



(11) **EP 3 571 953 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**27.11.2019 Bulletin 2019/48**

(51) Int Cl.:  
**A45C 5/02** (2006.01) **A45C 5/06** (2006.01)  
**A45C 5/14** (2006.01) **A45C 13/10** (2006.01)

(21) Application number: **18189491.6**

(22) Date of filing: **17.08.2018**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
Designated Extension States:  
**BA ME**  
Designated Validation States:  
**KH MA MD TN**

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(30) Priority: **21.05.2018 CN 201810490295**

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(54) **AN ALUMINOUS TROLLEY CASE WITH OPEN FRONT**

(57) This invention has disclosed an aluminous trolley case with open front, including case body and draw-bar, it is featured that, said case body is aluminous, said case body has an open in the front, said open is lower than front case body in area, said open is set with a front cover, said front cover contains a hook on the top section, said case body on the top of open contains a lock hole, said hook is matched and connected with a

lock hole, and said case body is set with a unlocking disc. This invention has, through connection between double lock-hook structure on front cover and spring bolt, realized replaceable and openable front cover; through combination between hook and password lock, realized convenient locking and unlocking for front case body, which has saved time to take small articles for travel and realized convenient, fast-easy and flexible application.

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## Description

### TECHNICAL FIELD

[0001] This invention is related to the suitcase field, especially an aluminous trolley case with open front. 5

### BACKGROUND

[0002] The aluminous trolley case is one of tools for daily traveling and mainly used to store daily necessities. However, it is extremely inconvenient to travel with existing aluminous trolley case, because you have to put it down firstly, open the case and then take articles in it; then you have to close and lift it up. This is extremely complicated and inconvenient for people who frequently open the case to take articles, so that the difficulty for travel has been increased. Besides, it is also complicated and inconvenient to lock existing trolley case. 10 15 20

### SUMMARY

[0003] Regarding technical problems, this invention aims to provide an aluminous trolley case with open front that can realize stability of case body and front cover, safe and convenient fetch for articles, flexible usage, convenient locking and unlocking and availability for travel. 25

[0004] In order to solve above technical problems, a solution of this invention is an aluminous trolley case with open front, including case body and draw-bar, said case body is aluminous, said case body has an open in the front, said open is lower than front case body in area, said open is set with a front cover, said front cover contains a hook on the top section, said case body on the top of open contains a lock hole, said hook is matched and connected with a lock hole, and said case body is set with a unlocking disc. 30 35

[0005] Further, said lower front cover is connected with the case body through spring bolt structure.

[0006] Further, said spring bolt structure realizes connection through superposition between snap ring on front cover and spring bolt on case body below the open. 40

[0007] Further, said case body also contains a password lock.

[0008] Further, said password lock is constituted by a password wheel. 45

[0009] Further, said password wheel is connected with an unlocking disc.

[0010] Further, said unlocking disc is connected with the hook. 50

[0011] Further, there are three said password wheels.

[0012] Further, said password lock also contains a key lock hole.

[0013] Further, there are two hooks in said front cover and two lock holes in said case body.

[0014] The beneficial effects from this invention include:

1. Through front open on case body and double lock hook connecting front cover on the open with case body, the front cover can be opened to take articles directly, which is convenient and flexible. Through combination between hook and password lock, the locking can be realized when disorganizing password wheels; while the unlocking can be completed when you rotate password wheels and move the unlocking disc to the left. Therefore, it is very convenient to lock and unlock the case body and has saved much more time to take articles.

2. The design of aluminous case body and front cover has enhanced stability of the case body itself, saved object on front cover and improved security for application.

3. It is convenient to disassemble and assemble through connection between front cover and case body by spring bolt. The front cover can be replaced if necessary and set with various styles on demands, which will increase convenience and enjoyment for travel, eliminate the trouble of disassembling and realize direct fetch of articles through the double lock hook.

