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(71) Applicant: Wayfarer Transit Systems Ltd Wimborne, Dorset BH21 4EL (GB)	(74) Representative: Haley, Stephen Gill Jennings & Every, Broadgate House, 7 Eldon Street London EC2M 7LH (GB)
(72) Inventors: • Pickering, Philip John Poole, Dorset BH14 9PP (GB)	

(54)

Paper dispenser

(57)

Conventional paper dispensers utilize a substantially uniform spigot/paper roll interface. This can lead to incorrect loading of paper rolls and to dishonest practice by the operator. Accordingly, a paper dispensing device (10) comprises a support (11), a rotatable spigot (12) having a first end (14) and a second end (15)

and extending from the support (11) and a paper roll (13), having a bore (17) extending from a first end (18) to a second end (19), to be located when in use on the spigot (12), wherein the spigot and the bore are shaped such that the paper roll can only be fully loaded on to the spigot from the second end to the first end of the paper roll.

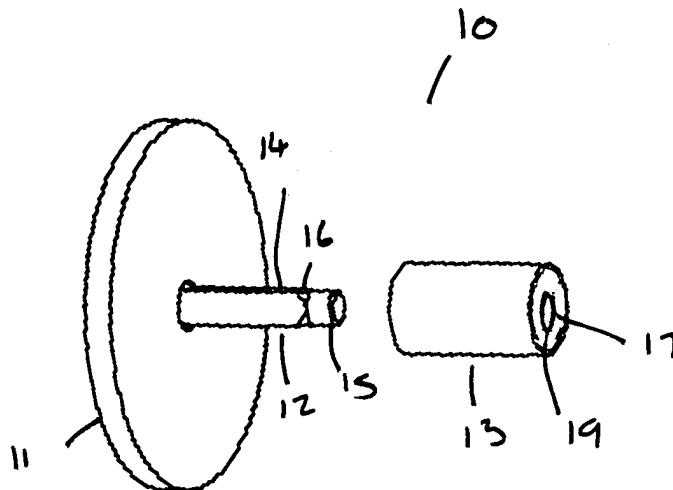


Fig. 1

Description

[0001] This invention relates to a paper dispensing device and, in particular, to a paper dispensing device which permits a paper roll to be loaded on to the paper dispensing device in only one orientation.

[0002] Conventional paper dispensers have been provided with a uniformly shaped spigot on to which a roll of paper can be placed. Due to the uniformity of the spigot and of a corresponding bore extending through the paper roll, the paper roll can be loaded on to the spigot from either end.

[0003] This arrangement has several disadvantages, especially when applied to devices for printing on thermally sensitive paper such as when dispensing tickets, e.g. bus tickets. Thermally sensitive paper is often only coated on one side. Therefore if the machine operator is able to load the paper the wrong way round, the non-coated side passes over the thermal printhead, but no printing occurs.

[0004] Secondly as the paper rolls can be loaded on to the spigot in more than one orientation, the paper could be fed from different positions. This can lead to incorrect operation of the dispensing device and therefore a possible paper jam. It has been known for operators of such paper dispensers to substitute the officially supplied paper rolls with paper rolls which they have supplied themselves. This is made possible because of the simplicity of the spigot/paper roll interaction and hence the multitude of alternative paper rolls which are available.

[0005] Both the above problems provide ample opportunities for fraud. The operator is therefore able to retain the excess money for himself.

[0006] Thirdly the known devices have no means for detecting the movement of the paper roll. This makes it difficult to detect if the paper roll is nearly finished or if a paper jam has occurred.

[0007] It is an object of the present invention to provide a device which prevents such underhand practices from taking place.

[0008] According to the present invention, a paper dispensing device comprises a support, a rotatable spigot having a first end and a second end and extending from the support; and a paper roll, having a bore extending from a first end to a second end, to be located when in use on the spigot, wherein the spigot and the bore are shaped such that the paper roll can only be fully loaded on to the spigot from the second end to the first end of the paper roll.

[0009] Preferably the paper dispensing device is a ticket dispenser. Such a ticket dispenser could be used by conductors for example to provide tickets on public transport such as buses or trains.

[0010] Preferably the spigot extends through the support and is provided with a slotted disk on the second end of the spigot. Due to the provision of slots in the disk, the number of revolutions of the spigot and hence

the paper roll can be easily recorded by an optical or mechanical detector. Further the rate of rotation of the paper roll can also be determined. The rate of rotation of the spigot and hence the slotted disk increases as the amount of paper remaining on the paper roll decreases. Accordingly it is possible to calculate when it is necessary to change the paper roll to prevent the supply of paper being exhausted. Further if there is no movement of the paper roll when a ticket should be dispensed, the operator can easily be alerted to a possible paper jam. The operator may then be prevented from issuing or trying to issue more tickets until the problem is corrected.

[0011] Preferably the spigot and the bore have corresponding first portions extending from the respective first ends to respective shoulders and corresponding second portions extending from the respective shoulders to the support and the second end of the bore respectively.

[0012] The first portions of the spigot and the bore may be circular in cross section and the second portions of the spigot and the bore may be square in cross section.

