

No. 611,132.

Patented Sept. 20, 1898.

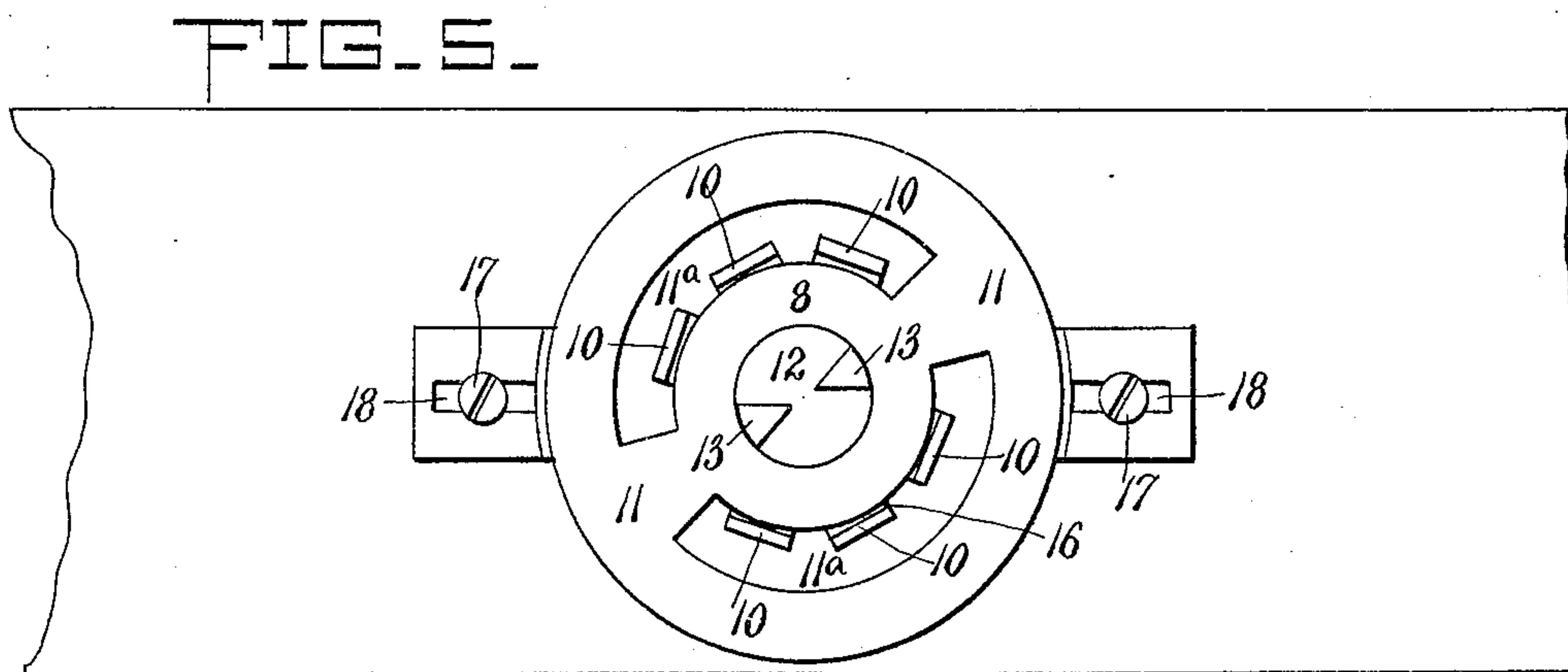
