

May 9, 1933.

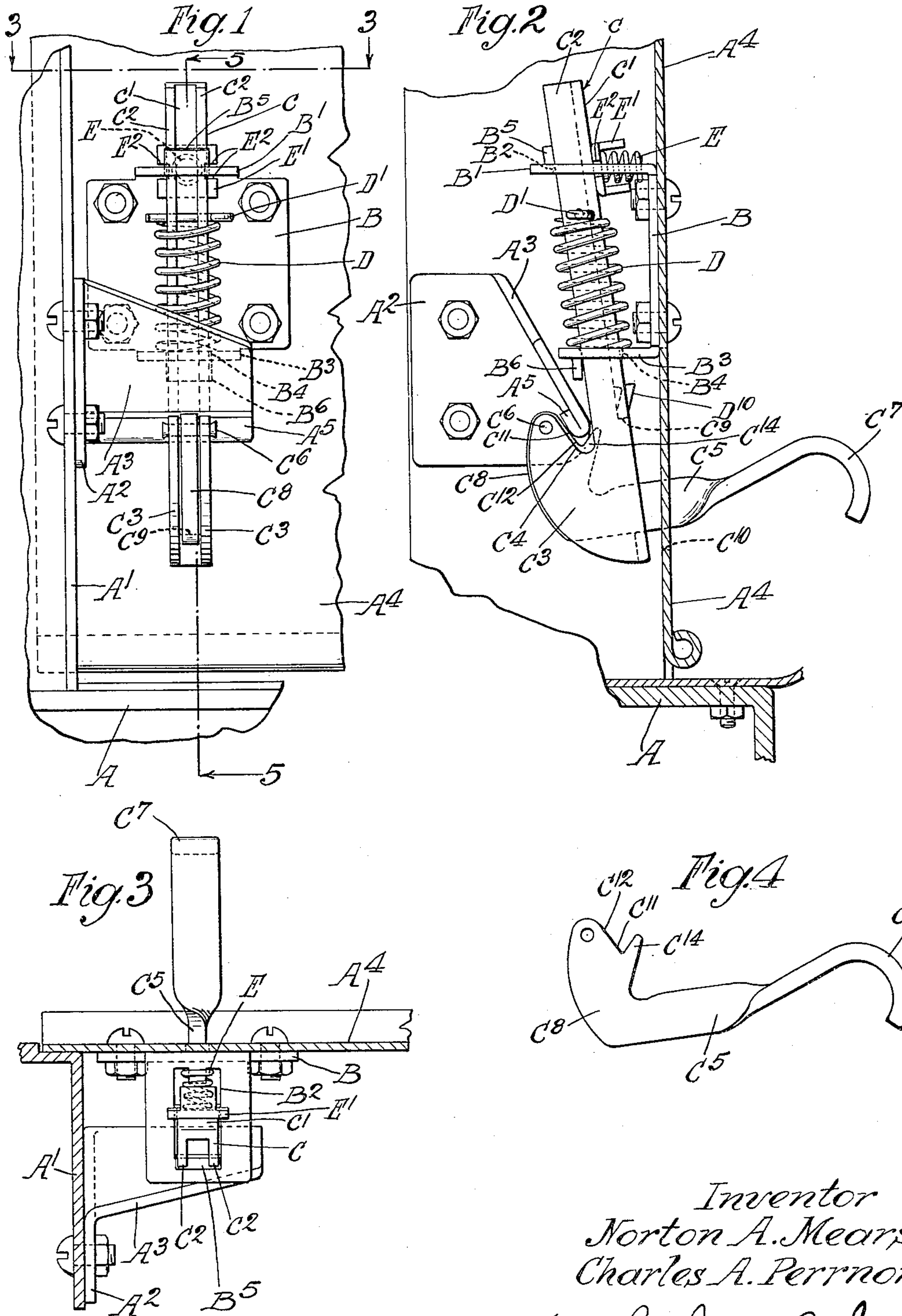
N. A. MEARS ET AL

1,907,432

HOOD LATCH

Filed Jan. 2, 1932

2 Sheets-Sheet 1



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