June 6, 1967 O. P. STERNER 3,323,183

UPHOLSTERY SPRING ATTACHMENT CLIP FOR FURNITURE

Filed May 24, 1965

FIG. 1

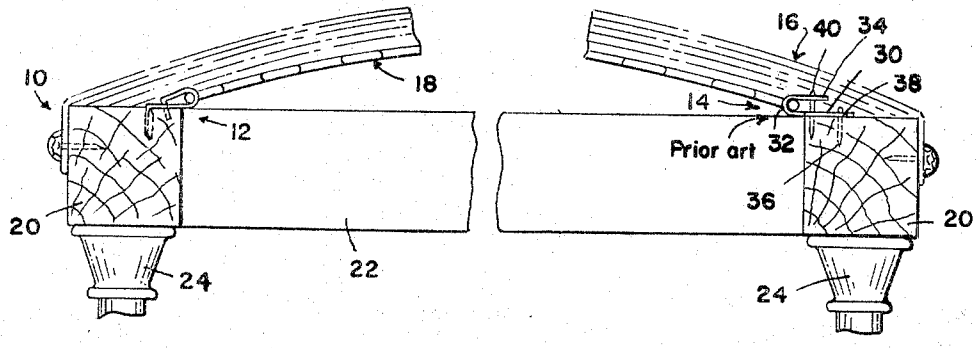


FIG. 2

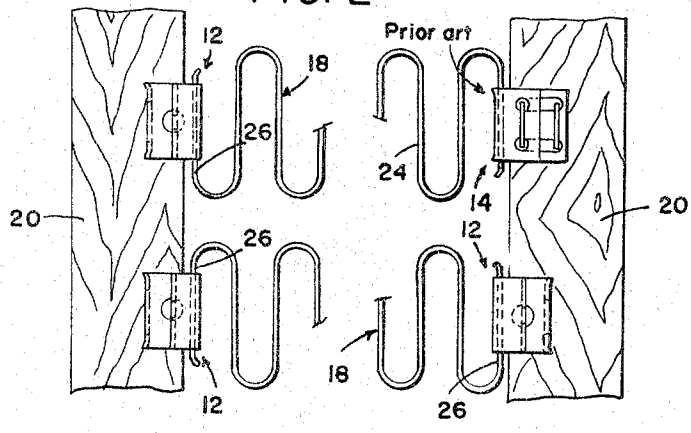


FIG. 3

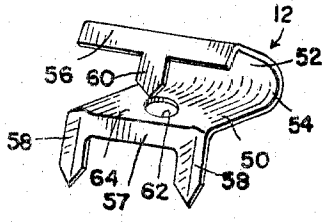


FIG. 4

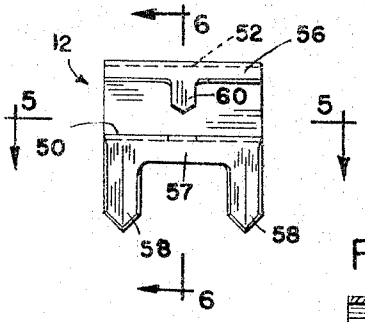


FIG. 5

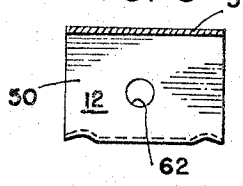
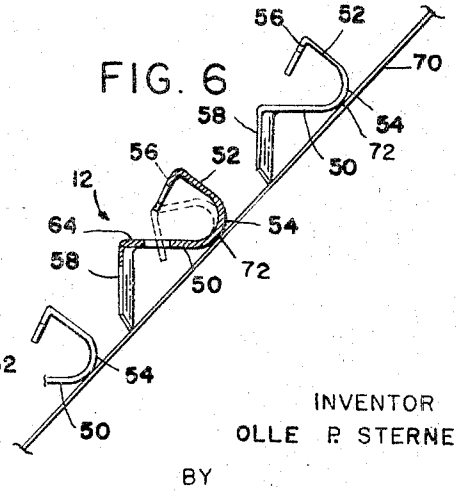


FIG. 6



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United States Patent Office 3,323,183 Patented June 6, 1967

3,323,183

UPHOLSTERY SPRING ATTACHMENT CLIP FOR FURNITURE

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Filed May 24, 1965, Ser. No. 458,251
4 Claims. (Cl. 24—85)

ABSTRACT OF THE DISCLOSURE

A unitary sheet metal attachment clip for upholstery springs, the clip having a flat base part with a hole therein and a flat upper part with a prong thereon. By striking the upper part with an impact tool such as a hammer, the prong is driven through the hole and into the wooden side frame of an article of furniture, thus causing the clip to encircle the adjacent end of the upholstery spring and provide an anchor therefor.

