Nov. 17, 1942. D. R. STAMY 2,302,585

ANTIRATTLING CLIP

Filed March 24, 1941

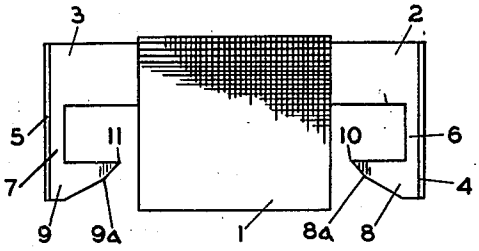


FIG. 1

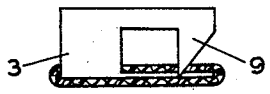


FIG. 2

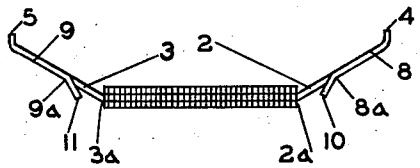


FIG. 3

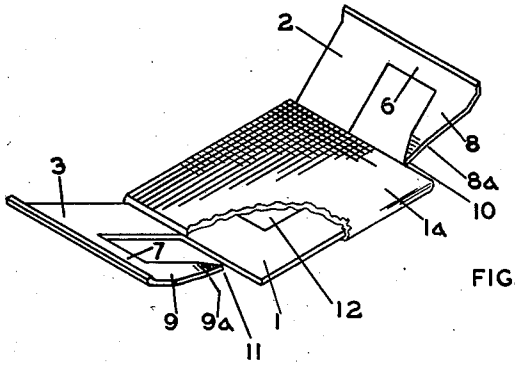


FIG. 4

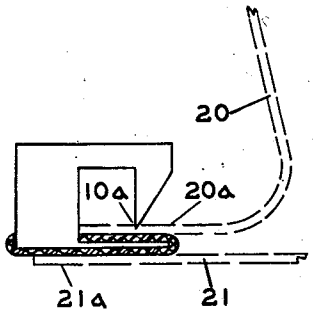


FIG. 5

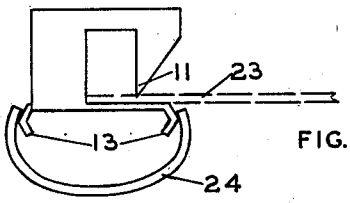


FIG. 6

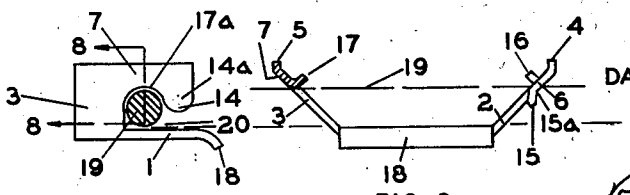


FIG. 7

FIG. 8

DAVID R. STAMY
INVENTOR

BY Robert Ed Woodhams
ATTORNEY

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ANTIRATTLING CLIP

David R. Stamy, Huntington Woods, Mich.

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6 Claims. (Cl. 24—73)

This invention relates to anti-rattling clips and particularly to a form thereof adapted for application to an automobile. It contemplates a means which has a portion thereof to extend between sheets of sheet metal which might rattle and a portion thereof to grip one or more other sheets of metal to hold the first named portion in position.

In the art of assembling automobile bodies, there are many places where two sheets of metal terminate with their flat sides adjacent each other, but which in proper position are spaced only a small distance apart. Hence, unless properly held, these sheets are often free to vibrate against each other and hence to cause objectionable rattling noises in the automobile body. A major situation of this kind, though by no means the only one, is at the back end of the car in the portion thereof where the stone guard of the rear bumper is located, at its forward end, adjacent the turned forward portion of the lowermost and rearmost sheet of the body. At the present time, these closely adjacent sheets of metal are held against rattling by placing rubber buttons between said sheets of metal and fastening them to the rear bumper stone guard. Due, however, to variations in body and chassis frames, these rubber buttons sometimes miss the body flange entirely and thus cause an objectionable rattle and, also, they will be exposed to view in back of the car which makes a bad appearance.

