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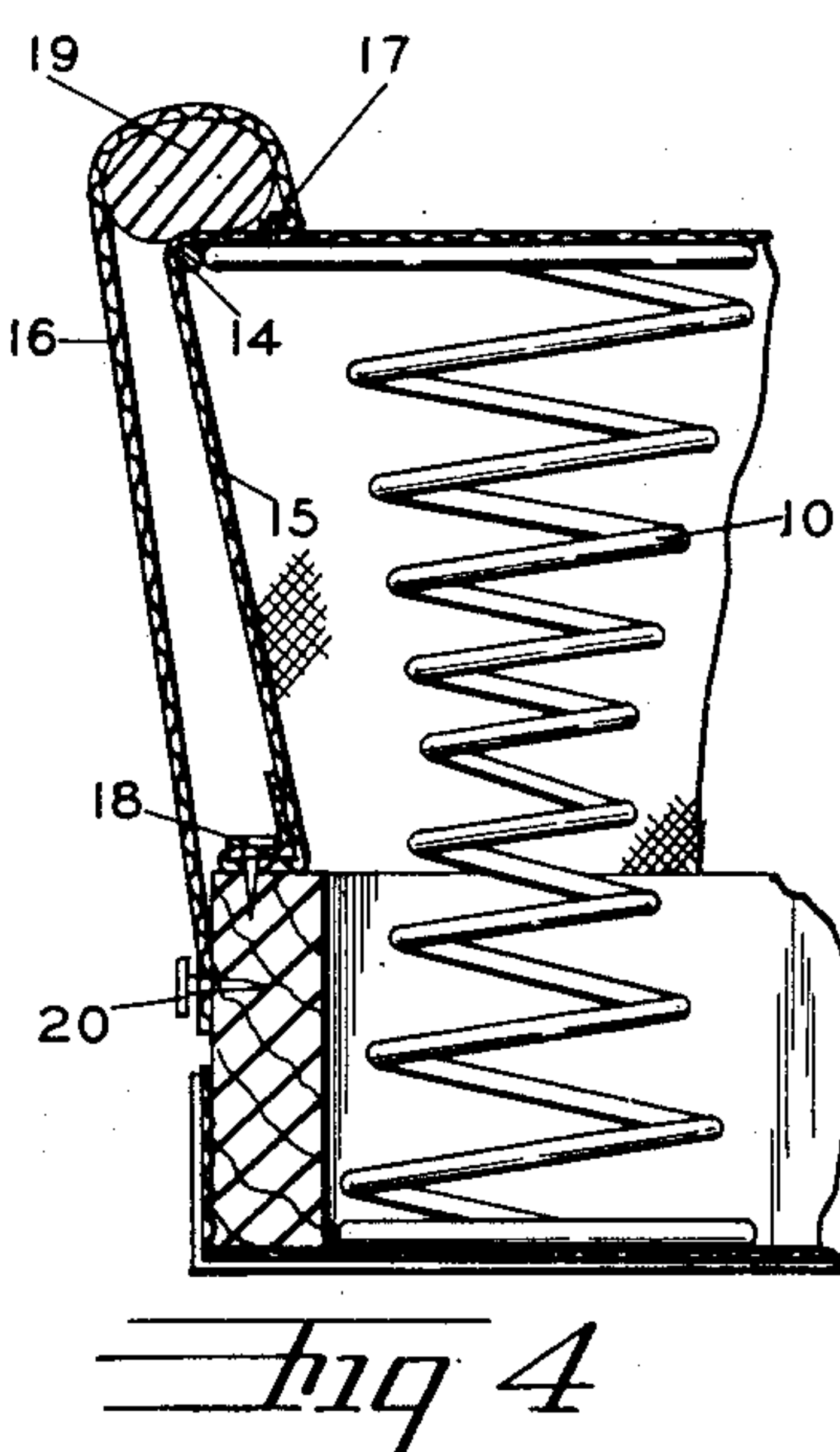
