

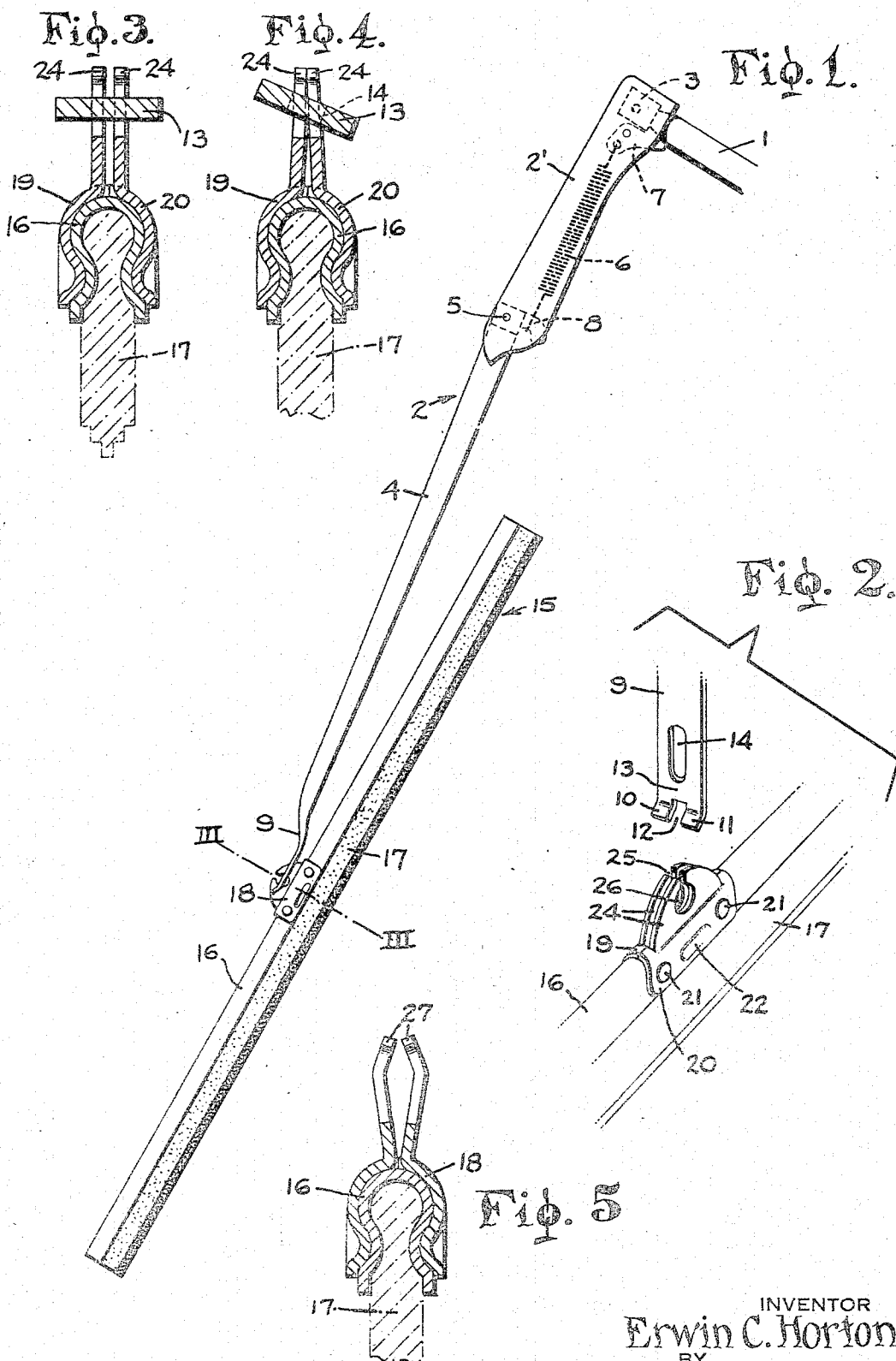
April 29, 1941.

