

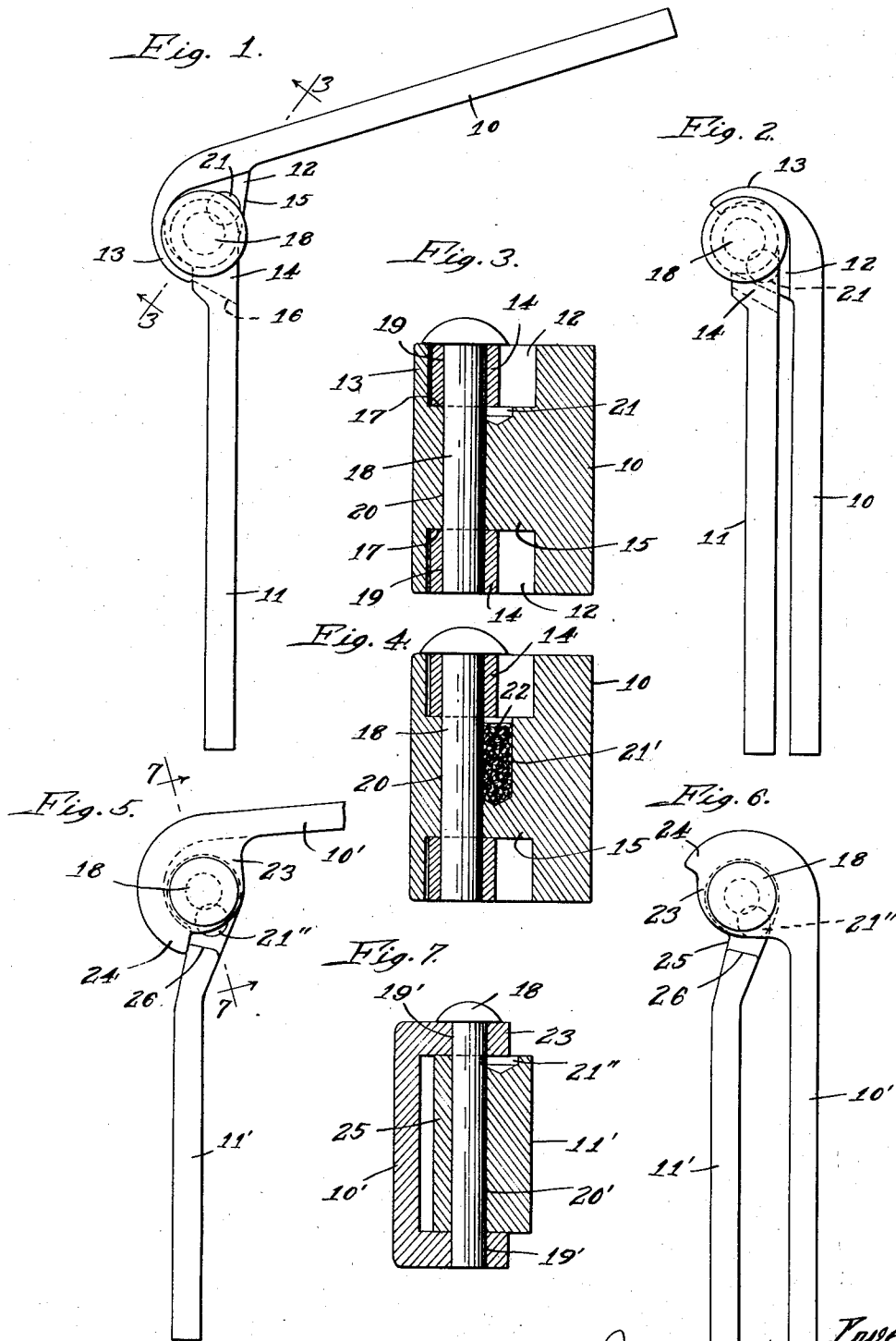
July 18, 1933.

J. T. ATWOOD

1,918,513

HINGE

Filed June 26, 1931



Inventor:
By James T. Atwood
Wilson, Dowell, McCarra & Rehm
Attys

UNITED STATES PATENT OFFICE

JAMES T. ATWOOD, OF ROCKFORD, ILLINOIS

HINGE

Application filed June 26, 1931. Serial No. 547,023.