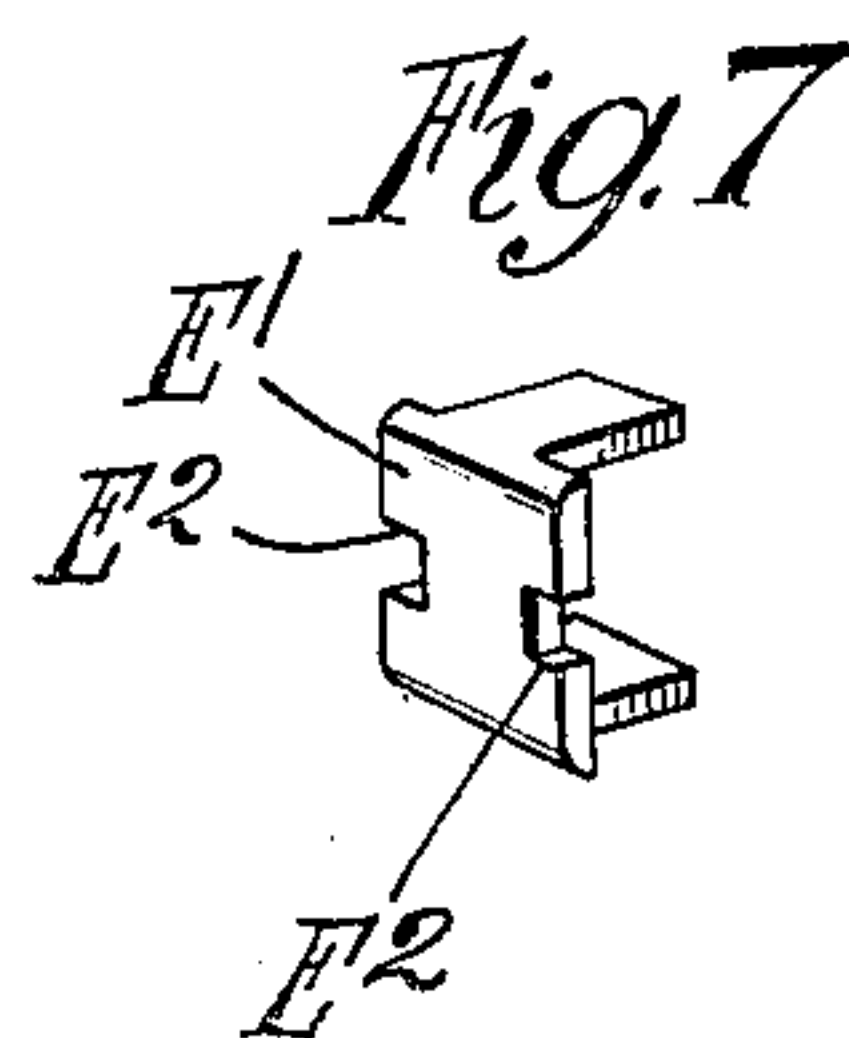
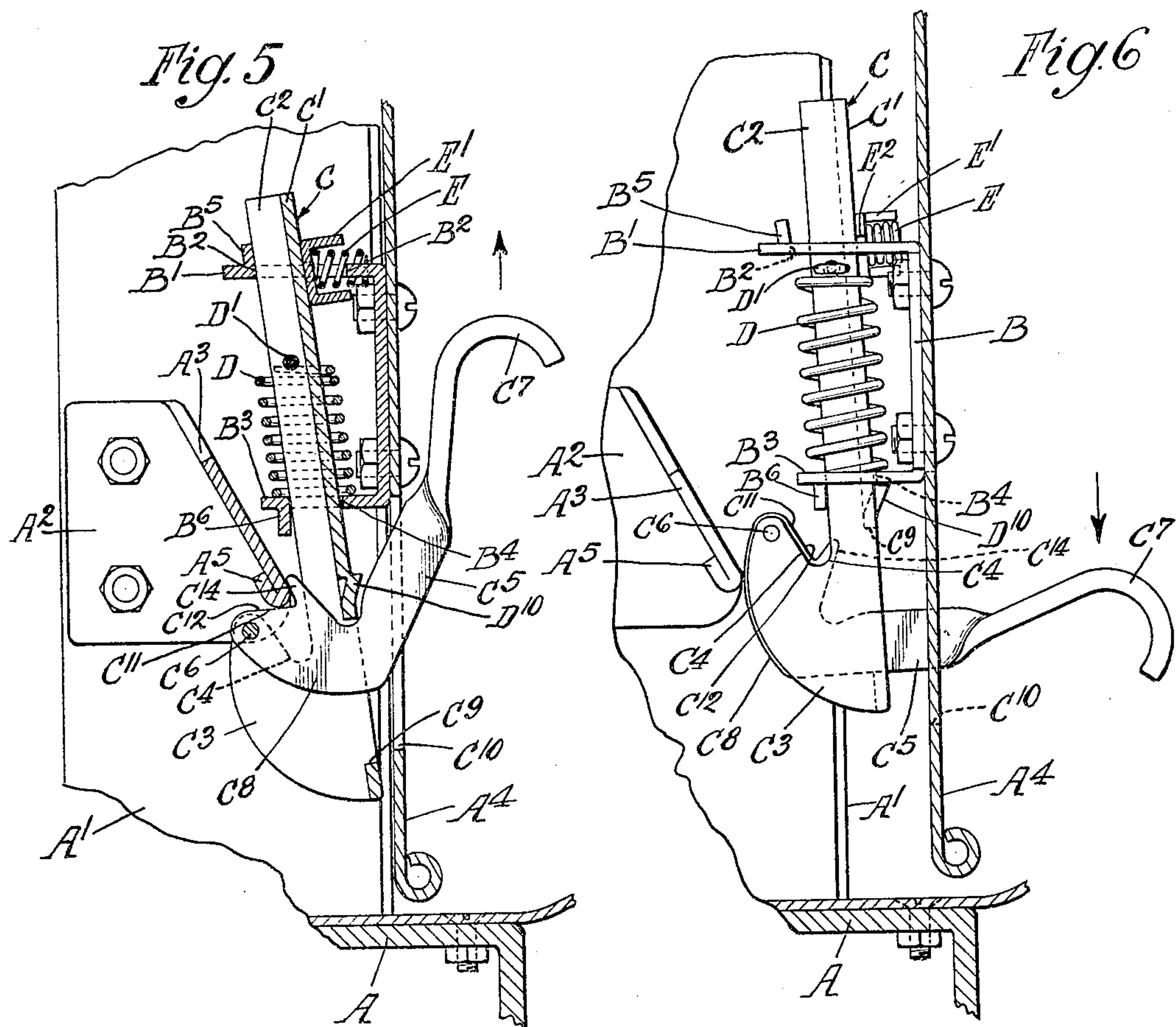
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HOOD LATCH

