

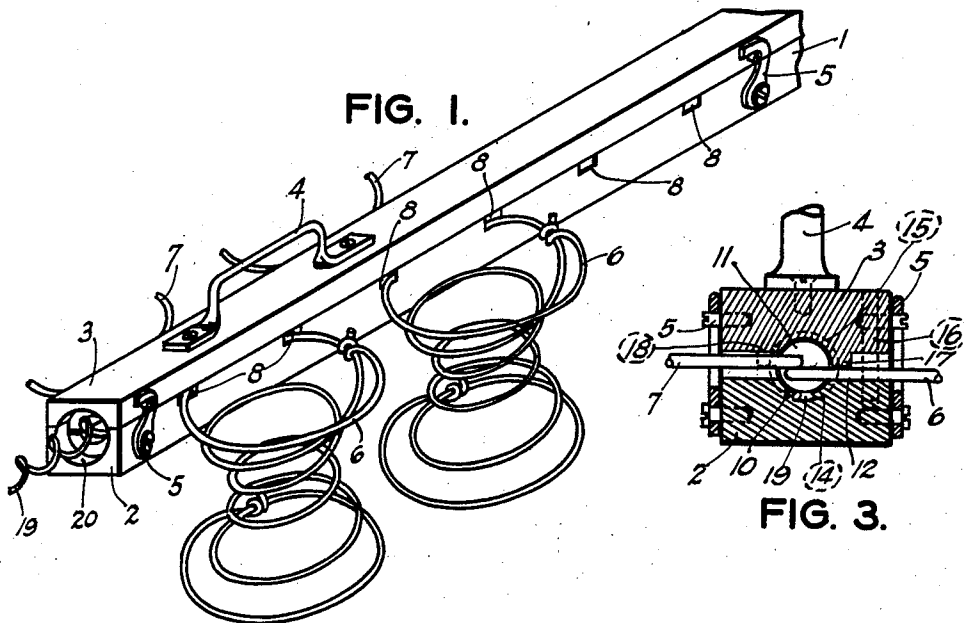
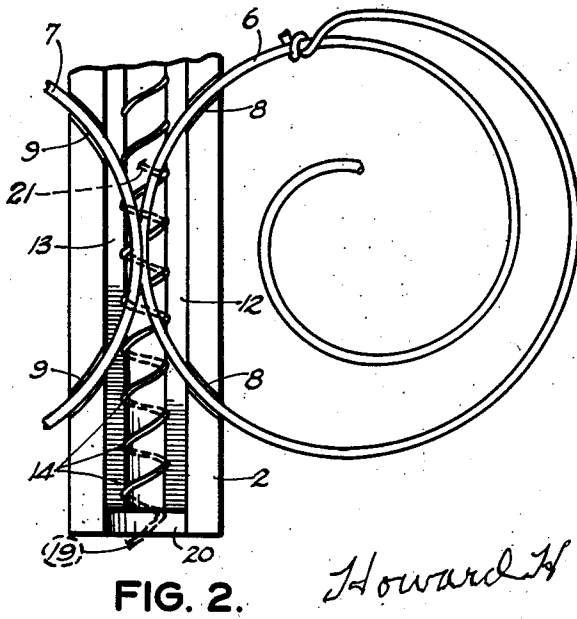
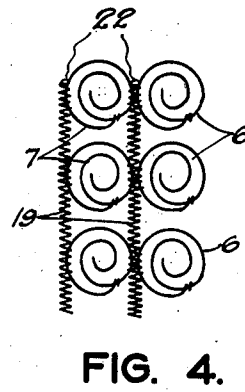
June 21, 1932.

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1,864,216

APPARATUS FOR HOLDING COILED SPRINGS WHILE LACING

Filed June 17, 1930



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APPARATUS FOR HOLDING COILED SPRINGS WHILE LACING

Application filed June 17, 1930. Serial No. 461,740.

This invention relates to improvements in apparatus for holding coiled springs while lacing.

The principal objects of my invention are to provide a device of this character which is new, novel, practical, useful and of evident utility; which is positive in action, simple and inexpensive in construction; which is strong, durable, easily operated and reliable; which cannot easily get out of order and is efficient for the purposes for which it is intended.

The present method of securing or lacing sets of coiled springs for chairs, davenport, cushions for cars, springs for beds and mattresses and the like is to take a wire formed into a helix or spiral on a special machine and turn or screw this wire around contacting or overlapping parts of the said coiled springs by hand until the said sets are properly secured. This method is slow, tedious and very expensive.

My apparatus grips the springs, holds them rigidly and utilizes the force of the special machine which forms the helical wire to feed said wire through my device and lace the said springs together all in one operation, thus eliminating the slow, expensive hand work.

With these and other objects in view as will more fully appear my invention consists in the construction, novel features, and combination of parts hereinafter more fully described, pointed out in the claims hereto appended, and illustrated in the accompanying one-sheet drawing, of which,

Figure 1 is a fragmentary perspective view of the device; Fig. 2 is a fragmentary plan of the base member; Fig. 3 is a sectional end view and Fig. 4 is a plan view of a plurality of springs laced together.