The present invention relates to furniture upholstery hardware and has particular reference to a novel spring attachment clip by means of which, in combination with a similar clip, the opposite ends of an upholstery supporting spring may be conveniently attached to the opposite side frames of an article of furniture such as a chair, sofa, settee or the like.

In the furniture upholstery art there has long been used a type of upholstery-supporting spring commonly known as a zig-zag spring. Such a spring, as the name implies, consists of a length of heavy gauge wire stock bent to serpentine configuration and then coiled in involute fashion for storage and shipment purposes. When put to use, the spring is uncoiled and stretched across the seat portion of an article of furniture such as a chair, the laterally extending ends of the spring being secured to the opposite wooden side frames of the chair by means of metal clips which are commonly known as furniture clips. The coil bias of the spring and the degree of stretching required to bring the opposite ends of the spring into contact with the side frames leaves the finally installed spring in an arched state conformable with the curvature of the finished padded upholstery seat which is applied over the spring after the latter has been installed, it being understood, of course that a number of the springs are applied across the open seat opening in parallelism and in closely spaced relationship to afford a grid-like crown over which the padding and upholstery is stretched before being nailed or otherwise secured to the side frames.

There are at the present time upon the market a wide variety of furniture clips designed for the purposes briefly outlined above. Basically however, both as regards their design and their mode of attachment to the wooden side frames, such clips are similar and each comprises a sheet metal stamping of generally J-shaped configuration having a long base leg provided with nail-receiving holes therein, and a reentrant bend affording a short overlying leg. The long leg is adapted to be nailed or stapled in face-to-face contact with the upper horizontal surface of a wooden side frame and the reentrant bend and overlying leg constitute, in effect, a hook portion for receiving therein the laterally turned end of a zig-zag spring. In order to prevent the laterally turned end of the spring from moving outwardly from the clip when the spring is loaded during normal chair usage, the long leg is formed with nail or staple receiving slots which underlie the overlying leg and this latter leg is formed with nail or staple receiving holes therein in vertical register with the slots so that nails or a staple may be driven downwardly through the holes and slots after spring installation to capture the adjacent end of the spring.

Although furniture clips of this general character have been employed for many years, they nevertheless are possessed of certain limitations. Principal among these is the difficulty involved in installing them, whether the installation be made by means of nails or staples. Frequently, where manual installation involving the use of a hammer is concerned, a misguided blow of the hammer intended to drive a nail or staple through the long base leg of a given clip will flatten the overlying leg against the base leg so that the clip must be discarded and a new one employed. The use of separate nails or staples also is a time-consuming operation, especially where as many as four nails are required for the installation of a single clip, a hole-locating procedure being required for each nail that is used. Additionally, conventional furniture clips such as have briefly been outlined above are not readily susceptible to automatic magazine or power tool feeding and nailing or stapling procedures. Although actual magazine feeding of the clips may not present a problem, the necessity of employing a separate magazine feed for the nails or staples, and of obtaining register between the nail holes and the securing nails or staples does present a problem and furthermore it involves the design of a relatively complicated power tool for handling both the clips and the securing devices, whether nails or staples.

The present invention is designed to overcome the above-noted limitations that are attendant upon the use of conventional furniture clips and, toward this end, the invention contemplates the provision of a novel furniture clip in which the securing means therefor is embodied in the clip itself so that no separate nails, staples or other fastening devices are required for its installation. The provision of such a furniture clip constitutes one of the principal objects of the present invention.

A further and important object of the invention is to provide such a clip, having associated integral fastening means, in which the fastening means is effective not only to attain initial application of the clip in spring-receiving position on the associated side frame, but also is effective, after the adjacent spring end has been applied to the clip, to close the clip securely upon the spring end, thus providing a rigid structure in which the spring end is securely captured.

A further limitation that is attendant upon the construction and use of conventional furniture clips resides in the accuracy which is required when driving the nails or staple through the two legs of the clips. In driving any nail, staple or other fastening means, a substantially square blow of the hammer or other impact tool is required to drive the nail shank or staple shanks endwise into the wood. A glancing blow will invariably tilt the nail or staple, so that, in the case of a furniture clip, the upper overlying leg will become displaced or deformed. The furniture clip of the present invention obviates this difficulty in that no particular pains need be taken to attain a square blow at the time the overlying leg of the clip is secured in position, the fastening means therefor being in the form of an integral shank portion which, by reason of its integral association with the overlying leg is guided in its endwise movements into the wood, regardless of the direction of the blow, providing, of course, that the blow does not deviate abnormally from a correct blow.

