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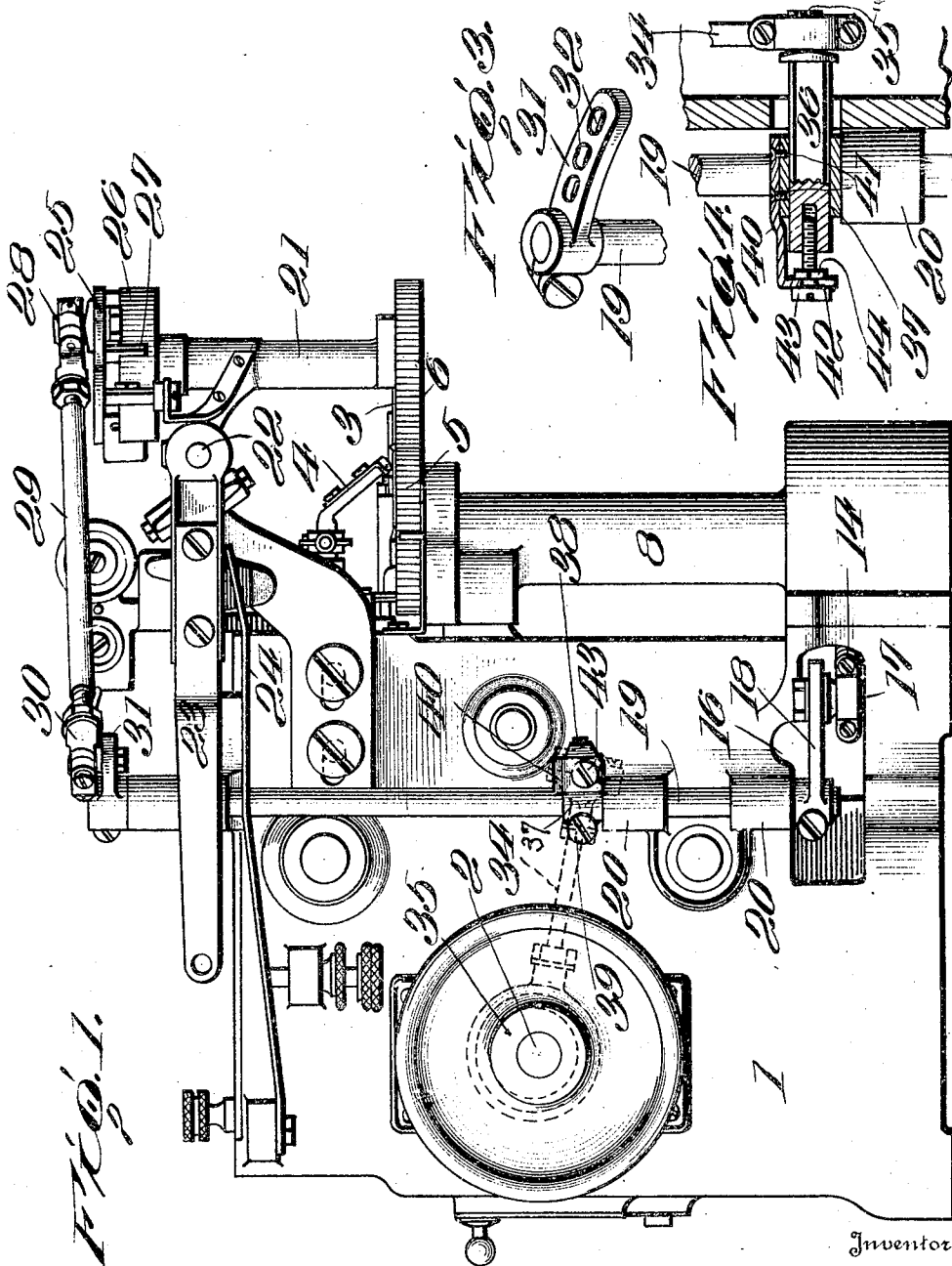
J. R. MOFFATT

