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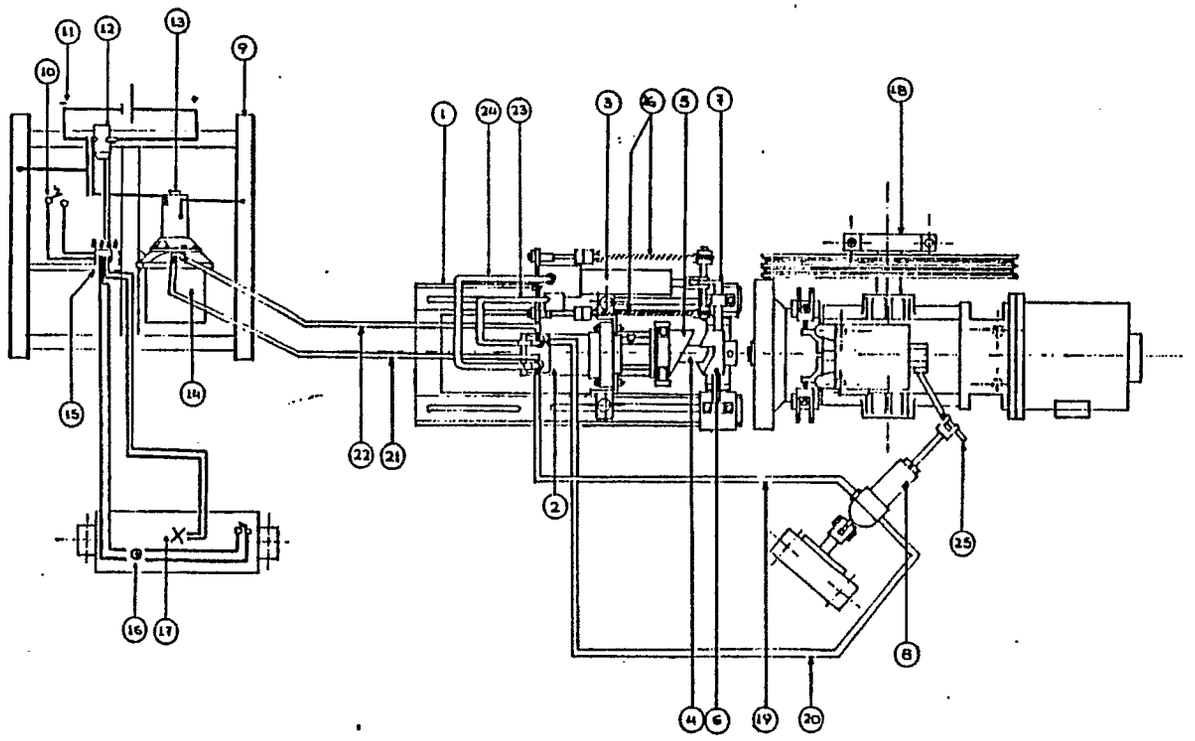
(54) Mechanism of removing an elevator cabin in case of a cutting off of the supply of the electricity.

(57) A driving mechanism of an elevator cabin in use of a cutting off of the supply of the electricity which consists of a motor moved by oil pressure, which coupling with the flywheel of the elevator electromotor, it rotates it so that it reaches the next floor.

This mechanism functions with electrohydraulic pump which is charged by an accumulator which gets charged during the elevator function and is supplied with a joining clutch and hydraulic piston for the connection and disconnection of the electromotor arm.

FIGURE 1



EP 0 396 490 A1

Mechanism of removing an enevator cabin in case of a cutting off of the supply of the electricity

This invention concerns a mechanism which removes the elevator cabin in case of a cutting off of the supply of the electricity and as the cabin reaches next floor (upwards or downwards) its function stops so that people who are trapped in can get out of it.

Till this day, the technology of constructing elevetors in multi-storeyed block of flats cannot offer any mechanism which in case of a cutting off of the supply of the electricity and immobilization of the cabin between two floors, would allow trapped people to exit.

In this case the elevator cabin is necessary to be removed from its mechanism cabin by a specialist technician or by the door-keeper of the building -if there is one-; until the remove of the elevator cabin, people in it remain trapped.

