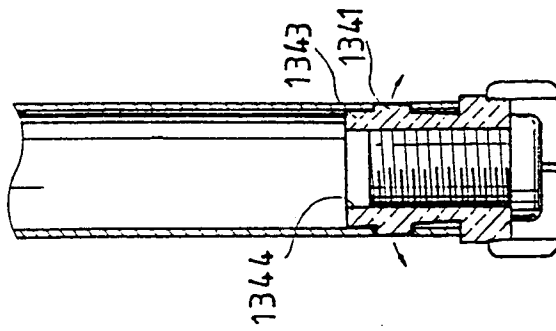
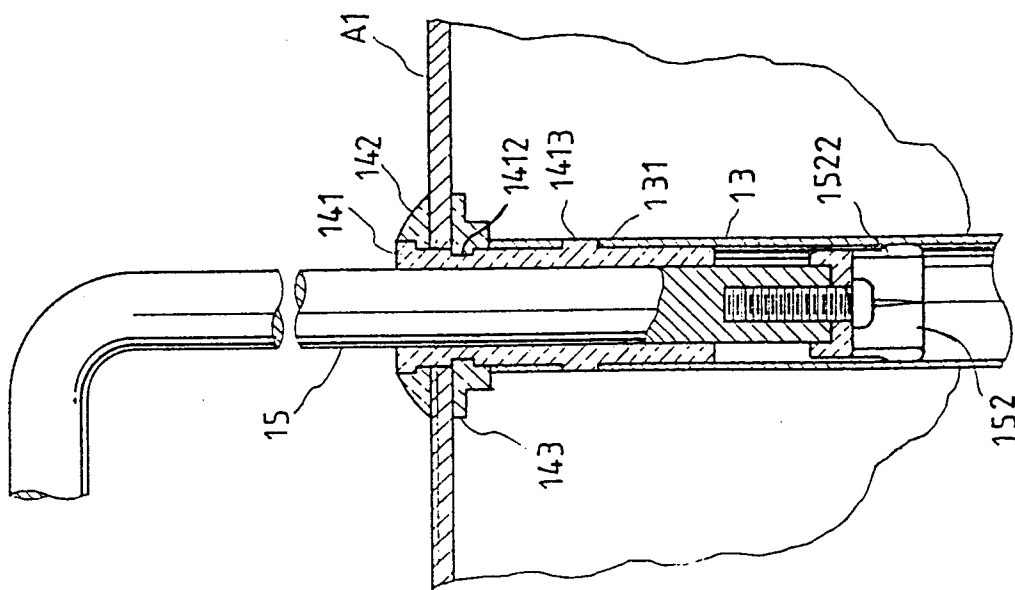


FIG. 2





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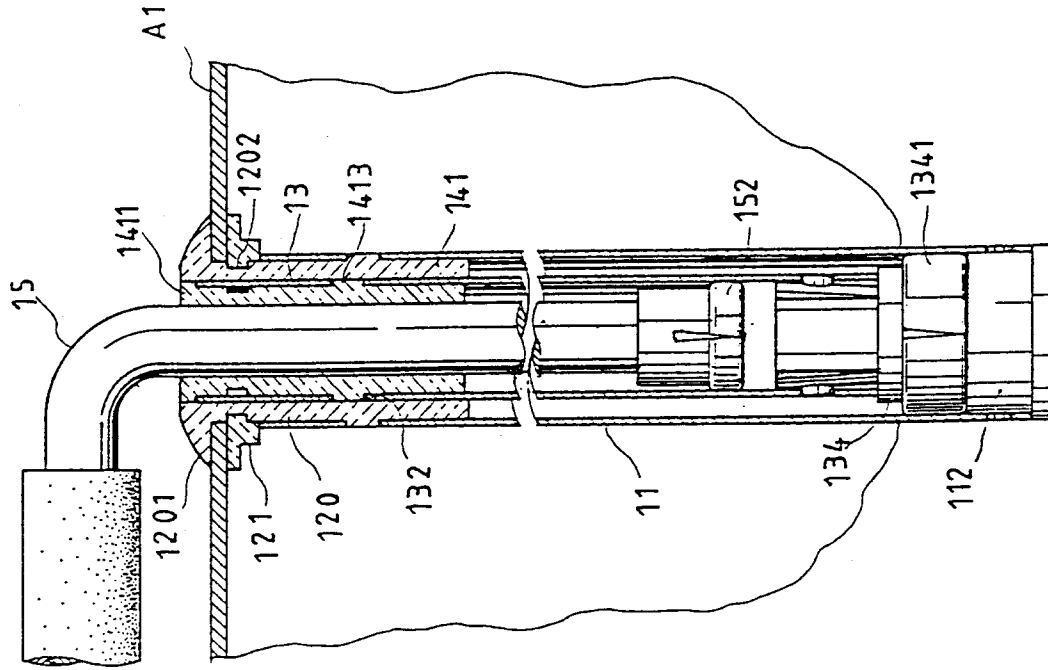