1,671,439

FEEDING MECHANISM FOR CUP FEED MACHINES

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2 Sheets-Sheet 1



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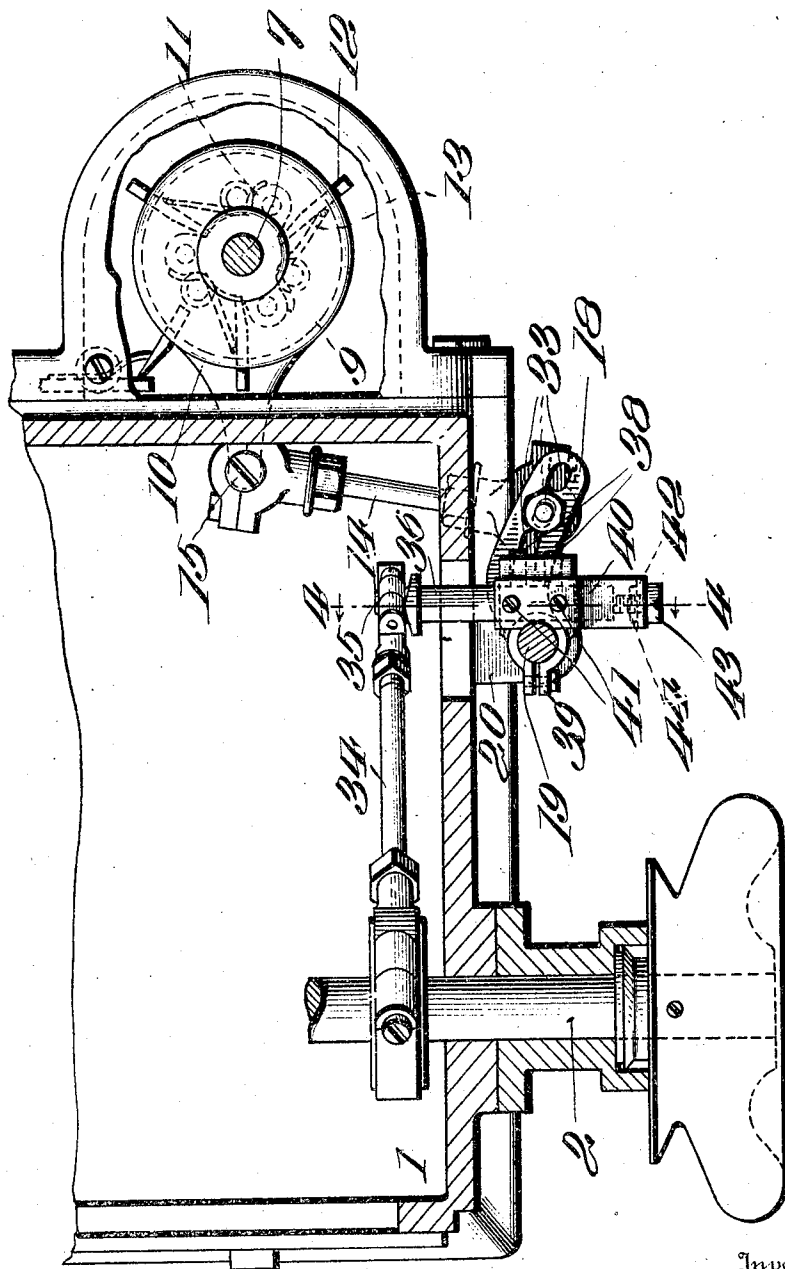
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FIG. 2.



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FEEDING MECHANISM FOR CUP-FEED MACHINES.

Application filed December 7, 1923. Serial No. 679,150.

The invention relates to new and useful improvements in cup feed machines, and more particularly to the feeding mechanism therefor.

5 An object of the invention is to provide a feeding mechanism for operating intermittently the inner and outer feed cups which include devices whereby the feed stroke imparted to the feed cups may be independently adjusted, and when so adjusted, positively held in the respective set adjusted positions.

A further object of the invention is to provide a feeding mechanism for the feed cups wherein the strokes of the cup may be simultaneously adjusted by devices located within the casing of the machine and through the aid of means which extends to the outside of the casing.

20 These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a side view of a machine embodying my improvements;

Fig. 2 is a view in transverse section through the casing and showing the means for adjusting the feed strokes of the cups;

Fig. 3 is a detail perspective view of one of the arms for actuating the feeding devices for one of the feed cups, and

Fig. 4 is a detail in section showing the means accessible from the outside of the casing for simultaneously adjusting the stroke of the feed cups.