The above technical problem led to the research of a technical solution and construction of a mechanism, which can be put in the motor cabin of the elevator and in case of a cutting off of the supply of the electricity it will move an hydraulic pump by force of a direct current accumulator. Thus the hydraulic pump moves an hydraulic motor which coupled in the flywheel of the elevator motor rotates it, so that the cabin can move upwards or downwards (according to the arrangement) and as soon as it reaches to the next floor door, the function breaks off and the trapped people may get out.

The up-to-day technology has not presented any mechanism of removing the elevator cabin with hydraulic pressure situated by the side of the elevator motor and powered by an electric direct current accumulator.

Another purpose of this invention is to encounter problems of endurance, function and duration of the mechanism by making some improvements which will be presented below in the detailed description scheme. There, all the above as well as more advantages of this invention will be clear.

This invention will be understood to the specialists of this technique from the sketches which follow this description and in which some preferable industrial applications of this invention are illustrated.

SKETCH 1 : It shows an upper sight of the invention mechanism with the elevator motor to the position before coupling.

SKETCH 2 : It shows the base A.A′ of the hydraulic mechanism and sight B B′ of the fork which moves the male coupling.

SKETCH 3 : It shows the base of the electric mechanism of direct current.

SKETCH 4 : It shows an upper section of the hydraulic piston which pushes the fork and moves the male coupling.

SKETCH 5 : It shows a section of the spiral shaft where the male coupling is driving at and couples with the female which is assembled to the shaft of the motor flywheel.

SKETCH 6 : It shows a section of the female coupling which is assembled to the shaft of the motor flywheel.

SKETCH 7 : it shows a section of the male coupling which couples with the female.

The component parts of my invention mechanism as they are shown in sketch 1 are the following:

1. Base of the hydraulic mechanism.

2. Hydraulic motor.

3. Oil pressure piston and return by two springs.

4. Spiral shaft.

5. Male joining coupling.

6. Female joining coupling screwed on the shaft of the motor flywheel mechanism.

7. Mechanism which moves the male coupling.

8. Oil pressure piston which disconnects the break of the motor mechanism and returns automatically to its previous position pressed by an internal spring of the piston during the cutting off of the supply of the direct current accumulator.

9. Electric mechanism base.

10. Alternative current socket plug

11. Direct current accumulator of 12 or 24 VOLT.

12. Electromotor button

13. Electromotor of 12 or 24 VOLT.

14. High pressure pump and oil tank.

15. Alternative current relay

16. Direct current button in the cabin.

17. Reserve light of the cabin.

18. Elevator mechanism

19. Oil pressure pipe to the piston.

20. Oil return pipe from the piston to the tank.

21. Oil pressure pipe from the pump to the hydraulic motor.

22. Oil return pipe from the hydraulic motor the the tank

23. Oil pressure pipe to the piston

24. Oil return pipe from the piston to tank

25. Break arm of the motor mechanism.

26. Two springs of the piston return to its first position.

During the cutting off of the supply of the electricity the circuit is interrupted in the socket plug 10 and the relay platinum close 15 turning off

at the same time the battery circuit 11 through button 12 and the electromotor starts functioning 13 rotating the high pressure pump 14, pressing the oil through the pipe 21 to the hydraulic motor 2 which rotates.

Then the pipe oil 23 pressed to the hudraulic piston 3, pushes the fork 7, driving thus the male coupling 5, which couples with the male 6 which is assembled to the shaft of the motor flywheel and rotates it.

During the cutting off of the supply of the electricity the reserve light of the cabin lights automatically up till its restoration and then it turns off.

In any other damage of the electric circuit without any cutting off of the supply of the electricity, in the cabin there is the button of the direct current accumulator which when pressed, it moves the cabin to the nearest floor and stops automatically allowing the exit of the people.

All the elevator systems of function security continue to function even when it functions with an electrohydraulic release mechanism.

It must be mentioned that the present description of this invention was made by reporting to only some examples of application. Thus, any change or modification relating to the shape form, dimensions, using materials and construction and assembling parts are considered as included in the purpose and scope of the present invention.

Claims

1. A mechanism removing an elevator cabin in case of a cutting off of the supply of the electricity with the characteristic of a motor moved by oil pressure, coupled with the flywheel of the elevator electric motor and which rotates it till the cabin reaches the nearest floor.

