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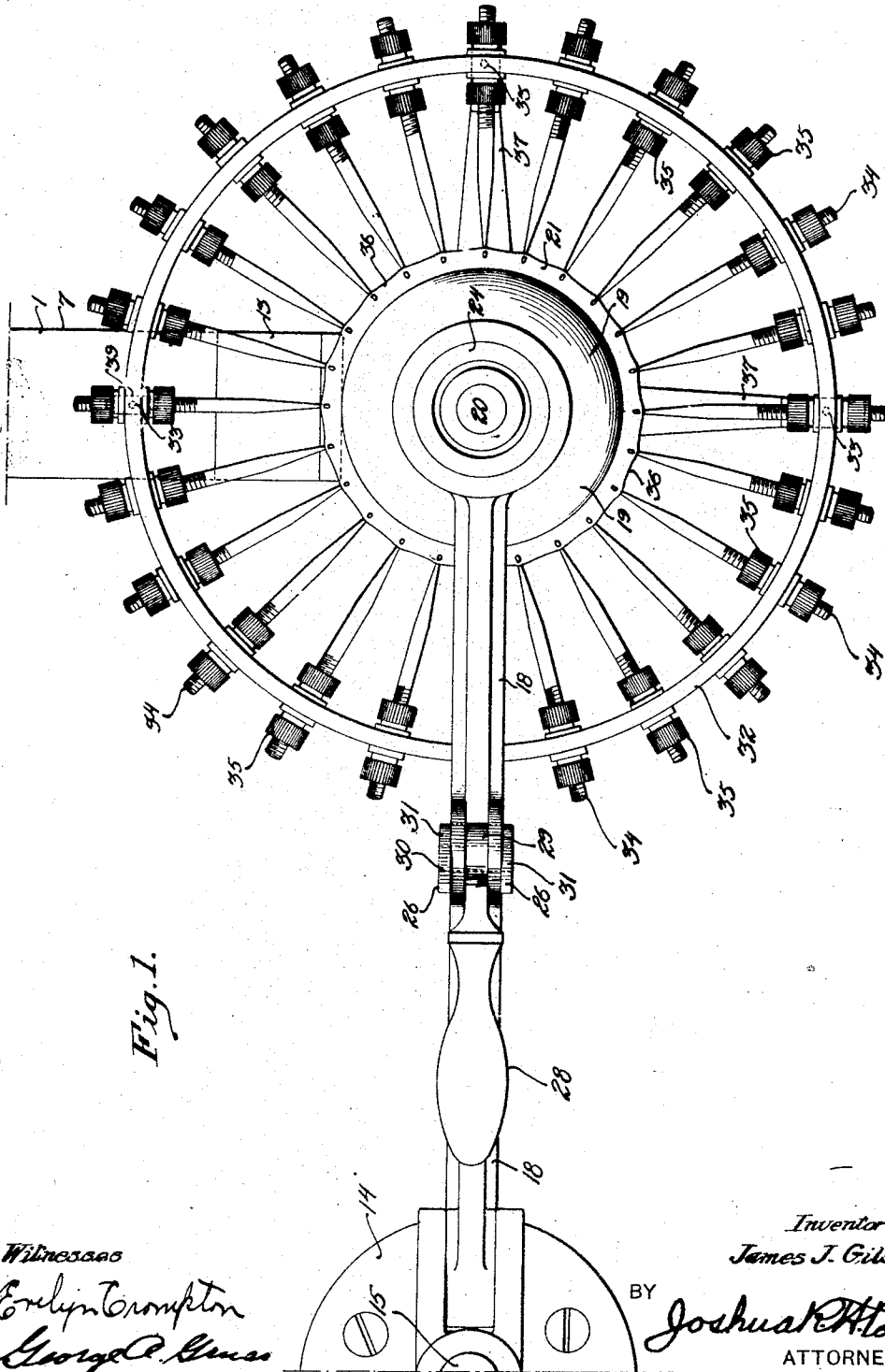
1,551,656