These rubber buttons are often, in many cases, difficult to apply, because in some situations the necessary operation of punching holes for the reception of the rubber buttons or for cementing some sort of anti-squeak material, requires more room than is conveniently available. Hence, it is desirable to provide a device which may be readily, quickly and without the necessity for special tools, applied to a large variety of situations where two or more sheets of metal are positioned adjacent each other in a position likely to cause rattling or squeaking.

There are many types of clips now available for this purpose but they all have one or more disadvantages. Some are complicated to make, some require special tools to install, some loosen and fall out in a short time after installation, some are applicable to only one thickness of metal and, hence, none of these clips now known are entirely satisfactory. In the herein disclosed device I have developed a simple clip which corrects these difficulties and which is highly effective to obtain the above named purposes.

It should also be noted that the herein described clip, besides being useful for the purposes above named and described is easily modified as hereinafter pointed out in detail for other useful and advantageous purposes.

Accordingly, the principal object of this invention is to provide a clip of the type mentioned which may be easily and rapidly applied to the edge of a sheet of metal.

A further object of this invention is to provide a clip of the class mentioned which when applied to the metal sheet will hold itself firmly thereon for a long period of time.

A further object of this invention is to provide a clip of the class mentioned which can be applied rapidly and easily without the use of tools and which can be removed easily without the use of tools.

A further object of this invention is to provide a clip of the class mentioned which will hold a padded portion against a sheet of metal indefinitely and do so without itself becoming loose and rattling.

A further object of this invention is to provide a clip of the class mentioned and having the advantages mentioned which is economical in manufacture and which may be used with or without a padded portion.

A further object of the invention is to provide a clip of the class described which will be readily applicable to sheets of metal of varying sizes and which will hold itself onto all of them with substantially equal firmness.

A further object of this invention is to provide a clip which can be placed in practically any part of the automobile body wherein a squeak or rattle develops without first remaking the body panel to provide therein holes or slots or other fastening means by which to accommodate rubber pads or other conventional rattle preventing means.

A further object of this invention is to provide a clip of the class described which can readily be converted into a device for holding other articles, such as wires, trim mouldings or tubings in place adjacent a sheet of metal by a simple and easily effected modification thereof.

A still further object of this invention is to provide a clip which, by simple modifications thereof, can be readily used as a clothespin, capable of inexpensive construction and ready application, combined with positive holding.

From what has been above indicated and by further reference to the drawing and hereinafter following description, it will be apparent that the herein disclosed clip will find many and

diverse applications and will be found useful in a large variety of circumstances.

It is, accordingly, an object of my invention to provide a clip which will, by simple modifications of minor parts thereof, have a wide range of usefulness and will be found applicable in a large variety of circumstances. Accordingly, these various modifications are all within the scope of my invention and the claims hereinafter following, unless expressly limited otherwise, should be construed as including clips made for a wide variety of application.

The structure of the new clip and possible variations thereof will be better understood by reference to the accompanying drawing which shows three forms thereof selected for illustration and in which:

Figure 1 shows a top view of the improved clip with a fabric padding in place.

Figure 2 shows an end elevation of the clip.

Figure 3 shows a front elevation of the clip.

Figure 4 shows a perspective view of the clip in which part of the padding is removed.

Figure 5 shows the manner of application of the clip to a typical situation.

Figure 6 shows a modified form of the clip adaptable for fastening a moulding to a sheet metal panel.

Figure 7 shows an end view of a clip applicable for use as a clothespin and indicating the position of the clothesline therethrough.

Figure 8 shows a front view partly in section of the same form as shown in Figure 7.