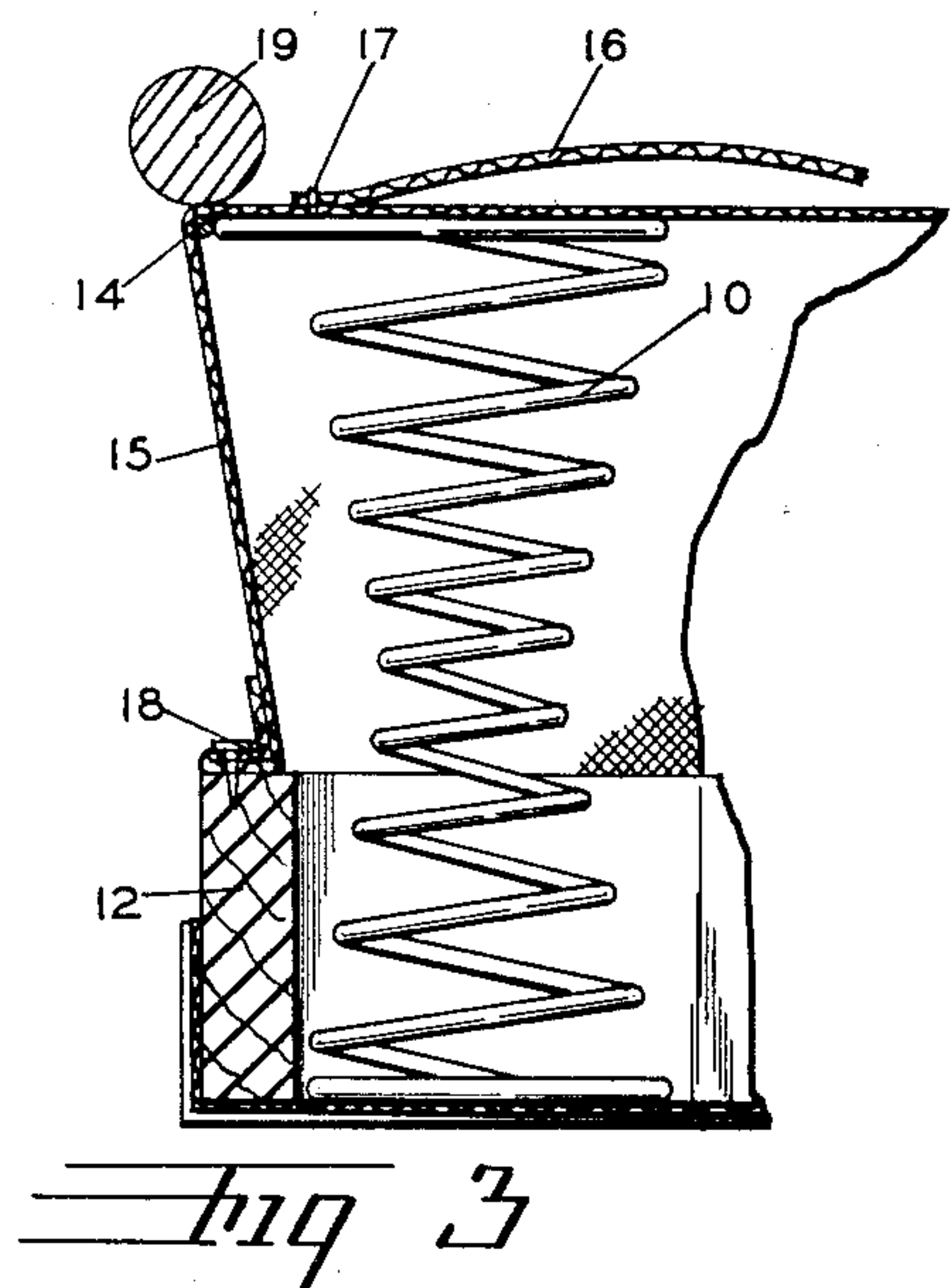
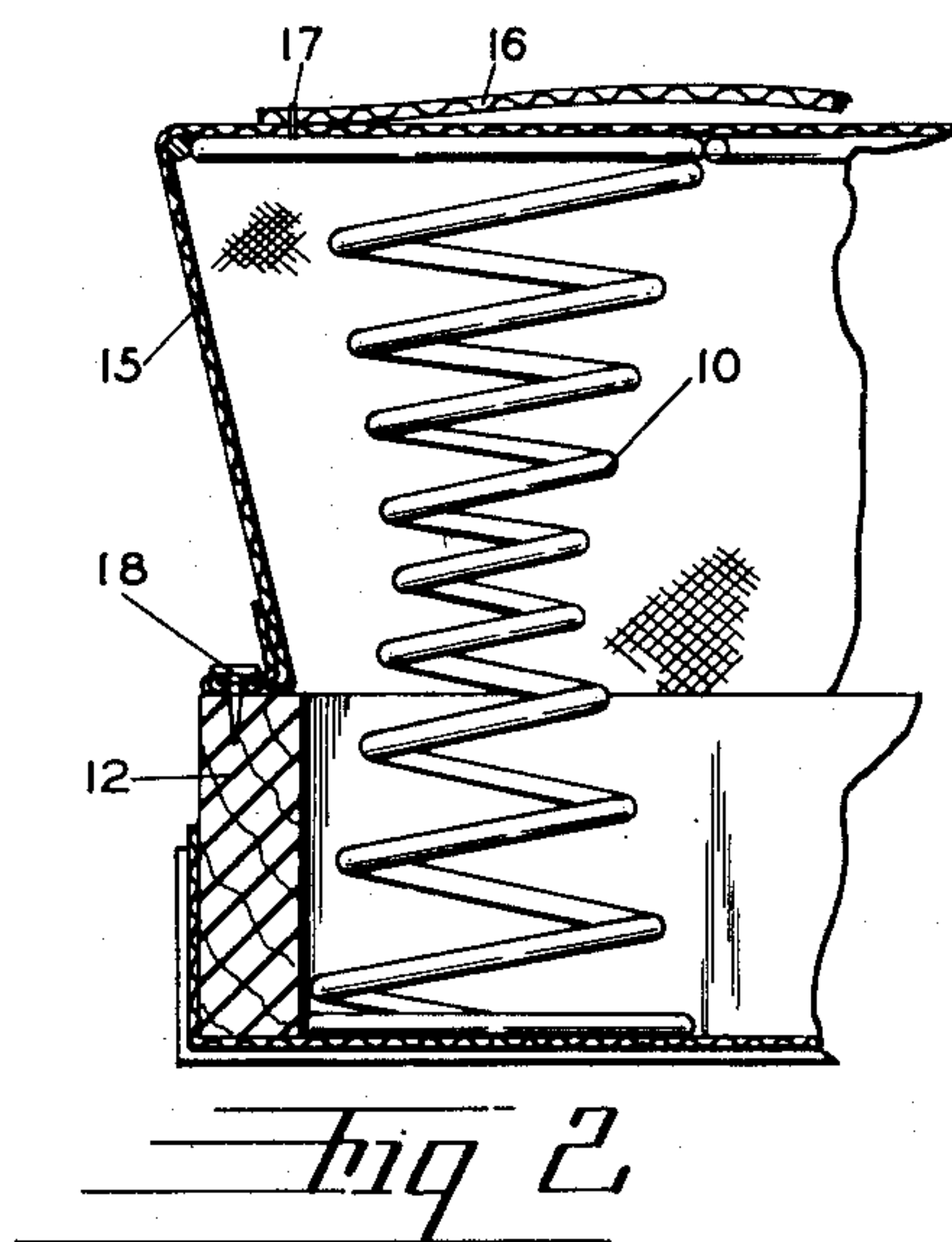
