Aug. 7, 1951 J. C. HROCH, JR 2,563,468

ASSEMBLING APPARATUS

Filed Jan. 24, 1945

5 Sheets-Sheet 1

FIG. 1

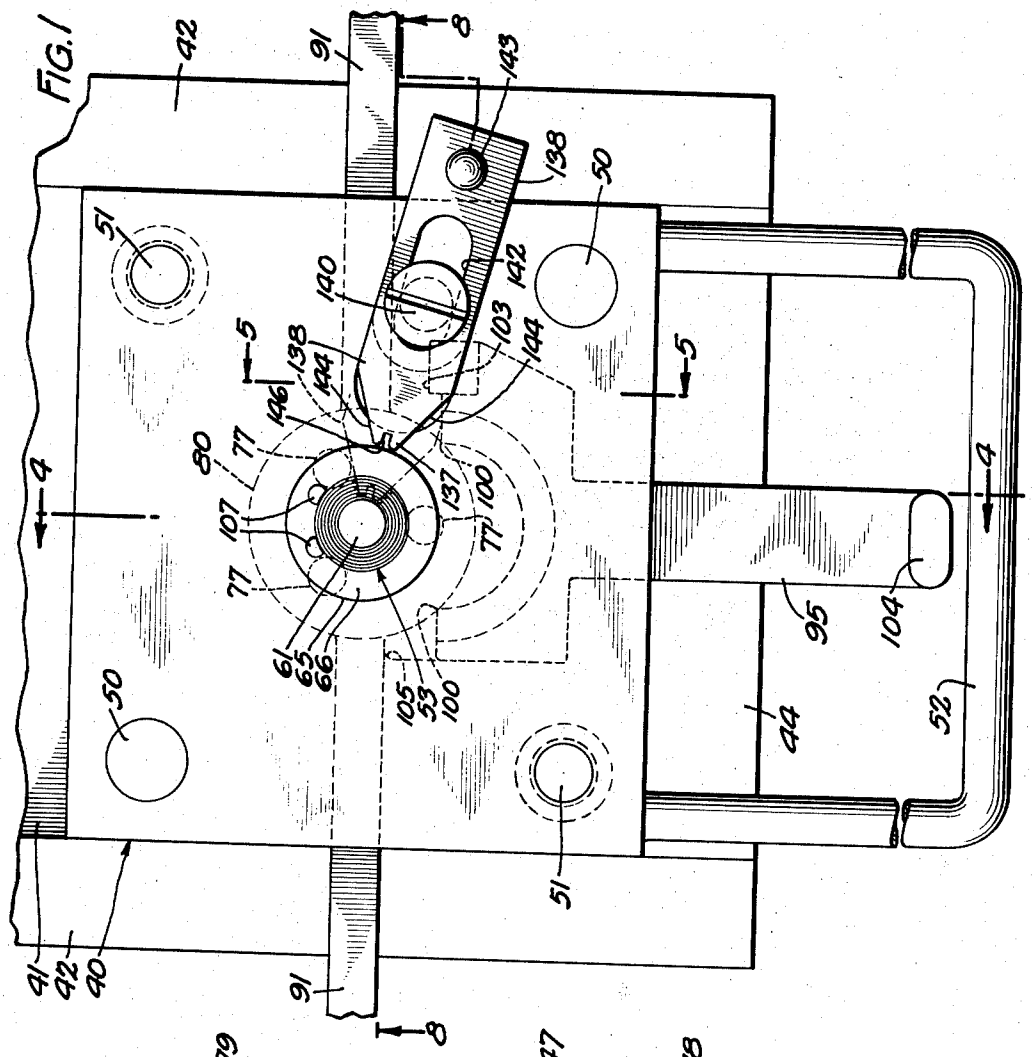


FIG. 2

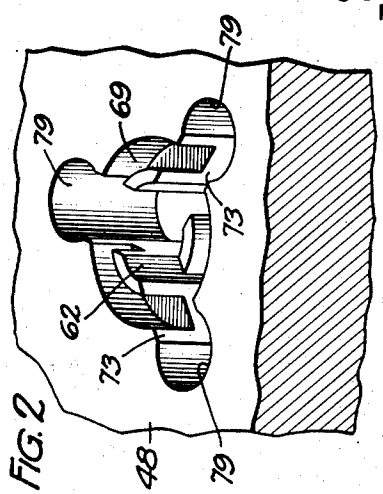
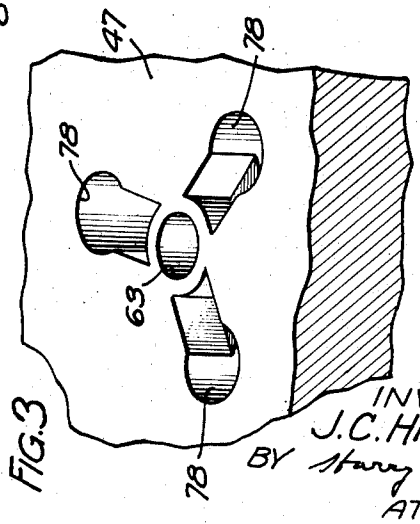