J. J. GILSON

SEWING MACHINE ATTACHMENT

Filed Feb. 19, 1924

4 Sheets-Sheet 1



Witnesses
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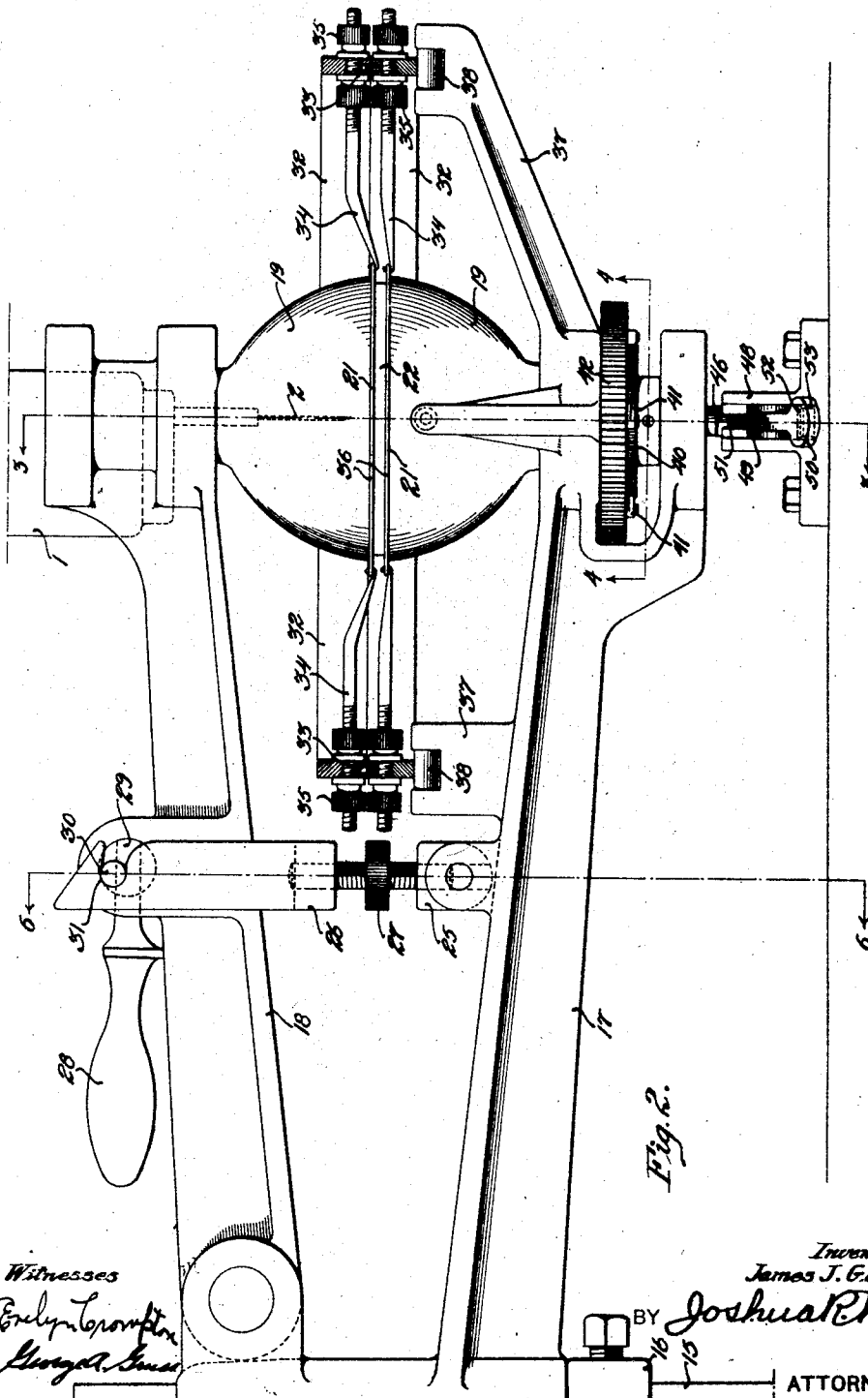
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SEWING MACHINE ATTACHMENT

Filed Feb. 19, 1924

4 Sheets-Sheet 2



Sept. 1, 1925.

