July 23, 1940. O. SCHAFFLER 2,208,818

RECEDING DOOR LATCH HANDLE

Filed May 23, 1939 3 Sheets-Sheet 1

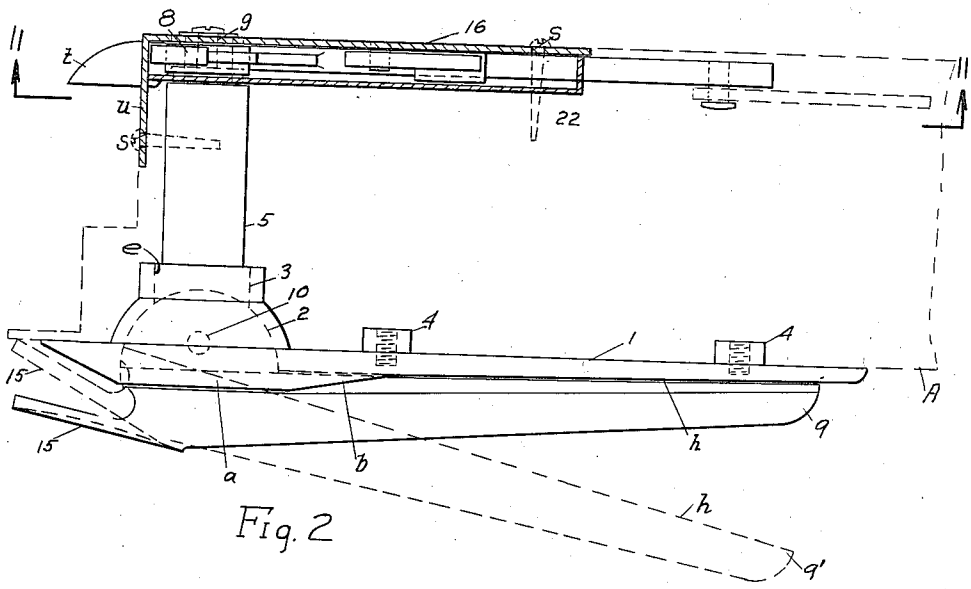


Fig. 2

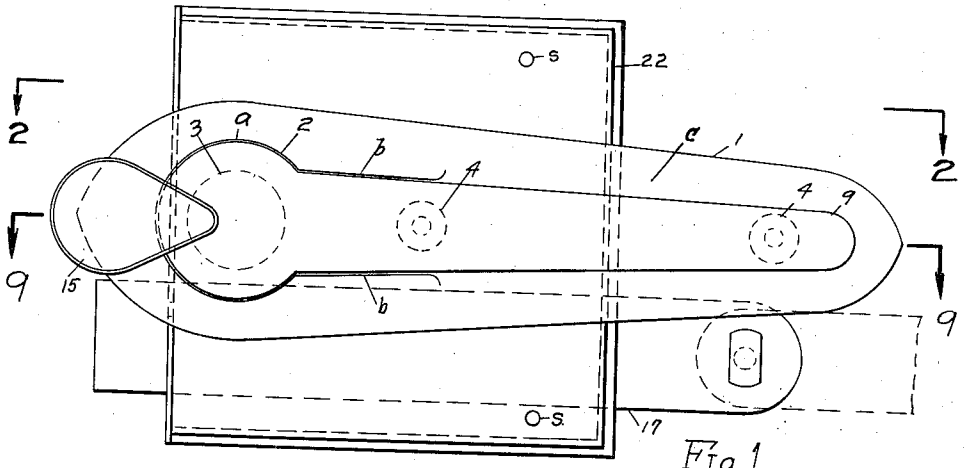


Fig. 1

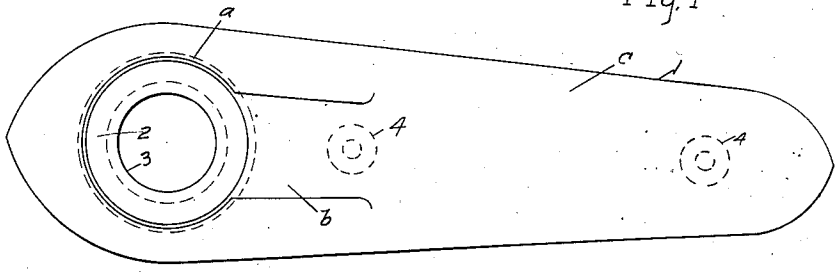


Fig. 3

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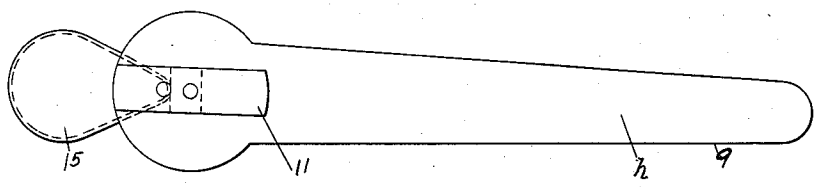