FIG. 3



INVENTOR
J. C. HROCH, JR.
BY Harry E. Davis
ATTORNEY

Aug. 7, 1951 J. C. HROCH, JR 2,563,468

ASSEMBLING APPARATUS

Filed Jan. 24, 1945

5 Sheets-Sheet 2

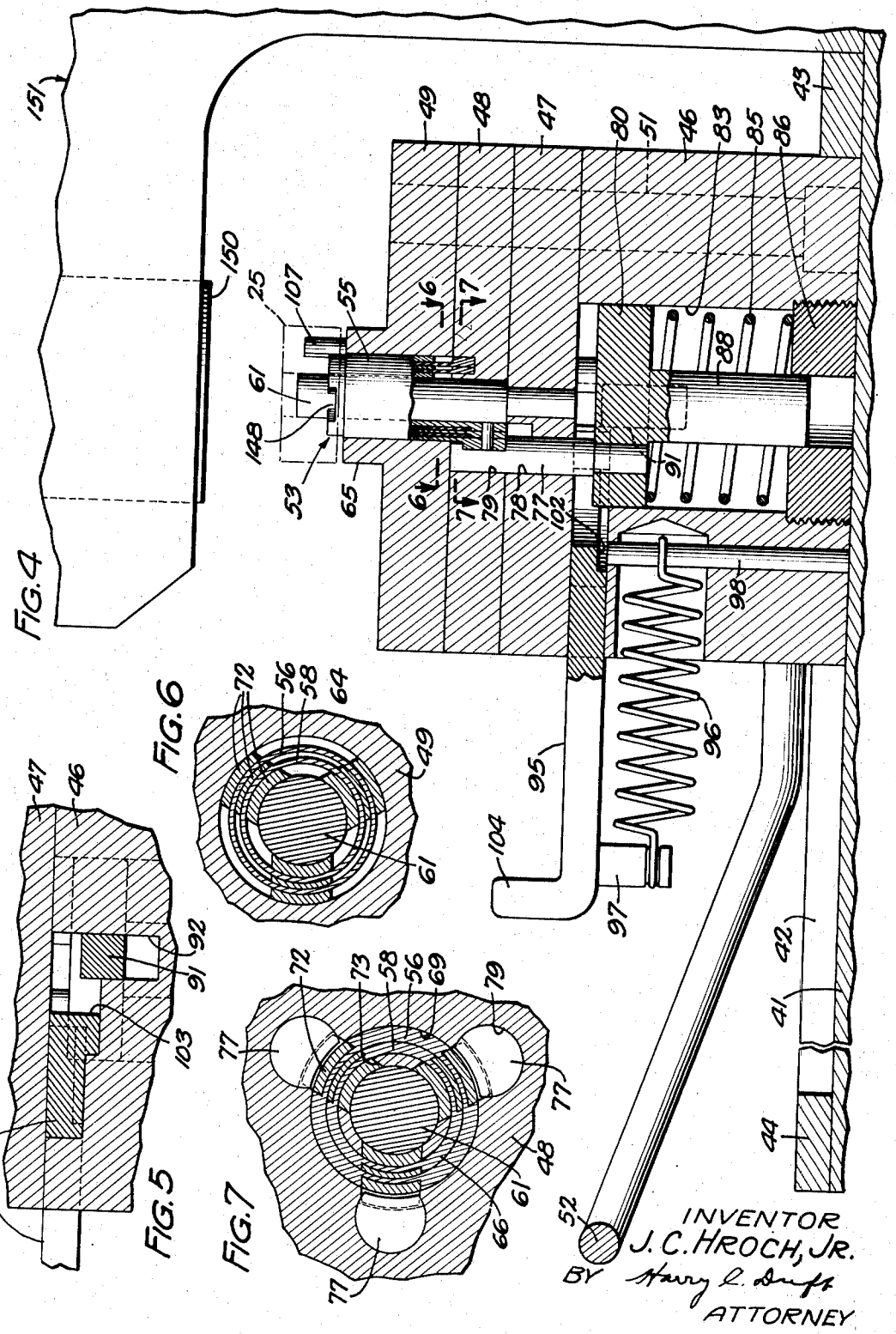


FIG. 4

FIG. 6

FIG. 5

FIG. 7

INVENTOR
J. C. HROCH, JR.
BY Harry E. Dunft
ATTORNEY

Aug. 7, 1951 J. C. HROCH, JR 2,563,468