2. A mechanism according to claim 1, characterized by the fact that its hydraulic motor takes power from an electrohydraulic pump which functions by electric current from an accumulator; this accumulator while functioning is continuously charged by a charger with the elevator current supply.

3. A joining clutch of the hydraulic mechanism (claim 1), with the elevator motor whose female coupling is screwed on the flywheel and whose shaft is spiral.

4. An hydraulic piston which presses the arm of the elevator electromotor to disconnect it, characterized by a tank at to top of which a pipe is inserted with the input oil pressure and an output pipe with valve and has got an internal spring which brings the piston to its first position during the cutting off of the direct electric current accumulator.

FIGUR 1

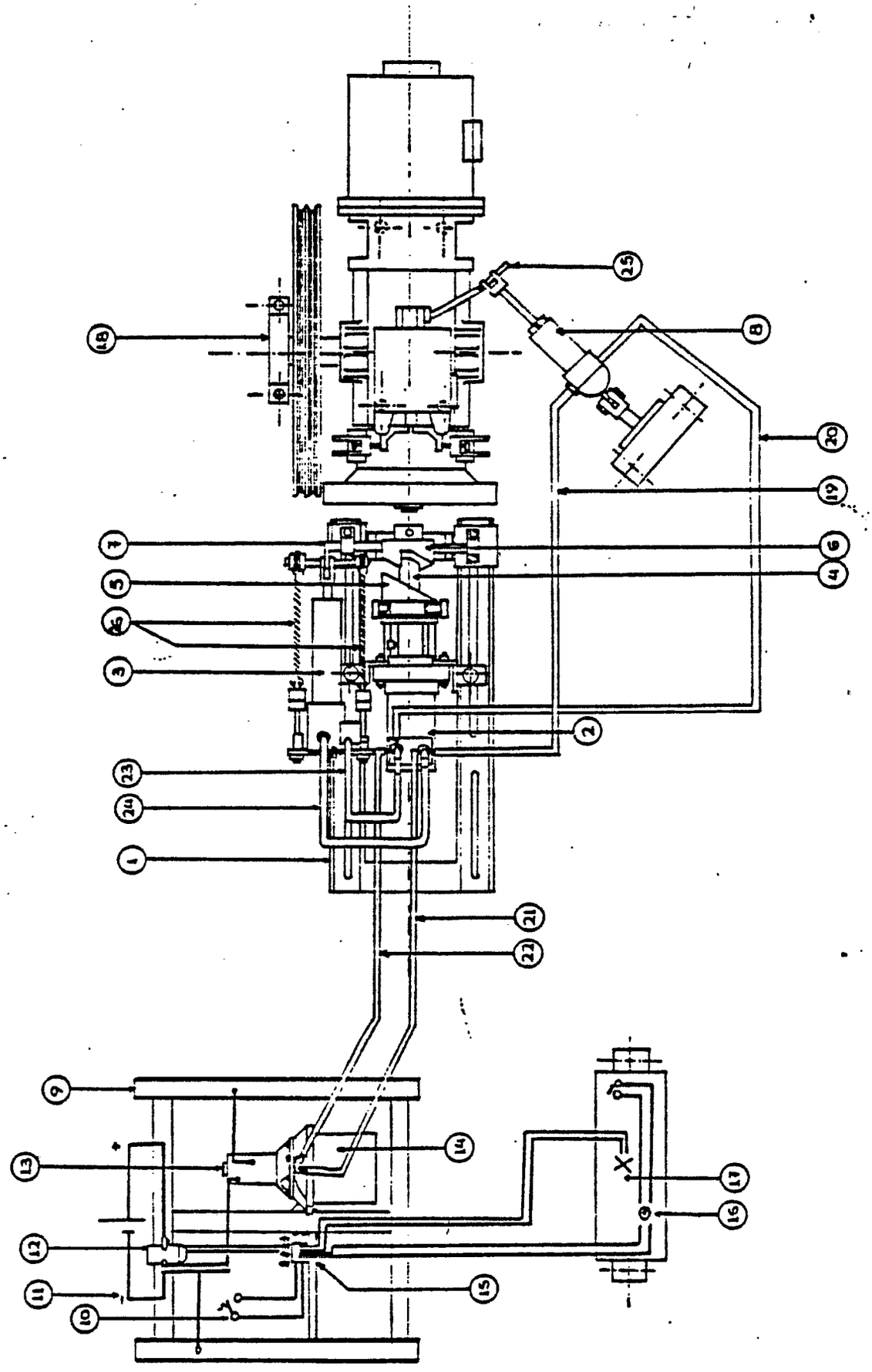


FIGURE 2

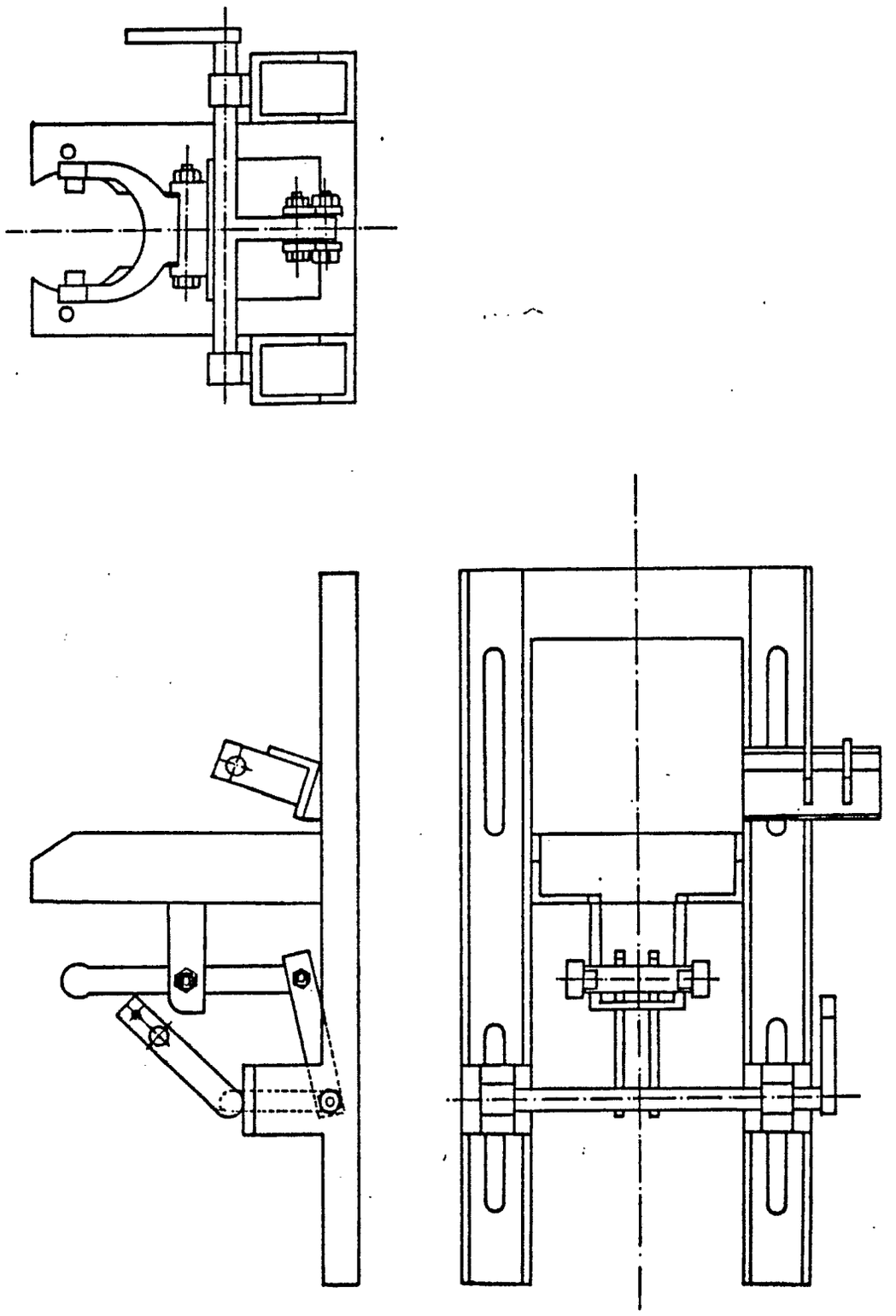
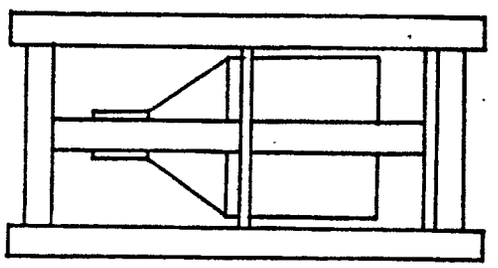
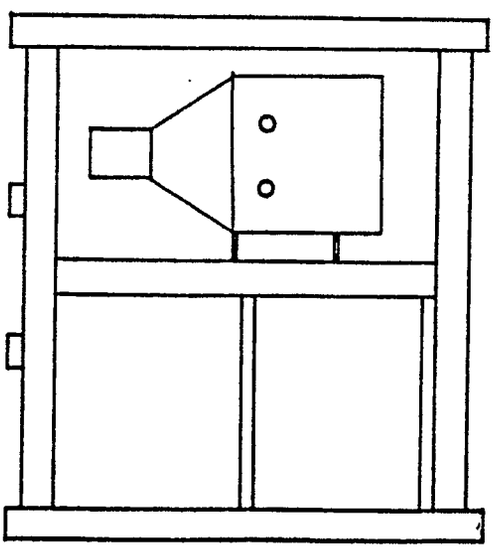