Referring now to the said drawing, the improved clip includes a body portion 1 which may or may not be provided with padding 1—*a*. Such padding, if used, may conveniently be made out of a rubberized or asphalt impregnated canvas or other coarse fabric. Onto body portion 1 at what may be termed the sides thereof, there is resiliently affixed arms 2 and 3. These arms need not be of the same material as the body portion 1, but economy and convenience in manufacture has been found to be best achieved by making the entire unit out of a single piece of metal which is preferably a highly resilient sheet high carbon steel, stamped to shape and then tempered. Any material, however, which can be readily shaped and which is resilient will be satisfactory. The arms 2 and 3 carry wings 6 and 7 which extend in a direction which may be termed forwardly to a line substantially in line with the forward line extended of body part 1, and which carry at their forward ends the depending portions 8 and 9. As shown in the drawing, there are turned back portions 4 and 5 located at the lateral extremities of wings 6 and 7, and their function is primarily to provide ease in manual handling of the clip.

The depending portions 8 and 9 are constructed to turn downwardly at 8—*a* and 9—*a*, respectively, and are provided at their respective extremities with points 10 and 11. Parts 8—*a* and 9—*a* are conveniently located in the midpoints of parts 8 and 9 respectively, but may be varied somewhat therefrom. The downward turn at 8—*a* and 9—*a* is in part intended to position the points 10 and 11 more nearly perpendicular to the plane of member 1, which is the same as the plane of the metal upon which the clip will be affixed. Its further function will appear below.

It should be observed that in their normal position the points 10 and 11 terminate substantially at, or slightly below, the plane of the top surface of the member 1, which is below the plane of the upper surface of the padding 1—*a*; that the depending portions 8 and 9, at least from member 6 and 7, respectively, to points 8—*a* and 9—*a*, respectively, lie substantially in the plane of arms 2 and 3; and that arms 2 and 3 are long enough so that when parts 4 and 5 thereof are distorted towards each other by hand, there will be sufficient angular rotation of arms 2 and 3 around the points of jointure, 2—*a* and 3—*a* between said arms 2 and 3, respectively, and member 1 to raise points 10 and 11 high enough above the plane of member 1 (or the plane of the upper surface of padding 1—*a* if such is used), so that the sheet of metal upon which the clip is to be placed can slide therebetween. It will be here observed that the above mentioned further purpose of the curve in members 8 and 9 at points 8—*a* and 9—*a* is to place points 10 and 11, respectively, at a substantial distance away from the axis upon which rotate members 2 and 3, as above detailed (which may be termed the axis of resiliency of members 2 and 3), so that the small movement of said portions 4 and 5 towards each other which can be secured by hand urging thereof will be sufficient to raise points 10 and 11 above the plane of member 1 (or 1—*a*) as set forth above. Obviously this resiliency may be located throughout arms 2 and 3 as herein shown, or it may be localized to any part thereof, or even be confined to a single arm. Cut out portion 12 is advantageously provided in member 1 in order that the upper and lower portions of the padding 1—*a* may be cemented directly to each other. It has been found that this holds said padding in place much better than cementing the same directly to the metal of member 1.

While it is obvious that the position and manner of use will govern the size of this clip and its component parts, and that many of the component parts will be altered in their proportional relationship to each other by such variations, the variations should always be made with the above principle in mind. For one particular intended automobile use, I have found it convenient to use material of $\frac{1}{32}$ inch in thickness, to make member 1 about 1 inch in lateral extent and $\frac{7}{8}$ inch in forward extent. Arms 2 and 3 are each positioned at 135° angle to member 1 and extend about $\frac{1}{2}$ inch from the point of connection with member 1, points 2—*a* and 3—*a*, to the turned back portions 4 and 5 and are about $\frac{1}{16}$ inch wide. The turned back portions 4 and 5 are merely for finger grips and can be made as convenient. The members 8 and 9 are in this embodiment conveniently made about $\frac{1}{4}$ inch wide at the base thereof and about $\frac{3}{8}$ inch in length with points 10 and 11 located by the turn at 8—*a* and 9—*a* about $\frac{1}{16}$ inch out of the plane of members 2 and 3. These dimensions will provide a clip which can be operated by hand and wherein there will be enough movement of points 10 and 11 above the plane of the upper surface of padding 1—*a* by ordinary manual manipulation of parts 4 and 5 towards each other, to permit the insertion therebetween of various sheets of metal of sizes up to $\frac{1}{16}$ inch in thickness. Thus, these dimensions will provide a clip which will hold firmly sheets of metal from $\frac{1}{64}$ inch in thickness to $\frac{1}{16}$ inch in thickness without appreciable variation in the firmness with which they are held. As above set forth, however, these dimensions are by way of example only and to illustrate one particular embodiment which has