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2,240,369

WINDSHIELD WIPER BLADE AND ARM ASSEMBLY

Filed Sept. 29, 1936



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UNITED STATES PATENT OFFICE

2,240,369

WINDSHIELD WIPER BLADE AND ARM ASSEMBLY

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Application September 29, 1936, Serial No. 103,140

8 Claims. (Cl. 15—250)

This invention relates to a window wiper blade and arm construction with reference to the means for attaching the blade to the oscillating wiper arm.

It is an object of this construction to provide quick and easy means for attaching the arm and blade, while at the same time providing a firm and secure attachment.

A further object is to so construct the attaching parts that they will serve to allow a limited rocking action of the blade relative to the arm, such rocking action to be resiliently resisted by portions of the attaching parts.

A further object is to so form the attaching parts that their resiliency will tend to force the blade to a substantially vertical position on the window surface.

The limited lateral rocking motion allows the blade to contact the window surface at the correct wiping angle at all times, and the tendency of the attaching parts to force the blade to a normally upright position on the window surface obviates the possibility of the wiping element of the blade becoming set or hardened in a cramped position, and thereby becoming permanently deformed and the efficiency as a wiping means impaired.

In the accompanying drawing, I have shown one embodiment of this invention. It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the claims.

In the drawing:

Fig. 1 is a side elevation of the blade and arm in attached relationship.

Fig. 2 is an enlarged perspective view of the clip and the attaching portion of the arm disengaged.

Fig. 3 is an enlarged cross sectional view of the clip with arm attached in normal position, taken on line 3—3 of Fig. 1.

Fig. 4 is similar to Fig. 3, but showing the clip with arm attached at the limit of lateral rocking movement.

Fig. 5 is a view similar to Fig. 3, but showing a modified form of the clip and without the attached arm.

Referring more particularly to the drawing:

The oscillated shaft 1 of a conventional wiper motor (not shown) is detachably connected to arm 2 at 3. The arm 2 has a fixed portion 2' 55

and a part 4 connected thereto by pivot 5. Its free end is resiliently pulled toward the glass to be wiped by tension spring 6 extending between hooklike extension 8 of portion 4 and one end of member 7 which is pivoted in arm portion 2'. This construction which insures adequate wiping pressure of the blade on the window glass, is shown more fully in Patent No. 1,952,866, issued to Hueber, March 27, 1934.

Arm 2 is provided at its lower end with an end portion 9 which is relatively flat, and with extending portions 10 and 11 defining slot 12. Extending portions 10 and 11 are bent slightly upwards at their free ends. Lying directly back of slot 12, and separated therefrom by an interlocking key part 13, is an oblong aperture 14 cut with its longitudinal axis extending lengthwise of the arm portion 4.

Wiper blade 15 comprises a channelled holder 16 grasping a wiping element 17 firmly within its channel. An attaching clip 18 is fixed to the channelled holder and comprises paired sides 19 and 20 with upwardly projecting fin-like members 24, which are resilient in character and are formed with a key-slot 26 having entranceways 25. Members 24 extending upward from parts 19 and 20 of the clip 18, are homologous and are spaced slightly from each other.

In practice it is necessary to provide a secure and easy attachment of clip and arm. This is accomplished in the present invention by slipping the key 13 of the arm into the constricted entranceways 25 of the key-slot 26 in the fin-like members 24 of the clip 18. The thickness of the metal forming the arm 9 is substantially less than the distance across the key 13 from the slot 14 to the notch 12 and the key 13 is slipped through the entranceways by having the arm in a substantially vertical position relative to the blade, as shown in Fig. 2, following which the arm is brought down to rest in a substantially parallel position relative to the blade, as shown in Fig. 1. This disposes the key within the key slot 26 transversely of the entranceways to interlock the clip and blade to the arm. From the above it will be seen that the key 13 has a rectangular cross section and that its minor axis, the thickness of the metal, is less than the width of the entranceways 25, while its major axis, the distance from the slot 14 to the notch 12, is greater than the width of the entranceways 25. The bifurcated members 10 and 11 lie along the outer edges of front fin-like members 24 to guide and steady the blade in its operation. With the clip thus engaged with the end of the arm, there

is a secure attachment between arm and blade. A cross section of the arm and blade in this normal parallel engaged relationship is shown in Fig. 3.