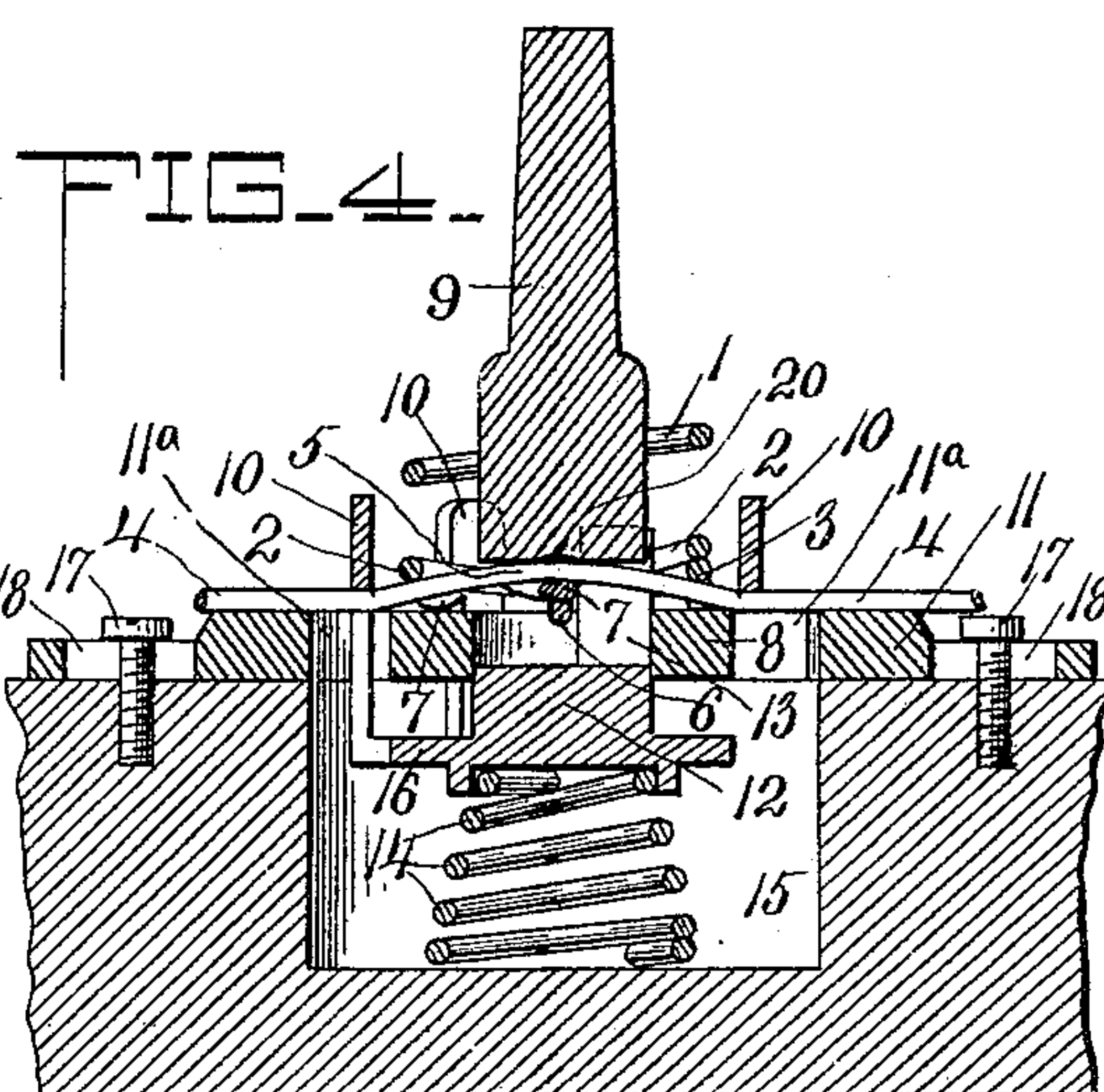
