

Feb. 21, 1933.

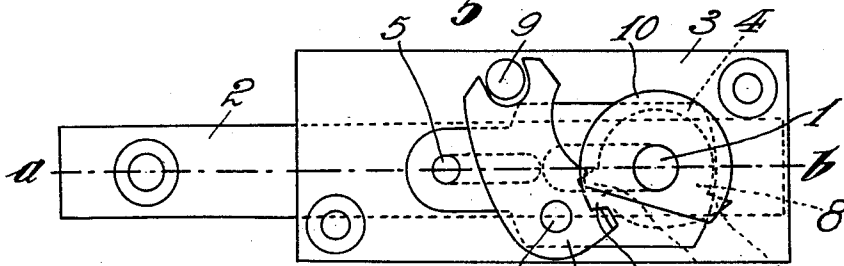
J. M. ARNOLD

1,898,161

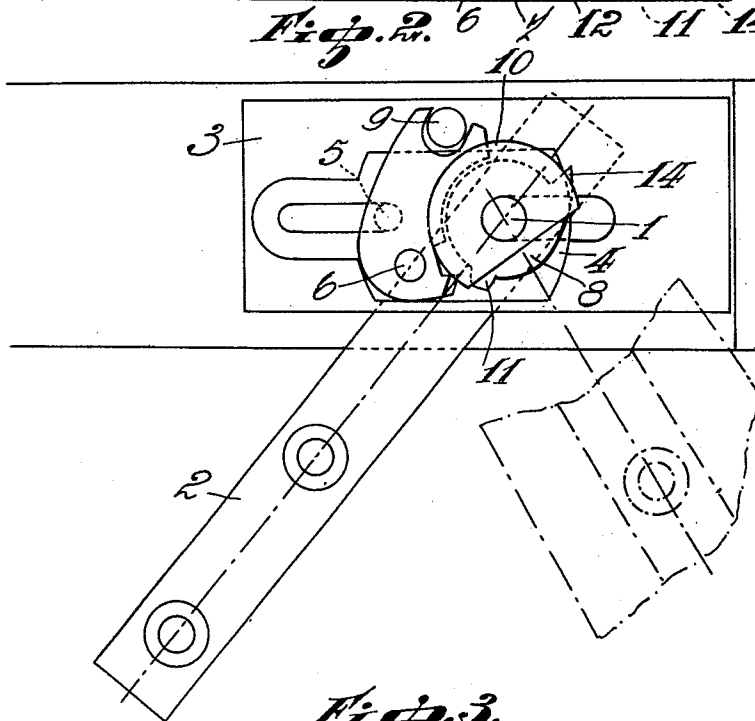
HINGE

Filed May 28, 1931

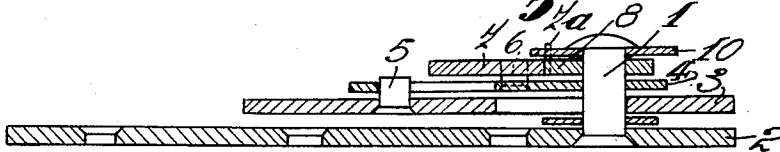
*Fig. 1.*



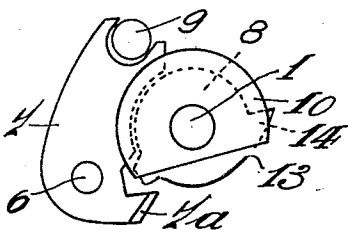
*Fig. 2.*



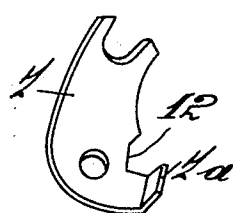
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Inventor.  
Joseph M. Arnold.  
per J. Gevers  
Attorney.

# UNITED STATES PATENT OFFICE

JOSEPH MATHIAS ARNOLD, OF GANSHOREN, BELGIUM

## HINGE

Application filed May 28, 1931, Serial No. 540,593, and in Germany June 2, 1930.

The present invention relates to a hinge device of the type having two hinges, one of which is mounted on the upper frame member of the door, the other on the lower frame member, each pivot pin of the hinges engaging an aperture provided in a metallic flap fixed respectively in the upper and lower lintels of the door case.

In the ordinary construction of this type of hinge, a free clearance must be provided between the door and the door casing at the side where the hinges are adapted, so that the corresponding side edge of the door, when opened, can penetrate in the door case. Such clearance is then covered by means of a strip of wood or the like.

The present invention has for its object the construction of a door or the like, which, in the closed position, perfectly contacts with the frame or case at the side of the hinges, so that the above-mentioned clearance is avoided and the use of covering strips is eliminated.

The accompanying drawing illustrates a form of embodiment of the hinge in conformity with the invention.

Fig. 1 is a plan view of the hinge, the door being in the closed position.