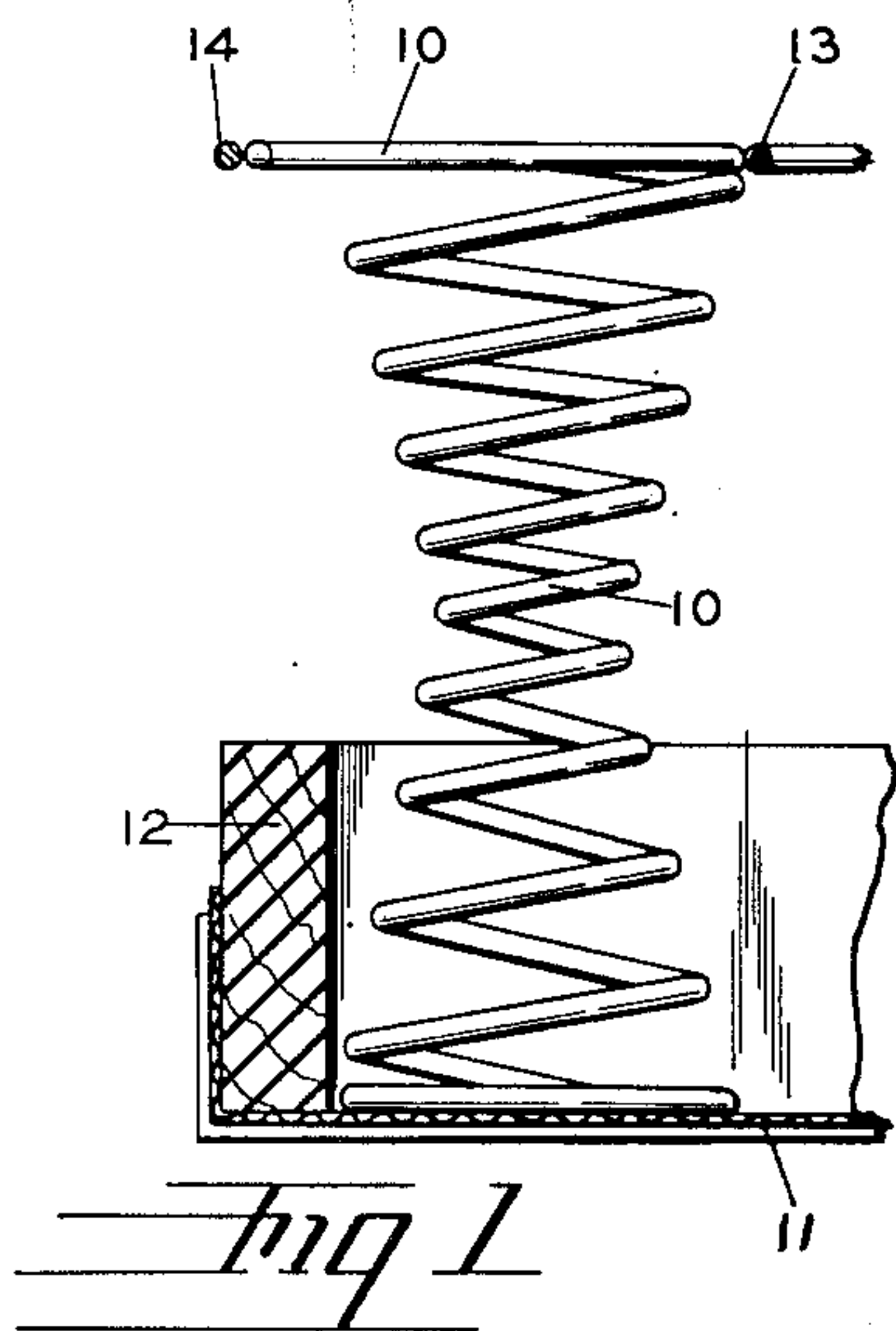
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2,628,667

