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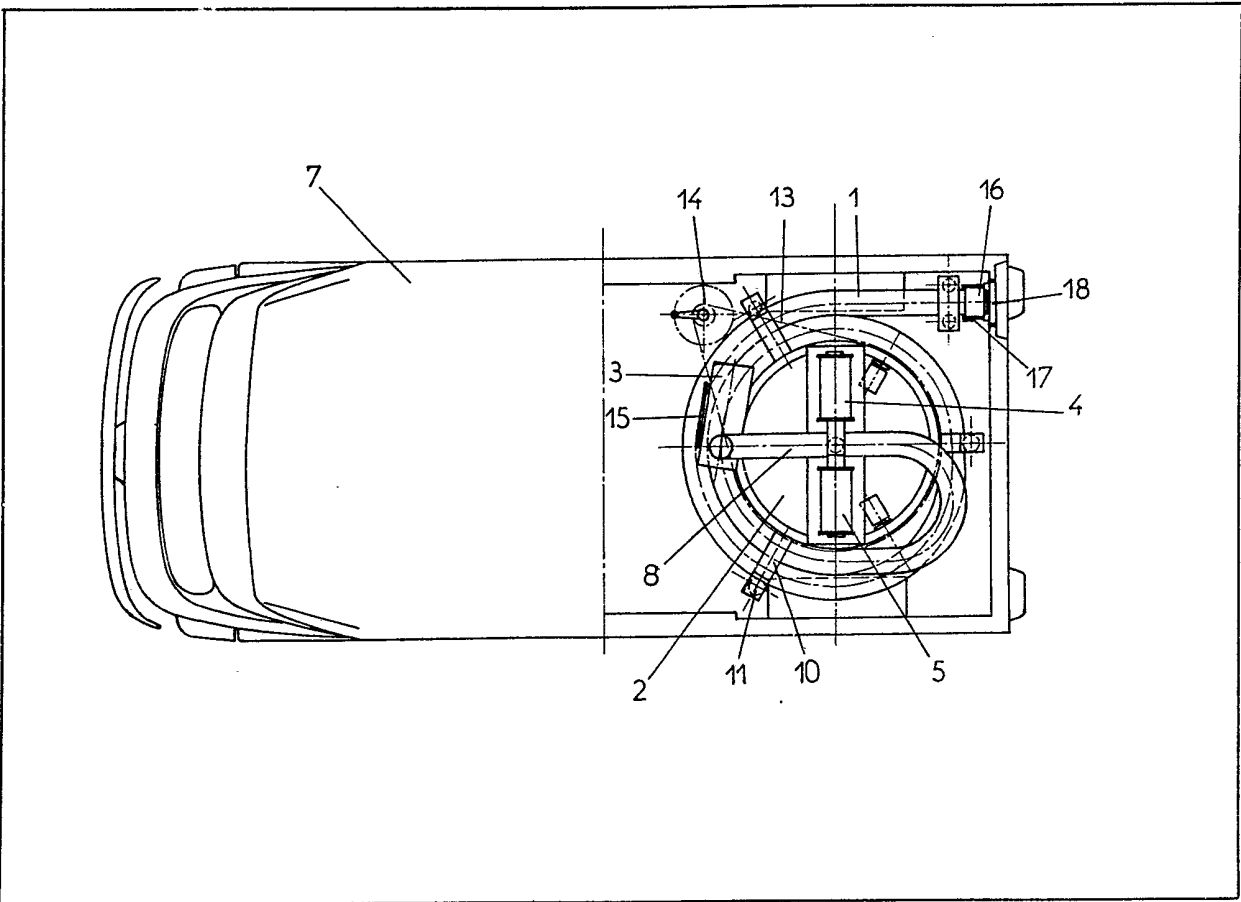
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(54) **A device for transferring funds between a transport vehicle and a building**

(57) A device for transferring funds between a transport vehicle and a building comprises a flexible pipe (1), which is capable of being coiled on a reel (2) and connected to a pneumatic outlet and inlet station (3), and two pumps (4) and (5) for creating an excess pressure or a reduced pressure inside the outlet and inlet station (3).