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2 Sheets-Sheet 2



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HOOD LATCH

Application filed January 2, 1932. Serial No. 584,386.

Our invention relates to a device for latching the double hinged closure of an automobile hood and has for one purpose the provision of such a latching or securing means which shall be easy to operate and shall securely hold the lower edge of the hood in such fashion as to prevent rattling. Another object is the provision of such a device which shall have for effect to draw the lower edge of the hood closure both downwardly and inwardly in order to hold it firmly. Other objects will appear from time to time in the course of the specification and claims.

We illustrate our invention more or less diagrammatically in the accompanying drawings, wherein—

- Figure 1 is an inner elevation;
- Figure 2 is a side elevation;
- Figure 3 is a section on the line 3—3 of Figure 1;
- Figure 4 is a detail;
- Figure 5 is a section on the line 5—5 of Figure 1;
- Figure 6 is a view similar to Figure 2 with parts in a different position; and
- Figure 7 is a detail.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, Figures 2, 5 and 6 show the latch in varying positions, the device being in the latching position of Figure 2, approaching the release position in Figure 5 and fully released in Figure 6.

A indicates a portion of the automobile frame and A¹ an upward extension therefrom, upon which is mounted a bracket A² having a forward face A³ downwardly and outwardly inclined toward the inner face of the hood closure A⁴. The portion A³ may be provided with a reinforced lower lip as at A⁵.

Mounted on the inner face of the closure A⁴ is a bracket B having the upper flange B¹ apertured as at B² and the lower flange B³ apertured as at B⁴. It will be understood that the upper aperture B² is of greater length than the aperture B⁴ but may be of substantially the same width. The two apertures may be bounded at their inner ends as by the lips B⁵ B⁶ bent from the stock of the flanges B¹ and B³.

Slidable in the brackets so formed and in the apertures B² B⁴ is a shank C herein shown as U-shaped in cross-section and including a forward portion C¹ and side portions C² bent at right angles thereto to form a channel. The side portions C² are expanded at their lower ends as at C³ the sheet metal portion C³ being formed with hook-shaped apertures or notches C⁴. The shank C and its associated portions may be described as a latch bolt. Pivoted within the member C³ as at C⁶ is the release and handle lever C⁵ having the outer handle portion C⁷. The lever C⁵, as shown for example in Figures 2, 5 and 6, includes a bent or U-portion C⁸ which passes through an aperture C⁹ in the member C¹ and through an aperture C¹⁰ in the closure A⁴. It is also provided with a notch or indentation C¹¹ which, when the parts are in the locking position in which they are shown in Figure 2, conforms generally to the notch C⁴. The notch is slightly narrower than the notch C⁴, in such wise that the face C¹² of the notch C¹¹ actually engages the lip A⁵ of the keeper, when the parts are in locking position. In other words it is the lever C⁵ which directly receives the locking aperture rather than the side member C³ of the channel shank C.

