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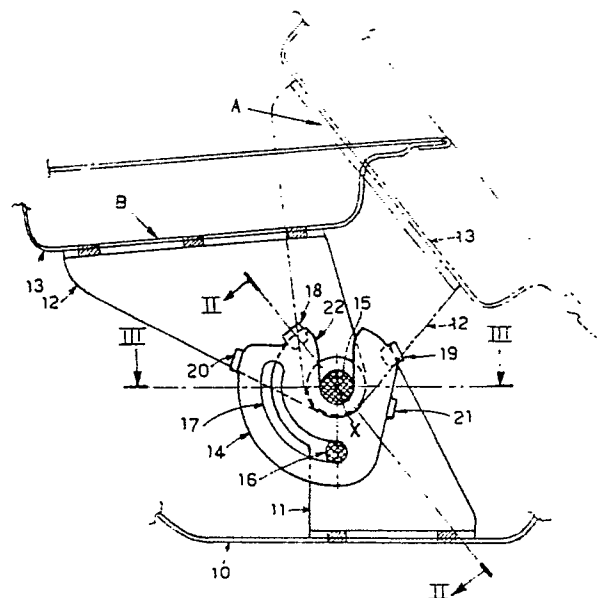
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54 **Hinge for hoods and luggage compartment lids of motor vehicles.**

57 A hinge for motor vehicles hoods and luggage compartment lids (13) comprises an appendix (11) of the hood or compartment equipped with a V-shaped seat (22) to house a hinge pin (15) of an appendix (12) of the lid (13); a small plate (14) can be fitted to the appendix (11) of the hood or compartment in a rotating mode on it around the axis of the hinge and is equipped with a V-shaped seat (22) corresponding to the above mentioned one and with a semicircular slot (17) having a coincident axis with the one of the hinge, into which a screw (16) is engaged which is screwed in the appendix of the hood or compartment.

Fig. 1



**EP 0 317 745 A1**

## HINGE FOR HOODS AND LUGGAGE COMPARTMENT LIDS OF MOTOR VEHICLES

The invention refers to a hinge for motor vehicles hoods and luggage compartment lids.

The hinges employed in this sector at the moment consist of two parts hinged to each other by means of a riveted pin. The two above elements are then fastened to the framework of the lid and to the motor vehicle by means of screws.

The assembly of this type of hinge usually requires manual intervention as some operations are needed that cannot be carried out by an automated device.

The purpose of the invention is to propose a particular type of hinge for hoods and for luggage compartment lids, suitable for the assembly on motor vehicles by automated devices (robots, for instance) without the intervention of workers for the hinge fastening. This is a remarkable advantage as motor vehicle manufacturers lately tend to eliminate the greatest part of manual intervention.

In order to reach this and other purposes which will be better understood as the description follows, the invention proposes to realize a hinge for motor vehicle hoods and luggage compartment lids characterized in that it comprises an appendix of the hood or compartment equipped with a V-shaped seat to house a hinge pin of an appendix of the lid; a small plate can be fitted to the appendix of the hood or compartment in rotating mode on it around the axis of the hinge and it is equipped with a V-shaped seat corresponding to the above mentioned one and with a semicircular slot having a coincident axis with the one of the hinge, in which a screw is engaged which is screwed in the appendix of the hood or compartment. The description of the hinge according to the invention is following and reference is being made to the enclosed drawings:

Figure 1 is a section view of the motor vehicle close to the hinge, subject to the invention;

Fig. 2 is a section view according to the outline II-II of Fig. 1;

Fig. 3 is a section view according to the outline III-III of Fig. 1,

Fig. 4 is a section view of the motor vehicle as in Fig. 1 but with elements in differing operating conditions.

The hinge subject of the invention consists of a plate 11 welded to the vehicle body 10 and of a plate 12 welded to the framework of the lid 13.

On plate 12 a hinge pin 15 is riveted, while on plate 11 a little plate 14 is assembled and constrained to it by a locking screw 16 which is screwed into a hole of the plate 11 through a slot 17 of the plate 14. Furthermore, the latter is se-

cured to the outer edge of plate 11 by its tongues 18 and 19, turned over the outer edge of plate 11.

The plate 14 also foresees outer tongues 20 and 21 turned over the outside of the unit.