[0013] In the accompanying drawings:

Figure 1 shows a perspective view of a paper dispensing device showing a first end of a paper roll; and

Figure 2 is an alternative perspective view of the paper dispensing device of Figure 1 showing a second end of the paper roll and the slotted disk.

[0014] Referring to Figure 1, the paper dispensing device 10 comprises a circular support member 11, a spigot 12 and a paper roll 13. The spigot 12 extends from substantially the centre of the circular support 11 and is provided with a first portion 14 and a second portion 15. A shoulder 16 is provided between the first section 14 and the second section 15.

[0015] The paper roll 13 has a bore 17 extending therethrough from a first end 18 to a second end 19. The bore 17 is internally shaped to match the external appearance of the spigot 12 and accordingly has a complementary first portion, second portion and shoulder.

[0016] The first portion 14 of the spigot and the corresponding first portion of the bore (not shown) are circular in cross section. The second portion 15 of the spigot and the corresponding second portion of the bore (not shown) are square in cross section. The second portion radially extends further than the first portion and therefore the paper roll 13 can only be loaded on to the spigot 12 in the orientation shown in the figures. It is impossible for the first end 18 of the paper roll to be placed on to the first end 14 of the spigot and for the paper roll 13 to be fully and correctly loaded on the spigot 14.

[0017] Figure 2 shows the rotatable spigot 12 extending through the support 11 and being provided with a slotted disk 20 mounted thereto. As paper is removed from the paper roll 13, the spigot 12 is caused to rotate.

Therefore, the slotted disk 20 is also rotated at the same rotational speed as the spigot 12. Due to the provision of a slot in the disk 20, the number of revolutions of the spigot 12 and hence the paper roll 13 can be easily recorded. The rate of rotation of the slotted disk 20 and hence the spigot 12 can also be monitored. As the amount of paper on the paper roll 13 is reduced, the rate of rotation of the spigot 12 increases. Thus the operator can easily be informed if the paper roll is soon to be exhausted and that a replacement is required, or that a paper jam has occurred.

Claims

1. A paper dispensing device comprising a support, a rotatable spigot having a first end and a second end and extending from the support; and a paper roll, having a bore extending from a first end to a second end, to be located when in use on the spigot, wherein the spigot and the bore are shaped such that the paper roll can only be fully loaded on to the spigot from the second end to the first end of the paper roll. 15
2. A paper dispensing device according to claim 1, wherein the paper dispensing device is a ticket dispenser. 20
3. A paper dispensing device according to either claim 1 or claim 2, wherein the spigot extends through the support and a slotted disk is attached to the second end of the spigot. 25
4. A paper dispensing device according to claim 4, wherein the spigot and the bore have corresponding first portions extending from the respective first ends to respective shoulders and corresponding second portions extending from the respective shoulders to the support or the second end of the bore respectively. 30
5. A paper dispensing device according to claim 4, wherein the first portions of the spigot and the bore are circular in cross section and the second portions of the spigot and the bore are square in cross section. 35
6. A paper dispensing device according to any of claims 3 to 5, further comprising means for measuring the number of revolutions of the slotted disk. 40
7. A paper dispensing device according to any of claims 3 to 6, further comprising means for measuring the rate of rotation of the slotted disk. 45

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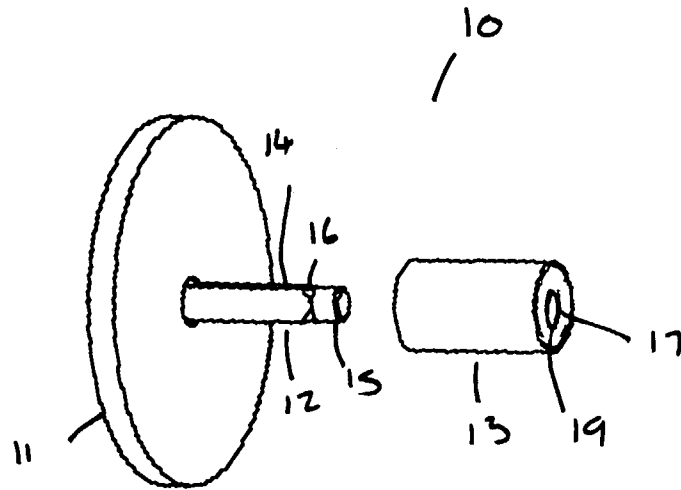


Fig. 1

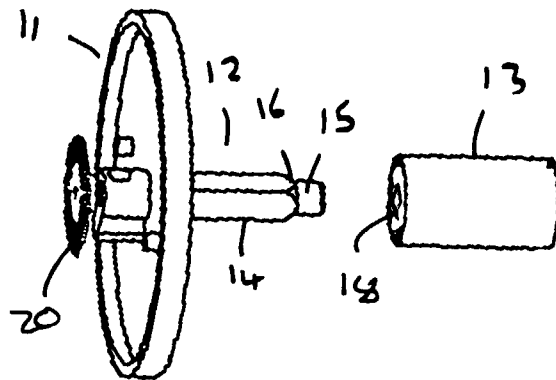


Fig. 2



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Application Number
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Place of search THE HAGUE		Date of completion of the search 30 July 1999	Examiner D'Hulster, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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