been found to be satisfactory for a particular named purpose and are in no sense or manner limiting, for it is readily conceivable that this clip may be made in many sizes and of many stocks of metal and may even have some variations in proportions, provided only that sufficient distance between points 10 and 11 and the axis of rotation of arms 2 and 3 be kept sufficient so that when parts 4 and 5 are moved towards each other the distance which they may be conveniently moved by the means effectively available, said points 10 and 11 will move upward above the plane of member 1 (or of the upper surface of padding 1—*a* if such is used) a distance sufficient to permit the entry of a sheet of metal of the thickness desired to accommodate.

The manner of use has already been substantially indicated. In Fig. 5 numeral 21 indicates the forward portion of the stone guard of the rear bumper and number 20 indicates the lower portion of the rear body sheet which curves forward to terminate at 20—*a* in a flat and horizontal portion which lies adjacent and parallel to the forward end 21—*a* of the stone guard 21. By the present practice small rubber buttons are set between these sheets of metal to prevent their rattling, but are subject to the difficulties above mentioned. To use my invention, the clip is grasped by the fingers of the workman by parts 4 and 5 thereof and said parts are squeezed towards each other a distance sufficient to raise points 10 and 11 until the part 20—*a* of sheet 20 can slide between points 10 and 11 and the nearest surface of padding 1—*a*. The clip is then pushed onto said sheet 20 and released. The spring tension of the arms 2 and 3 then urge parts 4 and 5 away from each other again and points 10 and 11 towards the plane of member 1. This urging is of sufficient strength to cause points 10 and 11 to set themselves into the metal of sheet 20 as shown at 10—*a* of Fig. 5, which holds them firmly in place for as long as arms 2 and 3 retain their resilient relationship with member 1.

As above indicated, the embodiment herein disclosed, together with the dimensions given above, is submitted as an example only of my invention and attention is expressly called to the fact that this invention may be practiced by use of many clips of various forms, all of which will fall within the scope of the appended claims, excepting only where otherwise expressly limited. Since the heart of the invention resides in the above detailed relationship of member 1 (with padding, if used, or shaped to retain such parts as tubings, wires, or moulding) with arms 2 and 3 and points 10 and 11, and their positions and movements relative to each other, it is obvious that many changes may be made in the size, shape, material and application of this invention without departing from the scope thereof.

Two specific variations of the above described clip are illustrated in Figures 6, 7, and 8. In Figure 6, there is shown a modification which will be suggestive of a large number of related modifications. In this modification, it is desired to provide a clip which will hold a curved moulding 24 tightly in place against the edge of a sheet 23. To effect this purpose, the part 1 of the normal form of the clip, as illustrated in Figure 1, is extended and bent downwardly to provide a reverse bent portion 13, of a size and resiliency so that the turned-in ends of moulding 24 will snap over them in the conventional manner of clips of this type, by which the moulding 24 will hold itself tightly against parts 13 of the modified clip. In this form, as is obvious from an inspection of Figure 6, the padding 1—*a* may be omitted and the clip affixed by its points 10 and 11 in the usual manner to the sheet 23.

Obviously, either or both of the members 13 may be made of shape and size and having sufficient turn-back so that wires, pipes or tubing may be held thereby. Thus, a wire or piece of tubing which travels closely adjacent to a sheet metal plate may be held correctly in place, with respect to said sheet metal plate, and will be held against rattling thereagainst.