METHOD OF FORMING EDGE FOR OVERSTUFFED FURNITURE

Filed Sept. 16, 1947

2 SHEETS—SHEET 1



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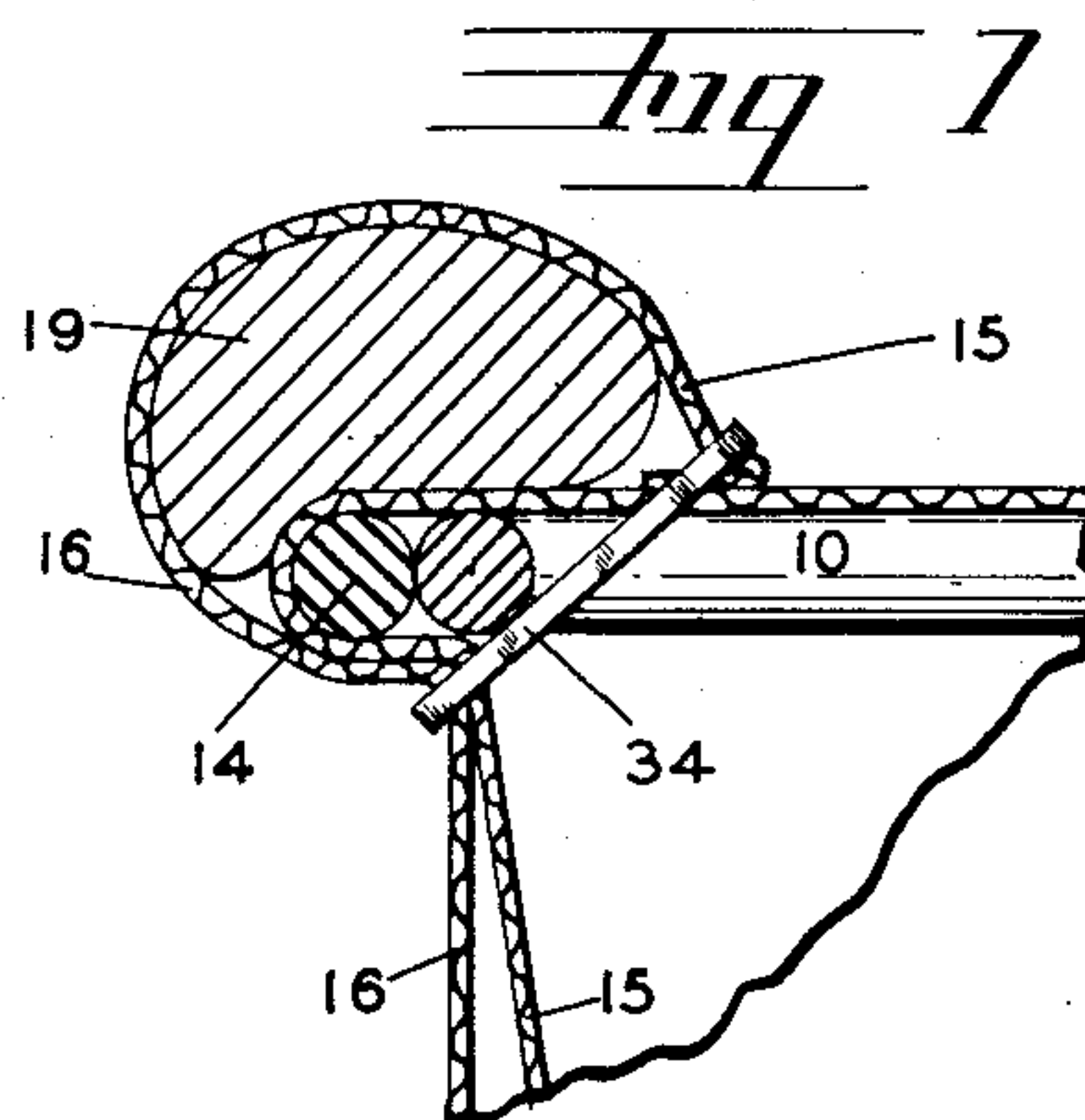