ASSEMBLING APPARATUS

Filed Jan. 24, 1945

5 Sheets-Sheet 3

FIG. 8

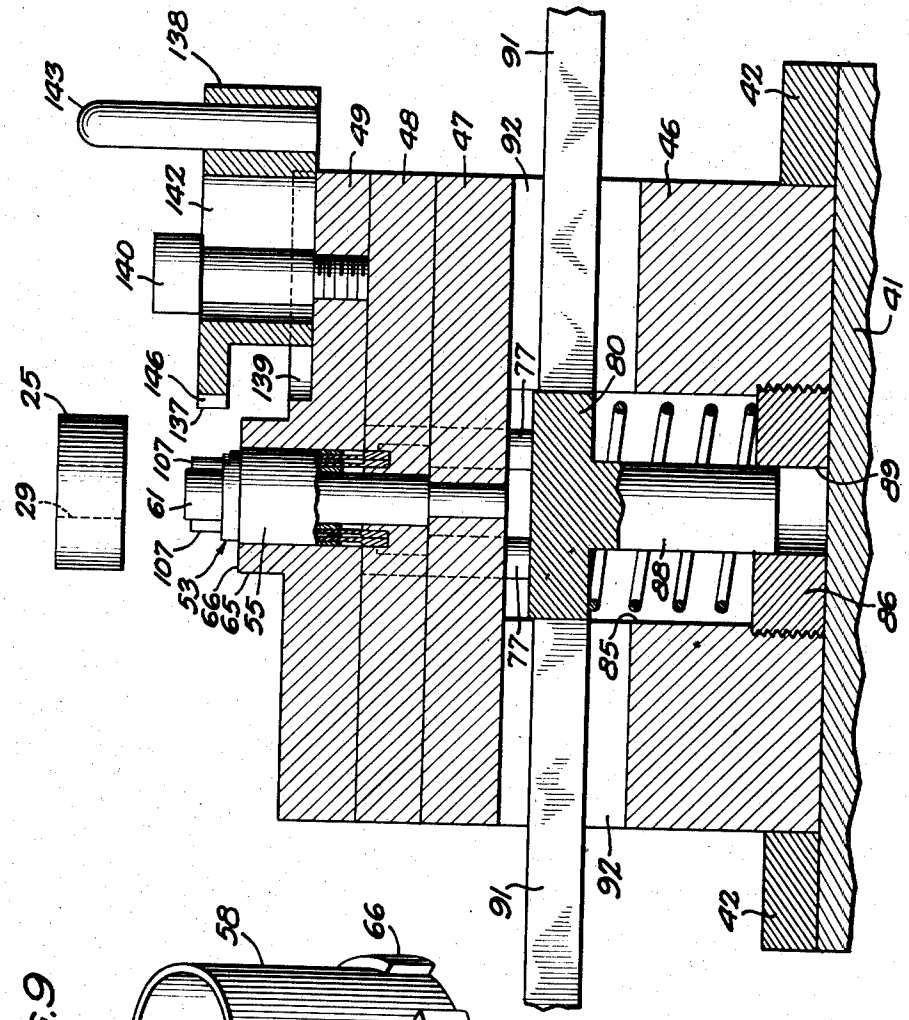


FIG. 9

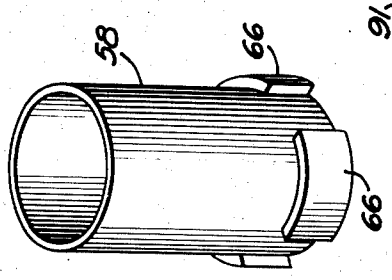
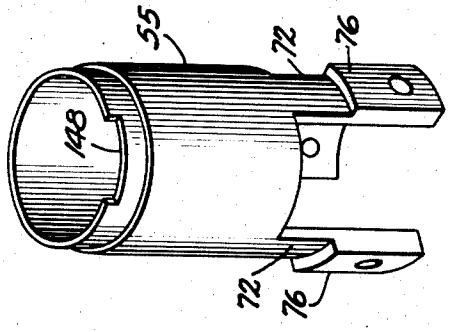


FIG. 10



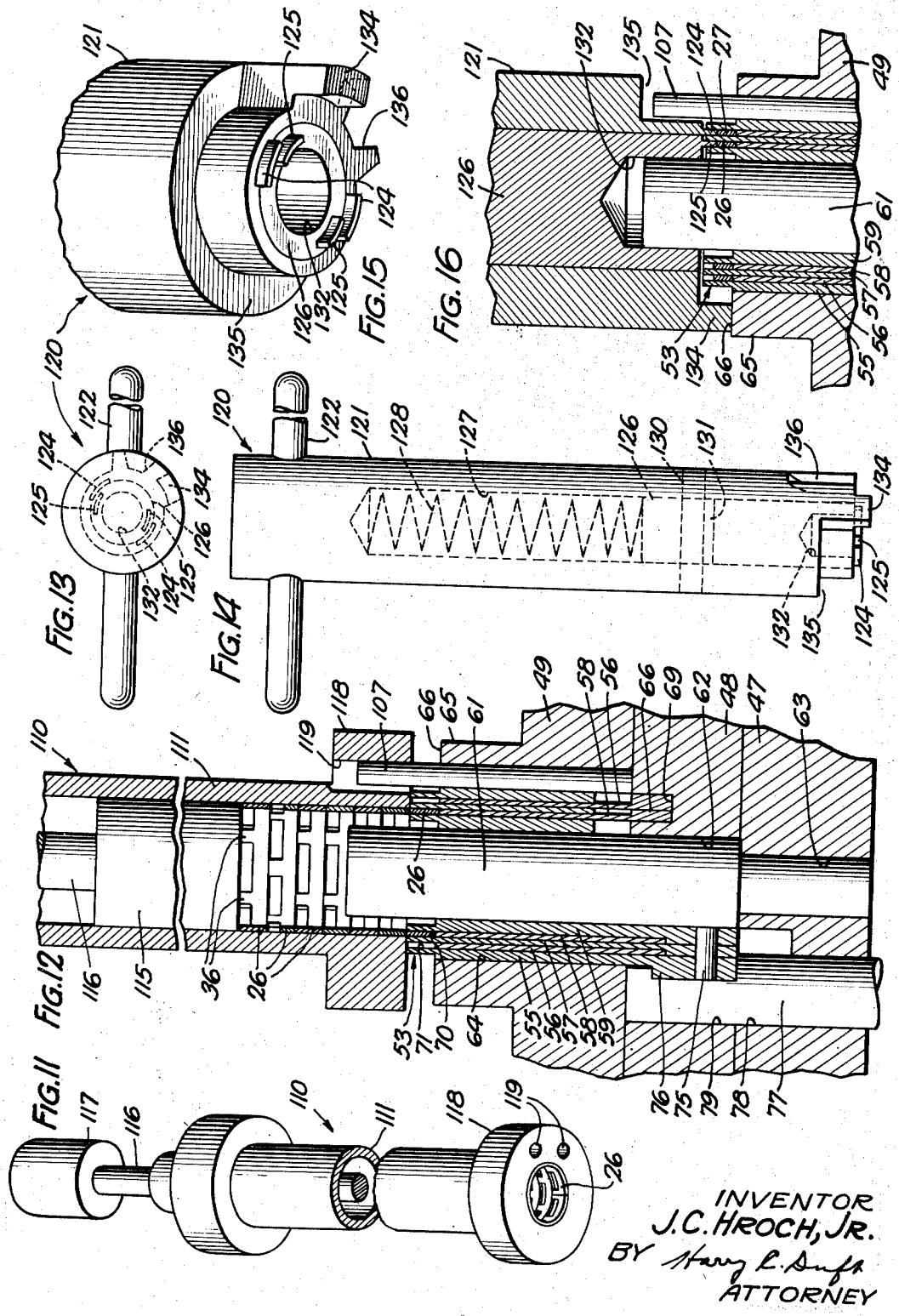
INVENTOR
J. C. HROCH, JR.
BY Harry R. Arnold
ATTORNEY