In Figures 7 and 8 is shown a still further modification of the above described clip, by which a shape is secured which is adaptable for use as a clothespin. In this form, the base member 1 has the extended and downwardly curved lip 18 by which to enable the clip to enter smoothly onto the clothesline. Members 2 and 3 are substantially the same as in the form shown in Figure 1. Members 6 and 7 are substantially the same as the form shown in Figure 1, excepting only that the curve at 17 and the corresponding curve on the other arm of the clip are provided with the turned-back flanges 17 and 16, by which a surface is provided which can rest tightly against the clothes or the line without tearing the same. Depending portions 14 and 15, in this form, replace the depending portions 8 and 9 of the form shown in Figure 1, and the same are bent at 14—*a* and 15—*a* in a manner similar to the bending in Figure 1 at 8—*a* and 9—*a*, respectively. In this latter form, however, the points which in the earlier forms provided the gripping means are rounded off as shown to avoid tearing or scratching and the gripping effects of this clip is secured, as above indicated, by the bottom surfaces of the flanges 16 and 17. The numeral 19 indicates the manner in which a clothes-line is associated with this last described clip and, accordingly will illustrate further its manner of use.

It is obvious that a high carbon steel formed into shape and then tempered may be used in this form of the clip as in the earlier described form, but it is also feasible to make this clip out of any of the various forms of resilient plastics.

It is obvious from the drawing in Figures 7 and 8 that this form of the clip is used by pressing towards each other parts 4 and 5 of said clip, in the same manner as that of the form shown in Figure 1, and then sliding the clip by opening 20 over the clothes-line 19. Reference to Figure 8 will make it clear that when parts 4 and 5 are urged towards each other, the arms 2 and 3 will rotate in the same manner as in the other above described forms of the clip, so that the extremities of parts 14 and 15 will assume a position above the surface of base member 1 and a sufficient distance away from the same so that the clothes-line, together with the clothes which are hung upon it, may enter into the retaining opening; then as said members 4 and 5 are released, the resiliency of arms 2 and 3 will cause the same to spring back towards their normal positions and thus bring the flanges 16 and 17 to bear upon the said clothes-line to hold the same tightly in place.

It is obvious that this type of clothespin will hold the clothes firmly in place on the line and the same cannot be removed except by urging parts 4 and 5 towards each other so that these clothespins will not loosen and fall off at an improper time.

Other possible variations, by way of further example for any of the forms shown, may be found in the use of many different kinds of padding 8—*a* or in the omission thereof entirely; in the use of different materials for member 1 and for arms 2 and 3, provided only that some resiliency is secured somewhere between member 1 and parts 4 and 5; in providing spring resilience in only one of arms 2 and 3 and relying on usual metallic resilience for the other arm and applying the clip with a twisting motion; in making member 1 much longer with respect to arms 2 and 3 than herein indicated in order to secure a wider contacting surface; in making the whole device very small or very large for use in smaller and larger applications even though such requires manipulation of parts 4 and 5 by use of tools intead of by hand; in increasing the relative distance from points 10 and 11 to the axis of resiliency of arms 2 and 3, respectively, in order to secure possible application of the clip to a wider range of thicknesses of material and many other variations of similar nature too numerous to mention in detail. Some of these may even be improvements hereover, but, unless specifically limited otherwise in the appended claims, they will all be within the scope of this invention.

Having thus fully described and disclosed my invention, I claim as follows:

1. A clip to be affixed to a sheet of metal to prevent it from rattling against an adjacent sheet of metal comprising: a flat and rectangular body part adapted to be inserted between said adjacent sheets of metal and a padding arranged around said body part; a resilient arm extending from a rearward portion of each lateral side of said body part and positioned at approximately a 135° angle to the plane of said body part; wings extending from the end of each of said arms forwardly to a point substantially in line with the forward line of the body part extended; a bent back portion on each of said wings at the upper extremities thereof; a portion depending from each of said wings a distance substantially three-quarters of the length of the aforesaid arms and extending first in a plane parallel to that of said arms and then at a point approximately in the middle of said depending members turning to approach a position perpendicular to said body part and terminating in a pointed end which is located substantially in the plane of the top surface of said body part extended, the whole being constructed and arranged so that said pointed ends are each spaced a substantial distance away from the nearest respective extended line of intersection of said arms and said body part, whereby when said turned back portions are urged towards each other the said pointed ends will each be moved in an arc away from the plane of said upper surface of said body part extended, and when the urging force on said turned back portion is released the resiliency of said arms will urge the said pointed portions downward towards the said plane of the upper surface of said body part extended.