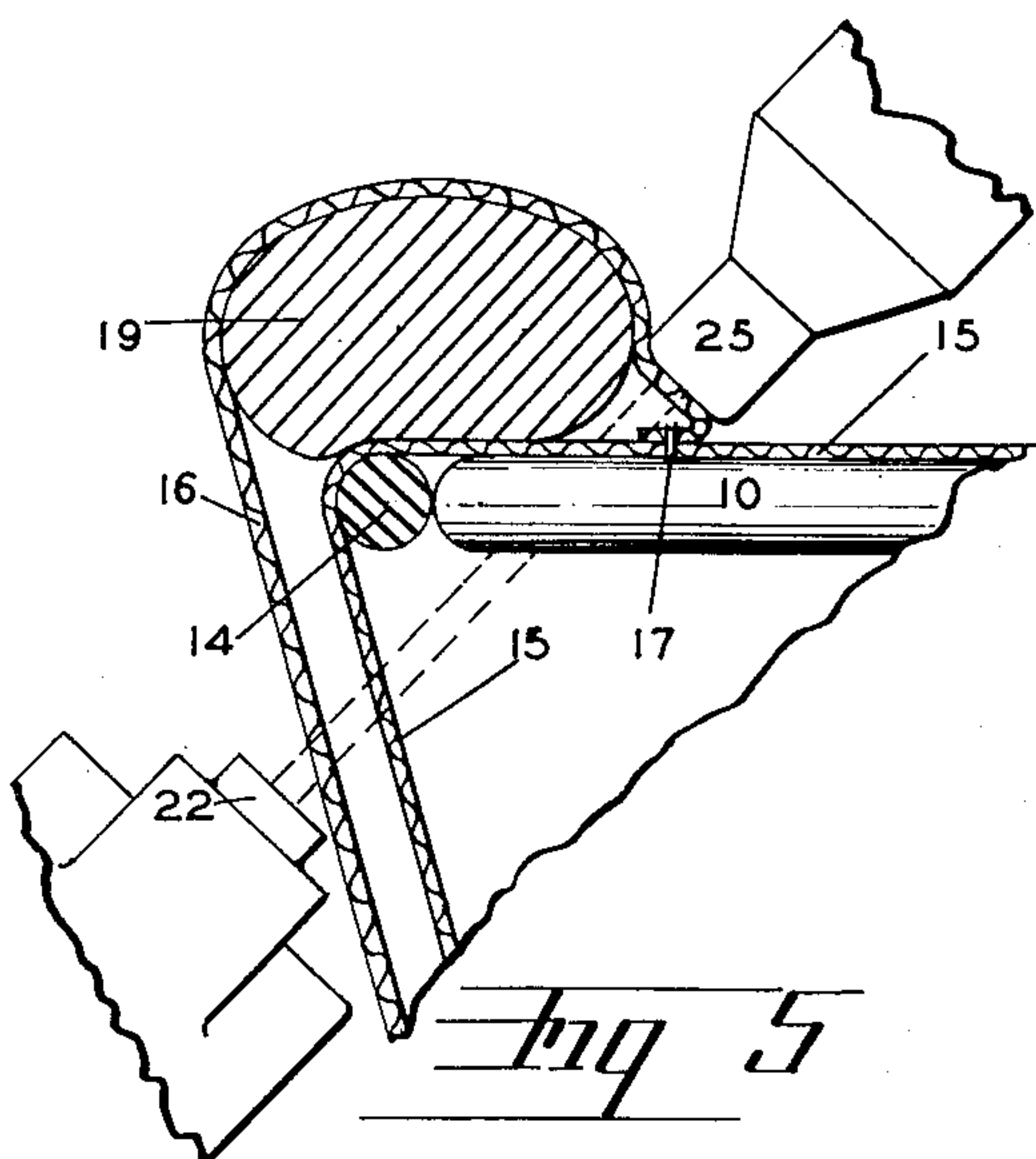
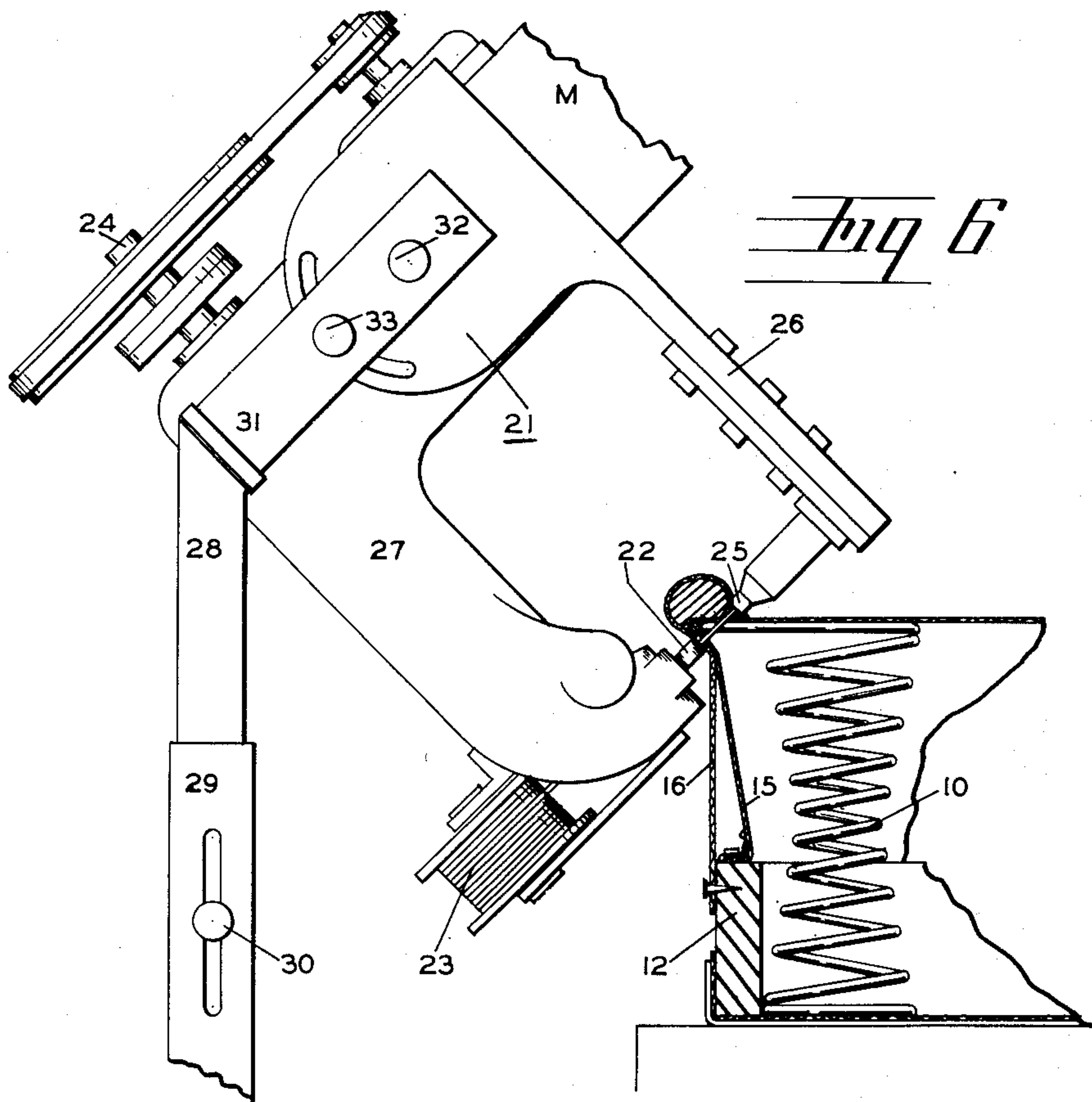
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2 SHEETS—SHEET 2