The shank or latch bolt C and its associated lever C⁵ are normally constrained to upward thrust against the lip A⁵ by the employment of a coil spring D which is compressed between the upper face of the bracket flange B³ and any suitable abutment D¹, for example a pin, passing through the side members C² of the shank C. The expansion of the spring D tends to move the shank C upwardly through the apertures B² B⁴ of the bracket B. The engagement of the face C¹² with the lip A⁵, as will be clear from the relation of the parts in Figure 2, effects a camming, locking action, the upward movement of the face C¹² tending to draw the lower edge of the hood not only downwardly but inwardly. When the device is in the locking position in which it is shown in Figure 2, clockwise rotation of the lever C⁵ in relation to the shank C is limited by the engagement of the lever C⁵ with the lower end of the slot C⁹. The parts are so proportioned, as

shown in Figure 2, that it is the cam surface C^{12} of the lever C^5 which engages the lip A^5 , and not any portion of the notches C^4 of the members C^3 . Therefore, during the locking position a camming relationship is at all times maintained between the lip A^5 and the cam surface C^{12} of the lever C .

In moving of the latch bolt from the unlatched position of Figure 6 to the intermediate position of Figure 5 in preparation to the latching position of Figure 2, the lever C^5 also engages the lower end of the aperture C^9 and permits the shank C^2 to be moved downwardly through the guides B^2 B^3 . In order to permit the ready snapping of the latch bolt over the lip A^5 , we have formed the upper guide aperture B^2 of greater length than the lower guide aperture B^4 . It is also greater than the width of the shank C^2 , whereas the lower aperture B^4 conforms closely to the width of the shank C^2 . This permits a certain tilting of the latch member, with the lower guide aperture B^4 as the pivot or fulcrum. This tilting, however, is normally resisted by the employment of the small coil spring E which is compressed between the abutment member E^1 , slidable in the aperture B^4 and the outer end of the aperture B^4 . The abutment E^1 is channeled or notched as at E^2 in order to guide it for movement along the slot or aperture B^2 . When the handle C^7 is released, and as the spring E expands to the position in which it is shown in Figure 2, pressure is exerted as at B^6 to draw the hood in and hold it inwardly under the tension of the spring E . Any suitable guiding retaining abutments are formed in the end wall of the aperture B^2 , and on the sliding abutment member E^1 , to retain the spring E in position.

The upward movement of the shank or latch bolt C and its assembly in response to the expansion of the spring D may be limited as by any suitable stop D^{10} herein shown as upset from the shank C itself.

It will be realized that whereas we have described and shown a practical and operative device, nevertheless many changes might be made in the size, shape, number and disposition of parts without departing from the spirit of our invention. We therefore wish our description and drawings to be taken as in a broad sense illustrative and diagrammatic rather than as limiting us to our specific showing.

The use and operation of our invention are as follows:

In the operation of the device, assume that the parts are in the unlocked position in which they are shown in Figure 6. The user applies downward pressure to the handle portion C^7 in the general direction indicated by an arrow in Figure 6. This downward pressure moves the shank or latch bolt C and its assembly, compressing the spring D , until

the nose formed by the notches C^4 and C^{11} passes beneath the lip A^5 . The downward pressure also tends to compress the spring E as shown in Figure 6, moving the upper end of the latch bolt or shank outwardly toward the inner face of the closure A^4 . This causes an inward tilting of the locking nose toward the keeper and increases the ease with which the nose may be slid beneath the lip A^5 of the keeper. As soon as the nose has crossed beneath the lip A^5 the pressure on the handle C^7 may be released and the expansion of the spring D will then be effected to move the parts into the locking position in which they are shown in Figure 2, and to hold them in such position. The spring also acts to draw the hood in toward the keeper by moving the shank C in the upper guide aperture against the abutment lip B^5 . This causes the exertion of pressure at B^6 , tending to draw the hood inwardly. It is thus held tightly against the abutment members to which the hood is fitted. The camming thrust of the face C^{12} against the lip A^5 applies force tending to draw the lower edge of the closure A^4 downwardly and inwardly in a firm non-rattling engagement with the opposed parts of the automobile. In releasing the parts from locking position the user applies force upwardly upon the handle C^7 along the general direction of the arrow shown in Figure 5. This rotates the lever C^5 about its axis C^6 , lifting the face C^{12} to the position in which it is shown in Figure 5 and thus forcing the lip A^5 out of the notch C^4 C^{11} , or, more accurately, forcing the notch C^4 downwardly and tilting the camming face C^{12} into a generally horizontal position, permitting its easy withdrawal from beneath the lip A^5 . The finger C^{14} , associated with the surface C^{12} , also acts as a kick-off, tending to push the latch assembly outwardly away from the keeper. The clockwise rotation of the lever C^5 is limited also by the upper limit of the aperture C^9 .