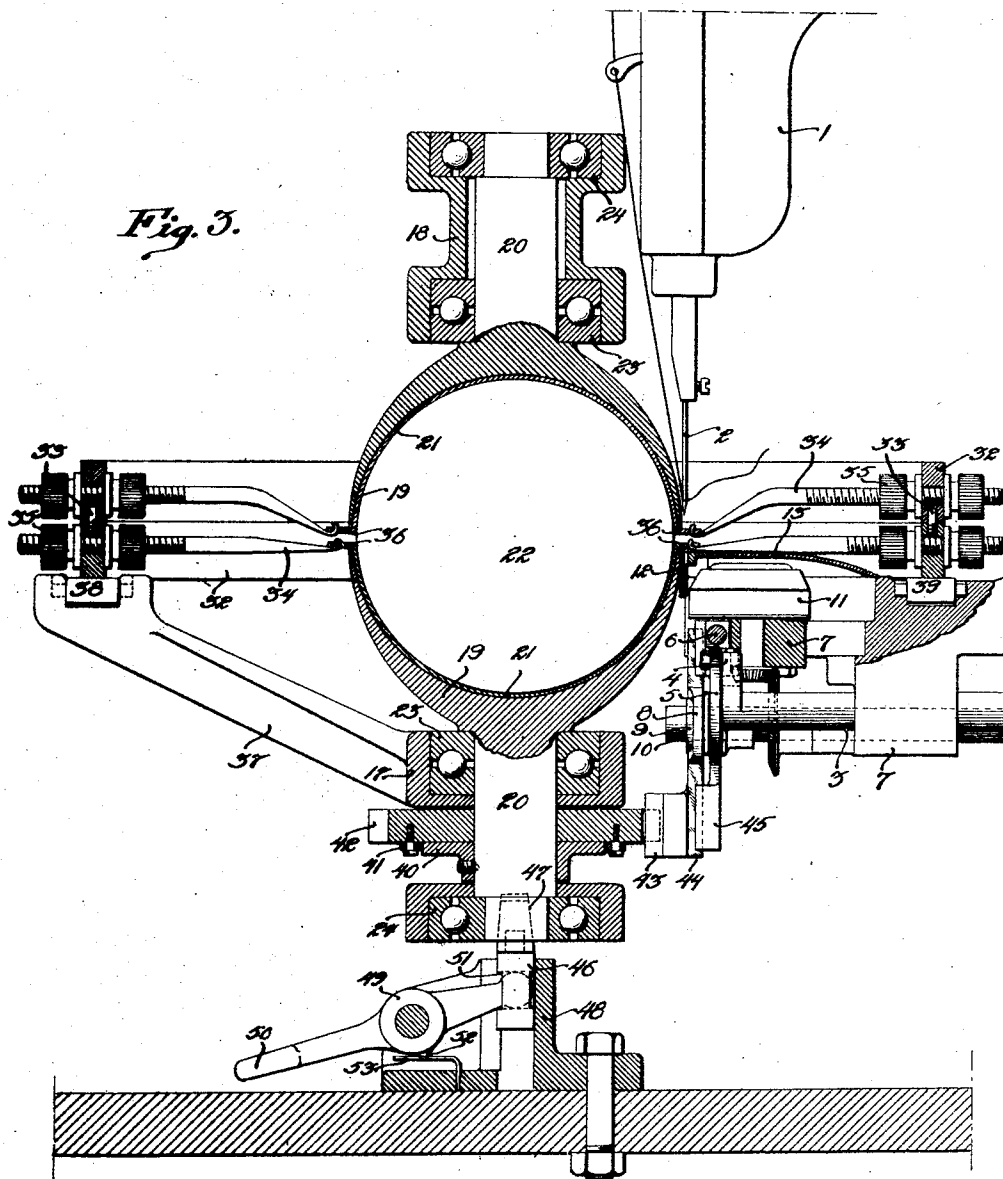
1,551,656

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SEWING MACHINE ATTACHMENT

Filed Feb. 19, 1924

4 Sheets-Sheet 3



Witnesses

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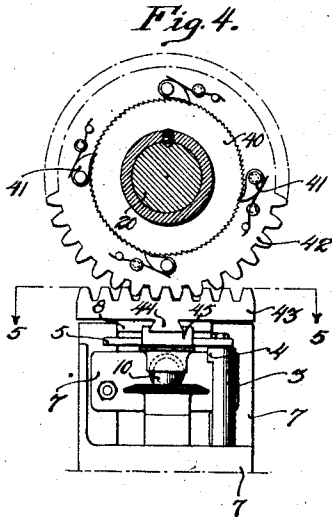
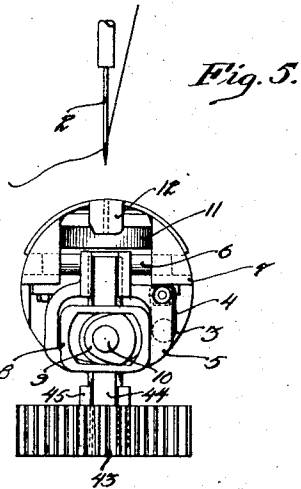
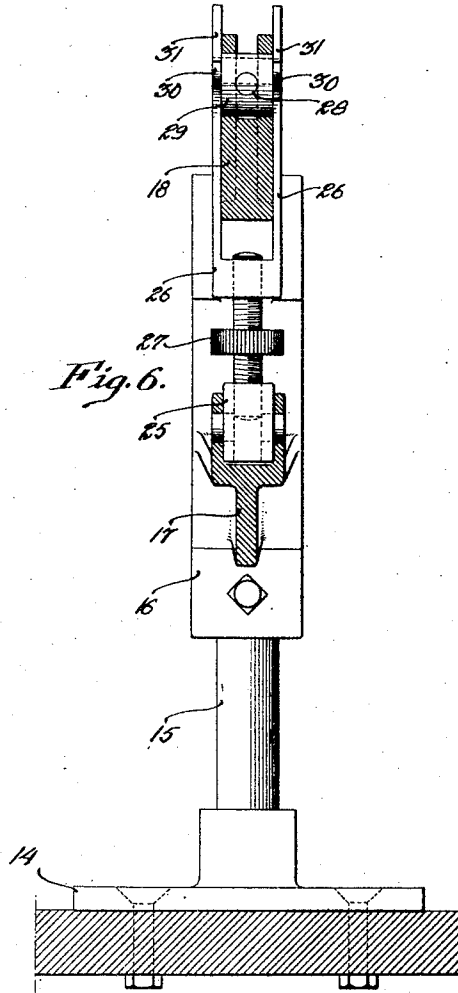
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SEWING MACHINE ATTACHMENT

Filed Feb. 19, 1924

4 Sheets-Sheet 4



Witnesses

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1,551,656

UNITED STATES PATENT OFFICE.

JAMES J. GILSON, OF PHILADELPHIA, PENNSYLVANIA.

SEWING-MACHINE ATTACHMENT.

Application filed February 19, 1924. Serial No. 693,914.

To all whom it may concern:

Be it known that I, JAMES J. GILSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machine Attachments, of which the following is a specification.

My invention relates to sewing machine attachments for holding cover sections on a ball and for guiding and feeding their edges under the needle when the machine is operated.

The objects are to provide a device which is adjustable to hold cover sections on a ball under any desired pressure, which will guide and feed the edges of the cover sections under the needle while the machine sews, which is movable toward and away from the machine to allow quick insertion and setting of the ball and cover sections and which is simple and durable in construction.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a plan view of a device constructed in accordance with my invention showing it in position for sewing the edges of cover sections,

Figure 2 a side view partly in section of Figure 1, certain of the parts being omitted for clearness of illustration,

Figure 3 a section on line 3—3 of Figure 2, certain of the parts being omitted for clearness of illustration.

Figure 4 a fragmentary section on line 4—4 of Figure 2,