Fig. 5

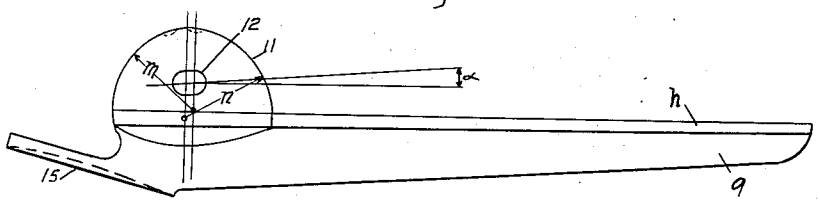


Fig. 4

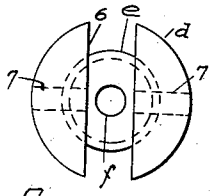


Fig. 7

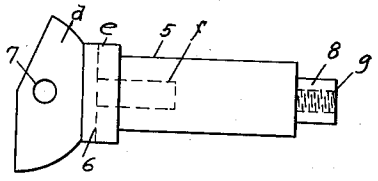


Fig. 6

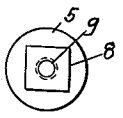


Fig. 8

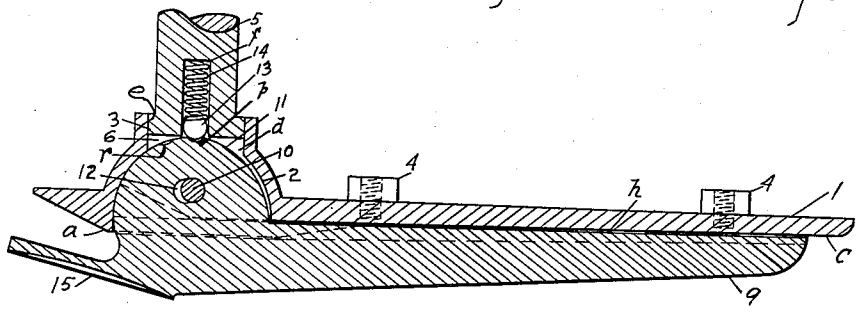


Fig. 9

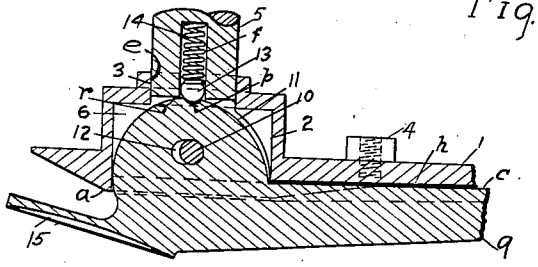


Fig. 10

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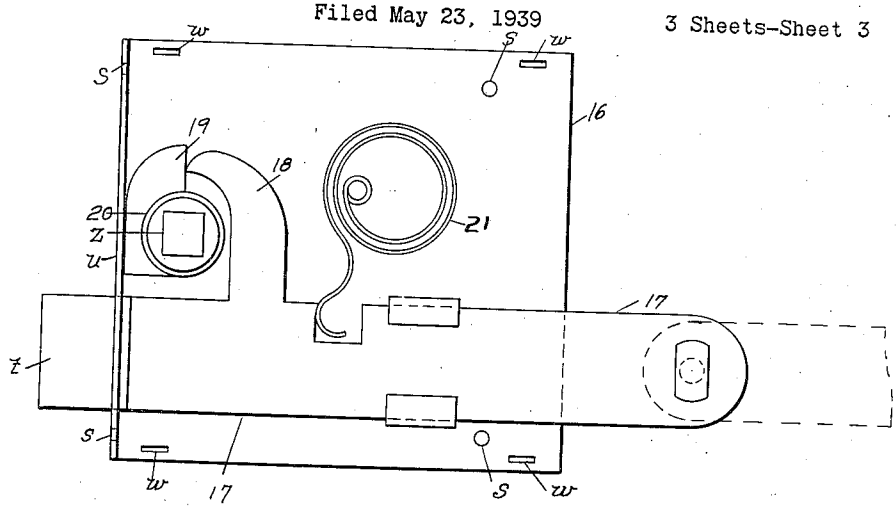


Fig. 11

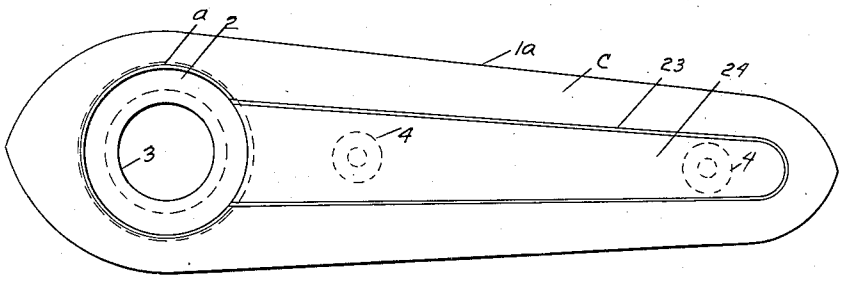


Fig. 12

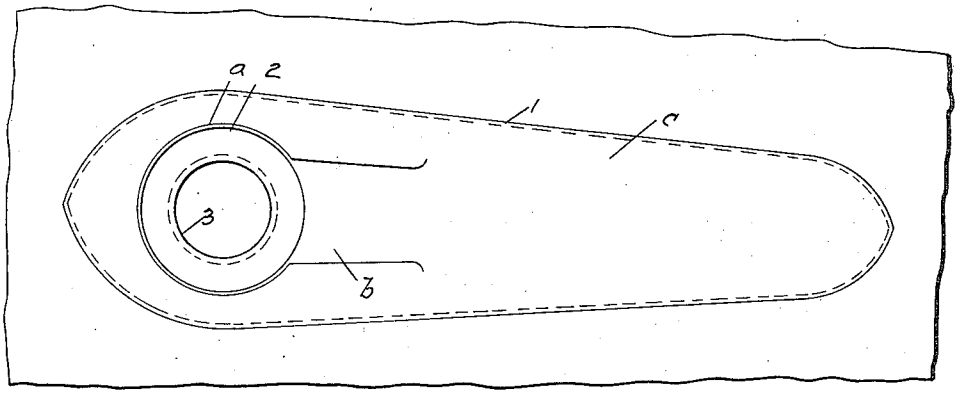


Fig. 13

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UNITED STATES PATENT OFFICE

2,208,818

RECEDING DOOR LATCH HANDLE

Oscar Schaffler, Detroit, Mich.

Application May 23, 1939, Serial No. 275,145

5 Claims. (Cl. 292—347)

The object of my invention is to produce a door handle for operating an attached door latch mechanism, and so designed that the handle may be depressed flat against the door surface when not in use.

Another object is to provide a receding door handle suitable for stream lined vehicle bodies, that will minimize the exterior projecting parts.

A further object is to provide a receding door latch handle that will automatically close with the shutting of the supporting door.

A still further object is to produce a receding door latch handle that is simple in construction, easily and efficiently operated and that can be manufactured at a very low cost.