Aug. 7, 1951 J. C. HROCH, JR 2,563,468

ASSEMBLING APPARATUS

Filed Jan. 24, 1945

5 Sheets-Sheet 4

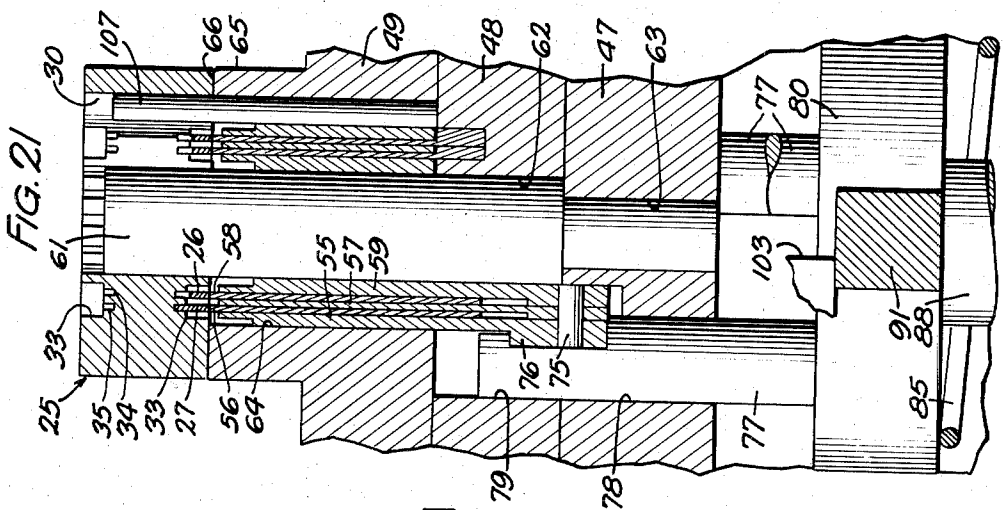


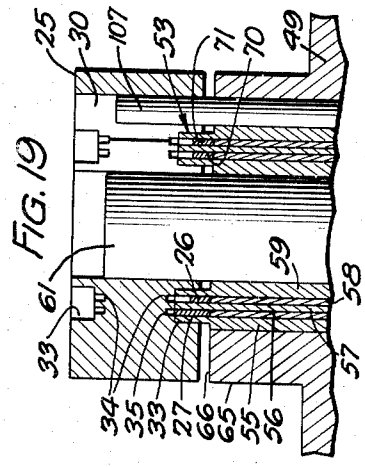
INVENTOR
J. C. HROCH, JR.
BY Harry L. Duffy
ATTORNEY

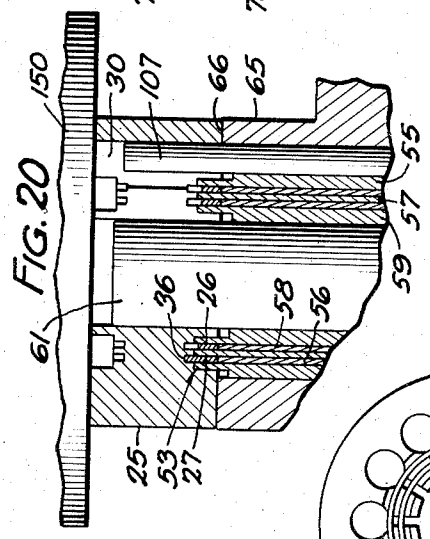
Aug. 7, 1951 J. C. HROCH, JR 2,563,468

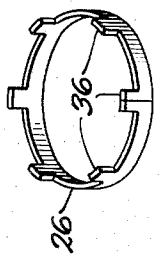
ASSEMBLING APPARATUS

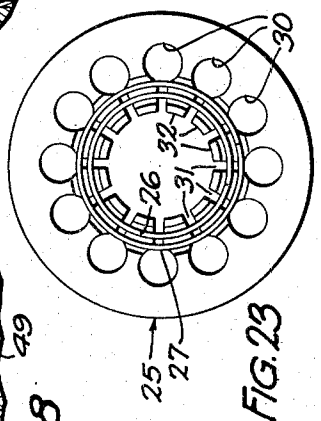
Filed Jan. 24, 1945 5 Sheets-Sheet 5

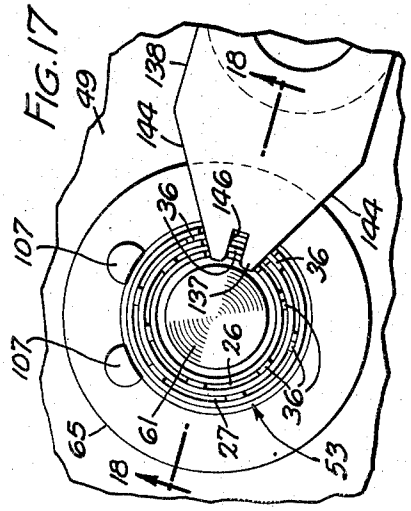


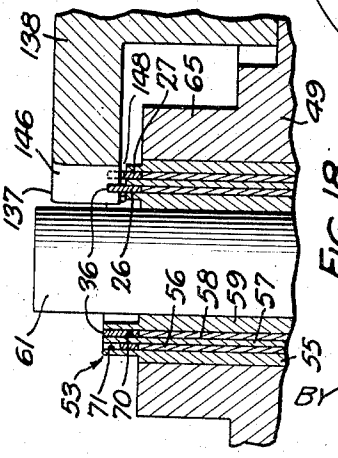












INVENTOR
J. C. HROCH, JR.
BY Harry L. Duffy
ATTORNEY

Patented Aug. 7, 1951

2,563,468

UNITED STATES PATENT OFFICE

2,563,468

ASSEMBLING APPARATUS

James C. Hroch, Jr., Cicero, Ill., assignor to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York

Application January 24, 1945, Serial No. 574,431

13 Claims. (Cl. 29—25.19)

1

This invention relates to an assembling apparatus and more particularly to apparatus for inserting circular straps into anode members.