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Fig. 1

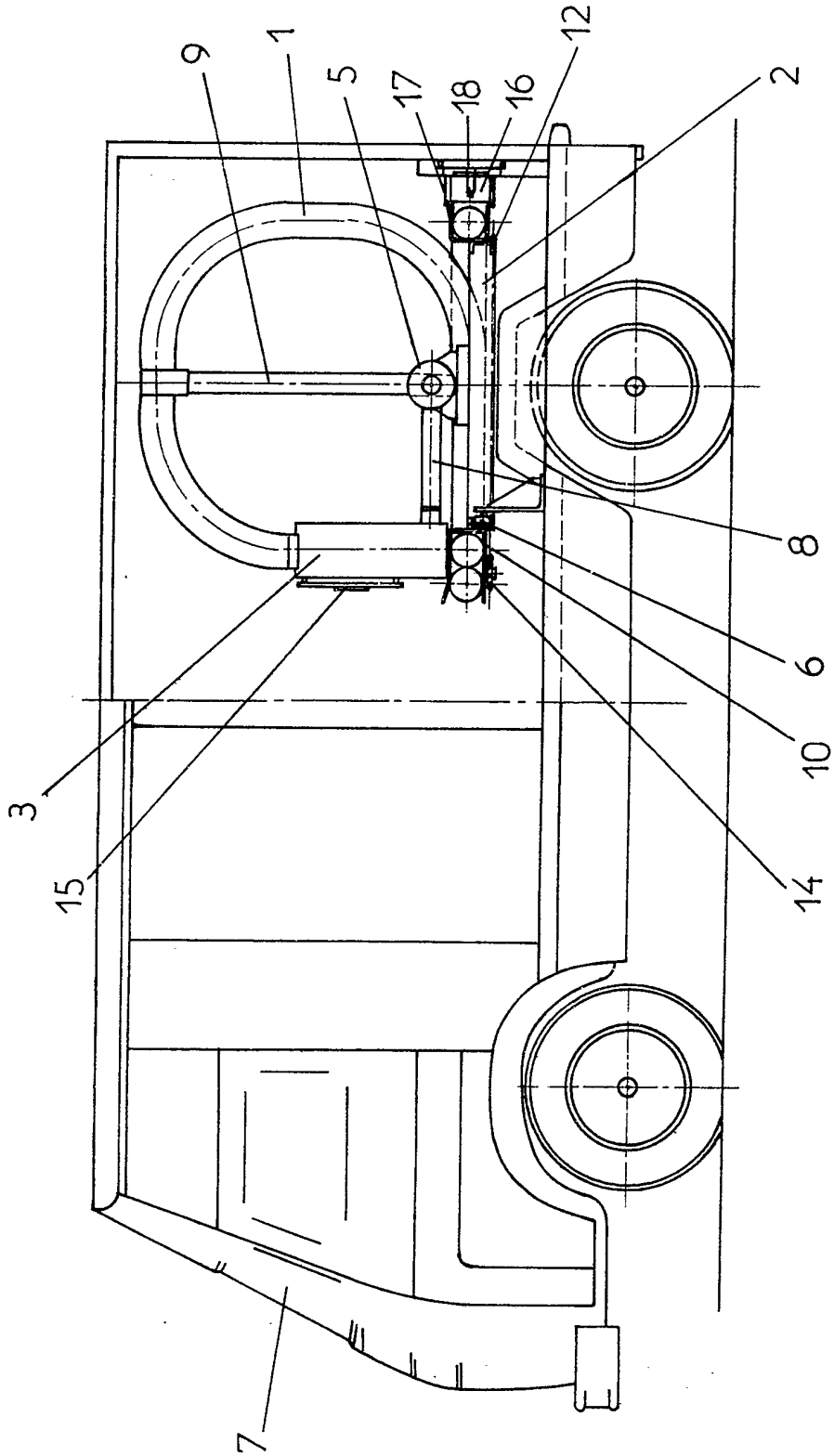
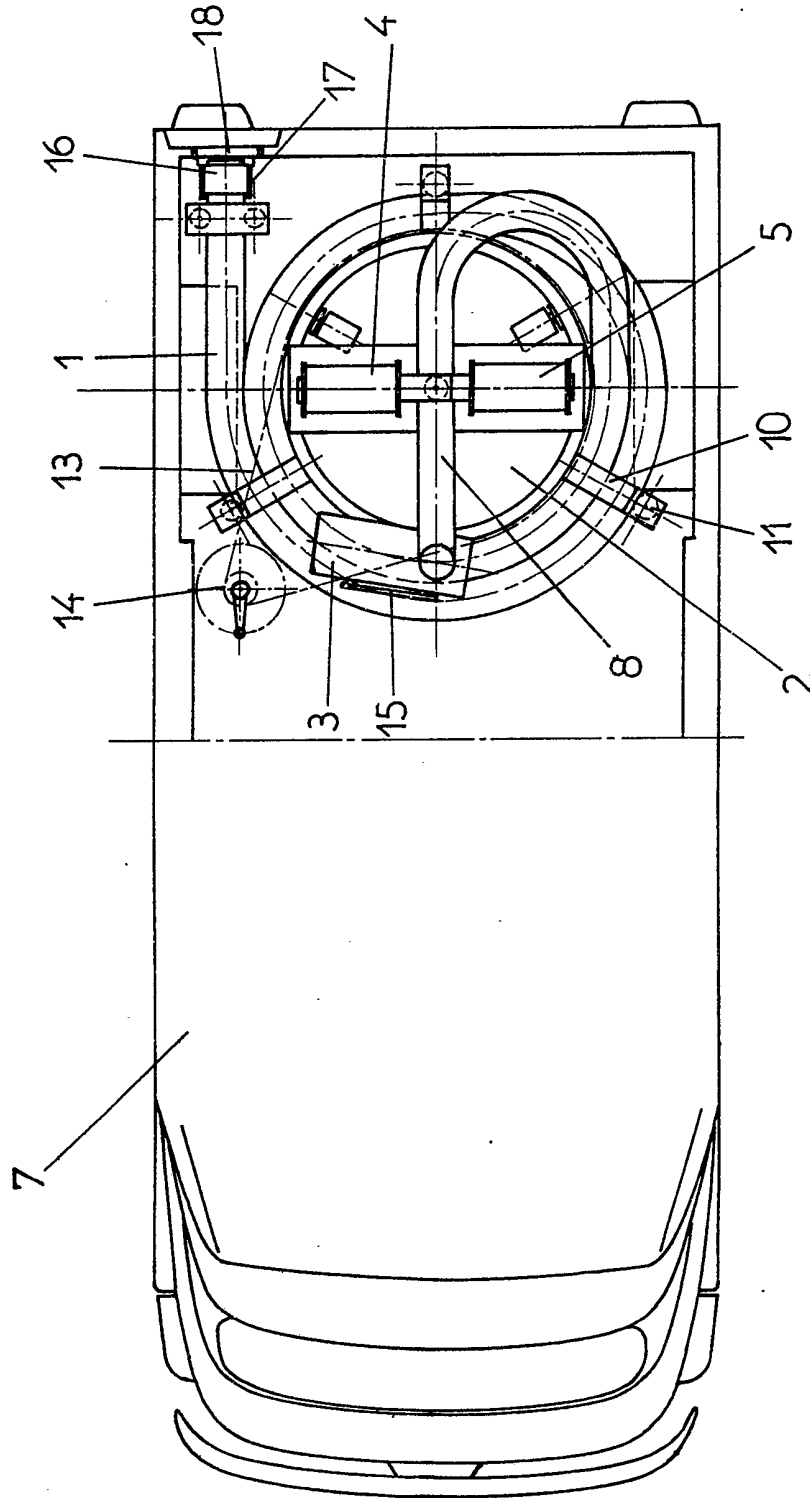


