

F. WILCOMB.
SINKER MECHANISM FOR KNITTING MACHINES.

No. 559,830.

Patented May 12, 1896.

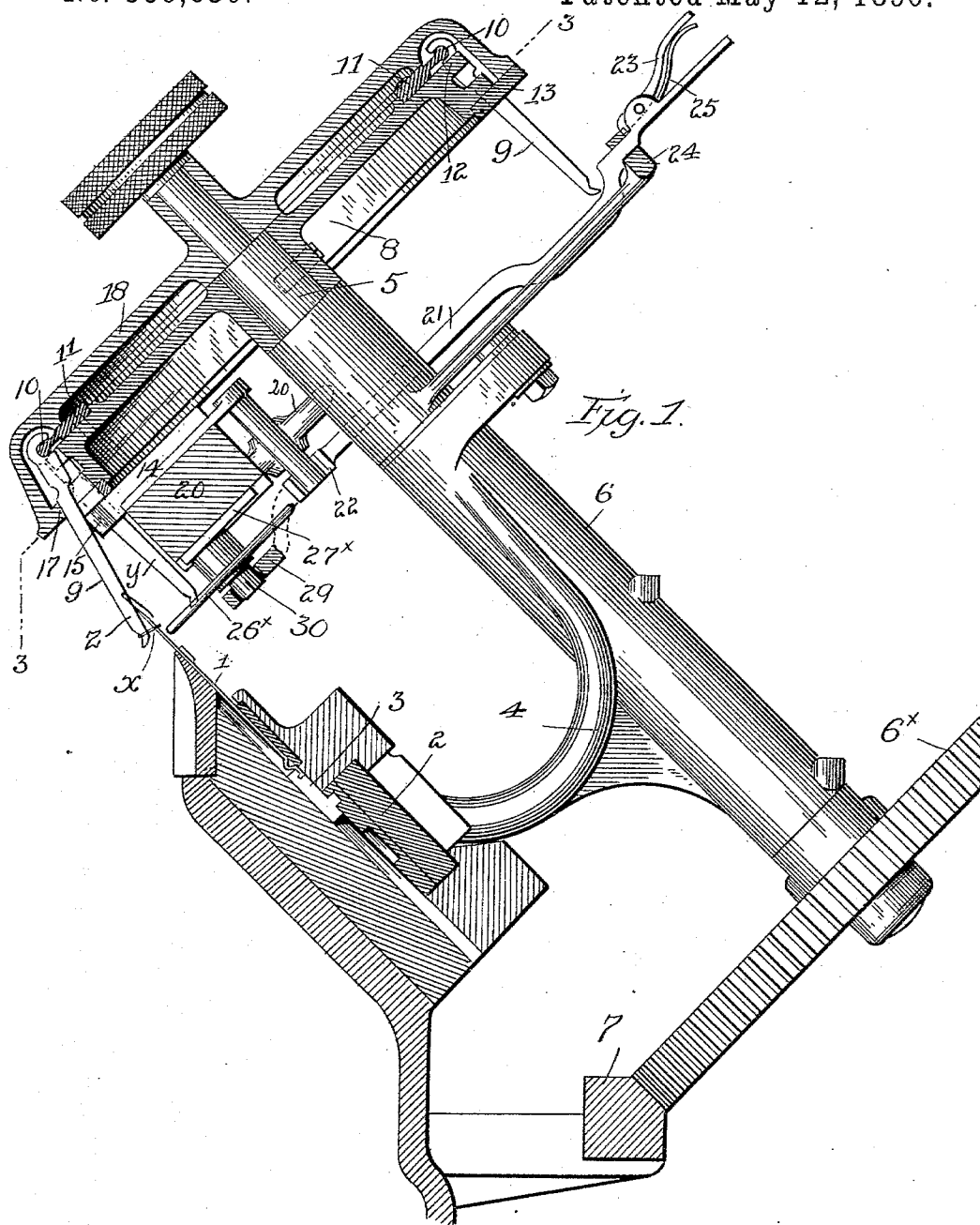


Fig. 1.

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(No Model.)