It is essential that the circular straps should be accurately located in the anode members which are used in ultra-high frequency radio detection devices. In view of the small size and delicate structure of the rings and anode member, this is a very difficult operation.

An object of the present invention is to provide an apparatus for accurately and effectively assembling parts.

In accordance with one embodiment of this invention, an apparatus is provided having a plurality of concentric sleeves forming a nest for receiving and positioning a pair of circular straps in concentric relation. The straps are provided with a plurality of axially extending tabs which, when the straps are in position in the nest, may be engaged by a gauge and moved to turn the straps about their axis to a predetermined position after which the gauge is removed and the anode member is angularly and axially alinged with the straps with the aid of suitable guide means and is forced downwardly onto the straps to receive and grip the tabs in annular grooves in the anode member. The sleeves forming the side walls of the nest are movable and may be actuated to disengage the strip engaging portions thereof from the strap after which the anode member with the assembled straps therein may be removed from the apparatus.

Other objects of the present invention will be apparent from the following detailed description taken in conjunction with the accompanying drawings illustrating a preferred embodiment of the invention, in which

Fig. 1 is a fragmentary plan view of a portion of the apparatus;

Figs. 2 and 3 are enlarged fragmentary views in perspective showing two plates and the recesses therein forming a part of the body of the apparatus;

Fig. 4 is a vertical, longitudinal, sectional view of the apparatus taken along the line 4—4 of Fig. 1 and showing the fixture moved forward into a position to cooperate with a plunger of a press and showing the anode member in dotted lines thereon;

Fig. 5 is a fragmentary vertical sectional view taken on the line 5—5 of Fig. 1 and illustrating a latch for cooperating with a sleeve actuating member;

Figs. 6 and 7 are enlarged fragmentary plan

2

sections taken on the lines 6—6 and 7—7, respectively, of Fig. 4;

Fig. 8 is a vertical transverse sectional view of the apparatus taken on the line 8—8 of Fig. 1 and showing the anode member in vertical alignment with the assembling fixture;

Fig. 9 is a perspective view of a fixed sleeve for supporting a circular strap;

Fig. 10 is a perspective view of a movable sleeve for engaging the peripheral surface of a circular strap;

Fig. 11 is a view in perspective, with parts broken away, of a loading device for loading the circular straps into the assembling fixture;

Fig. 12 is an enlarged vertical section of a portion of the assembling fixture showing the loading device in position thereon;

Fig. 13 is a plan view of a gauge member for use in turning the straps, to position the tabs thereon;

Fig. 14 is a side elevational view of the gauge shown in Fig. 13;

Fig. 15 is an enlarged fragmentary view, in perspective, showing the lower portion of the gauge;

Fig. 16 is a fragmentary enlarged vertical sectional view showing the gauge in place on the fixture and engaging the straps;

Fig. 17 is an enlarged fragmentary view of the strap positioning nest with the straps in place therein and showing the locating gauge engaging the tabs on the straps;

Fig. 18 is a fragmentary vertical section taken on the line 18—18 of Fig. 17;

Fig. 19 is an enlarged vertical section through the strap positioning nest showing the anode member resting in place thereon;

Fig. 20 is an enlarged vertical section similar to Fig. 19 showing the anode member moved down into engagemet with the straps and showing a portion of a plunger for moving same;

Fig. 21 is a fragmentary vertical sectional view through the strap positioning nest showing the anode in assembled relation with the straps and showing the strap positioning sleeves disengaged from the straps and latched in their retracted position;

Fig. 22 is a perspective view of a circular strap, and

Fig. 23 is a plan view of the anode with the straps in assembled position therein.

Referring to the drawings and particularly to Figs. 21, 22 and 23, there is shown an anode member 25 having assembled therein two rings or circular straps 26 and 27, one of which is

shown in perspective in Fig. 22. The anode member 25 is cylindrical in form, having flat ends, and is provided with a central aperture 29 therethrough around which are disposed a series of smaller, equally spaced, parallel apertures 30. The apertures 30 are connected to the central aperture 29 by radial slots 31 which slots define a series of radially projecting tongues 32. On either end, the anode member is provided with a concentric annular recess 33 of rectangular shape in cross section, the bottom of which is provided with spaced concentric grooves 34 and 35. The ring or circular strap 26 is formed from a thin strip cut to the proper shape and bent to circular form with its ends abutting, and is provided with a series of equally spaced projecting tabs 36. The straps 26 and 27 are assembled with the anode member 25 so that the tabs 36 fit into the grooves 33 and 34 and are tightly gripped therein, the tabs 36 of one strap engaging in grooves 34 in alternate tongues 32 and the tabs of the other strap engaging in grooves 35 in alternate tongues not engaged by the tabs of the first ring.

The anode 25 and the straps 26 and 27 are assembled in the apparatus, embodying the present invention, shown on an enlarged scale in the various drawings (Figs. 1, 4 and 8). The apparatus comprises a fixture 40 (Fig. 4) movably mounted on a bed 41 and guided for reciprocation thereon by guide members 42 and limited in its forward and rearward movement by stop members 43 and 44, respectively. The body of the fixture 40 comprises a block 46 and plates 47, 48 and 49, the parts being secured together in assembled relation by dowel pins 50 and cap screws 51, as shown in Figs. 1 and 4. A handle 52 is fixed to the block 46 to move the fixture 40.