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## UNITED STATES PATENT OFFICE

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METHOD OF FORMING EDGE FOR  
OVERSTUFFED FURNITURE

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3 Claims. (Cl. 155—184)

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This invention relates in general to the manufacturing of so-called "overstuffed" furniture, including davenports, couches, chairs and the like, in which a frame containing coil springs comprises the basic structure of a seat portion of the furniture and in which an inner covering is required to be secured over the seat frame as an intermediate manufacturing step before the final upholstery materials are applied thereto.

More specifically, this invention relates to the forming of an inner roll or cushion strip along the top outside longitudinal edge of the wire spring frame of the seat portion, preparatory to the final covering of the same.

It is the universal practice in the manufacturing of overstuffed furniture of the type above indicated to provide some sort of cushioning strip over the top front edge of the spring frame for the seat portion, and the reasons for this are obvious and well known. However, the attaching of the cushion strip or roll along this top edge of the spring frame has heretofore been a slow and tire manual task. This is customarily done by sewing the strip or roll in place using a long needle and heavy twine, and at least some amount of skill is necessary so that the strip or roll will be held in place over the edge by the stitching so as to cover both the top and front surfaces of the heavy wire forming the longitudinal edge of the wire spring assembly. The needle frequently strikes against the edges of the coil springs or the edges of the longitudinal frame edge wire, which slows up the operation and results in frequent breaking of the needle.

A number of attempts have been made to provide less laborious means for securing the cushioning strip or roll in place, but, due to the compressible nature of the strip or roll and to the arrangement of coil springs, securing wires, and edge wire, all of which are also necessary in the spring frame, these various attempts, to the best of my knowledge, have been unsatisfactory. The result is that the manual sewing of the strip or roll in place along the edge of the spring frame as above described, has continued to be the customary method employed.

The object of the present invention is to provide an improved method and means of attaching this cushioning strip or roll along the longitudinal edge of a spring frame, preparatory to applying the outer upholstery material, which method will eliminate the manual sewing of the strip or roll in place.

A further object of this invention is to provide an improved method and means for this

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purpose which will permit the use of thin stapling wire instead of the customary thread or twine in order that a more secure and more durable upholstery edge construction will be obtained.

An additional object of this invention is to provide a simple and practical method and means for securing the cushioning strip or roll in place in which most of the work can be done mechanically and quickly and which will not require any exceptional amount of skill on the part of the operator.

The manner in which I have been able to obtain these objects, the steps employed in my improved method, and the means which I have found successful in the carrying out of the same, will be briefly explained and described with reference to the accompanying drawings wherein;

Fig. 1 is a fragmentary sectional elevation showing a spring seat frame assembly before any upholstering of the same;

Fig. 2 shows the same section with a burlap covering attached over the spring frame, illustrating the first step in my method;

Fig. 3 illustrates a cushioning roll resting along the edge of the frame in Fig. 2;

Fig. 4 shows the same cushioning roll temporarily held in position by an extra flap or strip of burlap illustrating a further step in my method;

Fig. 5 is a related fragmentary elevation drawn to a slightly larger scale, indicating the position of the anvil and plunger elements of a special stapling machine employed for the final securing of the cushioning roll in place;

Fig. 6 is a sectional elevation, drawn to a smaller scale of the same cushioning roll and adjacent spring frame together with the head of a stapling machine shown in elevation, illustrating the cushioning roll in the process of being secured in place by wire stapling; and

Fig. 7 is a fragmentary sectional elevation, drawn to the same scale as Fig. 5, showing the cushioning roll permanently secured as a result of the stapling operation.