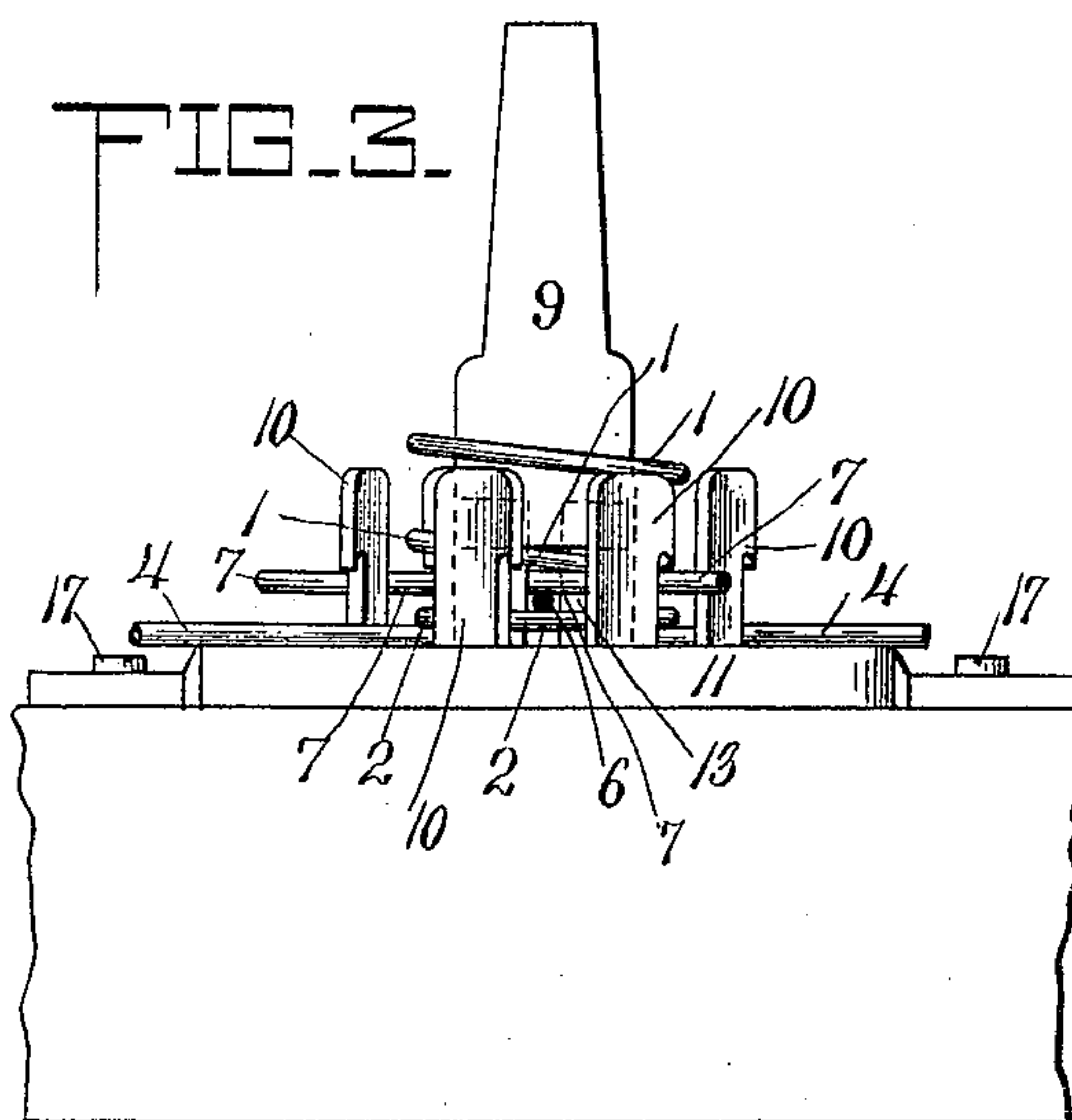
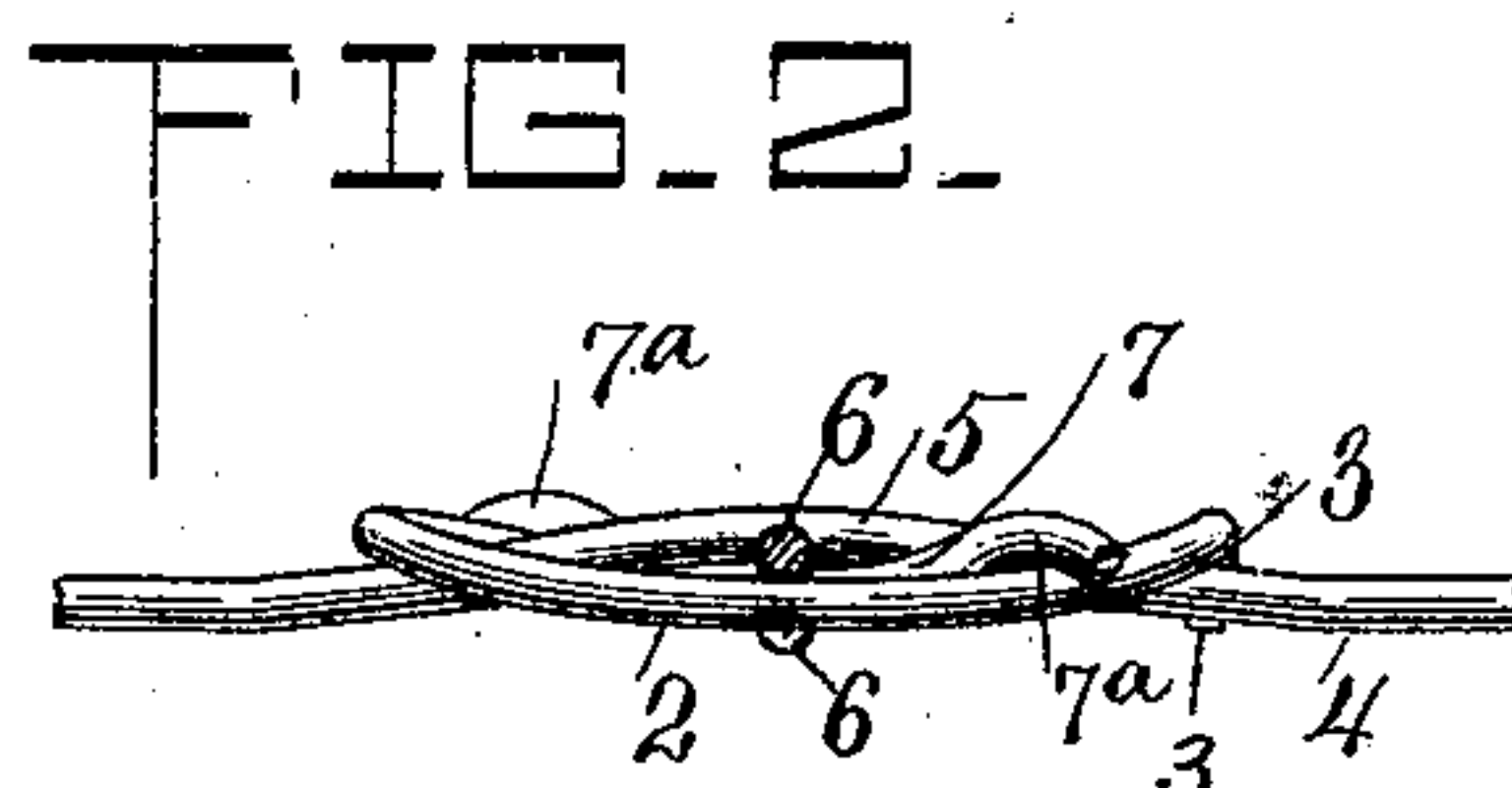