Yet another object of the invention, in a furniture clip of the character under consideration, is to provide a clip in which the upper or overlying leg of the clip affords a secondary reinforcement for the lower leg of the clip after the upper leg has been driven to its home position, the reinforcement augmenting the fastening action of the fastening means for the lower leg by providing a line of clamping contact with the lower leg extending transversely and coextensively across the rear portion of the lower leg.

A further advantageous feature of the present invention resides in the provision of a furniture clip in which the body portion of the clip is adequately reinforced, especially along the edge regions thereof where the blows of the impact tool employed for its installation are struck, thus resulting in a clip which will withstand rough usage during installation without becoming deformed, as is the case with conventional furniture clips.

The provision of a furniture clip which lends itself to mass production by a simple stamping and punching operation from flat sheet metal stock, thereby contributing to low cost; one which is readily adaptable to magazine feed and power tool application, as well as to individual manual application; one which requires less skill for its application than most conventional furniture clips designed for the same purpose; and one which otherwise is well adapted to perform the services required of it, are further desirable features which have been borne in mind in the production and development of the present invention.

Other objects and advantages of the invention, not at this time enumerated, will become readily apparent as the following description ensues.

In the accompanying single sheet of drawings forming a part of this specification, one illustrative embodiment of the invention has been shown.

In these drawings:

FIG. 1 is a fragmentary sectional view taken substantially centrally and transversely through the seat portion of an upholstered chair and showing a conventional furniture clip, as well as one of the furniture clips of the present invention, operatively applied thereto;

FIG. 2 is a top plan view of the structure shown in FIG. 1;

FIG. 3 is an enlarged perspective view of one of the furniture clips of the present invention;

FIG. 4 is a front elevational view of the furniture clip;

FIG. 5 is a sectional view taken substantially along the line **5—5** of FIG. 4; and

FIG. 6 is a sectional view taken substantially along the line **6—6** of FIG. 4, the sectioned clip being shown in relation to other like clips and secured to a strip of magazine tape.

Referring now to the drawings in detail and in particular to FIGS. 1 and 2, an article of furniture in the form of an upholstered chair **10**, fragmentarily shown, embodies a series of furniture clips **12** constructed according to the principles of the present invention, as well as a conventional furniture clip **14**. The chair **10** is provided with the usual padded upholstery **16** and this upholstery is supported upon and reinforced by a series of so-called zig-zag springs **18** in a manner well known in the art.

The springs **18** are formed from wire stock and they are generally of serpentine configuration. In a longitudinal direction the springs are upwardly bowed as clearly shown in FIG. 1 and the opposite end regions of the springs are supported upon the wooden side rails **20** of the chair by means of the furniture clips **12** and **14** in a manner that will be described in detail presently. The various furniture clips are arranged on the side rails **20** in opposed pairs with adjacent clips on each rail being spaced apart a distance slightly greater than the overall width of the springs **18** so that an arched grid-like platform support for the upholstery **16** is provided which lends support to the upholstery throughout substantially its entire seating area. In the fragmentary disclosure of FIG. 1, only the two side rails **20**, the back rail **22** and portions of the rear chair legs **24** appear but it will be understood that the complete chair framework will include a front rail, front chair legs, a back rest frame, and any other functional elements which may be dictated by the design of the chair.

The springs **18** are of the type commonly referred to in the furniture upholstery art as zig-zag springs and these springs include serpentine body portions **24** with laterally turned end regions **26** designed for attachment

to the chair side rails **20** or, alternatively, to the front and back rails. Such springs are supplied in tightly coiled form and, in the installation thereof, they are uncoiled and stretched between respective pairs of furniture clips on opposite sides of the chair frame, a manually operable stretching tool being employed to overcome the relatively strong coil bias. Thus, when the opposite end regions **26** are finally secured in position on the chair frame, the aforementioned arched platform support which is provided is curved on a fairly large radius and it provides a yieldable or springy support for the upholstery **16**.

The functional advantages of the present upholstery clip **12** may be better appreciated by a comparison with the conventional clip **14** which, although illustrated herein as having a specific form, is not unlike a wide variety of similar conventional clips, both in construction and function. Briefly, the clip **14** is in the form of a sheet metal stamping of J-shape in longitudinal cross-section and having a lower base section or leg **30**, a reentrant or bight section **32**, and an overlying upper section or leg **34** of less longitudinal extent than the lower leg **30**. The lower leg **30** is nailed to the upper side of the side frame **20** by a pair of screw nails, one of which is shown at **36** and which passes through preformed longitudinal slots **38** provided in this leg. The adjacent laterally turned end region **26** of the associated zig-zag spring **18** is hooked behind the bight portion **32** and, thereafter the upper leg **34** is secured in position by a second pair of nails, one of which is shown at **40**, and which pass through holes in the leg **34** and also through the slots **38** in the leg **30**.