FIG. 8

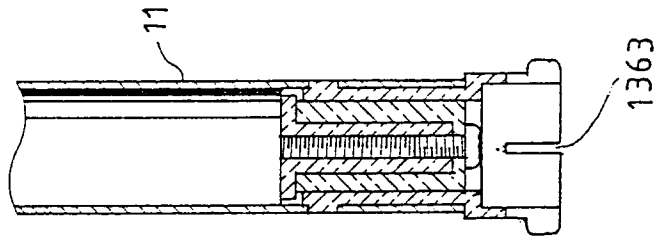


FIG. 7B

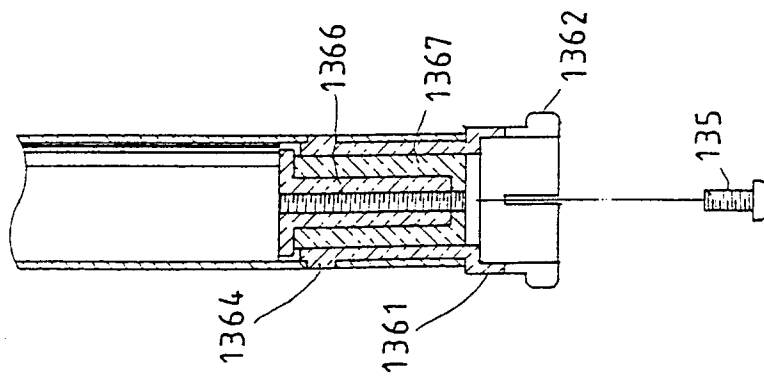


FIG 7A

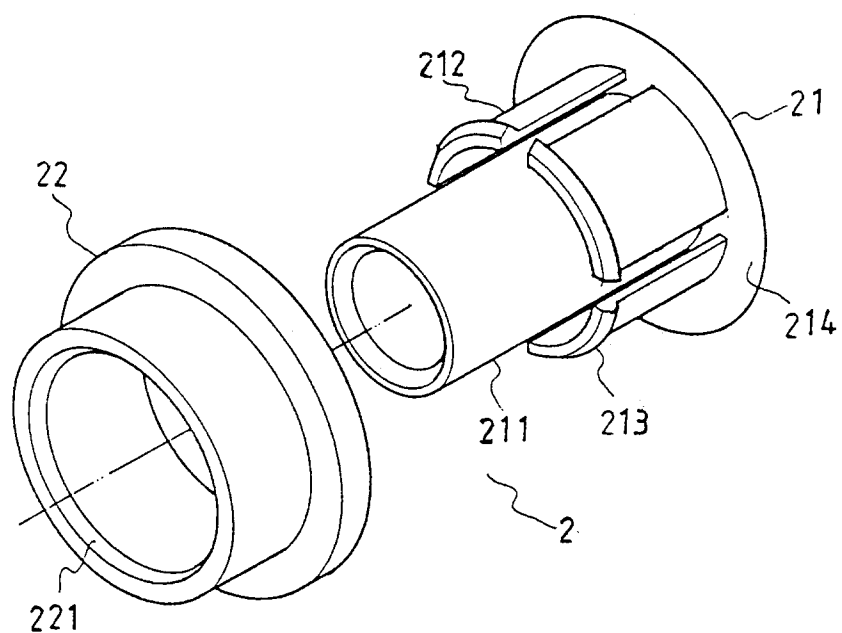


FIG. 9

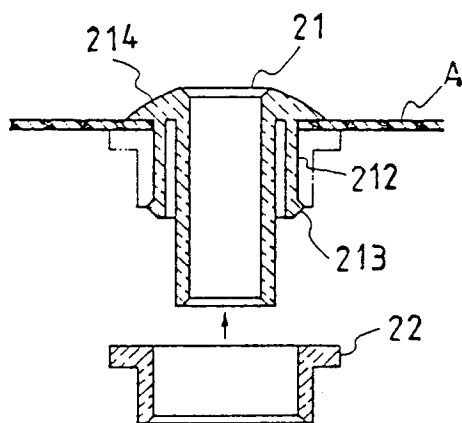


FIG. 10

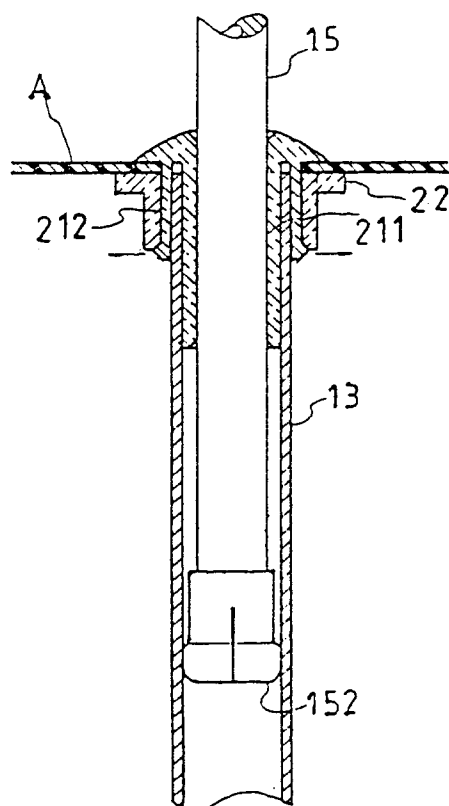


FIG. 11

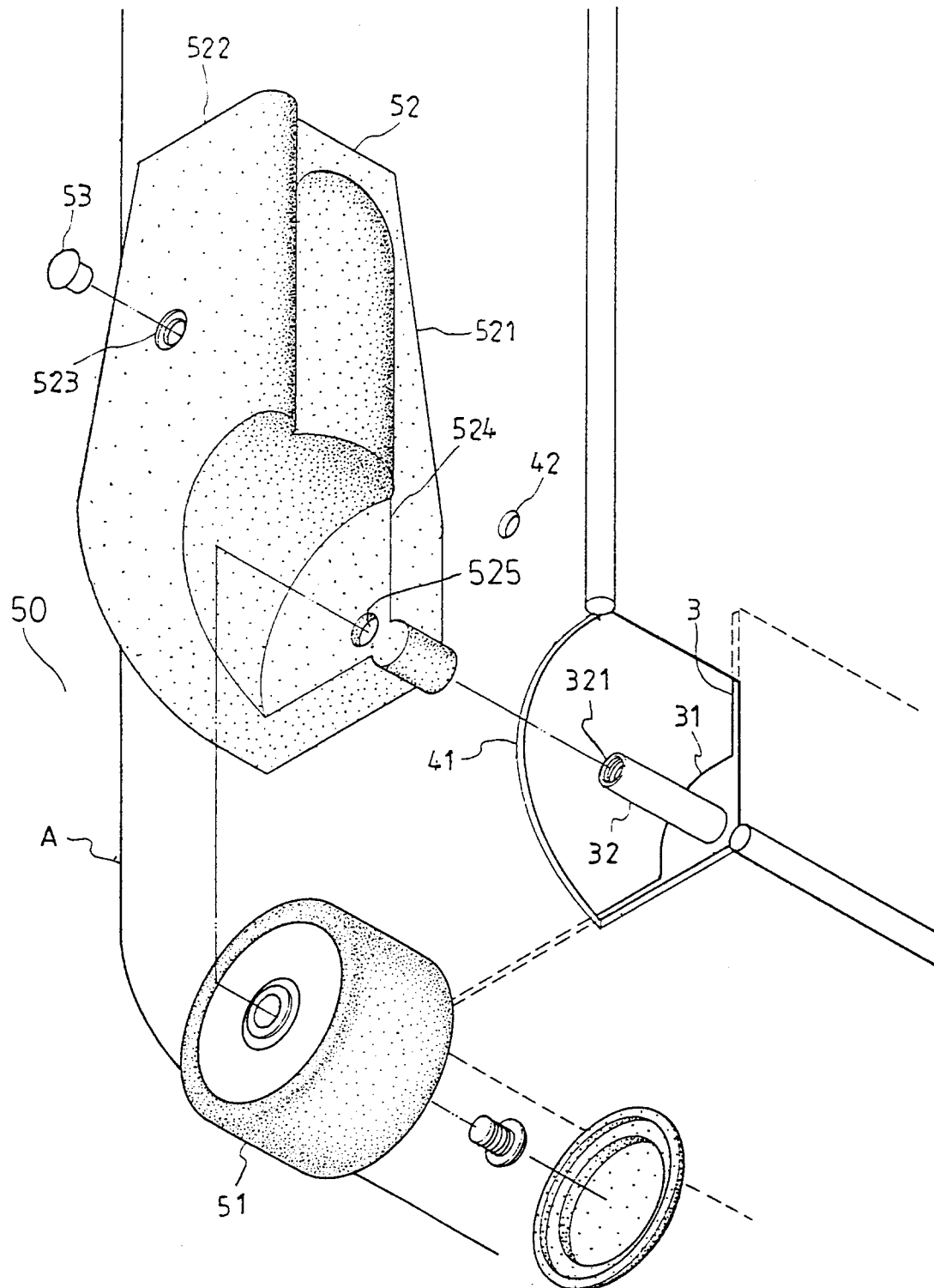


FIG. 12



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 94 81 0384

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE-U-93 19 446 (WANG) * page 2, paragraph 1 - page 4, paragraph 2; figures 1-4 *	1,4,6	A45C13/26 A45C5/14
A	US-A-5 167 306 (CARRIGAN, JR.) * the whole document *	1,2	
A	US-A-4 995 487 (PLATH) * the whole document *	1,6	
A	US-A-4 616 379 (LIU) * column 1, line 59 - column 2, line 40; figures 1-4 *	1	
A	US-A-5 240 106 (PLATH) * column 6, line 1 - line 14; figures 1,2 *	1	
A	DE-A-23 60 272 (URUSHIBARA) * page 3, paragraph 2 - page 7, paragraph 1; figures 1-5 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A45C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		5 December 1994	WILLIAMS, M
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