The invention is shown as applied to a feed cup machine of the type disclosed in Patent No. 1,246,302, granted to James R. Moffatt, November 13, 1917. Said machine includes a casing 1 in which is mounted a main shaft 2. Also reciprocating in the casing is a needle bar carrying a needle 3. Cooperating with the needle 3 is a looper 4, which looper is so mounted and actuated as to form over-seaming stitches. The material is held in vertical position and directed to the needle which reciprocates in a horizontal line by feed cups 5 and 6. The feed cup 5 is carried by a shaft 7 which is mounted in a suitable bearing sleeve 8 carried by the main casing 1 of the machine. Adjacent the lower end of the shaft 7 there is a clutch ring 9 and

an actuating clutch plate 10 shown in dotted lines in Fig. 2. This clutch plate carries a hub 11 and dogs 12 which are each provided with a groove adapted to engage the flange of the clutch ring 9. These clutch dogs rest against shoulders formed on the hub 11. Associated with the dogs are springs 13. This intermittently operating clutch is of the usual construction and further description thereof is not thought necessary. The clutch plate is vibrated by means of a link 14 which is connected to a ball stud 15 on the end of an arm formed integral with the clutch plate. The link 14 extends through a suitable opening 16 in the casing and is connected to a ball stud 17 mounted in the outer end of an arm 18. The arm 18 is in turn mounted on a vertical shaft 19 carried by bearings 20, 20 on the outer face of the casing 1.

The other feed cup 6 is carried by a shaft mounted in a sleeve bearing 21, which sleeve bearing is formed as a part of the bracket pivoted at 22, so that said sleeve bearing may be moved to separate the feed cups when desired. This is accomplished by means of a lever 23, a spring 24 operating to normally hold the feed cups pressed yieldingly toward each other.

On the upper end of the shaft carrying the outer feed cup 6 there is a clutch plate 25 similar to the clutch plate described above in connection with the feed cup 5. On the upper end of the shaft there is a clutch ring 26. Cooperating with this clutch ring are dogs 27 which grip the ring and turn the shaft carrying the feed cup 6. The clutch plate 25 carries a ball stud 28. A link 29 engages said ball stud at one end and at its other end engages a ball stud 30 carried by an arm 31 mounted on the upper end of the shaft 19. This arm 31 is provided with a series of oblong openings 32. The shank of the ball stud 30 is inserted in these openings and may be shifted from one opening to another for varying the stroke of the clutch plate. The arm 18 is likewise provided with a series of openings 33, and the shank of the ball stud 17 is adapted to be inserted in any one of these openings, and thus it is that the stroke of the link 14 may be adjusted. It will readily be seen that oscillating movements imparted to the shaft 19 are imparted through independent trains of mechanisms

to the feed cups 5 and 6, respectively, so that the stroke of either feed cup may be adjusted without varying the stroke of the other. Thus it is that either feed cup may be caused to rotate faster than the other. One feed cup bears on the inner face of the fabric sections being stitched and the other feed cup bears on the other face. By giving a differential movement to the feed cups, the fabric sections may be controlled as desired. By shifting the ball stud 30, the stroke of the outer feed cup can be varied and by shifting the ball stud 17, the stroke of the inner feed cup can be varied. When these ball studs are set in different openings, there is no chance of their working loose and shifting to any great extent, although the holes for the ball studs are elongated slightly, and thus permit a very slight adjustment of the ball stud.

The shaft 19 is oscillated by means of an eccentric strap 34 which cooperates with an eccentric 35 on the main shaft 2. The eccentric strap 34 is connected at its outer end to a ball stud 35^a (see Fig. 4) on the end of a rod 36. This rod 36 passes through a sleeve 37 clamped on the shaft 19. Said rod is slabbled on one side thereof so as to prevent the same from turning in the bracket sleeve 37. Set screws 38 clamp this rod in its adjusted positions in the bracket sleeve. The bracket sleeve is in the form of a split collar mounted on the shaft 19 and is secured thereto by a clamping screw 39.