2. A clip to be affixed to a sheet to prevent it from moving with respect to an adjacent sheet, comprising: a rectangular and flat body part; resilient arms affixed to the lateral extremities of said body part and near the rearward portion thereof and extending laterally therefrom at an angle with the plane of said body part; a wing member affixed at the outer extremity of each of said arms and extending forwardly of said body part therefrom; a depending portion extending from the forward extremity of each of said wing members towards the plane of said body member and including a portion near the end thereof having a point thereon and positioned substantially perpendicularly to the said plane of said body part; each of said perpendicularly positioned portions being spaced from the nearest respective extended line of intersection of said body part and said nearest arm.

3. In a clip to be affixed to a sheet of substantially rigid material, a body part adapted to lie against said sheet, a member having a resilient portion attached to said body member and extending from one side thereof, a similar member attached to said body portion and extending from an opposite side thereof, a depending member attached to each of said extending members at the extremities thereof remote from the body part and said depending members each extending towards the plane of said body member and terminating in a pointed end located close to the said plane of said body member and out of the axis around which the above mentioned extremities of said extending members will partially rotate by reason of the resilient portions thereof, means for attaching said depending members to said extending members.

4. In a clip to be attached to the edge of a sheet of material, a body part adapted in a portion thereof to lie closely against said sheet, a pair of members extending from said body part from opposite sides thereof and having the outer extremities thereof in resilient relationship with each other, said members being arranged similarly to each other with respect to said body part and lying partly out of the plane of said body part, and a pair of members affixed to the said outer extremities of said oppositely extending members and having a portion of each thereof extending towards the plane of said body part, said last named portions having pointed ends and near said ends being positioned substantially perpendicularly to the said plane of said body part, and said pointed ends being each positioned to each describe an arc of rotation when said first above named portions are moved against the resiliency above named.

5. A clip adapted to engage one or more of a plurality of pieces of material and to hold itself in fixed relation to at least one of them, comprising: a body part having a surface adapted to lie against one of said pieces of material; a pair of arms extending laterally from said body part and at an obtuse angle thereto by which to position the respective ends of said arms both outwardly of a pair of planes located perpendicular to said body part at the sides thereof from which said arms extend and substantially out of the plane of the abovementioned surface of said body part; means affixed to said outer ends of said extending arms effective to engage the material in relation to which said clip is intended to hold itself fixedly, said means being spaced from the upper surface of said body part, in the normal position of said extending arms, a distance less than the corresponding extent of the material which is to be held by said clip, and the length and resiliency of said extending arms being such that when the outermost ends of said arms are urged towards each other, the said means will be moved a perpendicular distance upward of said surface of said body part sufficient to permit the introduction of the said material to be held thereby into the space between said means and

said surface of said body part, whereby when said ends of said extending members are released and by their resiliency attempt to return to their normal position, the said means will be urged strongly towards the plane extended of said surface of said body part, by which the said material is held tightly therebetween.

6. A clip effective to hold itself in fixed relation to at least one of a plurality of pieces of material, comprising: a body part having a surface thereon capable of receiving said one of said pieces of material closely thereagainst, a pair of arms oppositely positioned extending laterally from said body part at an obtuse angle thereto and both intersecting a plane parallel to but spaced substantially from said body part, said members being relatively associated to provide a resilient relationship between the respective outer ends of said laterally extending portions; means affixed to said respective outer ends of said laterally extending portions effective to engage said one of said materials, said means in the normal position of said laterally extending portions being spaced perpendicularly from the plane extended of the above mentioned surface of said body part a distance less than the corresponding distance of the material to be inserted therebetween.

DAVID R. STAMY.