We claim:

1. In latching means for the multiple hinge closure of an automobile hood, a keeper positioned within the hood, a latch bolt positioned within the closure and means, mounted on the closure, for guiding the latch bolt for movement along a generally upright path, said means including a plurality of vertically aligned guide members apertured to receive the latch bolt, the upper of said guide apertures being elongated to permit the latch bolt to move in such aperture toward and away from the hood, the lower guide aperture conforming generally to the dimensions of the latch bolt, means for normally urging the latch bolt upwardly in relation to said guide members, and means tending normally to move the upper portion of said latch bolt inwardly away from the inner face of the hood, along said upper

guide aperture, and means for actuating the latch bolt including a handle extending exteriorly of the hood and having a portion in operative relationship with the latch bolt.

5 2. In latching means for the multiple hinge closure of an automobile hood, a keeper positioned within the hood, a latch bolt positioned within the closure and means, mounted on the closure, for guiding the latch bolt for
10 movement along a generally upright path, said means including a plurality of vertically aligned guide members apertured to receive the latch bolt, the upper of said guide apertures being elongated to permit the latch bolt
15 to move in such aperture toward and away from the hood, the lower guide aperture conforming generally to the dimensions of the latch bolt, means for normally urging the latch bolt upwardly in relation to said guide
20 members, and means tending normally to move the upper portion of said latch bolt inwardly away from the inner face of the hood, along said upper guide aperture, and means for actuating the latch bolt including a
25 handle extending exteriorly of the hood and being pivoted to said latch bolt inwardly of the hood.

3. In latching means for the multiple hinge closure of an automobile hood, a keeper positioned within the hood, a latch bolt positioned within the closure and means, mounted on the closure, for guiding the latch bolt for
30 movement along a generally upright path, said means including a plurality of vertically aligned guide members apertured to receive the latch bolt, the upper of said guide apertures being elongated to permit the latch bolt to move in such aperture toward and
35 away from the hood, the lower guide aperture conforming generally to the dimensions of the latch bolt, means for normally urging the latch bolt upwardly in relation to said guide members, and means tending normally to move the upper portion of said latch bolt
40 inwardly away from the inner face of the hood, along said upper guide aperture, and means for actuating the latch bolt including a handle extending exteriorly of the hood and being pivoted to said latch bolt inwardly of
45 the hood, said handle including a portion adapted to engage the keeper when the parts are in latched position.

4. In latching means for the multiple hinge closure of an automobile hood, a keeper positioned within the hood, a latch bolt positioned within the closure and means, mounted on the closure, for guiding the latch bolt for move-
55 ment along a generally upright path, said means including a plurality of vertically aligned guide members apertured to receive the latch bolt, the upper of said guide apertures being elongated to permit the latch bolt to move in such aperture toward and away from the hood, the lower
60 guide aperture conforming generally to the

dimensions of the latch bolt, means for normally urging the latch bolt upwardly in relation to said guide members, and means tending normally to move the upper portion of said latch bolt inwardly away from the inner face of the hood, along said upper guide aperture, and means for actuating the latch bolt including a handle extending exteriorly of the hood and being pivoted to said latch bolt inwardly of the hood, said handle including a portion adapted to engage the keeper when the parts are in latched position, the opposed portions of handle and keeper being in camming relationship.

5. In latching means for the multiple hinge closure of an automobile hood, a keeper positioned within the hood, a latch bolt positioned within the closure and means, mounted on the closure, for guiding the latch bolt for movement along a generally upright path, said means including a plurality of vertically aligned guide members apertured to receive the latch bolt, the upper of said guide apertures being elongated to permit the latch bolt to move in such aperture toward and away from the hood, the lower guide aperture conforming generally to the dimensions of the latch bolt, means for normally urging the latch bolt upwardly in relation to said guide members, and means tending normally to move the upper portion of said latch bolt inwardly away from the inner face of the hood, along said upper guide aperture including a spring having one spring abutment fixed in relation to the hood and another spring abutment movable with the latch bolt.

Signed at Chicago, county of Cook, and State of Illinois, this 30th day of December 1931.

NORTON A. MEARS.
CHARLES A. PERRNON.

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