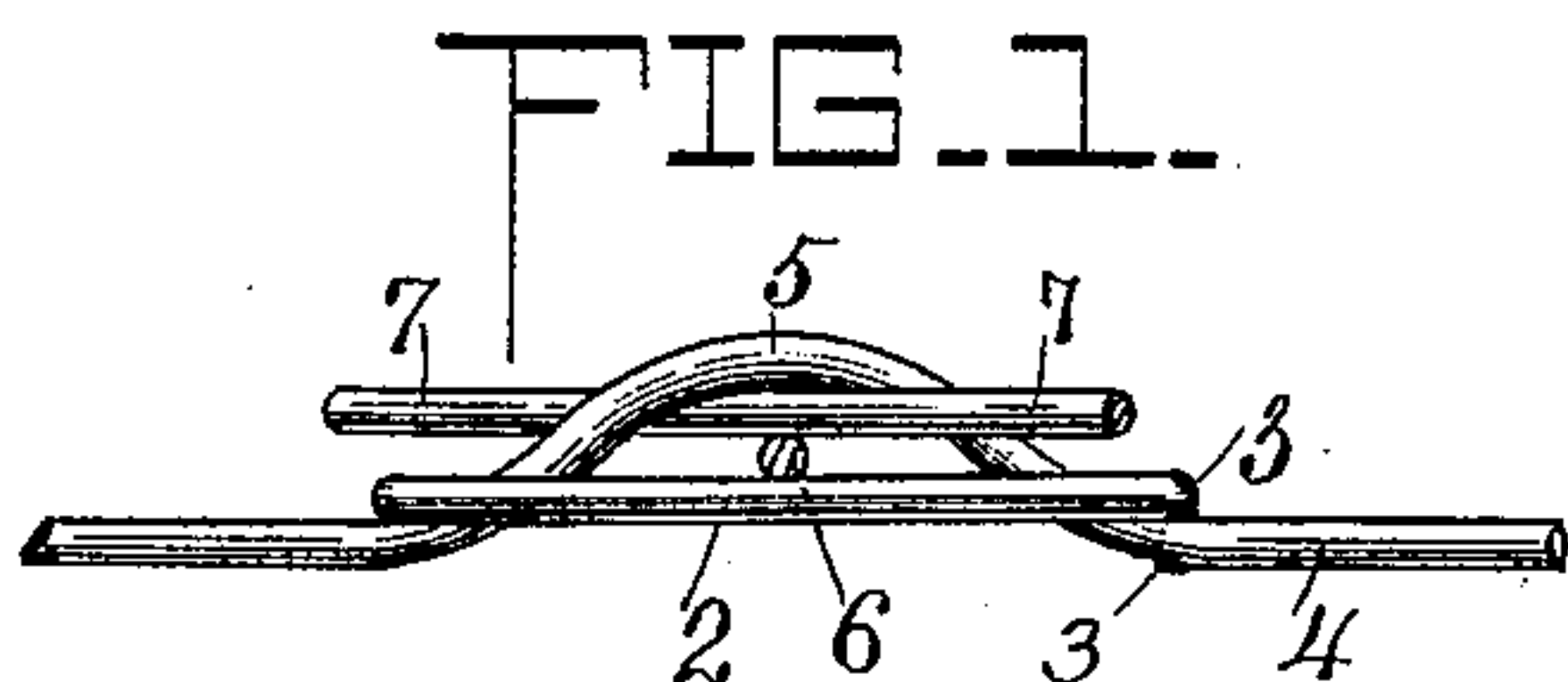
J. P. LEGGETT.