Finally, both plate 11 and plate 14 bear a V-shaped seat which is countersunk at the mouth 22 where pin 15 of the plate 12 is inserted in order to realize on it the hinge axis X.

The assembly of the unit will be carried out in the following way: plate 14 will be applied to plate 11 by means of screw 16 which will not be fully screwed so that plate 14 be rotatable around the hinge axis X, until it assumes the position of Fig. 2 where the V-shaped seats 22 of the little plate 14 and of plate 11 coincide.

An adequately preset robot will lift the lid 13 on the side of the assembly line and will position it so that the pin 15 will be inserted, at limit stop, in the seats 22, as illustrated with dash-and-dot line in position A of fig. 1.

A second robot will rotate the little plate 14 acting on its tongues 20 and 21 so as to reach the position of fig. 4 where the screw 16 has reached the opposite limit stop, with respect to Fig. 1, into the slot 17 and the seat 22 of the plate 11 is closed by the sides of the little plate 14. Then, the screw 15 will be locked against the sides of the slot 17 thus avoiding that the little plate 14 effect any rotation.

After the above, the robot will leave the grip of the lid 13 which will be able to rotate to closed position B illustrated in Fig. 1.

### Claims

1. Hinge for motor vehicles hoods and luggage compartment lids characterized in that it comprises an appendix of the hood or compartment equipped with a V-shaped seat to house a hinge pin of an appendix of the lid; a small plate can be fitted to the appendix of the hood or compartment in rotating mode on it around the hinge axis and it is equipped with a V-shaped seat corresponding to the above mentioned one and of a semicircular slot having a coincident axis with the one of the hinge, in which a screw is engaged which is screwed in the appendix of the hood or compartment.

2. Hinge according to claim 1 characterized in that on the little plate tongues are foreseen turned over the appendix of the hood or compartment that slide on it during the rotation of the little plate.

3. Hinge according to claim 1 characterized in that the condition in which the V-shaped seats of the appendix of the hood or compartment and of

the little plate coincide, correspond to the condition in which the screw is at limit stop on a side of the slot, while the locking condition of the screw on the slot is being realized when the little plate is being rotated to close the V-shaped mouth seat of the appendix of the hood or compartment and the same screw is at stop limit on the opposite side of slot. 5

4. Hinge according to claim 1 characterized in that on the little plate grasping tongues are foreseen for the positioning of the same plate. 10