Like characters of reference designate like parts in all the figures.

It is understood that various changes in the form, proportion, size, shape, weight and other details of construction, within the scope of my invention may be resorted to without departing from the spirit or broad principle of my invention and without sacrificing any of the advantages thereof, and

that the drawing is to be interpreted as being illustrative and not restrictive.

One embodiment of my invention is shown as follows: The spring carriage 1 consists of base member 2 and top member 3, said member 3 being provided with handle 4. The two members 2 and 3 are fastened together by the catches or hooks 5. Coiled springs 6 and 7 forming part of a set making up springs for a chair, seat, bed or mattress as desired, are positioned on opposite sides of base member 2 in the circular channeled seats 8 and 9 respectively. Springs 6 may be seated first and springs 7 next so as to partly overlap said springs 6 and rest approximately on the center line of the semicylindrical channel 10 in base member 2. I provide a corresponding semicylindrical channel 11 in top member 3, the two channels 10 and 11 forming a perfect cylindrical opening throughout the length of spring carriage 1 when said members 2 and 3 are properly positioned by means of centering pins 16 and fastened by hooks 5. Springs 6 rest on the continuous bearing surface 12 adjacent to and parallel with said channel 10 and on one side of said channel 10 and in like manner springs 7 rest on the continuous bearing surface 13 on the opposite side of said channel 10 as can best be seen in Fig. 2. Within the cylinder formed by the channels 10 and 11 I provide the steep pitched, rapidly advancing spiralled grooves 14 and 15 respectively. Helical wire 19 having the same pitch as the grooves 14 and 15 is adapted to be twisted through spring carriage 1 like a corkscrew and lace springs 6 and 7 together as it advances. Downward extending longitudinal tongue 17 on member 3 grips springs 6 against bearing surface 12 and a corresponding tongue 18 seats over springs 7 to hold the said springs 7 in proper spaced relationship with springs 6 and grooves 14 and 15, so that the advancing end of helical wire 19 cannot strike either of said springs 6 and 7 and be obstructed in its forward passage through spring carriage 1. Helical wire 19 can be made to encircle springs 6 and 7 any desired number of times. In Fig. 2 I have shown the wire 19 by dotted lines and for purposes of illustration the said

wire 19 encircles spring 6 four times and spring 7 three times but this may be varied to suit the kind and size of springs and the purpose for which the springs are assembled. The helical wire 19 does not hold springs 6 and 7 rigidly together but said wire 19 is in itself another spring and permits each of said coil springs 6 or 7 to dip and rise independently of its neighbors, thus accommodating itself to the weight just above it without compressing any other coil. As can best be seen in Fig. 4 the free action of the coiled springs 6 and 7 can never be impaired by meshing or tangling for they are held in proper spaced relationship by helical wire 19.

The old method of lacing wire 19 through springs 6 and 7 was to hold said springs 6 and 7 with one hand and twist said wire 19 forward with the other hand, the said wire 19 having been given its helical shape by a machine designed for that purpose. With my improved device, springs 6 and 7 are seated in circular channels 8 and 9 on either side of base member 2. Top member 3 is placed over member 2, brought into proper registry by centering pins 16 and locked in place by hooks 5. Spring carriage 1 is then moved into position adjacent the machine forming said helical wire 19, the said wire 19 as it comes twisting out of the said machine is introduced through the short cylindrical gate 20 into the spiralled grooves 14 and 15. The twisting motion imparted to the said wire 19 as it leaves the forming machine is utilized in threading said wire 19 through the spring carriage 1 and lacing springs 6 and 7 together. When the end 21 of wire 19 has been laced through as many of springs 6 and 7 as desired the hooks 5 are released, top member 3 is lifted up, base member 2 is lowered out of contact with springs 6 and 7 and withdrawn from between the coils of said springs 6 and 7, end 21 Fig. 2 is secured to springs 6 and 7, wire 19 adjacent gate 20 is cut and secured as at 22 and the spring carriage is moved forward to be used for the next row of springs. While the foregoing description is confined to one spring carriage unit, a plurality of said units may be in operation at once as in the manufacturing of large bed or mattress springs and thus materially speed-up the work.

Having thus described my invention what is claimed and desired to be secured by Letters Patent, is:

1. In a device of the class described, a spring carriage, including a base member and a detachable top member, seat means on said base member for coiled springs, longitudinal tongue gripping means on said top member co-acting with said seat means for holding said springs and hook means for securing said base and said top members detachably together.

2. In a device of the class described, a spring carriage, including a base member and a detachable top member, seat means on said base member for coiled springs, longitudinal tongue gripping means on said top member co-acting with said seat means for holding said springs, said base and top members each being provided with a semicylindrical channel adapted to form a longitudinal cylindrical opening through said carriage, the walls of said channels being provided with steep pitched spiralled grooves, centering pin means for registering said base and top members for forming a continuous spiralled groove in said longitudinal cylindrical opening and hook means for securing said base and said top members detachably together.

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