FIGURE 3





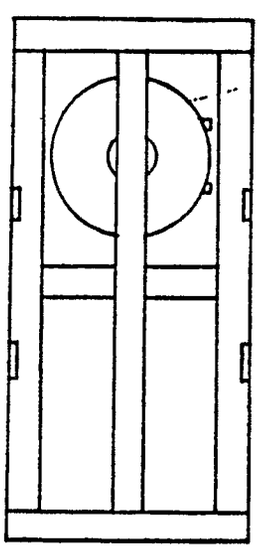


FIGURE 4

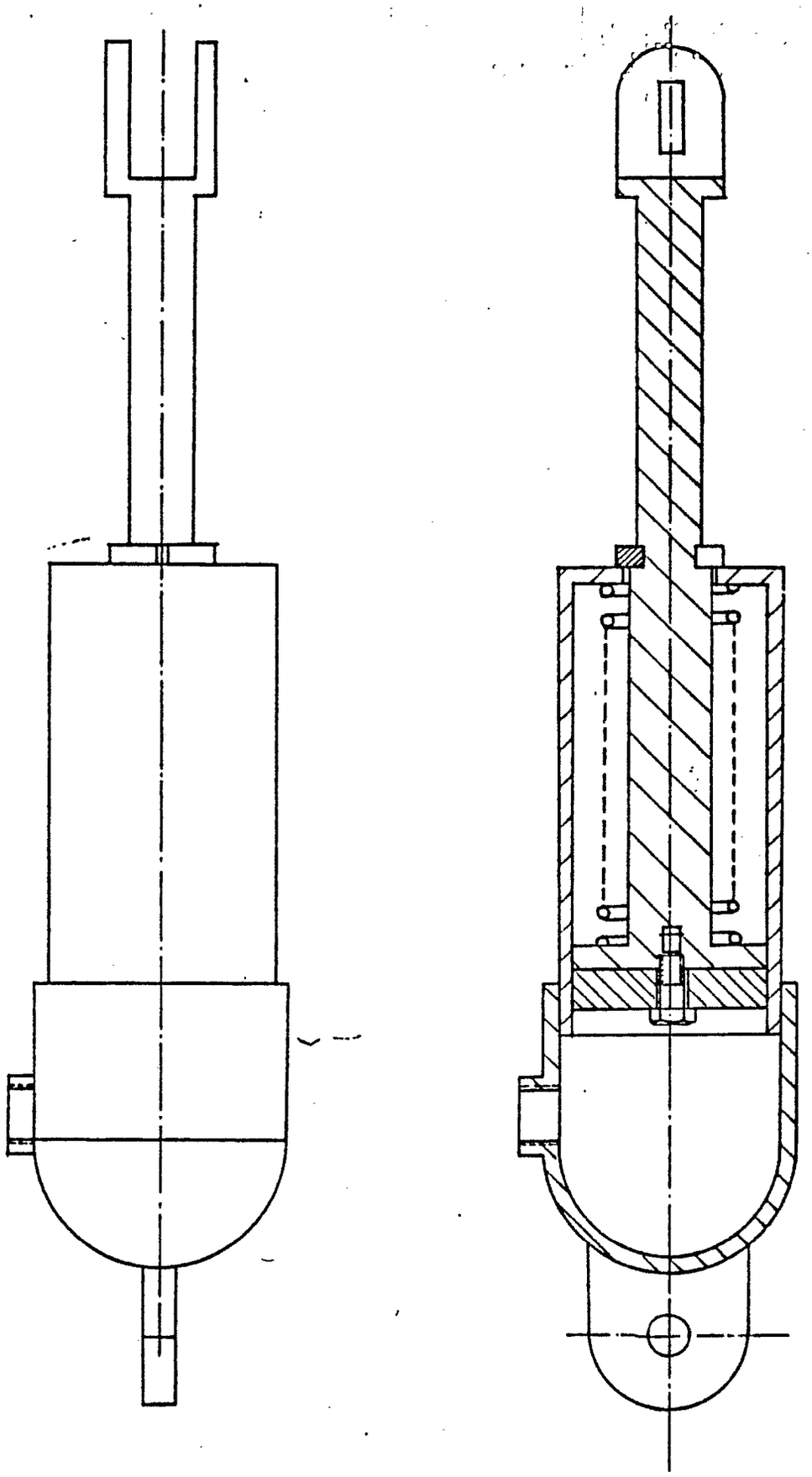