Also mounted on the bracket sleeve 37 is an arm 40. Said arm is secured to the bracket sleeve by screws 41. The arm projects outwardly from the bracket sleeve and is bent downwardly at 42. The adjusting screw 43 is mounted in this arm 40 and is threaded into an end of the rod 36. Said adjusting screw has a collar 44 secured thereto and the bent portion 42 of the arm lies between the head of the adjusting screw and this collar. When the set screws 38 have been released from their gripping hold on the rod 36, said rod may be shifted endwise of the bracket sleeve by turning the screw 43. This shifting of the rod 36 endwise varies the distance of the ball stud 35^a from the center of the shaft 19 and thus varies the extent of oscillation imparted to the shaft 19 by means of the eccentric strap 34. It will be noted that the eccentric 35 and the eccentric strap 34 are located within the casing, and the strap is connected directly to an arm carried by the shaft 19, which likewise projects inwardly into the casing. The screw 43 for adjusting the rod 36 carrying the ball stud to which the eccentric strap 34 is connected is accessible from the outside of the casing.

It will be seen, therefore, that the means for oscillating the feed cups 5 and 6 from the main shaft is very simple, consisting of

few parts, and these parts are located in the main within the casing of the machine, and at the same time, they may be adjusted by means readily accessible from outside of the machine. Furthermore, it will be noted that the adjustment is of a positive character, that is, the rod 36 is shifted by means of a screw so that a very slight turning of the screw will bring about a limited change in the throw of the feed cups. Not only does the screw aid in holding the parts in set adjusted position, but the parts may be locked in their adjusted position by the set screws 38.

It is obvious that minor changes in the details of construction and the arrangement of the parts may be made without departing from the spirit of the invention as set forth in the appended claims.

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

1. A sewing machine including in combination, a casing, feed cups associated therewith between which the fabric is clamped and fed to a stitching mechanism, a main shaft located in said casing, an eccentric carried thereby, an eccentric strap located within the casing and oscillated by said eccentric, a vertical shaft at the outside of said casing, an arm carried by said vertical shaft and extending within the casing to which said eccentric strap is connected, independent devices actuated by said vertical shaft for actuating the feed cups, and means whereby the extent of oscillation imparted to the vertical shaft by said eccentric strap may be varied.

2. A sewing machine including in combination, a casing, feed cups associated therewith between which the fabric is clamped and fed to a stitching mechanism, a main shaft located in said casing, an eccentric carried thereby, an eccentric strap located within the casing and oscillated by said eccentric, a vertical shaft at the outside of said casing, an arm carried by said vertical shaft and extending within the casing to which said eccentric strap is connected, independent devices actuated by said vertical shaft for actuating the feed cups, and means whereby the effective length of said arm carried by the vertical shaft and connected to the eccentric strap may be varied for varying the oscillations imparted to the vertical shaft.

3. A sewing machine including in combination, a casing, feed cups associated therewith between which the fabric is clamped and fed to a stitching mechanism, a vertical shaft located outside of the casing, a main shaft extending from the casing, an eccentric on said main shaft, an eccentric strap associated therewith, devices actuated by said vertical shaft for imparting feed move-

ments to said feed cups, a bracket sleeve carried by the vertical shaft, a rod mounted in said bracket sleeve and carrying a ball stud to which said eccentric strap is connected, and means for adjusting said rod in said bracket sleeve and for holding the rod in adjusted positions.

4. A sewing machine including in combination, a casing, feed cups associated therewith between which the fabric is clamped and fed to a stitching mechanism, a vertical shaft located outside of the casing, a main shaft extending from the casing, an eccentric on said main shaft, an eccentric strap associated therewith, devices actuated by said vertical shaft for imparting feed movements to said feed cups, a bracket sleeve carried by the vertical shaft, a rod mounted in said bracket sleeve and carrying a ball stud to which said eccentric strap is connected, an arm mounted on said bracket sleeve, and an adjusting screw carried by said arm and threaded into the rod, said adjusting screw being accessible from outside of the casing and operating to shift the rod in the bracket

sleeve for varying the feed movements of the feed cups.

5. A sewing machine including in combination, a casing, feed cups associated therewith between which the fabric is clamped and fed to a stitching mechanism, a main shaft located in said casing, an eccentric carried thereby, an eccentric strap located in the casing and cooperating with said eccentric, a vertical shaft at the outside of said casing, devices actuated by said vertical shaft for actuating the feed cups, an arm carried by said vertical shaft and extending within said casing and having a ball stud on the end thereof to which said eccentric strap is connected, and means for supporting said arm on said vertical shaft whereby said arm may be adjusted bodily on the shaft so that the effective length of the arm to which the eccentric strap is connected may be varied for varying the oscillations imparted to the vertical shaft.

In testimony whereof, I affix my signature.

JAMES R. MOFFATT.