Aug. 4, 1931. E. D. CAWLEY 1,817,877

SPRING CONDITIONING DEVICE

Filed Aug. 27, 1930 2 Sheets-Sheet 1

Fig. 1.

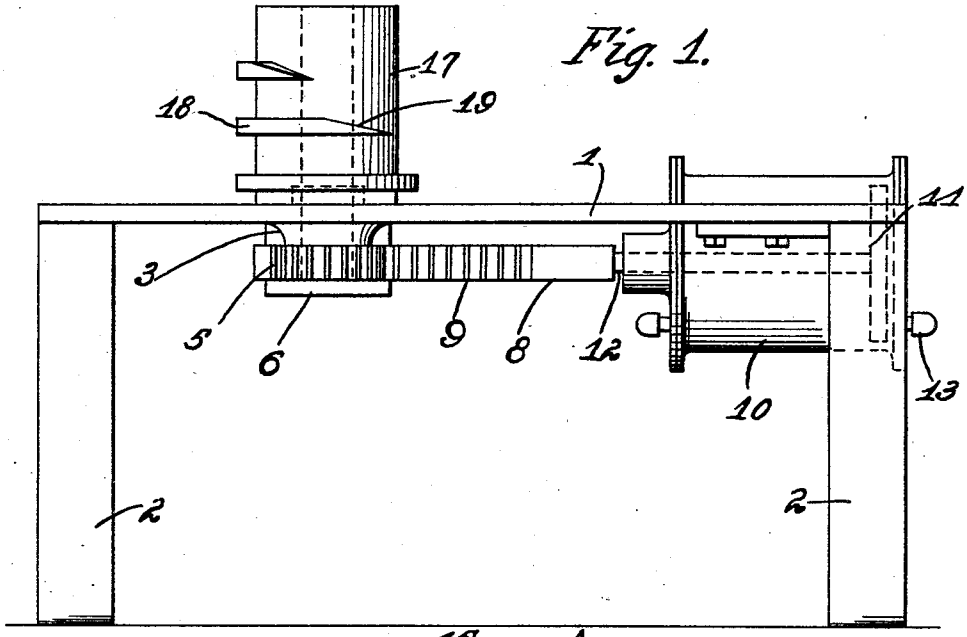
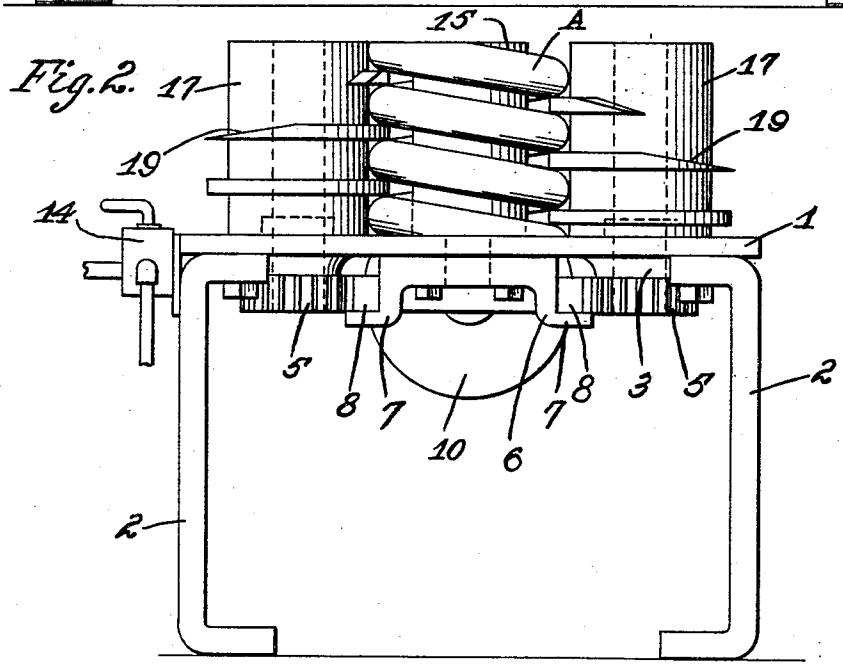


Fig. 2.