Installation of the furniture clip **14** requires considerable skill on the part of the workman who, in driving the nails **36**, must take pains not to strike the upper leg **34**. Additionally, care must be taken in driving the nails **40** to prevent tilting thereof and consequent deformation or longitudinal shifting of the upper leg **34** with respect to the lower leg **30**.

Referring now, additionally, to FIGS. 3 to 6 inclusive, the furniture clip **12** of the present invention is in the form of a one-piece integral sheet metal stamping presenting a flat body portion **50** which is connected to an overlying portion **52** by a reentrant bend **54**. In the free state of the clip **12**, the overlying portion **52** is disposed at a small angle to the plane of the base portion **50**. The forward edge of the overlying portion **52** is turned downwardly to provide a reinforcing and clamping flange **56**, which in the operation of the clip, serves a function that will be described presently. The forward edge of the base portion **50** likewise is turned downwardly to provide a flange **57** and a pair of pointed securing prongs **58** are formed on the flange **57** in spaced relationship. The prongs are of wide angle V-shape cross section to enhance the rigidity of the clip.

A single centrally disposed pointed prong **60** projects downwardly from the lower edge of the flange **56** and normally is in vertical register with a circular hole **62** provided in the medial region of the base portion **50**.

The furniture clip **12** of the present invention is particularly suited for application by a power tool or press although, of course, it may, if desired, be applied by a suitable hand tool such as a hammer. In applying the furniture clip **12** to the side frame **20**, the area **64** (FIG. 3) of the base portion **50** which overhangs or projects forwardly beyond the forward edge of the upper overlying portion **52** constitutes an impact surface by means of which the two prongs **58**, and also the downturned flange **57**, may be driven into the wooden material of the side frame, the width of the clip being less than the diameter of the impact surface provided on the particular tool employed.

It will be understood that normal upholstery procedure involves the installation of clips **12** in opposed pairs on the opposed side frame **20** in the usual manner of installation. Initial application of the clip **12** to the side frame **20** does not involve deformation of the overlying portion **52** which

remains in its elevated inclined position above the base portion **50**. Stretching of the spring **18** between any given pair of opposed clips may be accomplished by first causing one laterally turned end **26** of the spring to be hooked within the reentrant bend **54** of one clip, after which the spring may be stretched to cause sufficient linear elongation thereof that the other laterally turned end may be hooked behind the reentrant bend **54** of the opposing clip. Release of tension will allow this end to snap into position within the clip. The medial region of the spring **18** will then assume its arched condition as illustrated in FIG. 1. Such stretching of the spring may be accomplished with the aid of a conventional stretching tool which constitutes part of the equipment of the average upholstery shop.

It should be observed that the vertical distance from the lower end of the prong **60** to the plane of the base portion **50** is greater than the diameter of the wire employed in forming the spring so that entrance of the laterally turned ends of the spring into the confines of the opposed clips may readily be effected.

It should also be observed that because the flange **57**, as well as the two prongs **58**, are driven firmly into the wood of the side frame **20** and are thus securely anchored therein, lateral shifting of the clip under the pushing or pulling force of the spring **18**, as the case may be, will be effectively prevented.

After the spring has thus been stretched and applied to a pair of opposed furniture clips **12**, a second blow may be exerted by a hammer to the outer edge region of the overlying portion **52** of each clip to drive the pointed prong **60** downwardly through the hole **62** and thus into the wood of the associated side frame **20**. At such time the lower edge of the depending flange **56** will be forced into engagement with the forward region of the base portion **50** on opposite sides of the hole **62**, thereby augmenting the fastening action of the two prongs **58** and of the downwardly turned web or flange portion **57**.

Reference to the dotted line disclosure of FIG. 6 will show that as the prong **60** enters the hole **62** it assumes an inclination with respect to a vertical plane so that when it is finally driven to its home position, it resists any pulling action which may be occasioned by the rim of the hole due to possible deterioration of the wood of the side frame **20** over a period of time, or due to the presence of a soft spot in the wood at the region where the prongs **58** and flange **57** enter the same. This resistance to pull may be resembled to the function of a nail which is employed for picture-hanging purposes, the nail being invariably driven into the wall on an inclined bias.