Figure 5 a fragmentary section on line 5—5 of Figure 4, and

Figure 6 a section on line 6—6 of Figure 2.

My invention is shown connected with one make of sewing machine, but it may be readily connected to any make of machine of the style shown.

Referring to the drawings, 1 indicates a machine having a needle 2 and feed mechanism which includes a rocker-feed shaft 3 having an arm 4 connected with a reciprocating guide 5 having a pin 6 slidable in the frame 7. A dog-follower 8, slidably mounted in guide 5, is moved transversely thereto by a cam 9 fixed to the drive shaft 10. This drive shaft operates the rotary

shuttle 11 which forms stitches in conjunction with the looper plate 12. A cover plate 13 covers the stitching and feeding mechanism. In the usual construction of this make of machine the feed dog for feeding the material which is being sewed is secured to the dog follower 8. This feed dog is eliminated and the material fed by mechanism which forms a part of my invention.

My ball holding attachment includes a base 14 supporting a standard 15 having an adjustable collar 16 thereon. A lower arm 17, mounted to swing horizontally on the standard, is supported by collar 16. An upper arm 18 is pivoted to the lower arm 17 for vertical movement. A pair of cups 19, having stud shafts 20 rotatably mounted in the ends of the arms 17 and 18, are adapted to hold cover sections 21 on a ball 22. The bearings for the stud shafts are preferably of the anti-friction type which take the thrust as shown at 23 and the radial stresses as shown at 24. The cover sections are preferably of semi-spherical shape as disclosed in my co-pending application, Serial No. 687,682, filed January 22, 1924.

The means for causing cups 19 to compress the ball to bring the cover edges together includes a block 25 pivoted to arm 17 and connected to a yoke 26 by an adjusting screw 27.