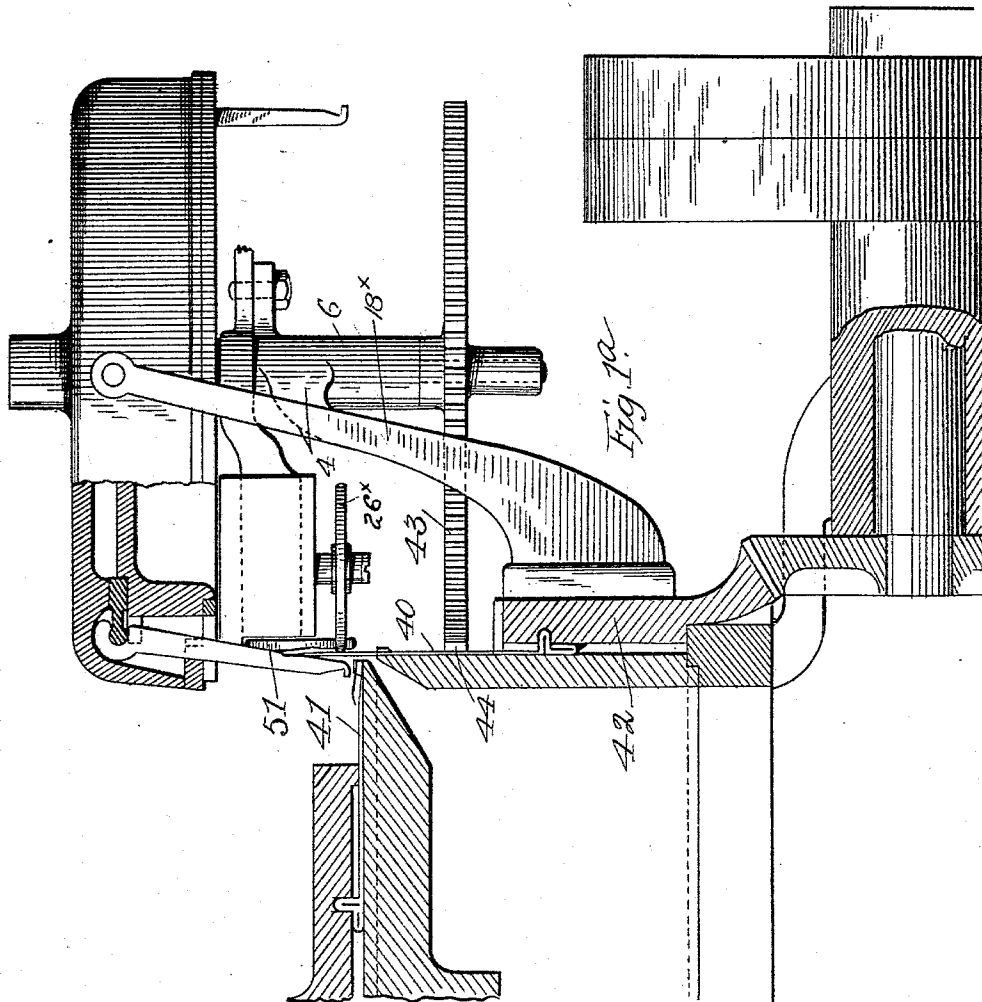
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