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Filed Aug. 27, 1930 2 Sheets-Sheet 2

Fig. 3.

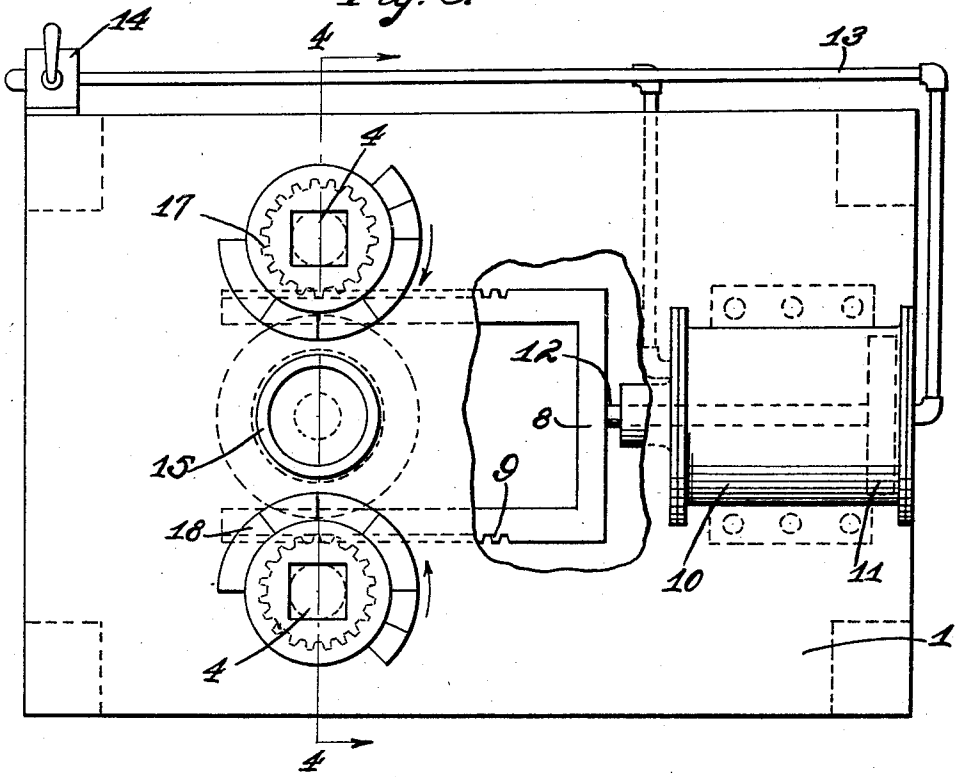
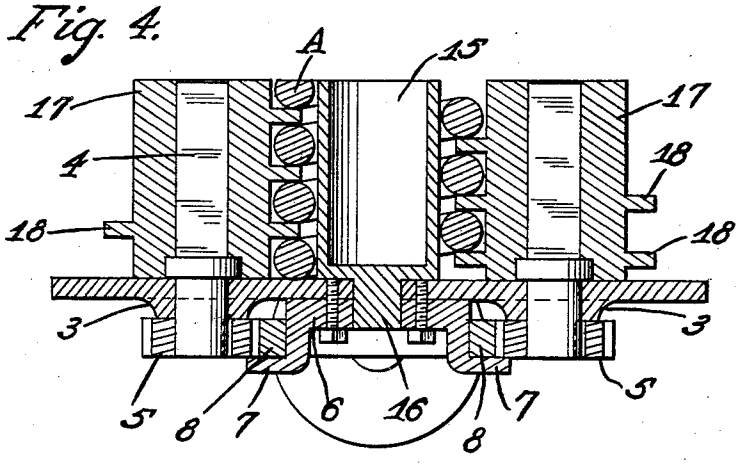


Fig. 4.



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1,817,877

UNITED STATES PATENT OFFICE

EDWARD D. CAWLEY, OF AUGUSTA, GEORGIA

SPRING CONDITIONING DEVICE

Application filed August 27, 1930. Serial No. 478,248.

This invention relates to a spring conditioning device, the general object of the invention being to provide means for restoring a spring to its original condition when the coils thereof have been pressed together or partly so through use, so that the spring can be used again and not discarded for a new one.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a side view of the invention.