As generally shown in FIG. 1, when the prong **60** enters the hole **62** and is driven therethrough and into the wood of the side frame **20**, the flange **56**, together with the overlying portion **52**, the base portion **50** and the reentrant bend **54**, establish a closed structure which encircles the adjacent end of the spring **18** and thus captures it so that downward pressure upon the arched portion of the spring will not spread the ends of the spring apart and cause the adjacent end of the spring to move outwardly from beneath the overlying portion **52** of the clip.

In FIG. 6, the adaptability of the present clip to magazine loading and feeding for application by a power tool has been illustrated. A series of clips **12** are shown as being applied to a strip of magazine tape **70**. The clips are aligned and applied to the adhesive side of the tape so that they make line contact at **72** where the curved reentrant bend engages the tape, and so that they make point contact at the end of each pointed prong **58**. The tape may thus be employed as a storage tape in the case of manual application of the clips, or as a severable magazine tape in the case of pneumatic or other power tool application.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction may be resorted to without departing from the spirit of the invention. For example, whereas the furniture clip of the present invention has been illustrated and described herein as being applied to the side frame of a chair for retaining the laterally turned end of a spring which is arched transversely between two such side frames, the clip obviously is capable of being applied to either the front or rear frame member of the chair for retaining the laterally turned end of a spring which is arched between such frame members in the longitudinal direction of the chair seat. Therefore, only insofar as the invention has particularly been pointed out in the accompanying claims is the same to be limited.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:

1. An integral one-piece furniture clip for securing the laterally turned end of an upholstery spring to the wooden side frame of an article of furniture, said clip comprising a sheet metal stamping of generally J-shape in longitudinal cross section and providing a substantially flat generally rectangular base portion adapted to be positioned in face-to-face contact with the upper horizontal surface of a frame bar associated with an article of furniture, an upper substantially flat generally rectangular overlying portion of less longitudinal extent than the base portion, and a deformable interconnecting reentrant bend adapted to receive the spring end therein, the forward distal edge of said base portion being formed with a narrow downturned wood-penetrating prong adapted to be driven into said side frame for retaining the base portion seated on said side frame, said base portion being formed with a medially disposed opening therethrough, the forward distal edge of said overlying portion being formed with a narrow laterally turned wood-penetrating prong which normally overlies said opening and is adapted to be driven substantially vertically through said opening and thereafter into the side frame when said base portion is seated on the latter, the general plane of said latter wood-penetrating prong at all times intersecting the distal edge of said flat overlying portion, said prongs constituting the sole means for retaining the furniture clip on said side frame.

2. A furniture clip for securing the laterally turned end of an upholstery spring to the wooden side frame of an article of furniture, said clip comprising a sheet metal stamping of generally J-shape in longitudinal cross section and providing a substantially flat generally rectangular base portion adapted to be positioned in face-to-face contact with the upper horizontal surface of a frame bar associated with an article of furniture, an upper overlying portion of less longitudinal extent than the base portion, and an interconnecting reentrant bend adapted to receive the spring end therein, the forward distal edge of said overlying portion being provided with a downturned reinforcing flange substantially coextensive with said edge, the forward distal edge of said base portion being formed with a pair of laterally spaced narrow downturned wood-penetrating prongs adapted to be driven into said side frame for retaining the base portion seated on said side frame, said base portion being formed with a medially disposed opening therethrough, the lower edge of said downturned flange being formed with a medially disposed depending prong in vertical register with said opening and adapted to be driven through the opening and into the side frame when the base portion is seated on the latter.

3. A furniture clip for securing the laterally turned end of an upholstery spring to the wooden side frame of an article of furniture, said clip comprising a sheet metal stamping of generally J-shape in longitudinal cross section and providing a substantially flat generally rectangular base portion adapted to be positioned in face-to-face contact with the upper horizontal surface of a frame bar associated with an article of furniture, an upper overlying portion of less longitudinal extent than the base portion, and an interconnecting reentrant bend adapted to receive the spring end therein, the forward distal edges of said overlying and base portions each being provided with a

coextensive downturned reinforcing flange, the lower edge of the flange on said base portion being provided with a pair of laterally spaced narrow depending wood-penetrating prongs adapted to be driven into said side frame for retaining the base portion seated on said side frame, said base portion being formed with a medially disposed opening therethrough, the lower edge of said downturned flange on the overlying portion being formed with a medially disposed depending prong in vertical register with said opening and adapted to be driven through the opening and into the side frame when the base portion is seated on the latter.

4. A furniture clip as set forth in claim 3 and wherein the depending prongs on the downturned flange of the

base portion are each of wide angle V-shape in transverse cross section.

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