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Fig. 1

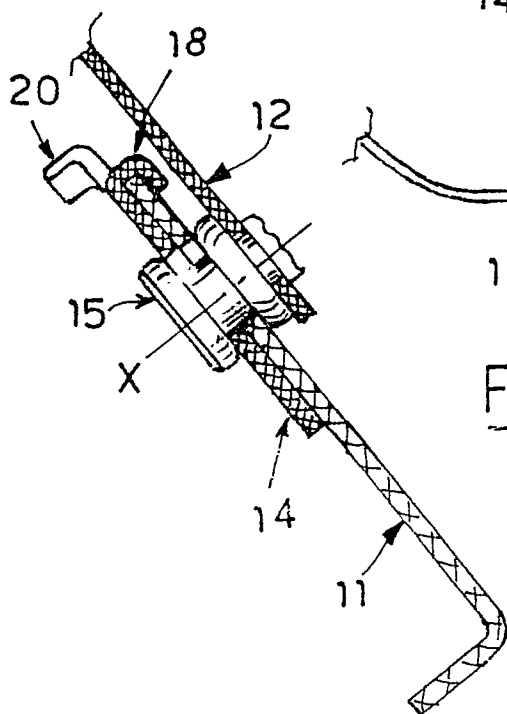
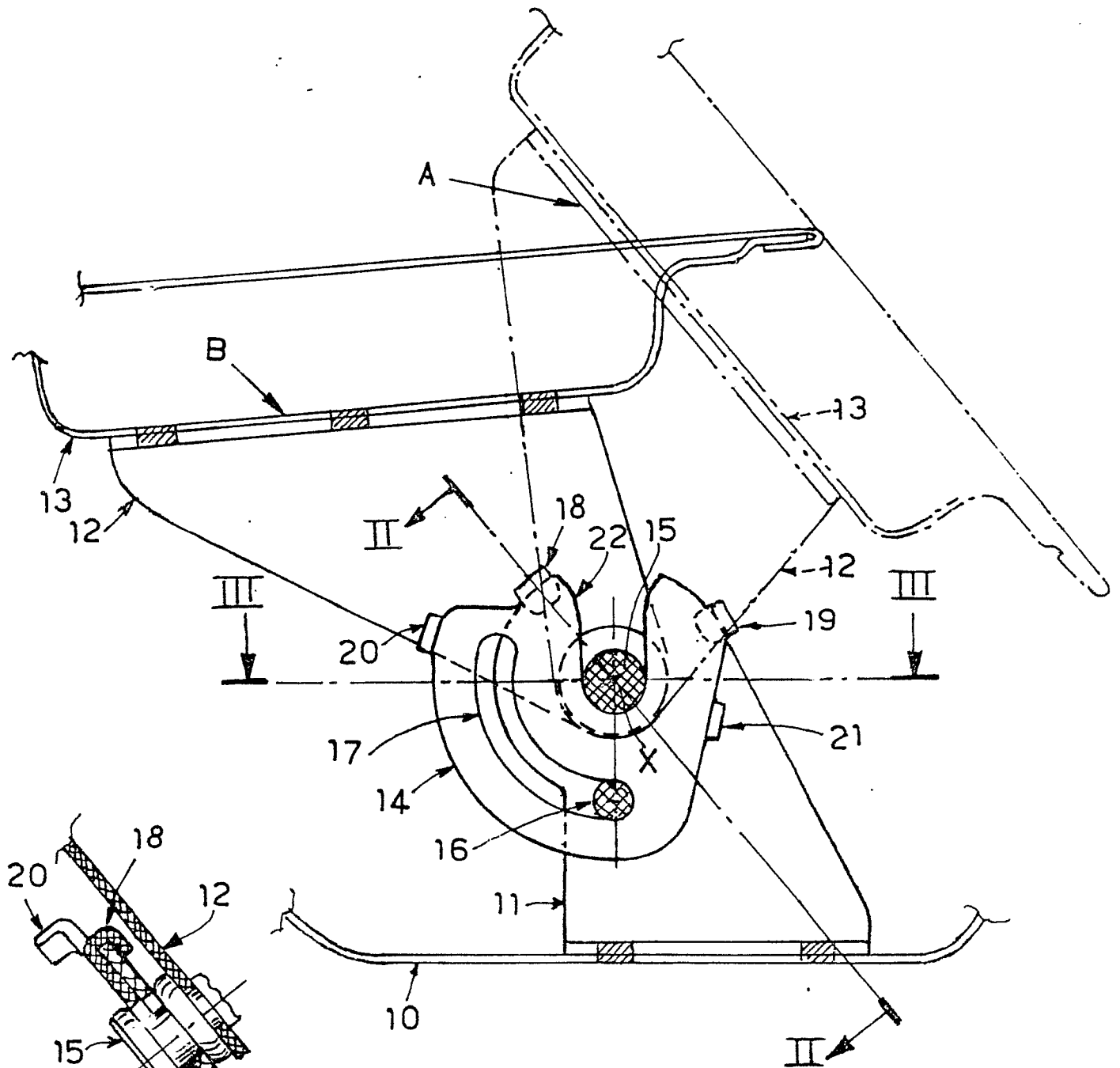