FIG. 2



## SPECIFICATION

**A device for transferring funds between a transport vehicle and a building**

This invention relates to a device for  
5 transferring funds, i.e. bank notes, money or  
cheques, between a transport vehicle and a  
building housing organisations such as banks,  
credit organisations and commercial enterprises.

10 Currently, funds are transported between banks  
etc. and commercial enterprises, such as  
department stores, usually by means of specially  
equipped vehicles having special staff.

15 Known vehicles used to transport funds are  
armoured, have bullet-proof glass, a radio-  
telephone, an alarm system and special apparatus  
protecting the entrances to the fund carrying part  
of the vehicle such that security is guaranteed  
20 during transportation by road. However, when  
transferring these funds from the banks etc. to the  
vehicle or vice versa, the service staff are exposed  
to possible attack by criminals and risk of injury  
which is often severe or even fatal. Moreover,  
innocent bystanders, such as passers by or clients  
25 of the banks etc. may be involved involuntarily in a  
shooting taking place during such an attack and  
may be in danger of injury or death from stray  
bullets.

This invention seeks to provide a transfer  
device which reduces these disadvantages.

30 According to the invention, there is provided a  
device for transferring funds between a transport  
vehicle and a building wherein the device  
comprises a flexible pipe, coilable on a reel and  
connected to a pneumatic outlet and inlet station,  
35 and two pumps for creating an excess or a  
reduced pressure inside the outlet and inlet  
station.

40 Preferably the flexible pipe is provided at its  
free end with a coupling which is movably  
mounted for cooperation with a connection having  
a corresponding shape arranged in fixed manner in  
a wall of the bank, loan company, or store etc.

The invention will now be described, by way of  
example, with reference to the drawings, in  
45 which:—

Fig. 1 is a part-side elevational and part-  
sectional view through a vehicle transporting  
funds and equipped with a device in accordance  
with the invention; and

50 Fig. 2 is a plan view of the vehicle shown in  
Fig. 1.

Referring to the drawings, a device for the  
transfer of funds essentially comprises a flexible  
pipe 1, which can be coiled on a reel 2 and which  
55 is connected to a pneumatic outlet and inlet  
station 3 and two pumps 4 and 5 connected to the  
station 3 and permitting an excess or a reduced  
pressure respectively to be formed inside the  
station 3.

60 The reel 2 is in the form of a circular disc,  
guided for rotation on rollers 6 and parallel to the  
floor of the vehicle 7. On its upper face, the reel 2  
carries the two pumps 4 and 5 as well as the  
station 3, connected to the pumps 4 and 5 by

65 means of a pipe 8. The flexible pipe 1 is connected  
to the upper part of the station 3 and is guided  
above the reel 2, with a large radius loop, by a  
support 9. The pipe 1 is then coiled round the reel  
2 on which it is retained by radial retention  
70 elements, the connection between the support 9  
and the first retention element 10 also being  
effected by a large radius loop. In order to ensure  
that the pipe 1 is retained in the retention  
elements, contact rollers 11 are provided at  
75 regular intervals around the reel 2. Around its  
lower part, the reel 2 is provided with a toothed  
crown-wheel 12 which is driven by a manual  
coiling device 14 through a chain 13. This device  
could also be of a driven type, being actuated, for  
80 example, by means of an electric motor. Similarly,  
the toothed crown-wheel could also be driven  
through a train of gear wheels.

Of course the position of the reel 2 may also be  
varied, namely by fixing it to the roof of the vehicle  
85 or to a side wall thereof.

The pneumatic outlet and inlet station 3 is of a  
type known in pneumatic distribution systems and  
is provided with a door 15 for insertion and  
removal of cartridges containing the funds.

90 The free end of the flexible pipe 1 is provided  
with a quick action coupling 16 mounted movably  
so as to be able to cooperate with a connection of  
corresponding shape, arranged in fixed manner in  
a wall of a bank etc. This coupling 16 has an inner  
95 diameter strictly identical to that of the pipe 1, so  
as to allow the passage of the cartridges and an  
outer diameter enlarged as compared to the pipe  
1 so that, at the same time, it serves as a stop  
when the pipe 1 is being coiled. The pipe 1 passes  
100 through a bush 17 in the vehicle 7 which housing  
serves to receive the coupling 16, when the pipe 1  
is in its retracted position, the coupling 16 being  
retained by a shoulder of the bush and closed by a  
door 18.