Referring first to Fig. 1, the spring seat frame assembly, indicated in part in the drawings, is of the customary type used in overstuffed furniture and includes rows of coil springs, one such spring 10 being shown in the drawing. The coil springs are generally supported on metal or fabric strips 11 which in turn are secured to wooden base frame members, of which the front one 12 is shown in the drawings. The springs 10 are clamped or otherwise secured to tie wires 13 and



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to each other at their upper most loops, and the outer row of springs have their top loops also secured to the front edge wire 14 of the spring frame assembly. My invention is concerned with the problem of securing a cushioning strip or roll along the top and front of this edge wire 14.

It is common procedure in upholstering a spring frame, first to place an inner covering of coarse material such as burlap, over the springs. I follow this practice also, as the first step in my method, except that in addition, I first sew an extra strip or flap 16 of the burlap (Fig. 2) to the burlap or other material which is to serve as the inner covering 15 of the spring, and then attach this inner covering 15 to the wooden base frame, for example, by tacks 18, illustrated in Fig. 2. The sewing stitch line 17 on which the extra strip or flap 16 is sewed to the main piece 15, is arranged so as to be parallel to the edge wire 14 and at a distance of a few inches in from the edge, the distance in from the edge depending upon the size of the cushioning strip or roll which it is desired to place over the edge wire 14.

When the inner cover 15 is secured in place with the extra flap 16 on top as shown in Fig. 2, I place the cushioning strip or roll 19 above the edge wire approximately in the position illustrated in Fig. 3. Then, with the roll 19 in this position, I bring the extra flap 16 back over the top of the roll 19 and pull the free end of the flap 16 down over the wooden frame member 12 temporarily securing this end to the frame member 12 by a few tacks (indicated at 20 in Fig. 4) or other similar means. The roll 19 is now ready and in position for the final and important step in my method, namely the securing of the roll firmly and permanently in place on the edge wire. For this purpose I employ a special stapling machine, the head portion of which, 21, is shown in Fig. 6.

My special stapling machine in most respects is similar to the common, well known, motor-driven type of stapling machine, and the head 21 has a plunger 22, to which wire is fed from a spool 23, and includes means (not shown) for cutting the wire into staple lengths. The machine is driven by a motor M to which a drive shaft 24 is connected by suitable belt and pulleys. The plunger 22 operates in alignment with an opposed stationary anvil 25 which is rigidly secured to one of the jaws 26 of the head 21 so that the two ends of each staple will be bent over inwardly and towards each other as the staple is forced into contact with the anvil 25 upon operation of the plunger. All this mechanism is old and common to stapling machines in general and, therefore, need not be further described. A suitable manual control or foot pedal control (not shown) is provided for the motor M so that operation of the machine can be started and stopped by the operator as desired.

However, the special stapling machine which I have found necessary to develop for the carrying out of my method differs from the ordinary stapling machine in two particulars. First, the head 21 is so mounted that the two jaws 26 and 27, instead of being horizontal, will slope obliquely and preferably at an angle of approximately 45° with the horizontal, as illustrated in Fig. 6. Second, the anvil 25 is arranged above the plunger 22 instead of below it, as customary with ordinary stapling machines, and the reason for this will be explained later.

In order to have the head 21 arranged at the

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desired angle and height with respect to the work I support the head 21 on an adjustable arm 28 which in turn is slidably mounted in a suitable standard, the upper portion of the standard being indicated at 29 in Fig. 6. This arm 28 can be raised or lowered in the supporting standard and maintained at any desired height by a clamp screw indicated at 30. The upper end 31 of the arm 28 is inclined at an angle with respect to the main vertical portion and the head 21 is mounted on this upper end 31. The head 21 could be rigidly mounted on this upper end 31, but I prefer to mount the head in such a way as to have the angularity of its position adjustable. Thus, as indicated in Fig. 6, the head 21 is pivoted to the upper portion 31 of the arm at 32 and a clamping nut 33, carried by the upper arm portion and engaging a slot in the head 21, clamps the head rigidly to the upper arm portion 31 at the desired angle.

The spring frame on which the cushioning strip or roll, as previously described, is to be secured, is placed on a truck or similar simple conveyor so that the entire frame can be moved along with respect to the stapling machine, and the machine head 21 is so adjusted with respect to the work that the machine and the spring frame will be substantially in the relative positions illustrated in Fig. 6.

The manner in which the stapling machine, when so arranged, will function to secure the cushioning roll in place on the spring frame, can now be described more clearly with reference to Figs. 5 and 7. With the extra flap 16 extending over the top of roll 19 and temporarily fastened down to the front wooden base member as previously described with reference to Fig. 4, one end of the spring frame and the stapling machine are brought into the relative positions shown in Fig. 5. In such position the stationary anvil 25 of the machine is caused to press against the side of the roll 19 and at the same time to press downwardly on the flap 16 above the line of sewing 17. The bottom edges of the anvil 25 are made smooth or rounded so that when the frame is pushed along longitudinally the flap 16 will slide along under the anvil while the anvil presses against the flap 16 without danger of the flap catching on the anvil. With the anvil 25 and the plunger 22 positioned as shown in Fig. 5 with respect to the spring frame and the roll 19, the machine is then operated while the spring frame and roll are moved along longitudinally. At each operation of the plunger 22, the portion of the flap 16 engaged by the plunger is pushed obliquely upwardly and inwardly while the plunger thrusts a staple through the thicknesses of the intervening burlap and the staple strikes against the anvil 25 and has its ends turned inwardly. This thrusting of the flap 16 pulls the flap more tightly over the roll 19 and compresses the roll 19 slightly into the position shown in Fig. 7. The pressure of the anvil 25 against the flap 16 and roll 19, as illustrated in Fig. 5, aids in preventing the resulting pull on the flap 16 from tearing the flap loose along the sew line 17, and I have found that unless the anvil exerts some constant pressure against the flap 16 and roll 19, the flap 16 will be pulled loose, since a coarse material such as burlap is used, and the staple driven in by the plunger will miss the upper end of the flap 16 and thus fail to provide a suitable hold for the roll 19. The extra pull on the flap 16 which occurs with the movement of the plunger, on the other hand, may, and often does, cause the lower end of the