Fig. 2

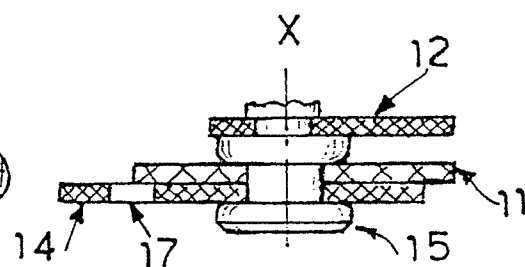
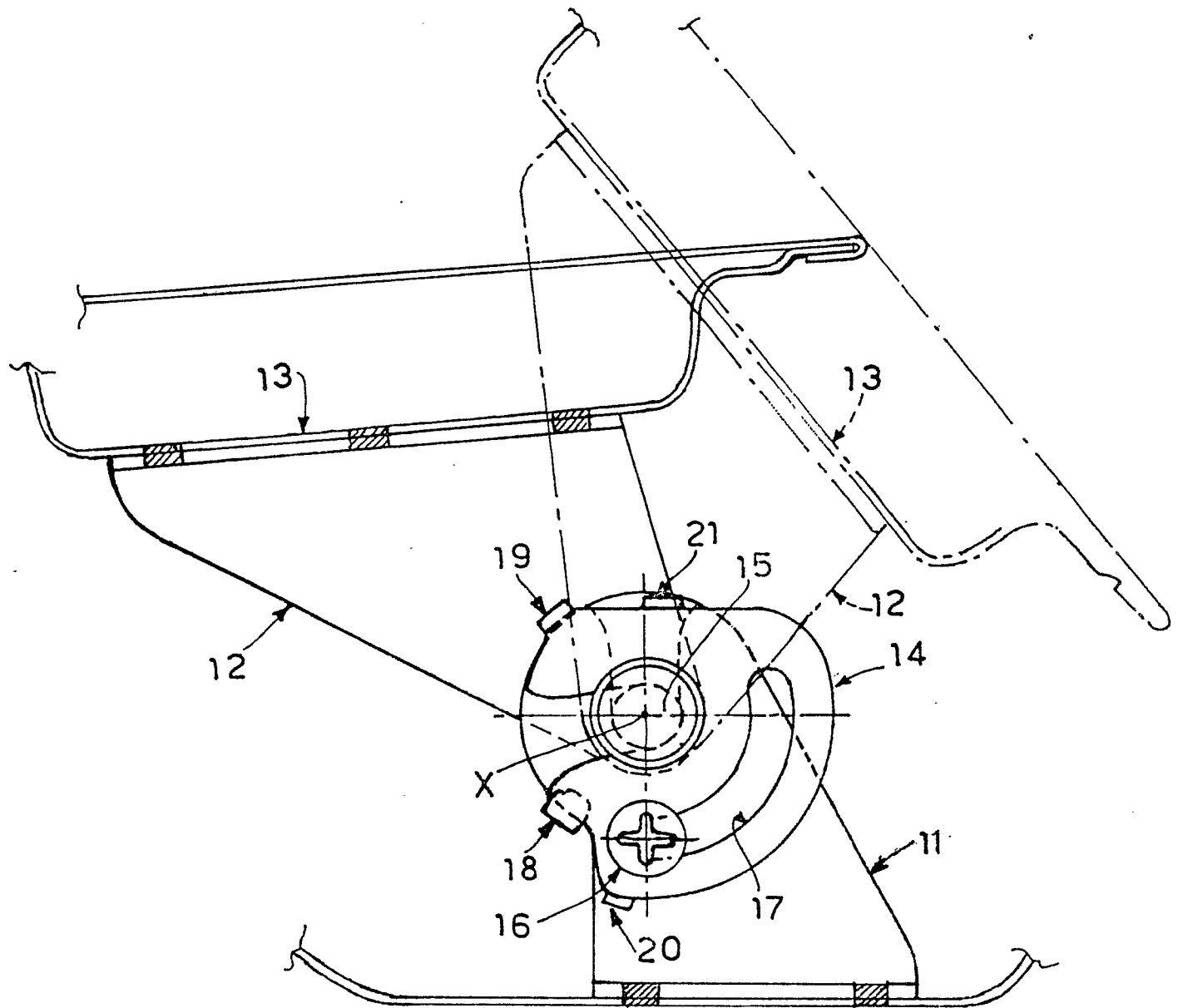


Fig. 3

Fig.4





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.4)
A	FR-A-1 302 645 (AUTOMOBILES BERLIET) * Page 1, column 2, paragraphs 1,2; page 2, column 1, paragraph 1; figure 4 *	1	E 05 D 7/10
A	US-A-2 487 648 (GREEN) * Column 1, lines 39-55; column 2, lines 1-22; figures 1-5 *	1-4	
A	US-A-2 275 907 (KAHN) * Page 1, column 1, lines 28-55; column 2, lines 1-23 *	1,2,4	
A	FR-A-2 295 204 (LA TELEMECANIQUE ELECTRIQUE)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			E 05 D B 62 D E 06 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27-02-1989	Examiner NEYS B.G.
<b>CATEGORY OF CITED DOCUMENTS</b> 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			