These several objects are attained in the preferred form by the construction and arrangement of parts more fully hereinafter set forth.

Similar parts on all drawings are marked by similar numerals or letters.

Fig. 1 is an elevation of the assembled handle and connected latch unit, showing the general arrangement of the exterior members.

Fig. 2 is a top sectional view through the latch unit and supporting door panel, taken on the line 2—2 of the Fig. 1, showing the relative position of the various parts.

Fig. 3 is an elevation of the door handle shield plate, showing the various recesses formed therein.

Fig. 4 is a detail side view of the handle bar, showing the means for mounting and adjusting same when mounted within the shield plate recess.

Fig. 5 is a top, or inside view of the handle bar showing the stop latch recesses formed therein.

Fig. 6 is a side view of the operating spindle showing the detain construction thereof.

Fig. 7 is an end view of the spindle hub showing the handle groove formed therein and the latch well in the groove bottom.

Fig. 8 is the opposite end view of the operating spindle showing the means for engaging the latch mechanism.

Fig. 9 is a cross-sectional view through the handle section, taken on the line 9—9 of the Fig. 1, showing the relative position of the various assembled operating parts.

Fig. 10 is also a similar cross-sectional view along the same line 9—9 of Fig. 1, showing a modified operating spindle hub.

Fig. 11 is an elevation of a typical latch unit, taken on the line 11—11 of the Fig. 2, with the casing and operating spindle removed, illustrating a simple latch unit structure to which my handle is especially adaptable.

Fig. 12 is an elevation of a modified door handle shield plate having a full handle recess formed therein.

Fig. 13 is a further modification of the shield illustrating the formation thereof when depressed directly into the door covering metal, as a part of the door wall.

It is to be understood that I make no claim to the door latch or lock mechanism, as my invention is confined to the receding handle unit only.

I will now describe more fully the detail construction of my device, referring to the drawings and the marks thereon.

In general, my device comprises an elongated bar handle section formed with a projecting hinge lug at one end thereof, and is pivotally attached to the end of the operating spindle, controlled by friction means mounted therebetween. The assembled unit is mounted within a special shield plate attachable to the door panel, and positioned thereon with the projected spindle end engaged with the operating member of the door latch unit as may be mounted on the opposite door surface.

The handle shield plate 1 is made of suitable metal, either pressed or cast, and is preferably formed into an elongated flat ornamental section, suitable for installation on the outer door panel wall. A semi-spherical recess 2 is formed in one end of the shield plate, preferably the larger end and positioned centrally therein. The recess 2 is provided with a cylindrical bearing 3 at the bottom thereof and concentric with the spherical recess axis. The bearing 3 is herein illustrated at right angles to the shield plate surface, although it may be positioned at a predetermined angle therewith should the supporting door panel be formed with a beveled or curved outer surface as is common with the present day automobile body construction. A beveled wall projection *a* is preferably formed around the shield recess 2 partially inclosing same, providing a special handle recess *b* at one side thereof symmetrical with the shield plate axis, said handle recess *b* being flush with the shield outer surface *c*. Threaded attaching lugs 4 are provided on the inner shield surface for fixedly attaching the plate to the outer surface of supporting door panel A, as illustrated in Fig. 2 of the drawings. Within the shield recess 2 and connecting bearing 3 is mounted an operating spindle 5, also formed with a semi-spherical head *d* and bearing