Fig. 2 is a plan view of the hinge, the door being partially opened, the elements of the hinge being shown with the door in open position.

Fig. 3 is a section on line *a-b* of Fig. 1; Fig. 4 is a plan view of the locking means of the hinge shown when the door is open.

Fig. 5 is a perspective view of a detail, namely a swivel plate used in the hinge.

With reference to these figures, 1 designates a pivot pin fixed on a flap 2, said flap to be fixed in the upper portion of the door. A flap 3 fixed in the corresponding lintel of the door case bears the mechanism of the hinge. This mechanism comprises a floating plate 4 provided with an aperture in which the pivot pin 1 rotates, and a slot engaged by a fixed pin 5 fixed on the flap 3; the latter is also provided with a slot allowing a shifting movement of the pivot pin 1. The slots in the flap 3 and floating plate 4 constitute guiding means for said floating plate 4, which

is rotatably engaged by the pivot pin 1. The floating plate 4 is provided with a fixed cylindrical pin 6, upon which the swivel plate 7 can rotate, being engaged thereon by a corresponding aperture; the swivel plate presents, on the one hand a notch 12 to be engaged by the tooth 11 forming part of a cam washer 8, and, on the other hand, a fork-shaped slit, to be engaged by a fixed pin 9 standing up from the flap 3.

When the door is opened, the pivot pin 1 together with the fixed washer 8 are rotated. The tooth 11 of the washer 8 meshes with the notch 12 of the swivel plate 7, so that the latter, by reason of its fork-shaped slit engaging the fixed pin 9, alters the rotation imparted thereto by the washer 8 in a longitudinal movement of the floating plate 4, the pivot pin 1 and the door itself. The movement thus obtained allows the door to closely contact the door case and to become distanced therefrom.

When the required shifting motion is obtained, the tooth 11 of the washer 8 is disengaged from the notch 12 of the swivel plate 7 and the door can be completely opened. The opening of the door can be checked by a beak 14 on the washer 8, said beak abutting the end of the swivel plate 7. The reverse movement brings the door in contact with the door case. At the moment when the tooth 11 of the washer 8 becomes separated from the notch 12 of the swivel plate 7, the edge of a disc washer 10, fixed on the pivot pin 1, enters in contact with an upstanding projection 7*a* of the swivel plate 7, said washer having a cut portion 13. This locking means prevents a lateral back motion of the door when in the open position.

I claim:

1. A hinge comprising in combination a pivot pin, a flap fixed at right angles thereto, a second parallel flap rotatably engaging the pivot pin by a slotted portion, an upstanding pin on said second flap, a floating plate rotatably mounted on the pivot pin and having a slotted portion engaged by the aforesaid upstanding pin, a lever arm on said pivot pin, a swivel plate pivoted to said floating plate and operated by said lever arm, an

abutment on said second flap for the swivel plate, whereby the swing movement of this plate is altered to impart a linear movement to the floating plate, the pivot pin and the  
5 first-mentioned flap, for the purpose set forth.

2. A hinge comprising in combination a pivot pin, a flap fixed at right angles thereto, a second parallel flap rotatably engaging the pivot pin by a slotted portion, an upstanding  
10 pin on said second flap, a floating plate rotatably mounted on the pivot pin and having a slotted portion engaged by the aforesaid upstanding pin, a cam washer fixed to the pivot pin, a swivel plate pivoted to said  
15 floating plate, said swivel plate having an indentation engaged by the tooth of the cam washer and a forked end engaged by a fixed pin on the second flap.

3. A hinge comprising in combination a pivot pin, a flap fixed at right angles thereto, a second parallel flap rotatably engaging the pivot pin by a slotted portion, an upstanding  
20 pin on said second flap, a floating plate rotatably mounted on the pivot pin and having a slotted portion engaged by the aforesaid upstanding pin, a cam washer fixed to the pivot pin, a swivel plate pivoted to said float-  
25 ing plate, said swivel plate having an indentation engaged by the tooth of the cam washer, a forked end engaged by a fixed pin on the second flap, and means for locking the swivel plate in its end position when opening  
30 the door.

4. A hinge comprising in combination a pivot pin, a flap fixed at right angles thereto, a second parallel flap rotatably engaging the pivot pin by a slotted portion, an upstanding  
35 pin on said second flap, a floating plate rotatably mounted on the pivot pin and having a slotted portion engaged by the aforesaid upstanding pin, a cam washer fixed to the pivot pin, a swivel plate pivoted to said float-  
40 ing plate, said swivel plate having an indentation engaged by the tooth of the cam washer, a forked end engaged by a fixed pin on the second flap, a cam fixed on the pivot pin and engaging an upstanding portion of the swivel  
45 plate when in its end position after opening the door, and a stop on the aforesaid cam  
50 washer engaging the swivel plate for limiting the angular opening movement of the door.

In testimony whereof I signed hereunto  
my name.

55

JOSEPH M. ARNOLD.

60

65