To receive and position the straps 26 and 27, the fixture 40 is provided with a nest 53 (Figs. 1, 12, 17, 18 and 21) formed of a series of concentric telescoping sleeves 55, 56, 57, 58 and 59, the sleeves 56 and 58 being fixed and the sleeves 55, 57 and 59 being relatively movable thereto. The sleeves surround an aligning post 61, the lower portion of which is secured in apertures 62 and 63 in plates 48 and 47, respectively. The series of sleeves fits within an aperture 64 in the plate 49 which aperture extends through a boss 65 extending upwardly from the plate 49, the boss being provided with a flat surface 66 flush with the top edges of the fixed sleeves 56 and 58. The inner fixed sleeve 58 is provided with shoulder portions 66—66 (Fig. 9) at its lower end and is telescoped within the outer fixed sleeve 56 which is likewise provided with similar shoulder portions 66 at its lower end. The lower ends of the sleeves 56 and 58 are sweated into an annular groove 69 in the plate 48, as illustrated in Figs. 2, 7, 12 and 21.

The upper ends of the movable sleeves 55, 57 and 59 project above the ends of the fixed sleeves 56 and 58 a distance equal to the overall height of the rings 26 or 27 including the tabs 36 and together with the top edges of the fixed sleeves 56 and 58 form the nest 53 having two concentric circular pockets or recesses 70 and 71 for receiving and positioning the straps 26 and 27, respectively (see Figs. 12, 17, 18 and 19). The nest 53 with the straps 26 and 27 in place therein will fit into the annular recess 33 of the anode and accurately align the rings 26 and 27 with the grooves 34 and 35, respectively, of the anode 25 when the anode is applied, as illustrated in Fig. 19.

The lower part of the sleeves are cut out to provide a plurality of extensions or legs 72 which pass through radial slots 73 in the plate 48 and between the ends of the shoulder portions 66 on the sleeves 56 and 58. The lower ends of the legs 72 of the sleeves 57 and 59 are provided with shoulders so as to engage the legs of the adjacent sleeves, the sleeves being riveted together by means of rivets 75 passing through the lower ends of the legs, as shown in Fig. 21. The lower ends of the legs 72 of the outer sleeve 55 are provided with shoulders 76 which are engaged by the notched ends of rods 77. The rods 77 are reciprocally mounted in aligned apertures 78 and 79 in plates 47 and 48, respectively, and are attached to a sleeve actuating member 80. The member 80 is movable vertically in a recess 83 (Fig. 8) in the block 46 and is urged upwardly by a spring 85 bearing against the underneath side thereof and supported on a threaded member 86. The member 80 has a reduced circular portion 88 projecting downwardly into a recess 89 in the member 86 for guiding the member 80. A pair of arms 91 extend outwardly from the member 80 through slots 92 in the block 46, and are adapted to be engaged by the operator to move the member 80 and the movable sleeves 55, 57 and 59 downwardly.

The movable sleeves may be moved downwardly to an intermediate position where the sleeves are partly disengaged from the straps 26 and 27 and to a position where they are fully disengaged from the straps. A latch 95 is provided to retain the sleeves in the partly disengaged or the fully disengaged positions. The latch 95 is slidably mounted in a recess in the block 46 and is urged toward the right as viewed in Fig. 4 by a spring 96 which is attached at one end to a stud 97 on the latch and at the other end to a pin 98 secured in the block 46. The latch 95 is shaped with a forked end (Fig. 1) and engages the member 80 at points 100—100 and is undercut at 102 (Fig. 4) to form a latching surface which will engage the top surface of the member 80 when the sleeves are depressed to the intermediate position and the latch member 95 moved forward. The forward movement of the latch 95 is arrested by the engagement of an offset portion 103 thereon with the side of one of the arms 91 (Figs. 1 and 5), after which the arms 91 may be moved downwardly until the latch 95 moves further forward and the bottom surface of the offset portion 103 engages the upper surface of the lever 91 and latches the member 80 and the movable sleeves in the fully disengaged position as shown in Fig. 21. A rib or projection 105 on the block 46 (Fig. 1) limits the forward movement of the latch member 95 when the arms 91 are fully depressed. The latch 95 has an upturned handle portion 104, which may be engaged by the operator to retract the latch.

A pair of locating or aligning pins 107—107 extend upwardly from the boss 66 and are of such size and are so located thereon as to fit into a pair of apertures 30 in an anode member 25 when the anode member is applied thereon and to angularly position the anode member accurately relative to the tabs 36 on the rings 26 and 27.

To load or feed a strap into the nest 53 of the fixture, a pair of loading devices 110 are provided, one for feeding the straps 26 and a larger one for feeding the straps 27. The loading devices 110 are identical except for the size, the one for feeding the straps 26 being shown in Figs. 11 and 12. It comprises a tubular member 111 forming a magazine adapted to receive there-

in a plurality of straps 26. The straps are inserted into the tube 111 one at a time with the tabs 36 directed upwardly and form a stack of straps resting one on top of another and maintained in place by frictional engagement of the strap with the walls of the tube 111. A piston 115, connected to a piston rod 116 and a handle 117, is adapted to engage the uppermost strap 26 and, when moved downwardly, to apply a force to the stack of straps to eject the lowermost strap from the tube. A flange 118 is formed on the lower end of the tube 111 and is provided with a pair of apertures 119 positioned so as to cooperate with the aligning pins 107 on the fixture in aligning the loading device with the nest 53 when the loading device is applied thereto, as illustrated in Fig. 12. The loading device, when applied to the fixture as shown in Fig. 12, rests on the top edges of the sleeves 55 and 57 and the lowermost strap 26 in the magazine 111 is in alignment with the circular recess 70 of the nest 53 and may be ejected from the tube 111 into the recess by a downward movement of the piston 115. The loading device 110 is removed after the strap 26 has been ejected and the device for loading the straps 27 may be applied and a starp 27 ejected therefrom into the strap recess 71 of the nest 53.

When the straps 26 and 27 are loaded in the positioning pockets 70 and 71, respectively, the upwardly extending tabs 36 thereon are arranged in random position and in order to properly align the tabs on one ring with respect to the tabs on the other ring, and with respect to the fixture the straps may be rotated about their centers while in the recess 70 and 71 and for this purpose a strap turning gauge 120 is used (see Figs. 13, 14, 15 and 16).