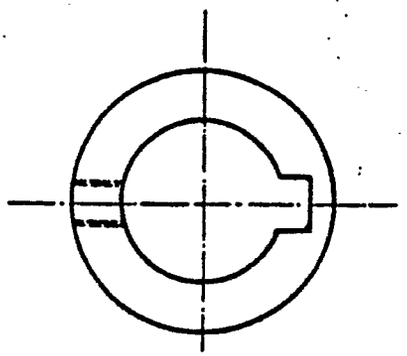
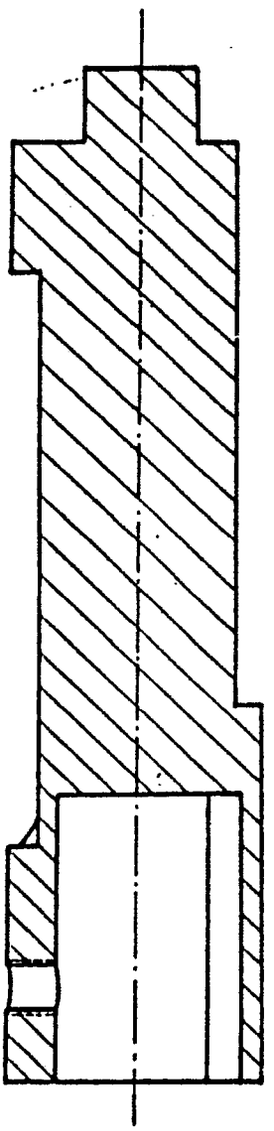