MACHINE FOR ATTACHING BED SPRINGS TO CROSS WIRE BASES.

(Application filed Dec. 4, 1897.)

(No Model.)

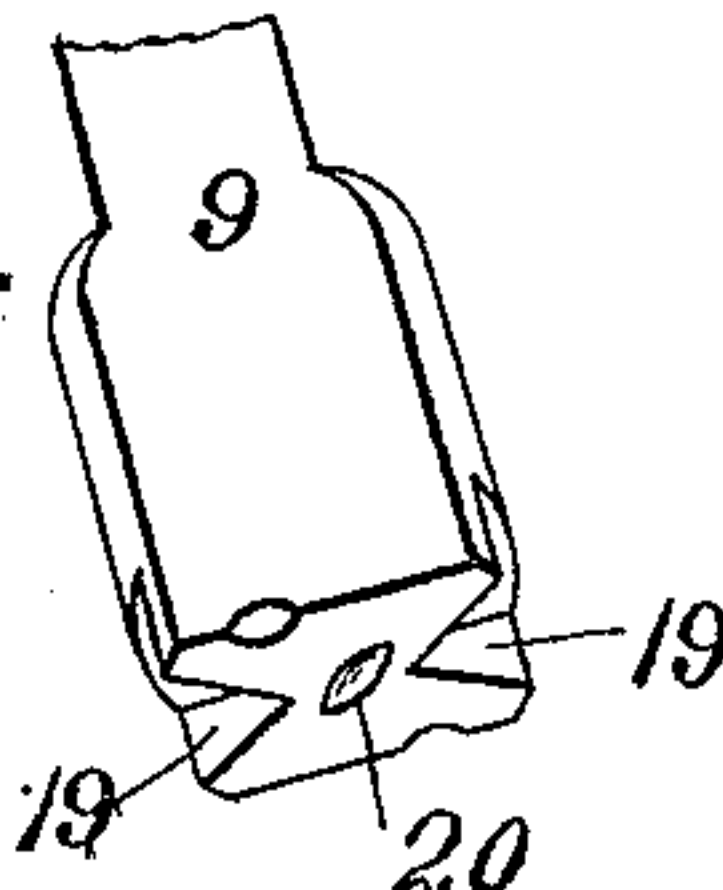
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Witnesses.

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FIG. 6.