One of the objects of the present invention as stated is to allow the blade a limited lateral rocking action relative to the arm. During operation the friction of the blade on the window glass tends to force the blade to swing to a position angular to the wiping arm, a certain inclined relationship between the wiping element and the glass being desirable and attainable by this invention through the medium of the abutting portions 10 and 11 and the marginal portions about the slot 14 which press against the resilient sides of the fin-like members 24 of the clip 18 and force said paired members 24 to contact each other as shown in Fig. 4. In this position, the resiliency of the fin members acting to return them to their normal spaced relationship, tends to oppose the action of forcing them together and tends to return the blade to its normal position relative to the arm, shown in Fig. 3. In this manner, the rocking motion of the blade and clip is yieldably resisted and the engaging members of the clip and arm coacting as specified tend to return the blade to an upright position.

Fig. 5 discloses a modified structure of the clip 18 in which the extended fin-like members 27 have an outward bow instead of being straight as are fin-like members 24. This outward bow serves to more firmly secure the arm to the clip and to somewhat limit the extent of the rocking action.

What I claim as my invention is:

1. In a window wiper blade, a wiping element, a channelled holder engaging said wiping element, and an attaching clip rigidly mounted on said holder and having a medially slotted pair of spaced upwardly extending and laterally resilient members adapted to be forced towards each other, said forcing action being resisted by the resiliency of the members and limited by the space between them.

2. A window wiping blade comprising a channelled holder engaging a wiping body within its channel, an attaching clip rigidly mounted on said holder, said clip having a pair of resilient, upwardly extending, spaced and normally substantially parallel, unconnected fin-like members, said members being adapted to be forced towards one another, said forcing action being resisted by the resiliency of the members.

3. An attachment between a window wiper blade and a wiper arm comprising a wiping blade with attaching clip, said clip having paired resilient members, a wiper arm having an end slot and an aperture directly inward from said slot to define a key part, said paired members having key slots to receive said part with the slot de-

fining and aperture defining portions of said wiper arm embracing the paired members, said paired members diverging outwardly from said wiper blade and terminating in converging portions whereby to form a resilient detent bulge.

4. A window wiper arm for use with a window wiper having a wiping member with a wiping edge and members projecting away from the edge opposite the wiping edge, said arm having a bifurcated flattened end portion, the bifurcated member of said end portion defining a slot, said arm having also an adjacent aperture of substantially the same lateral dimensions as the slot, formed in the flattened portion of the arm inwardly of the slot, and defining therewith a transverse key for interlocking with the projecting members of said wiper.

5. A window wiper arm having a notched terminal portion, an aperture in said portion adjacent said notched terminal portion and spaced therefrom in a direction opposite to said terminal portion, said notched portion and said aperture being so positioned relatively to each other as to form a transverse key portion for interlocking with portions of an attaching clip mounted on a blade.

6. An attachment between a window wiper blade and a wiper arm, comprising a wiping blade with attaching clip, said clip having paired resilient members, a wiper arm having an end slot and an aperture directly inward from said slot to define a key part, said paired members of the clip having key-slots to receive said part with the slot defining and aperture defining portions of said wiper arm embracing the paired members.

7. An attachment between a blade means and arm means comprising a clip on one of said means with a pair of spaced outwardly extending members, a bifurcated member on the other of said means having an aperture adjacent the bifurcation, the bifurcation and the portions of the other of said means defining said aperture coacting with and engaging the pair of clip members of the one of said means.

8. A window cleaner having a wiper member and an arm member for actuating same, one of said members having a clip part formed with a key slot in which there is a narrowed entrance-way, the companion member having a key portion with a minor axis of less width than the entrance-way and a major axis of greater width than said entranceway whereby said key may be inserted in said slot by movement in the direction of its major axis, said clip part having spaced resilient fins and said companion member having portions confining said fins and flexing them toward each other.

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