A handle 28 pivoted at 29 to arm 18 has eccentric pins 30 adapted to engage into hooked parts 31 of yoke 26. By raising handle 28, pins 30 will swing downward away from yoke 26 and thus release the pressure on the ball and disconnect arms 17 and 18.

The means for holding the edges of the cover sections apart while the machine is sewing includes a pair of rings 32 connected by dowel pins 33. Hooks 34 are adjustable in the rings in any suitable manner preferably by providing threaded thumb nuts 35 on the hooks at opposite sides of the rings. The edges 36 of the cover sections 21 are connected to hooks 34 as shown in Figures 1 and 2. Rings 32 are supported by brackets 37 on arm 17 and rollers 38 mounted in the brackets. A roller 39 is preferably mounted in frame 7 to additionally support the rings.

The means for causing the edges of the cover sections to be fed under the needle includes a ratchet mechanism which consists

of a ratchet wheel 40 secured to stud shaft 20 and spring-pressed pawls 41 mounted on a gear wheel 42 rotatably mounted on stud shaft 20. A gear rack 43 meshes with gear 42 and is fixed to dog-follower 8 in any suitable manner, preferably by an extension 44 which slides in an extension guide 45 on the reciprocating guide 5. This rack 43 if desired may be connected through suitable means to any part of the feed mechanism so that it receives a reciprocating movement. As shown the connection of the rack is made directly to the dog-follower so that the sewing machine of this particular make would not have to be totally re-organized.

The means for locking the cups in the sewing position includes a plunger 46 adapted to engage within the recess 47 in stud shaft 20 and slidable in a bracket 48 mounted on a suitable support. A pivoted lever 49 has a handle 50 on one end and the other end fitting within a slot 51 in the plunger. A lug 52 integral with the lever adjacent the pivot engages a spring 53 which normally keeps the plunger in and out of engagement with the recess 47.

To set the ball and cover sections into the holding means for sewing the cover edges, arm 18 is swung upward out of the way. Each cover section 21, which is semi-spherical and provided with spaced holes around its edge, is then hooked through the holes on hooks 34 of each ring 32. The lower ring is then placed on rollers 38 so that its cover section will be within the lower cup 19. Ball 22 is then placed within the cover section and the upper ring with its cover section is placed over dowel pins 33 so that the upper cover section will be over the ball. Arm 18 is then swung downward so that its cup 19 will be over the upper cover section. This cup is then forced on the ball by connecting yoke 26 to the eccentric pins 30 as shown in Figure 2. The pressure on the ball for bringing the cover edges 36 together may be regulated by adjusting screw 27. The edges are preferably spaced while sewing so that tension may be placed on the edges by the stitches. The cover sections and ball are then properly set in the holding means which are then swung against the machine so that gear 42 will mesh with rack 43 and rings 32 will partly rest on roller 39. Plunger 46 is then brought into engagement with recess 47 by manipulating lever 49. Spring 53 normally holds plunger 46 in engagement with recess 47. The sewing machine is then operated.

As the stitches are formed by needle 2 and rotary shuttle 11 in the usual manner, the cover edges are fed under the needle by rocker shaft 3, arm 4, reciprocating guide 5, dog-follower 8, rack 43, gear 42, pawls 41, ratchet wheel 40 and stud shaft

20. It is readily seen that a rocking movement of shaft 3 will impart an intermittent rotary feeding movement to stud shaft 20 through the ratchet mechanism. The length of the stitch may be regulated in the usual manner by adjusting the rocking movement of shaft 3. Any suitable mechanism may be substituted for dog-follower 8 and reciprocating guide 5 which will transmit a reciprocating movement from rock shaft 3 to rack 43. The construction shown illustrates one way of connecting rack 43 to the feed mechanism without radically changing the construction of the standard parts in the machine. After the edges have been stitched needle 2 is raised a sufficient distance to clear rings 32. Plunger 46 is brought out of engagement with recess 47 by manipulating lever 49. The holding means are then swung horizontally away from the machine where the ball and sewed cover sections may be removed.

By constructing a device as above described cover sections which ordinarily were sewed by hand may be quickly sewed by a machine, thereby improving the production and quality of the balls.

While I have described my invention as taking a particular form, it will be understood that the various parts may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. In combination with a sewing machine having a needle; cooperating members for receiving a ball and for holding cover sections thereon, means cooperating with said members for holding the edges of the cover sections in sewing position under the needle, and means operatively connecting said ball receiving and holding members with the machine whereby the cover edges will be fed under the needle.