shoulder *e*, designed to fit and rotate within the shield plate recess. The spindle head *d* is formed with a hinge slot 6 crosswise thereof symmetrical with the spindle axis, and is provided with a hinge pin recess 7 formed at right angles thereto. A cylindrical latch well *f* is formed at the slot recess bottom concentric with the spindle axis. The cylndrical spindle body is provided with a latch engaging boss 8 at the opposite end thereof, formed with a threaded recess *g*, opening therein, both concentric with the spindle axis. The handle 9 is pivotally mounted within the spindle slot 6 by means of the pivot pin 10. The handle 9 is made of metal, preferably of cast steel or similar suitable metals, and is herein illustrated as an elongated tapered bar section formed with an inner flat surface *h* and having an approximately semi-circular hinge boss 11 projected therefrom at one end, positioned at right angles to the inner handle face *h*. The hinge boss 11 is designed to fit and engage the hinge slot 6 of the operating spindle when pivotally mounted therein. The boss 11 is preferably formed of two approximately circular quadrant sections *m* and *n*, of different radii and centers, as indicated in the Fig. 4 of the drawings. The outer hinge quadrant section *m* is preferably formed of a radius coinciding with that of the handle shield recess 2, positioned to engage therewith when the handle 9 is closed thereon. The adjacent inner quadrant section *n* is formed of a slightly longer radius, but with a raised and retracted center, so as to withdraw the lower portion of the segment edge from the shield recess wall, contacting therewith only at the outer shield edge when the handle is in its closed position, as indicated in Fig. 9. The hinge boss 11 is provided with an elongated pivot slot 12, formed at right angles therethrough, positioned to coincide with the pivot recess 7 of the operating spindle, when mounted therein. The hinge slot 12 is positioned at an angle with the connecting spindle axis, as indicated in the Figs. 4 and 9, and provides a slight hinge displacement when the handle 9 is raised from the shield plate surface, as indicated by the dotted line 9' of Fig. 2. A friction ball latch 13 and compressed operating spring 14 are mounted within the spindle well *f*, designed to engage the handle hinge boss recesses *p* and *r* in their respective closed and open positions, for rigidly restraining the handle in chosen positions. The opening of the handle 9 is effected by slight manual pressure applied to the thumb arm 15, thus rotating the same about its supporting pivot 10 and causing the slight handle displacement within the connecting pivot slot 12, and likewise engaging the latch ball 13 with the recess *r*. The slight handle displacement about the pivot 10, allows the engaging friction latch means to more firmly and effectively restrain the handle when moved to its extreme positions. The handle may be closed manually, or effected automatically by the impact of the closing door itself due to the inertia of the elongated handle arm. For some applications of this handle a plain pivot joint, without the hinge slot may be used.

The latch mechanism herein shown in Fig. 11, is only illustrative of any typical latch unit operative by a rotatable tumbler block, and to which type my device is especially adapted. The latch unit shown comprises a flanged face plate 16, designed to fit over and attach to the door panel edge by ordinary screws inserted through the openings *s*, as illustrated in Fig. 2, and carries an ordinary latch bar 17 slidably mounted thereon, positioned to project the latch point *t* outside the face plate flange *u*. The latch bar 17 is provided with a projected side arm 18, positioned thereon to engage the lug arm 19 mounted on the side of the hub block 20. The hub block 20 is formed with a square central opening *z* therethrough and is rotatably mounted in the face plate 16, designed to receive the spindle boss 8 therein when assembled with the handle mechanism. The latch bolt 17 is restrained in its extended position by the connected stressed spiral spring 21. A sheet metal casing 22 is fitted over the face plate 16 and attached thereto by the lug recesses *w*, or any other suitable means. Whenever the handle 9 is opened from the shield plate 1, and rotated clockwise in the supporting bearing 3, the connecting latch unit hub 20 and lug 19 will likewise be rotated sufficiently to displace the latch bolt 17, and allow the supporting door panel A to swing open. My special handle unit is applicable to any similar latch operated mechanism. When the handle 9 is in its closed position, rotation is prevented by the engaging wall projections *a* formed around the shield recess 2 and adjoining handle recess *b*.

A modified spindle is illustrated in the Fig. 10, showing the application of my receding handle applied to a straight cylindrical spindle or hub, instead of the semi-spherical hub previously described. The operation is the same as previously described.

Fig. 12 illustrates a modification of the shield plate 1*a*, designed with a full handle recess 23 formed therein, providing means for weather-proofing the unit in its closed position. If desired the recess 23 may be fitted with a rubber lining 24 for forming a more perfect joint between the shield and handle members, and to make its operation noiseless.

The Fig. 13 shows a similar handle shield pressed directly into the door panel sheet metal, integral therewith. Its application and operation is the same as heretofore described.