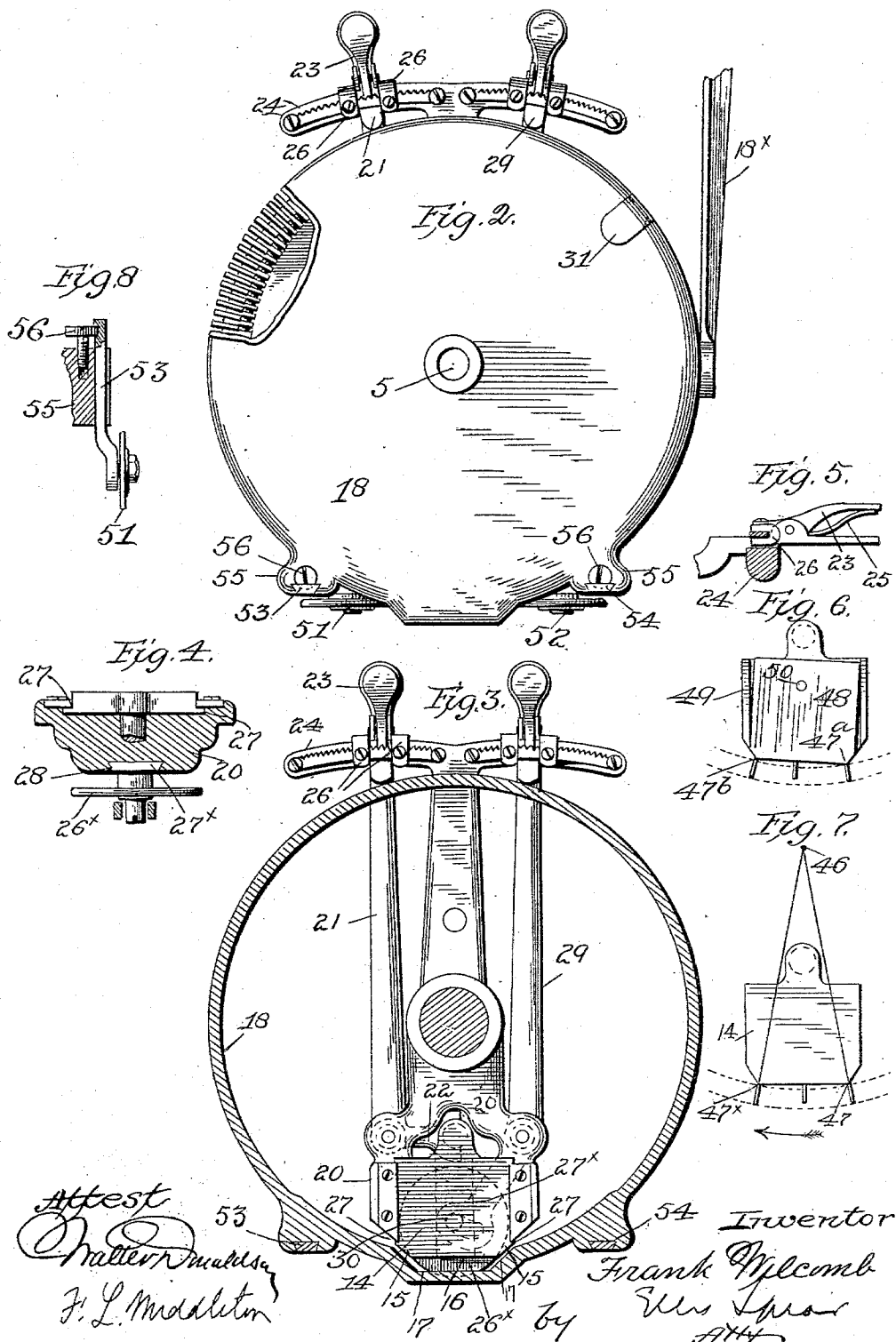
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UNITED STATES PATENT OFFICE.