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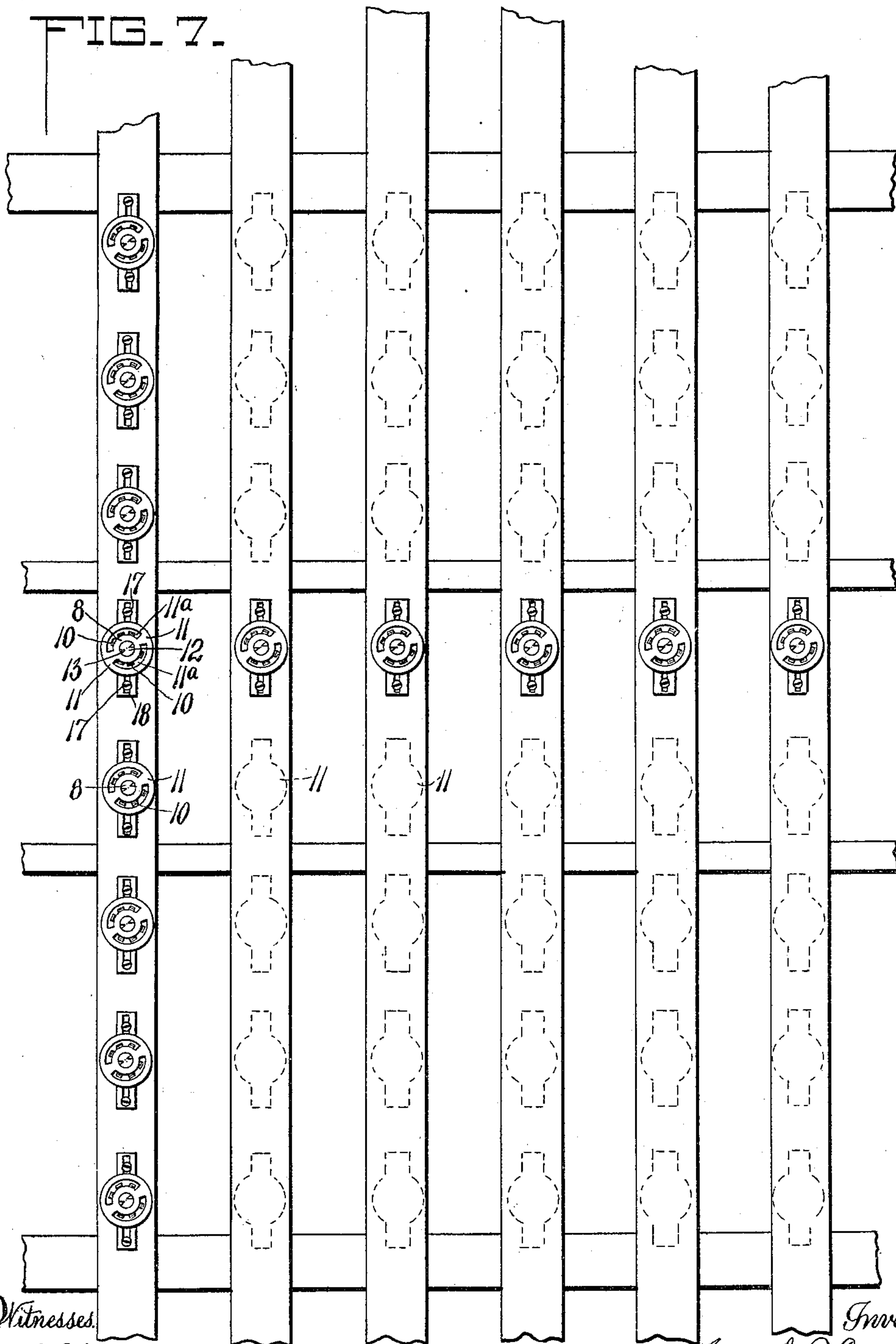
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2 Sheets—Sheet 2.

FIG. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH P. LEGGETT, OF CARTHAGE, MISSOURI.

MACHINE FOR ATTACHING BED-SPRINGS TO CROSS-WIRE BASES.

SPECIFICATION forming part of Letters Patent No. 611,132, dated September 20, 1898.

Application filed December 4, 1897. Serial No. 660,781. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. LEGGETT, a citizen of the United States, and a resident of Carthage, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Machines for Attaching Springs to Cross-Wire Bases, of which the following is a specification.