### BRIEF DESCRIPTION OF THE DRAWINGS

#### [0015]

Figure 1 is structure diagram of this invention;

Figure 2 is structure diagram of password lock;

Figure 3 is structure diagram of spring bolt;

Figure 4 is usage diagram of this invention;

Figure 5 is amplified structure diagram of password lock;

Figure 6 is vertical structure diagram of this invention;

[0016] Where the numbers as below indicate corresponding part, 1-case body; 2-draw-bar; 3-front cover; 4-unlocking disc; 11-lock hole; 31-hook; 32-snap ring; 12-spring bolt; 5-password lock; 51-password wheel; 52-key lock hole; 6-hole;

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0017] The drawings and embodiment examples will be referred to further describe this invention. It is noted that technical features involved in each embodiment of this invention disclosed as below can be combined provided that they have not any conflict.

**[0018]** This invention has disclosed an aluminous trolley case with open front, as shown in Figure 1 & 6, including case body 1 and draw-bar 2; said draw-bar 2 is located in the top of case body 1, said case body 1 is made up of aluminous materials that will avoid insufficient stability and vulnerability of traditional plastic materials, and light weight of such materials will not increase the weight of trolley case; said case body 1 is designed with an open 6; the area of said open 6 is lower than the front area of case body 1, and said open 6 is preferred and located in the middle of front case body 1 and four rounded angles have been set around said open 6, but the surrounding of said open 6 is not limited to rounded angle, and may be right angle or oblique angle. The said case body 1 is designed with front cover 3 on the front, a certain space has been designed on the top and bottom position of open 6 to set connection for front cover; front cover 3 can cover the complete open 6 and area of front cover 3 is also larger than the one of open 6; top of said front cover 3 contains hook 31; top case body 1 on the open 6 also contains lock hole 11; said hook 31 is matched and connected with lock hole 11. The aluminous materials have been used for case body 1 and front cover 3 of this invention, connection between front cover 3 and case body 1 has been realized via hook 31, which have avoided connection with case body for front cover of traditional front open through raised object that is a plane on the front cover. Such plane is embedded in the case body to realize connection between front cover and case body; when the front cover is opened, such plane will occupy certain space, and hands may be hurt by such plane when taking articles, which is not convenient. There are two hooks 31 and lock holes 11 preferred for this invention. The said case body 1 is designed with unlocking disc 4 which is rotated to connect two hooks 31 with two lock holes 11. Then the complete front cover 3 will be opened to the front. Because bottom of front cover 3 is connected with this case body 1, front cover 3 will not fall down, but only open with a certain angle, about 20-30 degree. Therefore, in case of emergency, front cover 3 shall be removed only to take inside articles, which is convenient and fast-easy. After that, front cover 3 can be closed directly and will be locked in the case body 1 automatically through double lock hook 31. The bottom of front cover 3 can be connected with case body 1 by hinge, snap joint and spring bolt, but it is not limited to the above. The said bottom of front cover 3 is preferred to connect with case body 1 by spring bolt. As shown in Figure 3, spring bolt 12 realizes connection through superposition between snap ring 32 of front cover 3 and spring bolt 12. The spring bolt 12 can be rotated only to remove the complete front cover 3 and then the snap ring 32 of front cover 3 is pulled to the right to remove front cover 3 easily, while installation can be completed when snap ring 32 is pulled to the middle of case body 1 and aligned with hole position and spring bolt 12 is loosened.

**[0019]** As shown in Figure 2 and Figure 5, in order to avoid safety of articles in case body 1, prevent them from

being stolen and solve the trouble of pulling the bar aligned with password lock 5 to turn off password lock 5 on existing trolley 2 case, the case body 1 of this invention also contains a password lock 5 that is constituted by password wheel 51 and such wheel is connected with unlocking disc 4. When password indicated on password wheel 51 is consistent with default password, unlocking disc 4 is available; otherwise, unlocking disc 4 is under deadlock condition and also connected with the hook on front cover 3. When the unlocking disc 4 is rotated to the left, the hook will move to the left, which has relieved connection between the hook and lock hole 11 and realized open and preferred front cover 3. There are three said password wheels 51. The connection structure here for unlocking disc 4 is same with the one of existing common trolley 2 case, i.e. three number wheels on password lock 5 are designed on a plastic column with a small plastic gear respectively. When three wheel gears are rotated to default position, matched gears will be pressed down, then spring on left of wheel gear will lift up, pull the wheel gear to the right and push a vertical column on the right away, then unlocking disc 4 for password lock 5 will be available.