FRANK WILCOMB, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO THE
NARRAGANSETT KNITTING COMPANY, OF SAME PLACE.

SINKER MECHANISM FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 559,830, dated May 12, 1896.

Application filed December 24, 1894. Serial No. 532,812. (No model.)

To all whom it may concern:

Be it known that I, FRANK WILCOMB, a citizen of the United States of America, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Sinker Mechanism for Knitting-Machines, of which the following is a specification.

My invention includes a rotary sinker-dial with a special arrangement of presser-wheels adapted to either a flat or circular rib-knitting machine and in special features herein-after pointed out.

Figure 1 is a vertical sectional view of the dial in connection with one row of needles of a straight machine and the cam-bar thereof. Fig. 1^a shows the dial applied to a circular machine for rib-knitting. Fig. 2 is a plan view of the dial. Fig. 3 is a plan view of a section through the dial-shield on line 3 3 of Fig. 1, showing the sinker-cam in plan. Fig. 4 is a detail view of the bracket and slides for the cam and presser-wheel. Figs. 5, 6, and 7 are detail views. Fig. 8 is also a detail view.

Referring first to the arrangement of Fig. 1, the needles 1 are operated by the cam-bar 2, through the jacks 3, and the thread *x* is fed to them in any desired manner. The cam-bar is also reciprocated in any well-known way. A bracket 4, secured to the cam-bar, carries a bearing 6 for the inclined shaft 5, having a gear 6^x, meshing with a toothed track 7, fixed in this instance to the machine-frame. The sinker dial or carrier 8 is fixed to this shaft to rotate in a plane at right angles to the needle's movement. The sinkers 9 are pivoted by their hooked upper ends to the circular rib 10 of the plate 11, secured to the dial, and said sinkers pass through slots or kerfs of the flanges 12 and 13 of the dial to be held and guided thereby. The sinkers when retracted lie parallel with the axis of the dial and with the needles, as at *y*, Fig. 1; but as they are carried around by the rotation of the dial they are swung forward between the needles into inclined position, as at *z*, Fig. 1, and thus sink the yarn between the needles. This action takes place when they arrive opposite the space between the needles, and is

effected by the cam-piece 14, held against rotation, but traveling as to the rest of the machine with the dial, and having inclines 15, with an intermediate straight part 16, to allow a number of sinkers to be in advanced position at the same time. The movement is controlled also by the cam-face 17 of the protecting-shield 18, which is supported at the upper end of shaft 5 and held against rotation by a bracket connection 18^x with the cam bar or cylinder, as in Fig. 1^a. This shield covers the dial and incloses the upper ends of the sinkers and protects the parts from dust, inclosing those parts which must be kept lubricated. Said shield has a depending flange extending to the slotted flange 13 of the dial. The cam-face 17 of this shield returns the sinkers to normal position after they are swung forward, and the amount of said forward movement may be regulated by adjusting the cam-piece 14 in its stationary supporting-bracket 20, secured to or cast with the bearing of the inclined shaft 5, said adjustment being effected by the lever 21, pivoted to the bracket 20, and having a forked arm 22, engaging a stud depending from the cam-piece, the long arm of the lever being held by a pivoted pawl 23 thereon engaging a toothed bar on the bracket 24. The pawl is pressed by a spring 25 to engage the bar, and the lever may be fixed rigidly in any adjusted position by the clamps 26. The cam-piece is guided in ways 27 of the bracket 20. From this construction it will be seen that the movement of the cam plate or bar, whether of a circular or flat machine, will cause the sinker-dial to travel along the set of needles to keep pace with the stitch-cam of the bar opposite which the dial is located, and in this movement the dial will be rotated by reason of the gear 6^x, meshing with the toothed track 7, and thus the sinkers will be brought around in succession to the relatively fixed cam-piece 14 to sink the yarn for the needles advanced by the stitch-cam.

I show the invention as used with spring-needles, but do not wish to limit myself in this respect. When so used, however, I mount the presser-wheel 26^x centrally of the dial upon a block 27^x, moving in guideways 28 of

the bracket 20 and adjustable by means of the lever 29, pivoted to the bracket and secured in any desired position in a manner similar to that described for the lever 21.

5 The end of the lever 29 has a cam-slot engaging a stud 30, on which the pressed wheel turns, and by this means the presser-wheel may be adjusted.

10 I provide a movable piece 31 in the protecting-shield to allow any of the sinkers to be removed from the dial.

It will be noticed that the traveling cam-piece 14 has two inclines and is thus adapted to operate the sinkers in a like manner on each stroke of the machine, it being understood that the dial rotates first one way and then the other, reversing with the stroke of the machine.

15 In Fig. 1^a the sinker-dial is shown as combined with a circular machine, the cylinder-needles being shown at 40, the dial-needles at 41, and the cam-ring at 42. The sinker-dial is rotated by the gear 43 on its shaft meshing with the toothed track 44 on the cylinder. In this arrangement the support for the dial is shown at 4 and 6. The dial may simply rotate at one point in the style of machine in which the cam-ring is stationary and the needle-cylinder turns, or it may

30 travel and rotate when used with the style of machine in which the cam-ring rotates and the cylinder remains stationary.