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flap 16 to be pulled loose from its temporary fastening on the base board 12 of the spring frame, but this does not matter since the lower end of the flap does not serve any other further purpose after the stapling is done.

As the spring frame is moved along under the machine and the machine is operating, a series of staples such as the staple 34 shown in Fig. 7, will be set in place and these staples will firmly secure the roll 19 in the desired position on the frame. During the stapling operation a few of the staples will, of course, strike against the top coils of some of the springs 10. However, at most this results only in the loss of a few staples and does not cause any difficulties or any injury to the machine or frame, and does not retard the speed with which stapling, and thus the final securing of the roll 19 in place, is performed. When the stapling has been completed for the length of the roll and thus the roll 19 is secured, in the manner and in the position illustrated in Fig. 7, the final outer upholstery covering and padding are then applied in the usual manner. However, this need not be described since this final step is well known and does not constitute any part of my present invention.

From this brief description it will be apparent that the cushioning roll or strip 19 is secured in place on the spring frame, through my method, much more firmly and permanently than is possible in the method of hand sewing the roll in place in accordance with the method heretofore followed.

Also, it is apparent that the work can be performed in a fraction of the time heretofore required, with much less physical effort and with much less skill required on the part of the operator. While various efforts have, to my knowledge, previously been made to substitute wire stapling for ordinary sewing in attaching such cushioning rolls in place, these did not prove successful because the stapling machine was not properly arranged and designed and because it was considered necessary to have the staples pass through the roll itself. After I had made a number of unsuccessful attempts to hold the work at different angles with respect to the stapling machine, having usual horizontal jaws and the anvil located below the plunger, I finally discovered not only that the extra flap of burlap for holding the cushioning roll in proper position was desirable, but that even with this extra flap the stapling could not satisfactorily be done unless the customary position of the plunger and anvil in the stapling machine were reversed and the anvil arranged so as to press down on the work while the staples were thrust into position.

It would be possible within the scope of my invention to have the flap 16 arranged differently or even to have the inner covering sheet 15 extend over the roll 19, but I consider the arrangement as illustrated and described to be the best manner of carrying my invention into practice.

#### I claim:

1. In the manufacture of overstuffed furniture having an inner spring frame of the character described, the improved method of covering the outer edge wire of said spring frame, which method includes providing an inner covering of material for said frame and securing said covering over said frame, attaching a flap to said covering along a line on the top of said frame near and substantially parallel to said edge

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wire, arranging a cushioning roll above said outer edge wire and said inner covering so that said roll will extend along said edge wire with the outer face of said roll overhanging said edge wire, pulling said outer flap over said cushioning roll and temporarily securing the free end of said flap below said edge wire and roll, and stitching obliquely through the top and front faces of said outer flap and said covering material along a line adjacent the inner edge of said roll, by means of staples passed obliquely under said edge wire, while holding said roll firmly against inward movement on the top of said frame during said stitching.

2. In the manufacture of overstuffed furniture having an inner spring frame of the character described, the improved method of covering the outer edge wire of said spring frame, which method includes arranging a cushioning roll along the top of said outer edge wire so that said roll will extend along said edge wire with the outer face of said roll overhanging said edge wire, securing a covering of material in place over the top of said frame and roll with said covering fastened down over the outer face of said roll and frame, and stitching obliquely through the top and front faces of said covering material, along a line adjacent the inner edge of said roll, by means of staples passed obliquely under said edge wire, while holding said roll firmly against inward movement on the top of said frame during said stitching.

3. In the manufacture of overstuffed furniture having an inner spring frame of the character described, the improved method of covering the outer edge wire of said spring frame, which method comprises providing an inner fabric covering for said frame, stitching an outer flap on said covering, securing said covering over the top of said frame and over the outer face below said outer edge wire so that the stitch line of said flap will be on the top of said frame near and substantially parallel to said edge wire, arranging a cushioning roll above said outer edge wire and said inner covering so that said roll will extend along said edge wire with the outer face of said roll overhanging said edge wire and the outer face of said covered frame below said wire, pulling said outer flap over said cushioning roll and temporarily securing the free end of said flap near the bottom of the outer face of said frame below said edge wire, and stitching obliquely through the top and front faces of said outer flap and said covering fabric along a line adjacent the inner edge of said roll, by means of staples passed obliquely under said edge wire, while holding said roll firmly against inward movement on the top of said frame during said stitching.

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