This invention relates to an improved hinge for use in the mounting of automobile doors and the like.

Automobile door hinges are, as a rule, very unhandy to lubricate because of their peculiar construction. Any attempt to oil the same merely results in the oil running over the outside and dripping onto the running boards or fenders, very little of the oil being introduced between the bearing surfaces to do any good. Such faulty lubrication has invariably resulted in the hinges becoming loose because of the doors not swinging freely. It is, therefore, the principal object of my invention to provide a hinge of this kind with an oil well at the upper end of the pintle bearing preferably in such a position that the same is easily accessible for oiling purposes when the door is opened, and is concealed and covered when the door is closed, whereby to prevent dirt and water from entering the same. The well serves as a repository for a small amount of oil sufficient to keep the hinge lubricated for an appreciable length of time, and holds the oil at least until it has an opportunity to work in between the bearing surfaces so that there is no wasting of oil or messing of the car by dripping. The outside of the hinge, furthermore, remains clean, the oil well being properly located so as to allow the oil to be conducted only between the bearing surfaces.

The invention is hereinafter described by reference to the accompanying drawing, in which—

Figure 1 is a plan view of a hinge embodying my invention, the same being shown opened;

Fig. 2 is a similar view showing the hinge closed;

Fig. 3 is a cross-section on the line 3—3 of Figure 1;

Fig. 4 is a similar section showing a modified or alternative construction;

Figs. 5 and 6 are views similar to Figs. 1 and 2 showing the embodiment of my invention in a hinge of a different construction, and

Fig. 7 is a cross-section on the lines 7—7 of Fig. 5.

Similar reference numerals are applied to corresponding parts throughout the views.

Referring first to Figs. 1-3, the hinge shown comprises an outer hinge member 10 and an inner hinge member 11 arranged to be fastened by screws to the automobile door frame and door, respectively. Both hinge members have the main body portion provided by a blank cut from bar stock rolled to the desired cross-section, the general shape of cross-section of the hinge members being clearly indicated in Figs. 1 and 2. The outer hinge member 10 is milled out on the inner face thereof at its butt end at the two points 12 to provide knuckle recesses; a circular milling tool being used and sufficient stock being left at the end of the milling operation to provide the cover 13 for each of the recesses. The recesses are large enough to afford ample clearance therein for the knuckles 14 of the inner hinge member and the latter are arranged to be connected with the middle knuckle 15 formed on the outer hinge member 10 between the recesses 12. Needless to state, the inner hinge member 11 is milled out, as indicated at 16, to define the two knuckles 14 and at the same time provide smooth bearing surfaces 17 for cooperation with the bearing surfaces on the ends of the middle knuckle 15. While a three knuckle hinge is herein shown it will be evident that a different number might be provided. It has been common practice to make a hinge generally in accordance with this description and to provide a pintle 18 having a drive fit in the holes 19 provided in the knuckles 14 and a close working fit in a registering bearing hole 20 provided in the knuckle 15. No invention is, therefore, claimed in these details excepting insofar as they form a part of the completed hinge made in accordance with my invention as hereinafter described.

According to my invention an oil well is provided at 21 at the upper end of the pintle bearing 20 in the outer hinge member 10 preferably by drilling a hole substantially parallel with and intersecting the hole forming the pintle bearing 20. This hole is large enough in diameter so that the upper knuckle 14 of the inner hinge member 11 leaves enough of

the hole exposed when the hinge is opened, as appears in Figure 1, to make for easy oiling. The extent to which the hole forming the oil well 21 is exposed when the door is opened is clearly indicated in Fig. 3. The hole forming the oil well 21 is preferably so located that the upper knuckle 14 covers the same when the door is closed, see Fig. 2. This eliminates the danger of dirt or water entering the oil well. It should be clear from this description that I have provided an extremely simple and highly practical oiling feature for hinges of this kind. The oil well serves as a repository for enough oil to keep the hinge well lubricated for a long time. Furthermore, there is no danger of oil being wasted or the car being messed up by oil dripping from the hinge, because of the fact that the oil well holds the oil until it has an opportunity to work in between the bearing surfaces. It is evident that the outside of the hinge will remain clean because the oil well allows the oil to be conducted only between the bearing surfaces.