**[0020]** In order to prevent the user from forgetting password, methods of opening front cover 3 have been increased. The said password lock 5 also contains a key lock hole 52; besides, the key can also be used to open front cover 3 and key lock hole 52 is also connected with unlocking disc 4. If the key is unavailable, the unlocking disc 4 is deadlocked; otherwise, unlocking disc 4 can be moved. The key is connected with unlocking disc 4 here as below, when the key is rotated, wheel gear in the key will be pressed, then spring on left of wheel gear will lift up, pull the wheel gear to the right and push a vertical column on the right away, then unlocking disc 4 for password lock 5 will be available.

**[0021]** Besides, the said front cover 3 for this invention can be replaced. If front cover 3 is broken or worn, it can be replaced directly, which is convenient and fast-easy. Besides, various styles can be set for front cover 3 on demands. For example, the style of front cover 3 for travel will be different from the one for business. Therefore, the user can replace front cover 3 on demands, which is convenient and fast-easy and can increase enjoyment of life.

**[0022]** The usage of this invention is described as shown in Figure 4:

First, three password wheels 51 shall be used to set the open password and then be disorganized, unlocking disc 4 will be in deadlock status and trolley 2 case will be in closed condition and cannot be turned on; when password wheel 51 is rotated to designated position or the key is used to open key lock hole 52, unlocking disc 4 will be available and then rotated to move hook 31 on front cover 3 to the left thus to relieve connection with case body 1, and front cover 3 is opened to take articles in it; the spring bolt 12 under the front cover 3 shall be rotated only

to remove front cover 3; and you shall press to connect hook 31 with lock hole 11 again, front cover 3 can be closed.

**[0023]** Through front open on case body and double lock hook connecting front cover on the open with case body, the front cover can be opened to take articles directly, which is convenient and flexible. Through combination between hook and password lock, the locking can be realized when disorganizing password wheels; while the unlocking can be completed when you rotate password wheels and move the unlocking disc to the left. Therefore, it is very convenient to lock and unlock the case body and flexible to use and has saved much more time to take articles.

**[0024]** The above is preferred embodiment of this invention only and will not have any limit for technical scope of this invention, therefore, any change or modification made based on claims and instruction of this invention belongs to the scope covered for this patent.

## Claims

1. An aluminous trolley case with open front, including case body and draw-bar, has been disclosed and it is featured that, said case body is aluminous, said case body has an open in the front, said open is lower than front case body in area, said open is set with a front cover, said front cover contains a hook on the top section, said case body on the top of open contains a lock hole, said hook is matched and connected with a lock hole, and said case body is set with a unlocking disc. 25  
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2. According to an aluminous trolley case with open front said in claim 1, it is featured that said lower front cover is connected with the case body through spring bolt structure. 35  
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3. According to an aluminous trolley case with open front said in claim 2, it is featured that said spring bolt structure realizes connection through superposition between snap ring on front cover and spring bolt on case body below the open. 45
4. According to an aluminous trolley case with open front said in claim 1, it is featured that said case body also contains a password lock. 50
5. According to an aluminous trolley case with open front said in claim 4, it is featured that said password lock is constituted by password wheels. 55
6. According to an aluminous trolley case with open front said in claim 5, it is featured that said password wheel is connected with an unlocking disc.

7. According to an aluminous trolley case with open front said in claim 6, it is featured that there are three said password wheels.

5 8. According to an aluminous trolley case with open front said in claim 6, it is featured that said unlocking disc is connected with the hook.

10 9. According to an aluminous trolley case with open front said in claim 6, it is featured that said password lock also contains a key lock hole.