The object of my invention is to provide a machine by which I may conveniently, rapidly, and effectively make the connection between the springs and crossed-wire bases which forms the subject-matter of my co-pending application, Serial No. 660,780, filed December 4, 1897.

The connection described in my said application is formed by providing a parallel series of wires, each having arches formed at points for the location of springs, then locating the springs centrally over the arches in said wires, then introducing lengthwise locking-wires which engage beneath the arches and over the attaching-coils of the springs, and finally applying pressure to the arches and spreading them against the sides of the attaching-coils and at the same time depressing the interlocking wires to form kinks which engage with the arches and attaching-coils and deflecting said attaching-coils permanently into conformity with the two sets of wires.

The machine forming the subject-matter of my present invention consists of a number of compressing devices, there being one for each spring to be attached, each comprising a suitable anvil upon which the interlocking wires may be compressed, and means for holding the wires straight while compression is taking place. More particularly described, each of these devices is provided with a depressible anvil upon which the arch is compressed and the straight wires deflected, which anvil is surrounded by a fixed seat, while the holding means, preferably in the form of hooks having transverse movement, is located outside of the fixed seat and has connection with the depressible anvil, so that it draws the wires down over the fixed seat as compression is taking place. The anvil is further provided with projecting horns which have intersecting passages between them to hold the wires in proper position and also serve as

means for centering the springs and holding them in place. The compressing-tool may be operated in any suitable manner and has sockets which receive the upwardly-projecting horns to prevent displacement of the tool during compression.

My invention will be fully understood upon reference to the accompanying drawings, in which—

Figures 1 and 2 are perspective views showing the arrangement of the interlocking parts before and after subjecting them to the compressing, which is the function of the machine forming the subject-matter of this application. Figs. 3 and 4 are respectively a side elevation of the machine with the parts arranged preliminary to compression and a vertical section of said machine with the parts in the position occupied at the end of the compression and before removal. Fig. 5 is a plan of the machine and parts shown in Figs. 3 and 4. Fig. 6 is a perspective view of the tool employed for compressing the parts. Fig. 7 illustrates a machine made up of a series of the compressing devices shown in Figs. 4 and 5.

The object of my invention is to assemble springs with the base-wires, as shown in Fig. 1, and to permanently bend and interlock such parts, as shown in Fig. 2.

1 represents a convolute spring, the attaching-coil 2 of which terminates in a downward bend 3.

4 is one of a series of arched steel wires forming one of the main series of attachment, and which wires are assumed to be arranged in parallel relation and have arches 5 at each point along their length where it is desired to locate a spring. Springs are centered over the arches, and straight transverse wires 6 are introduced endwise, passing above the attaching-coil and under the arch at each spring. Diagonal bracing-wires 7, if used, are introduced similarly to the wires 6. The arches 5 are then successively compressed until they are expanded against the attaching-coils. This operation also depresses wires 6 and kinks them over the attaching-coils and permanently conforms said attaching-coils to the interlocked parts and gives the spring a set which brings its axis in an erect position.

The machine for compressing the parts, as

described; comprises a series of devices, as many as there are springs, one of which is illustrated in Figs. 3 to 6. The most essential features are a seat 8 for the spring, the
 5 compressing-tool 9, and means—such, for example, as hooks 10—for holding down the ends of the wires and preventing buckling during compression. I prefer to make the seat 8 as an annular portion of a bed-plate
 10 11, which is formed with segmental slots 11^a, surrounding the seat, through which the holding-hooks 10 project, and to arrange within the seat a yielding anvil 12, provided with upwardly-projecting horns 13, arranged with
 15 wireways between them to receive the wires 4, 6, and 7, as shown in Fig. 5. The anvil 12 is held normally elevated by a spring 14 in the well 15 and has a base-plate 16 extending outwardly and carrying the upwardly-extending hooks 10. The anvil and hooks are ro-
 20 tatable for a limited distance (the wireways being constructed to permit this movement) to provide for moving the hooks into engagement with the wires 4, 6, and 7 to hold them
 25 during compression and for disengagement from said wires to avoid interference with them in introducing them and to permit ready removal of the finished bed. Since some of the wires are previously formed with arches
 30 at suitable intervals, it follows that when said arches are compressed or flattened the length of the wire is necessarily extended, the springs which are previously centered over the arches, the transverse wires which have
 35 been interwoven previous to compressing the arches, and the compressing devices must move bodily a distance corresponding to the lengthening of the arched wires resulting from flattening the arches; but, as shown in
 40 Fig. 7, the apparatus has as many compressing devices and wire-holders as there are springs. It is therefore necessary that some provision must be made for yielding of all these parts as successive compressions take
 45 place. To accomplish this, I simply mount each group of these devices in some manner—such, for instance, as illustrated in Figs. 4 and 5—so that they move in the direction in which the arched wire is extended. One form
 50 of such mounting is as follows: 17 represents screws engaging in slots 18 in the bed-plate for holding the latter in place and permitting it to yield bodily in the line of the wire 4 as compression takes place and the arched wires
 55 are necessarily extended. Shrinkage takes place transversely as the straight wires are depressed; but this is permitted by sliding of the straight wire as the depressions are formed successively, and sufficient wire is
 60 taken up to compensate as each connection is made.