Figure 2 is an end view thereof.

Figure 3 is a top plan view with parts broken away.

Figure 4 is a section on line 4—4 of Figure 3.

In these views, the numeral 1 indicates a table provided with the legs 2 and having a pair of bearing openings 3 therein for the vertical shafts 4. The shafts are spaced apart and have the gears 5 attached to their lower ends. A member 6 is fastened to the under side of the table between the gears and is formed with the horizontal side flanges 7 to provide supporting and guiding means for the limbs of a yoke-shaped member 8, the outer edges of said limbs being formed with the teeth 9 which mesh with the gears so that when the yoke shaped member is reciprocated, the shafts are rotated. A cylinder 10 is fastened to the table and contains a piston 11, the rod 12 of which is connected with the bight of the yoke-shaped member.

A pipe 13 connects the outer end of the cylinder with a source of compressed air or the like and said pipe contains a valve 14 which controls the flow of compressed air into the cylinder. By opening this valve, compressed air will enter the cylinder and thus force the piston 11 forwardly so that the teeth of the yoke-shaped member will cause rotation of the gears 5, which in turn rotate the shafts 4.

An upright tubular member 15 has a stem 16 at its lower end which passes through holes in the table and in the member 6, with the bottom of the tubular member resting on the table. This member is arranged between the two shafts and is removable. The spring A to be reconditioned is placed over the member 15, as shown in Figures 2 and 4.

Each shaft 4 has that part projecting above the table of rectangular shape in cross section and a circular die 17 is adapted to be placed on each shaft, each die having a rectangular bore for receiving the rectangular part of the shaft, so that the dies will rotate with the shafts. Each die is formed with a plurality of flanges 18. These flanges do not extend around the entire circumference of the die and are spaced apart the distance of the diameter of the coils of the spring to be treated. The forward end of each flange is tapered, as shown at 19, with the taper extending downwardly from the top wall of the flange to the bottom thereof so as to provide a point and the tapered end of each flange is spaced forwardly from the tapered end of the flange above it. The flanges of the two dies are alternately arranged as shown, so that when a flange of one die is entering between two of the convolutions of the spring at one side of the spring, a flange of the other die is entering the space between the two convolutions at the opposite side of the spring so that the two flanges will act to force the two convolutions apart, as shown in Figures 2 and 4, and the widths of the flanges are such as to separate the convolutions to the proper extent, so as to restore the spring to its original length. The two dies and the member 15 are removable, and I contemplate providing sets of the dies and member 15 so that the device can be used with different sizes of springs.

From the foregoing it will be seen that it is simply necessary to place the spring which is to be reconditioned on the member 15 after the spring has been heated and then to rotate the dies by introducing air into the cylinder 10 to force the piston 11 forwardly so

that the teeth of the limbs of the member 8 will rotate the shafts 4 through means of the gears 5. During the first part of the rotary movement, the lower flanges of the two dies will have their beveled ends pass between the lower convolutions of the springs so as to force these apart and then the next two flanges will enter the space between the second convolution and the third convolution and so on, until all the flanges pass between the convolutions and thus the spring will be restored to its original length, with the convolutions properly spaced apart and as they were originally. The parts are so arranged and constructed that the forward stroke of the piston 11 will cause the yoke member to rotate the dies so as to cause the flanges thereon to enter the space between the convolutions and thus restore the spring to its original position in one operation.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:—

A device of the class described comprising a table, a pair of upright shafts rotatably arranged in the table, gears at the lower ends of the shafts, a yoke-shaped member slidably supported below the table top and having teeth on the outer edges of its limbs for meshing with the teeth of the gears, a cylinder supported by the table, a piston therein, a rod connecting the piston with the yoke shaped member, means for introducing compressed fluid into the cylinder to move the piston forwardly, a die removably arranged on each shaft and having flanges thereon extending over a part of its circumference, the forward end of each flange being beveled and said end being located in advance of the end of the flange above it, with the flanges of one die alternately arranged with respect to those of the other die, and an upright member removably supported by the table between the dies and over which the spring to be reconditioned is placed.

In testimony whereof I affix my signature.

EDWARD D. CAWLEY.