Referring to Fig. 7, it will be noticed as the sinkers move about the center 46 in the direction of the arrow they will be swung forward to the limit of their movement when the point 47 of the cam is reached, this being the highest point of the cam from the center of rotation of the dial. The full amount of thread is thereby sunk and the needles begin to retract, and the sinkers should also be free to retract slightly, as otherwise they would advance again when they reach the second high point 47^x, and thus they would strain

45 the yarn on the retracting-needles. To obviate this, a swinging cam-piece 48, Fig. 6, is pivoted at 50 to the block 49, which is adjustable in the bracket 20 in a manner similar to the cam-piece before described. As the sinkers rotate about the center of movement in either direction they will strike the incline of the cam-piece, shift the cam laterally, ride up to the highest point 47^a, and after thus drawing the full amount of yarn they will be

50 free to move back gradually as the other high point 47^b has been retracted slightly by the shifting of the cam.

It will be noticed by reference to Figs. 1^a, 2, and 3 that supplemental presser-wheels 51 and 52 are employed when the dial is used with two rows of needles for producing a rib fabric. The arrangement of needles is shown in Fig. 1^a, these operating at right angles to each other, or substantially so. The supplemental presser-wheels operate on the beards of one row of needles 41, while the central presser-wheel 26^x operates on the beards of

the other row of needles 40. The supplemental presser-wheels are arranged on opposite sides of the center of the dial, and one operates on the beards while the dial is traveling one way and the other acts when the dial's movement is in the opposite direction, the needles being properly controlled for this action by suitable needle-cams in the cam ring or bar, for instance, as in an application for United States patent of even date herewith. The supplemental presser-wheels are supported by arms 53 54, the ends of which are shown in Figs. 2 and 3, seated adjustably in boxes 55 of the dial-shield, said arms being held by screws 56, as in Fig. 8.

I claim—

1. In combination with a rotary sinker-dial, the sinkers carried thereby and operating means for the sinkers, and the main and supplementary presser-wheels adapted to operate on the two sets of needles of a rib-knitting machine.

2. In combination with a rotary sinker-dial, the sinkers carried thereby, the protecting-shield for the dial and sinkers, and the presser-wheel adjustably supported thereby, substantially as described.

3. In combination with a rotary sinker-dial, the sinkers carried thereby, the main presser-wheel arranged centrally of the dial to operate on one set of needles and the two supplementary presser-wheels to operate on the second set of needles and arranged on each side of the dial-center, substantially as described.

4. In combination with a rotary sinker-dial, the sinkers carried thereby, the main presser-wheel arranged centrally of the dial, the bracket for supporting the same, the two supplementary presser-wheels arranged on each side of the dial-center, the protecting-shield for the dial and sinkers the said supplementary presser-wheels being supported thereby, substantially as described.

5. In combination with a rotary dial, the sinkers carried thereby, and the main and supplementary presser-wheels arranged substantially at right angles to each other to operate on the two sets of needles of a rib-knitting machine, substantially as described.

6. In combination, the rotary dial, the sinkers, and the shifting cam-piece for operating the sinkers to sink the thread, arranged to be shifted by the contact of the sinkers, substantially as described.

7. In combination, the rotary dial, the sinkers and the shifting cam-piece, said cam-piece being adjustable, substantially as described.

8. In combination, the rotary dial, the sinkers, the shifting cam-piece, the carrier-block therefor and adjusting means, substantially as described.

9. In combination, the rotary dial, the sinkers carried thereby, a sinker-cam adapted to operate the sinkers on either rotation of the dial, automatically adjustable to present on each rotation of the dial a high part to oper-

ate the sinkers and then a receding low part to allow the sinkers to recede, substantially as described.

5 10. In combination the dial arranged to rotate either way, the sinkers and the shifting cam-piece for operating the sinkers to sink the thread.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK WILCOMB.

Witnesses:

GEORGE O. EVERETT,
DANIEL MCNIVEN.