The tool 9 has sockets 19 to receive the horns 13 and may or may not be provided with a depression 20, conforming to the arch
 65 5, against which it presses. The operation of this device is as follows: The arched wires

are placed in position and the compressing device adjusted, so that an arch projects in the wire-passage of each anvil. Springs are then placed in position over the arches, being
 70 centered by the projecting horns and allowed to rest upon the fixed seat. The straight main wire 6 and bracing-wire 7, if the latter is used, are then interwoven in the manner
 75 hereinbefore described. The anvil, with the securing-hooks, is then rotated to bring a hook into engagement with each wire as it projects beyond the fixed seat. Compression is then
 80 imposed upon the arch through the medium of the tool, the anvil yielding as the tool is depressed. The arch is spread as before described, the straight wires dipped and kinked, and the attaching-coil supported in fixed po-
 85 sition on the seat. The kinks do not show in the wire 6, owing to its position in the view; but such kinking of wire 6 over the base-coil 2 necessarily results from compression pre-
 90 cisely the same as shown at 7^a in the wire 7. Where the coil rests upon the arched wire, it receives an upward bend, and where the
 95 straight wire passes over the coil said coil is forced down to the fixed seat. By this means I am enabled to produce the peculiar bends which I have heretofore described and which
 are the object of my invention forming the subject-matter of my copending application, Serial No. 660,780.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a machine for attaching coils to their retaining-wires in the manufacture of spring-bottoms, the combination of a suitable bed upon which to arrange the retaining-wires, retaining devices arranged in proper relation
 105 around the point for location of the spring, and means for pressing the engaging wires to bend them and forming kinks or the like for engagement with the springs, substantially as herein explained. 110
2. In a machine for attaching coil-springs to their retaining-wires in the manufacture of spring-bottoms, the combination of an anvil having intersecting ways for the reception of wires, a pressing-tool cooperating with said
 115 anvil to deflect the wires, and retaining means arranged around the anvil for engaging the respective wires on opposite sides of the anvil and holding them straight while deflection is taking place; the anvil and retaining de- 120
 vices being made yielding, substantially as and for the purposes set forth.
3. In a machine for fixing springs to their securing-wires in spring-bottoms, the combination of a depressible anvil upon which to
 125 compress the wires, a fixed seat surrounding the anvil to receive the coil of the spring, and means outside of said fixed seat for holding the wires, substantially as set forth.
4. In a machine of the character described, 130
 the combination of the depressible anvil having transverse wireways, a fixed seat sur-

rounding said anvil, and a coöperating compressing-tool, substantially as and for the purposes set forth.

5 In a machine of the character described, the combination of the fixed seat, a depressible anvil within said seat, and retaining-hooks located outside of said seat and mounted to move into and out of engagement with the wires which they are to retain, substantially as explained.

10 6. In a machine of the character described, the combination of a depressible anvil having projecting horns with wire-passages between them, and a compressing-tool having sockets to receive said horns, substantially as and for the purposes set forth.

7. In a machine for attaching springs by compressing the attaching-wires of spring-bottoms; compressing devices suitably located at points where it is desired to attach 20 the respective springs, and a mounting upon which the respective compressing devices are movably supported, whereby each compressing device may move bodily to maintain its position on the bottom-forming wires and 25 compensate for changes in length of said wires incident to compression; substantially as explained.

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Witnesses:

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