The gauge 120 comprises a cylindrical body member 121 having a handle 122 and at its lower end is provided with a pair of axially projecting diametrically opposed lugs 124 equally spaced from the center and a second pair of diametrically opposed lugs 125 equally spaced from the center and angularly displaced from the lugs 124. The lugs 125 are formed integral with a cylindrical insert 126 slidably mounted for relative vertical movement in a bore 127 of the member 121 and normally urged downwardly by a spring 128 as viewed in Fig. 14. The insert 126 is connected to the body member 121 by a pin 130 which passes through a slot 131 in the insert, the arrangement permitting the relative upward movement of the insert 126 while the gauge is being applied to the straps 26 and 27 and the fixture 40. A centrally located recess 132 is formed in the insert 126 and is of a size sufficient to receive the post 61 and is used for aligning the gauge 120 with the straps 26 and 27 in the nest 53. A foot 124 projects from the bottom of the gauge and is adapted to rest on the surface 66 of the boss 65 to support the gauge at the proper level during the use thereof, as shown in Fig. 16. The lower end of the gauge is cut away at 135 to provide clearance for the pins 107 and to permit a limited turning movement of the gauge.

The lugs 124 are adapted to fit into the recess 71 of the nest 53 and fit between and engage a pair of tabs 36 on the strap 27 and the lugs 125 are adapted to fit into the recess 70 and fit between and engage a pair of tabs 36 on the strap 26 when the gauge 110 is applied thereto as illustrated in Fig. 16. In applying the gauge 121, the lugs 124 thereon will seat in the recess 71 and engage the strap 27, and it may be necessary

to turn the gauge and the strap 27 before the lugs 125, which may have been displaced upwardly, seat in the recess 70 and engage the strap 26. The gauge 110, after the straps are angularly positioned relative to each other therein, may then be turned to properly position the straps with respect to the fixture 40 which condition is brought about when a notch 136 (Fig. 15) formed in a lower part of the gauge is in alignment with the end 137 of a tab locating gauge 138 (Fig. 1).

The locating gauge 138 (Figs. 1, 8, 17 and 18) is slidably mounted in a slot 139 on the plate 49 of the fixture 40 and is retained therein by a shouldered screw 140 passing through a slot 142 in the gauge. The gauge 138 is movable toward and away from the post 61 as indicated in Fig. 1 in full and dotted lines and is provided with a handle 143 for manually imparting movement thereto. The forward part of the gauge 138 is reduced in vertical thickness and is provided with converging side walls 144 forming the end 137 which is adapted to fit into the notch 136 and position the gauge 120 in the correct angular relation to the fixture 40. The end 137 of the gauge is also slotted at 146 to receive a tab 36 therein. A portion of the sleeves 55, 57 and 59 are cut away at 148 as shown in Figs. 10, 17 and 18 to provide clearance for the end 137 of the gauge 138 when the gauge is moved into the position shown in Fig. 17.

When the turning gauge 120 is removed, the rings 26 and 27 are located so that the tabs 36 thereon are approximately in the correct angular position and in order to check the location of the tabs, and if necessary to more accurately position the tabs 36, the gauge member 138 is used. When the gauge 138 is moved to the left as shown in Figs. 17 and 18, the end 137 engages a tab 36 on the ring 26 and receives it in the slot 146 to accurately position the strap 26, and the converging walls 144 of the gauge 138 engage the vertical end walls of two adjacent tabs 36 on the strap 27 to accurately position the strap 27.

After the straps 26 and 27 have been accurately positioned by the actuation of the gauge 138 just described the gauge is moved back to its normal position as shown in Fig. 1 and the apparatus and parts are in position for the next operation which is to assemble the anode member thereon. This is accomplished by positioning the anode member above the nest 53 and aligning the aperture 29 thereof with the post 61 and a pair of apertures 30 with the pins 107 and lowering the anode until it engages and is supported by the upper edges of the nest 53, as indicated in Fig. 19. Portions of the movable sleeves forming the nest 53 and the rings 26 and 27 positioned therein, fit into the annular recess 33 in the anode member and engage the bottom face thereof and the nest accurately aligns the rings 26 and 27 with the grooves 34 and 35, respectively. The fixture 40 is moved forward to the position shown in Fig. 4 and the plunger 150 of the press 151 is actuated to engage the anode member 25 and move it down until its lower face engages the face 66 of the boss 65. This downward movement of the anode member will cause the tabs 36 of the rings 26 and 27 to move into the grooves 34 and 35 and seat against the bottom thereof and be tightly engaged thereby. The movable sleeves 55, 57 and 59 will be moved downwardly by the downward movement of the anode member to the position shown in Fig. 20 and will be latched in this position by the surface 102 of the latch

95. The plunger 150 of the press is raised and the fixture 40 is moved to a rearward position and the handles 91 are depressed to move the sleeves 55, 57 and 59 downwardly to the position shown in Fig. 21 where they are entirely disengaged from the rings 26 and 27 and in which position the sleeves are latched by the portion 103 of the latch 95. The rings 26 and 27 are thus accurately and firmly assembled in the anode member 25 and the assembly may be removed from the fixture by an upward movement thereof.

What is claimed is:

1. An assembling apparatus for inserting a ring into a recessed member, comprising means including a surface engageable with an end face of the ring for supporting said ring, circular means yieldably mounted on the supporting means for engaging a peripheral portion of said ring to position said ring on said supporting means, said ring positioning means being engageable by the recessed member and being movable relatively to said supporting means in a path parallel to the axis of the ring to permit the disengagement thereof from the ring, and means for guiding said recessed member and said ring into assembled position.

2. An assembling apparatus for inserting a ring into a recessed member, comprising means including a surface engageable with an end face of the ring for supporting said ring, circular means for engaging a peripheral portion of said ring to position said ring on said supporting means, said ring positioning means being engageable by the recessed member and being movable perpendicularly and relatively to the supporting surface of the supporting means to permit the disengagement thereof from the ring, means for guiding said recessed member and said ring into assembled position, and yieldable means for holding said ring positioning means in the ring engaging position.