It is apparent my device is subject to various modifications without departing from the spirit of my invention, and I therefore claim not only the structure herein shown but any modification thereof that is substantially a substitution of parts or sections herein disclosed.

Having fully described my receding door latch handle, what I claim as my invention and desire to secure by Letters Patent is:

1. A receding door latch handle adapted for operating latch mechanism on a door panel, and used therewith, comprising a recessed handle shield, a latch operating spindle rotatably mounted through the shield recess, designed to be engageable with a rotatable operating member of a door latch unit, an elongated handle member pivotally mounted at one end, to the inner end of said operating spindle, said handle member being closable with the outer shield surface and provided with adjustable means for longitudinal displacement when rotated on its supporting pivot.

2. A receding door latch handle adapted for operating latch mechanism on a door panel, and used therewith, comprising a suitable recessed handle shield for fixedly mounting on a door panel face, said shield being formed with a cylindrical bearing opening within the recessed section, an operating spindle rotatably mounted within said shield recess and bearing, positioned to be engageable with a rotatable operating unit

of a door latch mechanism, an elongated handle formed with a slotted hinge member at one end, pivotally mounted on the inner end of said operating spindle, within the shield recess, and closable upon the shield surface, means provided on said handle for causing a longitudinal displacement thereof on its supporting pivot when rotated thereon, and means provided for engaging and restraining said handle in pre-determined positions.

3. A receding door handle for operating latch mechanism on a door panel, and used therewith, comprising a suitable handle shield formed with a recessed bearing section in one end thereof and provided with means for fixedly attaching same to a door panel face, a hubbed latch operating spindle rotatably mounted within the shield recess bearing, the outer end of said spindle being projected through the shield and provided with means for engaging rotatably an operating member of a door latch mechanism, an elongated handle member formed with a slotted hinge rib at one end for pivotally mounting on the inner hub end of the operating spindle, within the shield recess, said handle being closable with the shield face and capable of displacement on its supporting pivot within the hinge rib slot, when rotated thereon, and a spring friction latch unit mounted between the spindle and handle members for restraining said handle in various predetermined positions of rotation on said pivot.

4. A receding door handle for operating latch mechanism on a door panel, and used therewith, comprising a suitable handle shield formed with a semi-spherical recess and central bearing near one end thereof and with a handle recess extending lengthwise of the shield surface, means formed on said shield for fixedly attaching the same to a door panel surface, a latch operating spindle formed with a slotted semi-spherical hinge hub rotatably mounted within the shield recess and bearing, the outer end of said spindle being formed to engage operatively with a rotatable latch operating member of a door latch mechanism, an elongated bar handle formed with a slotted hinge rib at one end thereof, pivotally mounted within the spindle hinge hub within the shield recess, said handle hinge rib slot being positioned at a pre-determined angle with the connected spindle axis and capable of providing longitudinal handle adjustment when the said handle is rotated on its supporting pivot, thumb means formed on the handle end for opening same and causing said longitudinal adjustment, spring friction latch means mounted within the spindle, engageable with the handle hinge rib recesses for restraining said handle in various predetermined positions.

5. A receding door handle for operating latch mechanism of a door panel, and used therewith, comprising a handle shield formed with a recessed bearing section near one end thereof, designed for fixedly mounting on a door panel, a latch operating spindle rotatably mounted through the shield recessed bearing, positioned with its outer end engageable with a rotatable latch operating unit of a door latch mechanism, an elongated bar handle formed with a hinge rib near one end thereof, pivotally mounted on the inner end of said spindle, within the shield recess, said handle hinge rib being of a design comprising approximately two quadrant sections of different radii and centers, also provided with an elongated pivot mounting slot therethrough positioned at a predetermined angle with the connecting spindle axis, engaging means formed on the handle for opening same and causing a slight longitudinal handle displacement on its supporting pivot when rotated, friction restraining means mounted between the spindle end and the connected handle rib designed to restrain said handle in various predetermined positions of rotation about said pivot.

OSCAR SCHAFFLER.