In Fig. 4 I have shown an oil well 21' similarly located but made deeper and provided with a wick 22. By so doing I am enabled to deposit more oil in the well at each oiling to take care of lubrication for a longer period of time, the wick serving to absorb the oil and deliver it to the pintle bearing 20 sparingly. Furthermore, the wick eliminates danger of dirt and water collecting in the well.

In Figs. 5-7, I have shown a hinge of a slightly different construction in which the outer hinge member 10' has upper and lower knuckles 23 formed at opposite ends of a cover portion 24 to receive the single knuckle 25 formed on the end of the inner hinge member 11'. The latter is milled away at the top and bottom, as indicated at 26, to define the ends of the knuckle 25. The pintle 18 has a drive fit in the holes 19' in the knuckles 23 and a close working fit in the hole 20' in the knuckle 25. An oil well 21'' is provided in this case in the inner hinge member 11', at the upper end of the pintle bearing 20', the same being exposed when the door is opened, as indicated in Fig. 5, and covered up and concealed when the door is closed, as indicated in Fig. 6.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The following claims have been drawn so as to afford a degree of protection commensurate with the improvements described.

I claim:

1. In a hinge comprising an inner hinge member, an outer hinge member, one of said members being provided with knuckles and the other with registering knuckle recesses for hingedly connecting the members, and a hinge pintle entered through registering ver-

tical holes in said members to complete the hinge connection, an oil well provided in one of said members comprising a substantially vertical hole provided therein opening off the upper knuckle recess and intersecting the hole for the pintle provided in said member, whereby to provide a repository for oil in direct communication with the pintle hole to conduct the oil to the latter.

2. In a hinge comprising an inner hinge member, an outer hinge member, one of said members being provided with knuckles and the other with registering knuckle recesses for hingedly connecting the members, and a hinge pintle entered through registering vertical holes in said members to complete the hinge connection, an oil well provided in one of said members comprising a substantially vertical hole provided therein opening off the upper knuckle recess and intersecting the hole for the pintle provided in said member, whereby to provide a repository for oil in direct communication with the pintle hole to conduct the oil to the latter, said hole being so located in said knuckle recess whereby to be uncovered by the knuckle cooperating with the recess when the hinge is opened, to permit filling with oil and covered by said knuckle when the hinge is closed, to prevent entry of dirt or water.

3. In a hinge comprising an inner hinge member, an outer hinge member, said members being respectively provided with knuckles and registering knuckle recesses for hingedly connecting the same, and a pintle entered through registering vertical holes provided in said members to complete the hinge connection, an oil well provided in the outer hinge member comprising a vertical hole provided therein opening off the upper knuckle recess and intersecting the hole for the pintle in said member, whereby to provide a repository for oil in direct communication with the pintle hole to conduct the oil to the latter.

4. In a hinge comprising an inner hinge member, an outer hinge member, said members being respectively provided with knuckles and registering knuckle recesses for hingedly connecting the same, and a pintle entered through registering vertical holes provided in said members to complete the hinge connection, an oil well provided in the outer hinge member comprising a vertical hole provided therein opening off the upper knuckle recess and intersecting the hole for the pintle in said member, whereby to provide a repository for oil in direct communication with the pintle hole to conduct the oil to the latter, said hole being so located in said knuckle recess whereby to be uncovered by the knuckle cooperating with the recess when the hinge is opened and covered by said knuckle when the hinge is closed.

5. In a hinge comprising an inner hinge

member, an outer hinge member, said members being provided with knuckles adapted to be engaged with one another for hingedly connecting the members, and a hinge pintle entered through registering vertical holes in said knuckles to complete the hinge connection, an oil well provided in a knuckle of one of said members in a position to be covered by the end of a knuckle portion of the other member, the same comprising a substantially vertical hole provided in said knuckle in-

tersecting the pintle hole provided therein, whereby to provide a repository for oil in direct communication with the pintle hole to conduct the oil to the latter, said vertical hole being so located whereby to be uncovered by the knuckle portion of the other member when the hinge is opened, to permit filling with oil, and covered by said knuckle portion when the hinge is closed, to prevent entry of dirt or water.

JAMES T. ATWOOD.

70

75

80

85

90

95

100

105

110

115

120

125

130