2. In combination with a sewing machine having a needle; cooperating members for receiving a ball and for holding cover sections thereon, means cooperating with said members for holding the edges of the cover sections in sewing position under the needle, and means operatively connected with the machine for feeding the cover edges under the needle.

3. In combination with a sewing machine having a needle; means including spherically shaped members for holding a ball and for holding cover sections thereon, and adapted to move into and out of the sewing position, hooks adjustably mounted about

the spherically shaped members for holding the cover edges in sewing position and means operatively connecting the spherically shaped members with the machine whereby the cover edges will be fed under the needle.

4. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; means rotatably supporting the cups, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

5. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; movably mounted pivoted arms rotatably supporting the cups; means detachably connecting the arms, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

6. In combination with a sewing machine having a needle; a pair of cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; an arm rotatably supporting one cup and mounted to move horizontally; a second arm rotatably supporting the other cup and connected to the first arm for vertical movement, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

7. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; means for holding the cover edges apart while sewing; means rotatably supporting the cups, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

8. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; a pair of detachably connected rings encompassing the cups; hooks adjustably mounted in the rings and adapted to be hooked to the cover edges; means rotatably supporting the cups, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

9. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections thereon and their edges in sewing position under the needle; movably mounted pivoted arms rotatably supporting the cups; means detachably connecting the arms; supporting

brackets on one of the arms; rollers mounted in the brackets; a pair of detachably connected rings encompassing the cups and mounted on the rollers; hooks adjustably mounted in the rings and adapted to be hooked to the cover edges, and means operatively connecting the cups with the machine whereby the cover edges will be fed under the needle.

10. In combination with a sewing machine having a needle; rotatable means including cooperating spherically curved members for receiving a ball and for holding cover sections thereon with the edges of the cover sections free to be drawn into sewing position under the needle; ratchet mechanism carried by the rotatable means, and means operatively connecting the ratchet mechanism with the machine whereby the edges of the cover will be fed under the needle.

11. In combination with a sewing machine having a needle; rotatable means including cooperating spherically curved members for receiving a ball and for holding cover sections thereon with the edges of the cover sections free to be drawn into sewing position under the needle; ratchet mechanism carried by the rotatable means; a gear carried by the ratchet mechanism, and means operatively connecting the gear with the machine whereby the cover edges will be fed under the needle.

12. In combination with a sewing machine having a needle; rotatable means including cooperating spherically curved members for receiving a ball and for holding cover sections thereon with the edges of the cover sections free to be drawn into sewing position under the needle; ratchet mechanism carried by the rotatable means; a gear carried by the ratchet mechanism; a rack meshing with the gear, and means operatively connecting the rack with the machine whereby the cover will be fed under the needle.

13. In combination with a sewing machine having a needle and feed mechanism; rotatable means including cooperating spherically curved members for receiving a ball and for holding cover sections thereon with the edges of the cover sections free to be drawn into sewing position under the needle; ratchet mechanism carried by the rotatable means; a gear carried by the ratchet mechanism; a rack meshing with the gear, and means operatively connecting the rack with the feed mechanism whereby the cover edges will be fed under the needle.

14. In combination with a sewing machine having a needle and a feed rock shaft; rotatable means including cooperating spherically curved members for receiving a ball and for holding cover sections thereon with the edges of the cover sections free to be drawn into sewing position under the needle; ratchet mechanism carried by the

rotatable means; a gear carried by the ratchet mechanism; a rack meshing with the gear, and means operatively connecting the rack with the feed rock shaft whereby the
5 cover edges will be fed under the needle.

15. In combination with a sewing machine having a needle; means for holding cover sections on a ball and their edges in sewing position under the needle and consisting of
10 cooperating cup-shaped members for receiving and holding the covered ball, and adapted to move into and out of the sewing position; means for locking the holding means in the sewing position, and means opera-
15 tively connecting the holding means with the machine whereby the cover edges will be fed under the needle.

16. In combination with a sewing machine having a needle; cooperating cups for receiving a ball and for holding cover sections
20 thereon with the edges of the cover sections free to be drawn into sewing position under the needle; a stud shaft on each cup, one shaft having a recess in its end; means ro-
25 tatably supporting the shafts; a plunger adapted to engage within the recess for locking the cups in the sewing position, and means operatively connecting stud shafts with the machine whereby the cover edges
30 will be fed under the needle.

In testimony whereof I have signed my name to this specification.

JAMES J. GILSON.