3. An assembling apparatus for inserting a ring into a recessed member, comprising means including a surface engageable with an end face of the ring for supporting said ring, circular means for engaging a peripheral portion of said ring to position said ring on said supporting means, said ring positioning means being engageable by the recessed member and being movable perpendicularly and relatively to the supporting surface of the supporting means to permit the disengagement thereof from the ring, means for guiding said recessed member and said ring into assembled position, yieldable means for holding said ring positioning means in the ring engaging position, and means for disengaging said ring positioning means from said ring.

4. An assembling apparatus for inserting a ring into a recessed member, comprising a support engageable with an end face of the ring for supporting said ring, circular means for engaging a peripheral portion of said ring to position said ring on said support, said ring positioning means being engageable by the recessed member and being movable relatively to said support in a path parallel to the axis of the ring to permit the disengagement thereof from the ring, means for guiding said recessed member and said ring into assembled position, resilient means for holding said movable ring positioning means in the ring engaging position, means for disengaging said ring positioning means from said ring, and means for latching said ring positioning means in said disengaged position.

5. An assembling apparatus for assembling a ring and a recessed member, comprising a support engageable with an end face of a ring for supporting said ring, movable means for engaging a circumferential portion of said ring to position said ring on said supporting means, means for guiding said member into engagement with said ring, said ring positioning means being engageable by and partially displaced from said ring by said member during the assembling operation, means for completely disengaging the ring positioning means from said ring, and means for latching said positioning means in said partially displaced and said fully displaced position.

6. An assembling apparatus for assembling a ring and an anode member, comprising a support for said ring, a plurality of movable sleeves for engaging and positioning said ring on said support, said sleeves being movable to permit the disengagement thereof from the ring, resilient means associated with said sleeves for moving said sleeves into ring engaging position and means for latching said sleeves in said disengaged position.

7. An assembling apparatus for inserting a plurality of rings into an anode member having concentrically arranged annular grooves therein to receive said rings, said apparatus comprising means for supporting said rings, a plurality of movable concentric sleeves for engaging the inner and outer peripheral portions of said rings for positioning said rings on said supporting means in concentric relation to each other, said sleeves being movable to permit the disengagement thereof from said rings, resilient means associated with said sleeves for moving said sleeves into ring engaging position, means for disengaging said sleeves from said rings, and means for latching said sleeves in a plurality of positions.

8. An assembling apparatus for simultaneously inserting a plurality of rings into an anode having annular grooves concentrically arranged therein to receive said rings, said apparatus comprising means for engaging one end of said rings to support same, means for engaging the circumferential portion of said rings to position same on said supporting means in concentric relation to each other, said ring supporting means and said ring positioning means being relatively movable whereby the ring positioning means may be disengaged from the rings, means for coaxially aligning said anode member and said rings, and means for effecting a relative axial movement between the anode and the rings to force the rings simultaneously into gripping engagement with said anode.

9. In an assembling apparatus, a support engageable with an end face of each of a plurality of annular parts for supporting the parts, a plurality of concentric circular members normally engageable with the inner and outer peripheries of the annular parts to position the parts in concentric relation to each other on the support, said circular members being movable in a direction toward the support to permit disengagement thereof from the annular parts and being engageable and movable by a recessed part to be assembled with the annular part, and resilient means to move the circular members into their part-engaging position.

10. In an assembling apparatus, a support having a surface engageable with an end face of each of a plurality of annular parts, a plurality of concentric circular members normally en-

gageable with the inner and outer peripheries of the annular parts to position the parts in concentric relation to each other on the support, said circular members being movable in a direction toward the support to permit disengagement thereof from the annular parts and being engageable and movable by a recessed part to be assembled therewith, resilient means to move the circular members into their part-engaging position, and guide means for aligning and guiding the recessed part into assembled relation with the annular part.

11. In an assembling apparatus, a support having a surface engageable with an end face of each of a plurality of annular parts, a plurality of concentric circular members normally engageable with the inner and outer peripheries of the annular parts to position the parts in concentric relation to each other on the support, said circular members being movable in a direction toward the support to permit disengagement thereof from the annular parts and being engageable and movable by a recessed part to be assembled therewith, resilient means to move the circular members into their part-engaging position, guide means for aligning and guiding the recessed part into assembled relation with the annular parts, and means for latching the circular member in said disengaged position.

12. An assembling apparatus for inserting a plurality of rings having axially projecting tabs thereon into a part having concentric annular grooves therein for receiving said rings, said apparatus comprising a support having a surface engageable with end faces of a plurality of rings, a plurality of movable concentric circular members normally engageable with the inner and outer peripheries of the rings to position the rings in concentric relation to each other on the support, said circular members being movable to

permit disengagement thereof from the rings, a gage member slidably mounted on the support for engaging the tabs on said rings to position the rings angularly on said support, and means for angularly and coaxially aligning said part with said rings and for guiding the part into assembled relation with the rings.

13. An assembling apparatus comprising a support having a surface engageable with end faces of a plurality of rings provided with axially projecting tabs thereon for supporting said rings, a plurality of concentric circular members for engaging circumferential portions of said rings to position the rings in concentric relation to each other on the support, said circular positioning members being mounted on the support for movement relative thereto to permit disengagement thereof from the rings, a gage member movably mounted on the support for engaging the tabs on said rings to locate the rings in a predetermined angular position on the support, guide means cooperatively engageable with an annularly grooved part to be assembled with the rings for angularly and coaxially aligning the part relative to the rings and for guiding the part towards the rings, and means for effecting a relative axial movement between the part and the rings to force the rings simultaneously into gripping engagement with the part.

JAMES C. HROCH, JR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,793,285	Hambleton et al.	Feb. 17, 1931
2,422,549	Hogin	June 17, 1947