15 10. According to an aluminous trolley case with open front said in claim 1, it is featured that there are two hooks in said front covert and two lock holes in said case body. 20

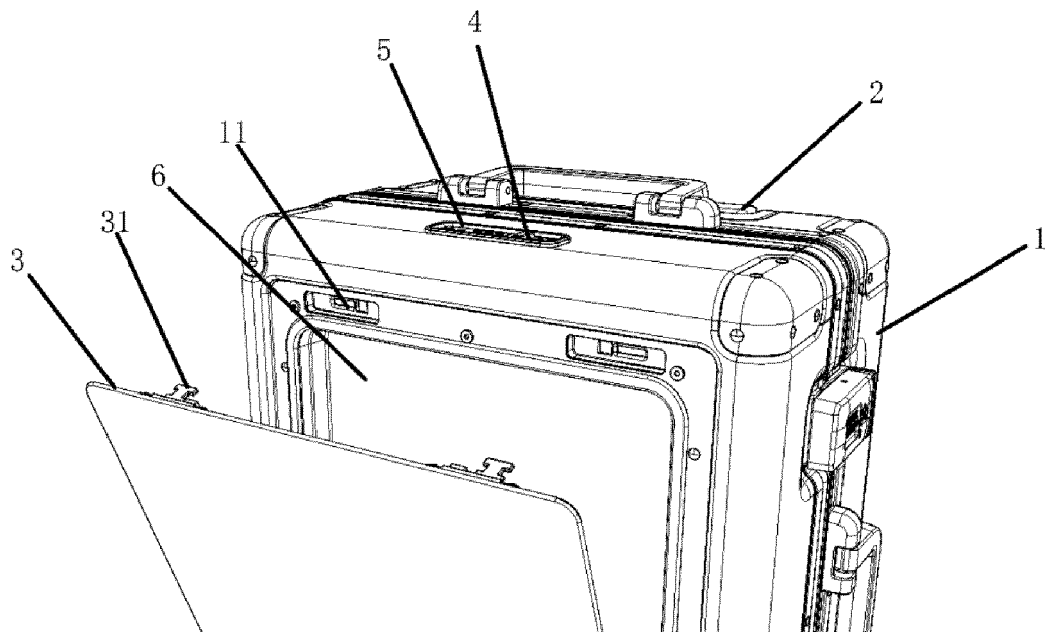


Fig 1

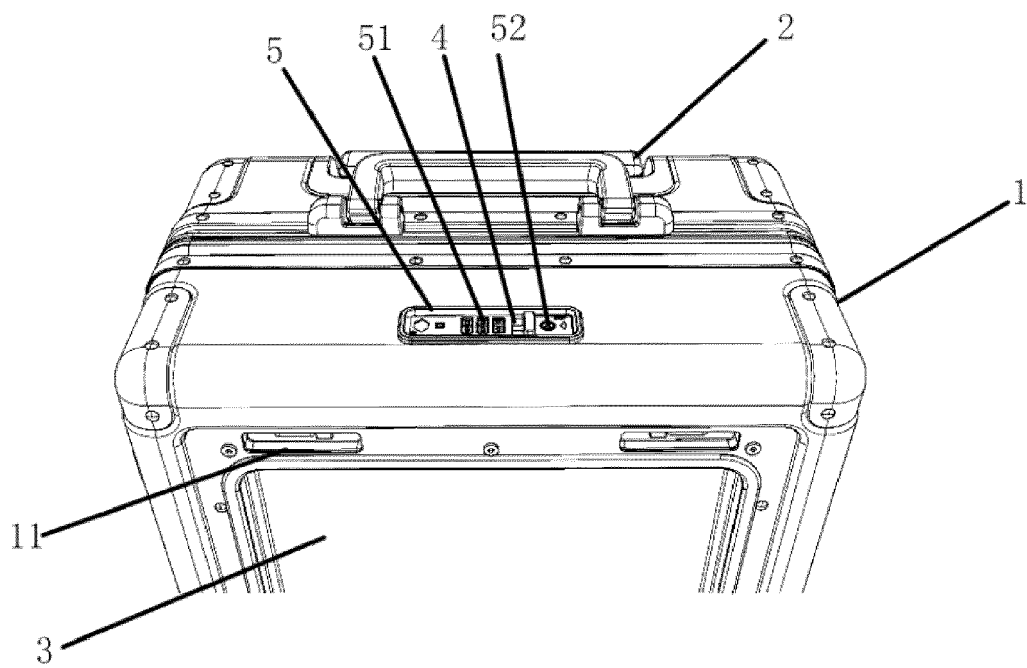