105 The flexible pipe 1 advantageously has a ringed  
formation so as to be resistant to crushing and has  
a certain rigidity which prevents loops of small  
radius from being formed.

110 The pipe 1 may be provided with electrical  
conductors allowing different circuits to be  
connected between the vehicle and the bank  
being served, such as a telephone circuit, a circuit  
feeding pumps 4 and 5 and security devices. Such  
a connection will be carried out advantageously by  
115 means of the coupling 16. In this way any break in  
the pipe 1 immediately cuts off the feed circuits to  
the pumps 4 and 5 and therefore stops the  
propulsion of cartridges.

120 The bank etc. being served by a vehicle  
equipped with the device in accordance with the  
invention is preferably provided with an extension,  
into the wall of which the fixed connection is  
fitted, the fixed connection being closable by  
means of a door and being connected by means of  
125 a pipe similar to the pipe 1 or by a rigid pipe to a  
station the same as the station 3. This extension  
will also be equipped with the same devices as the  
vehicle 7, i.e. with a telephone circuit, an electrical  
connection and possibly additional security

devices.

The device in accordance with the invention operates in the following manner:

When the van arrives at a bank being served, a guard connects the flexible pipe 1 by its coupling 16 to the corresponding connection in the bank, and, at the same time, sets up the various electrical connections. After agreement between the guard who has connected the pipe 1 and the operator in charge of receiving the funds, the guard who has remained in the vehicle 7 supplies the station 3 with cartridges containing the funds and sets the pump 4 in operation to supply the necessary pressure for propulsion of the cartridges along the pipe 1. In the case of transfer of funds to the vehicle 7, the operator in the extension of the bank, etc. places the cartridges into his outlet and inlet station and the guard who is in the vehicle sets the pump 5 in operation so as to provide a reduced pressure in the station 3 and the pipe 1 to convey the cartridges along the pipe 1 by suction.

It will be seen that the above described embodiment makes it possible to carry out the transfer of funds between vehicles transporting funds and buildings housing organisations such as banks, credit organisations and commercial enterprises, while avoiding any risk of unprovoked assault on the guards.

#### CLAIMS

1. A device for transferring funds between a transport vehicle and a building wherein the device comprises a flexible pipe, coilable on a reel and connected to a pneumatic outlet and inlet station, and two pumps for creating an excess or a reduced pressure inside the outlet and inlet station.

2. A device in accordance with claim 1, wherein the reel comprises a circular disc guided for rotation on rollers which are parallel to the floor of the vehicle, carries on its upper face the two pumps and the outlet and inlet station, connected to the said pumps by a pipe, and is provided around its lower part with a toothed crown-wheel

which cooperates, by means of a chain or a train of gear wheels, with a manual or driven coiling device.

3. A device in accordance with claim 1 or 2, wherein the flexible pipe is connected to the upper part of the outlet and inlet station, is guided above the reel in a large radius loop by a support and is then coiled round the reel on which it is retained by means of radial retention elements, the connection between the support and the first radial retention element also being effected by a large radius loop, the pipe being retained on the reel by contact rollers spaced around the reel at regular intervals.

4. A device in accordance with any preceding claim, wherein the flexible pipe incorporates rings to resist crushing and has a certain rigidity.

5. A device in accordance with any preceding claim, wherein the free end of the flexible pipe is provided with a quick acting coupling, mounted in movable manner, for cooperation with a connection of a corresponding shape arranged in fixed manner in a wall of the building which is being served, this coupling having an inner diameter which is identical to that of the flexible pipe and an outer diameter which is enlarged as compared to the flexible pipe so that the connection serves simultaneously as a stop during coiling, by cooperating with an inner shoulder of a bush housing the coupling when the pipe is in its retracted position, the bush being closed by means of a door.

6. A device in accordance with claim 5, wherein the flexible pipe is provided with electrical conductors allowing circuits to be connected between the vehicle and the building to be served, the connection for these various circuits being provided by the movable coupling.

7. A device in accordance with claim 6, wherein the circuits comprise a telephone circuit, a circuit feeding the pumps and/or security devices.

8. A device for transferring funds between a transport vehicle and a building, the device being substantially as described herein with reference to the drawings.