FIGURE 5





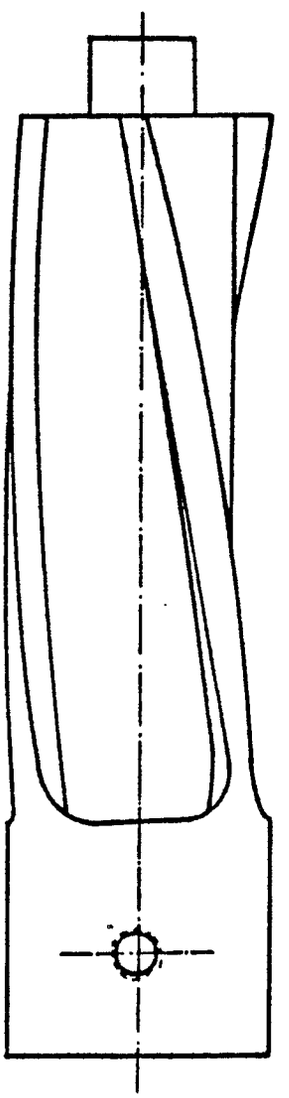


FIGURE 6

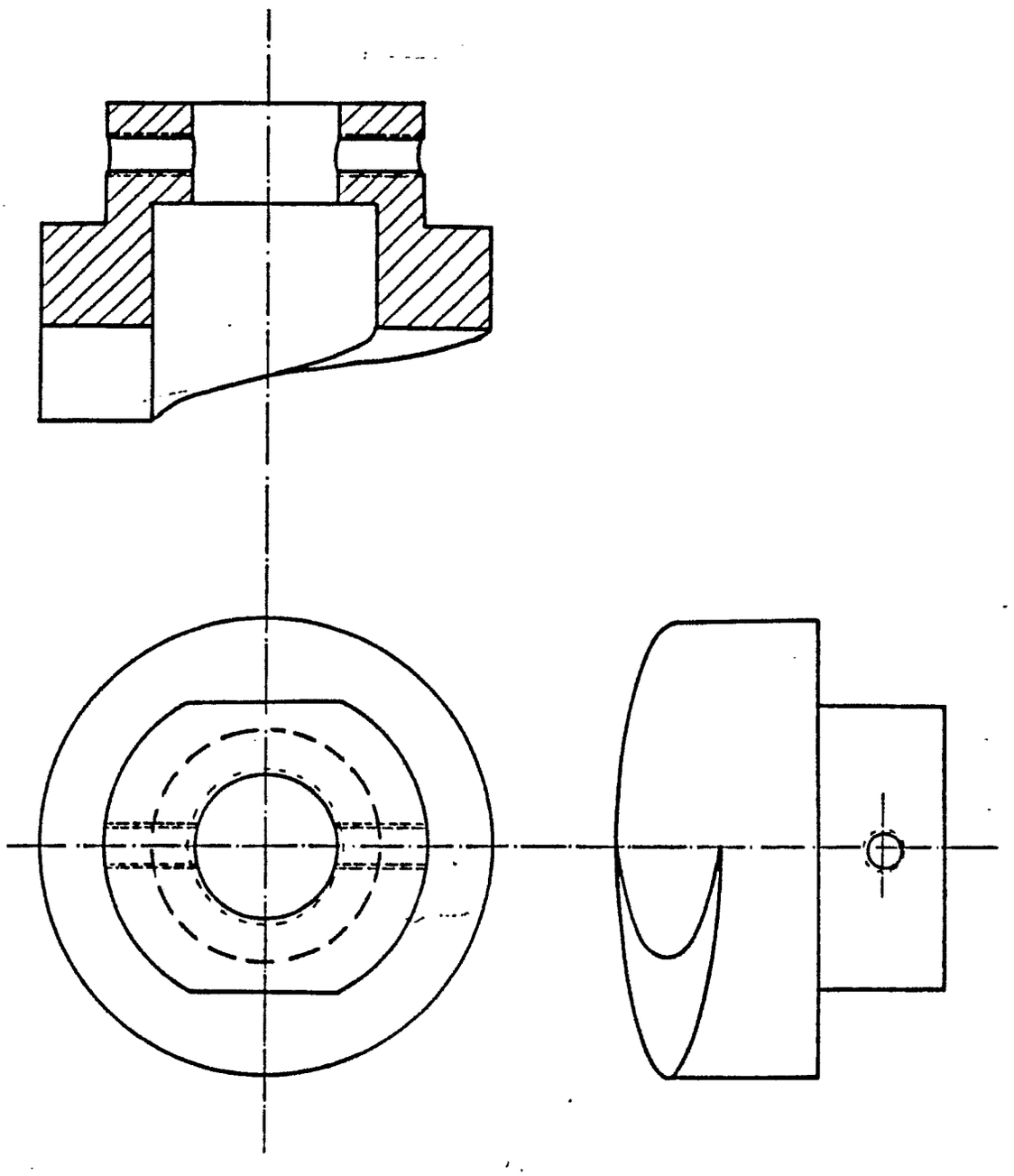
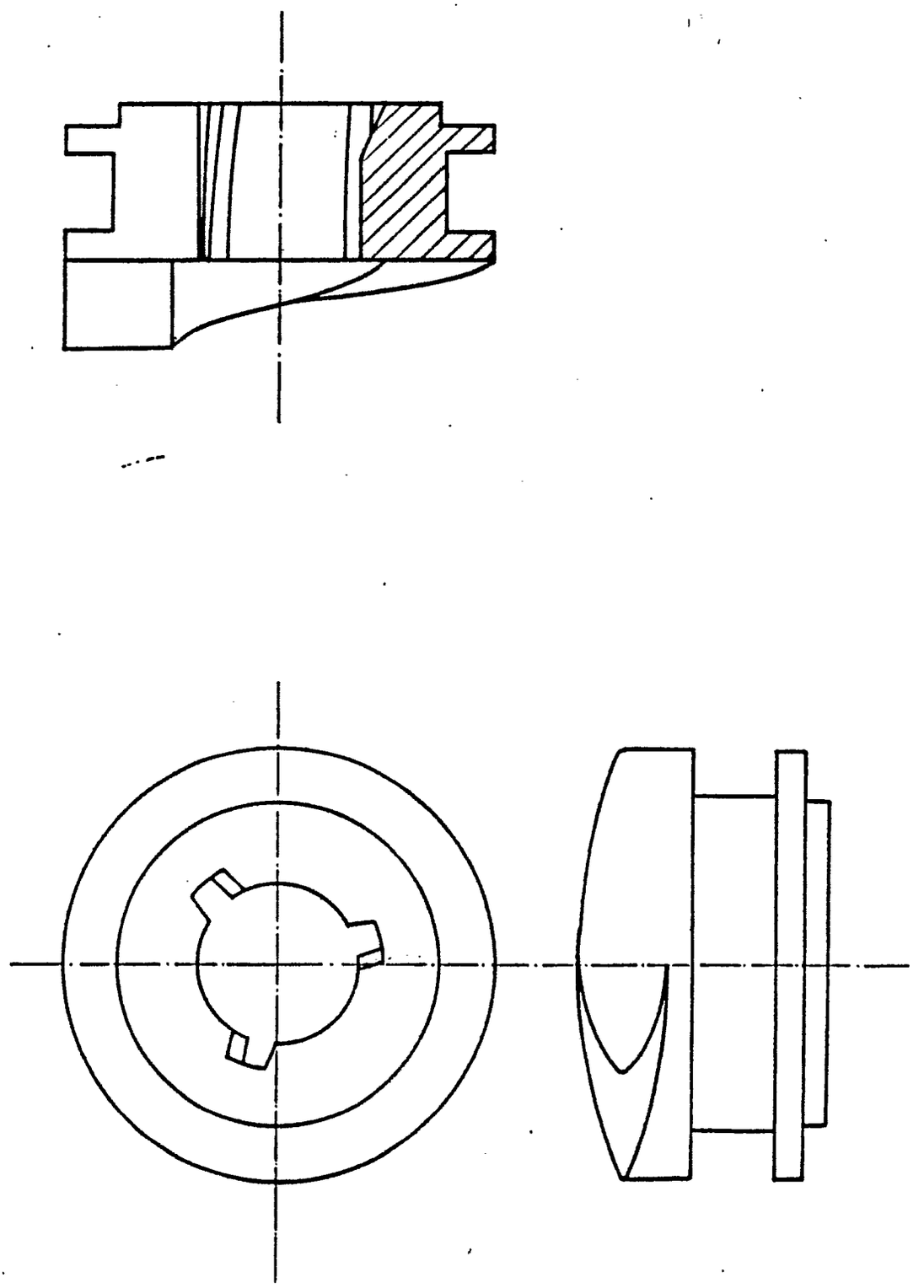


FIGURE 7



European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 60 0010

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.5)
X	US-A-2941625 (SOUZA) * column 3, line 70 - column 4, line 12 * * column 5, lines 4 - 22; figures 1, 2 *	1-4	B66B5/02
X	EP-A-0065501 (SCARZELLA, SERGIO) * page 5, line 3 - page 6, line 4 * * page 9, lines 17 - 37; figures 1, 2, 5 *	1-4	
A	WO-A-8705282 (FISCHER DOS SANTOS) * page 8, line 11 - page 10, line 9; figures 1, 2, 7, 8 *	1-4	
A	FR-A-1536431 (HOUILLE) * page 2, left-hand column, line 47 - right-hand column, line 47; figures 1-4 *	1	
A	FR-A-2611684 (SERINA) * page 7, line 17 - page 9, line 23; figures 1-3 *	1-4	
A	US-A-3568803 (HOUILLE) * column 2, line 12 - column 3, line 13; figures 1-5 *	1	TECHNICAL FIELDS SEARCHED (Int. Cl.5) B66B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25 JULY 1990	CLEARY F.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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