Fig 2

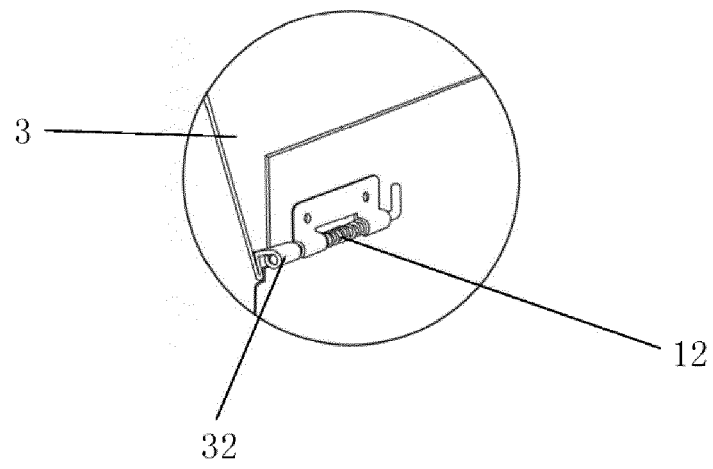


Fig 3

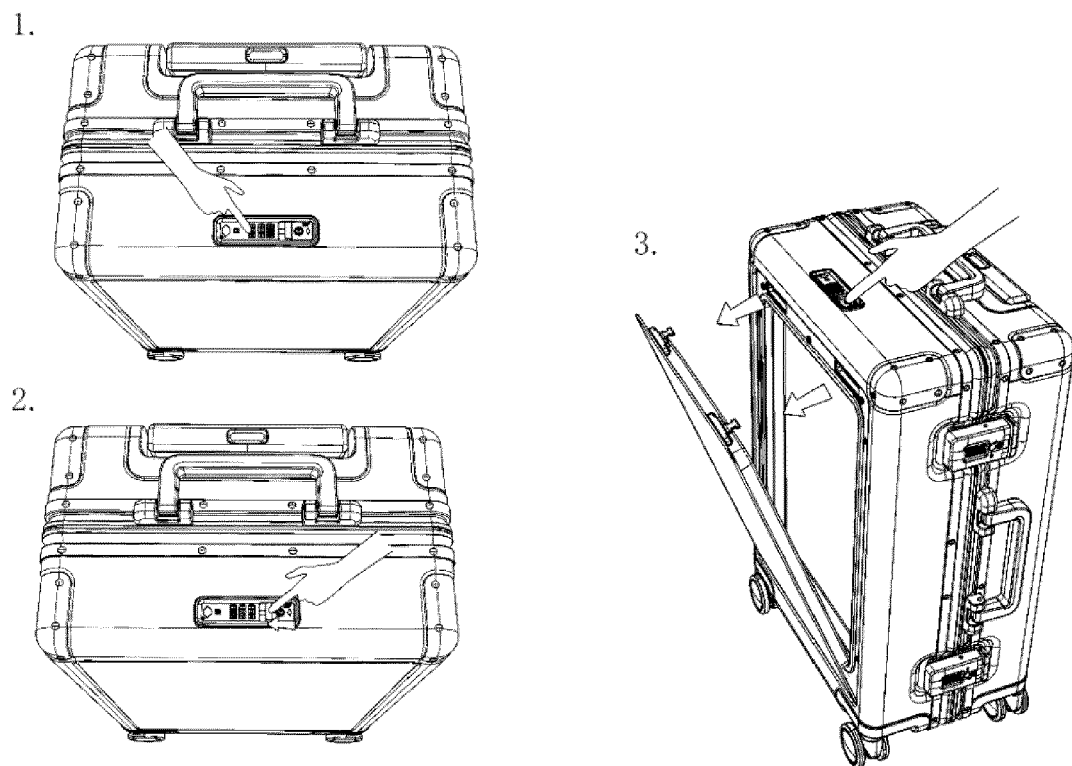


Fig 4

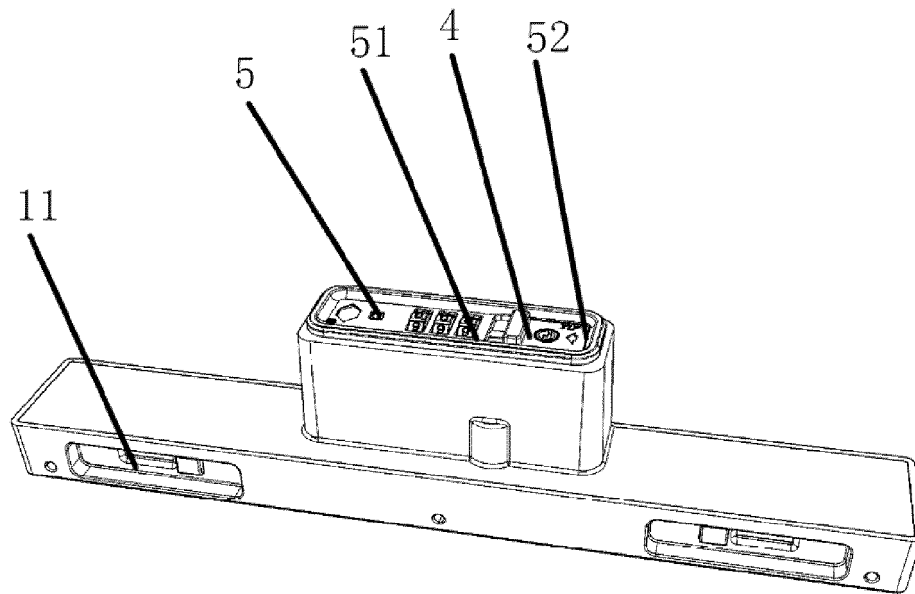


Fig 5

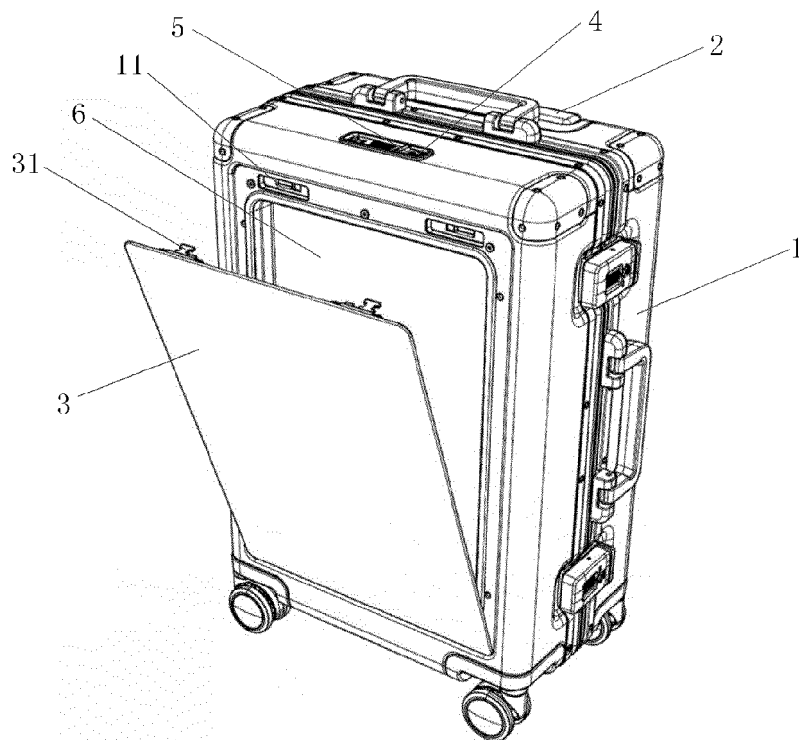


Fig 6



## EUROPEAN SEARCH REPORT

Application Number  
EP 18 18 9491

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Place of search The Hague		Date of completion of the search 20 September 2018	Examiner Nicolás, Carlos
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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