D. HURLEY & W. T. BARRATT.

CIRCULAR RIB KNITTING MACHINE.

APPLICATION FILED MAR. 4, 1907.

908,994.

Patented Jan. 5, 1909.

2 SHEETS—SHEET 1.

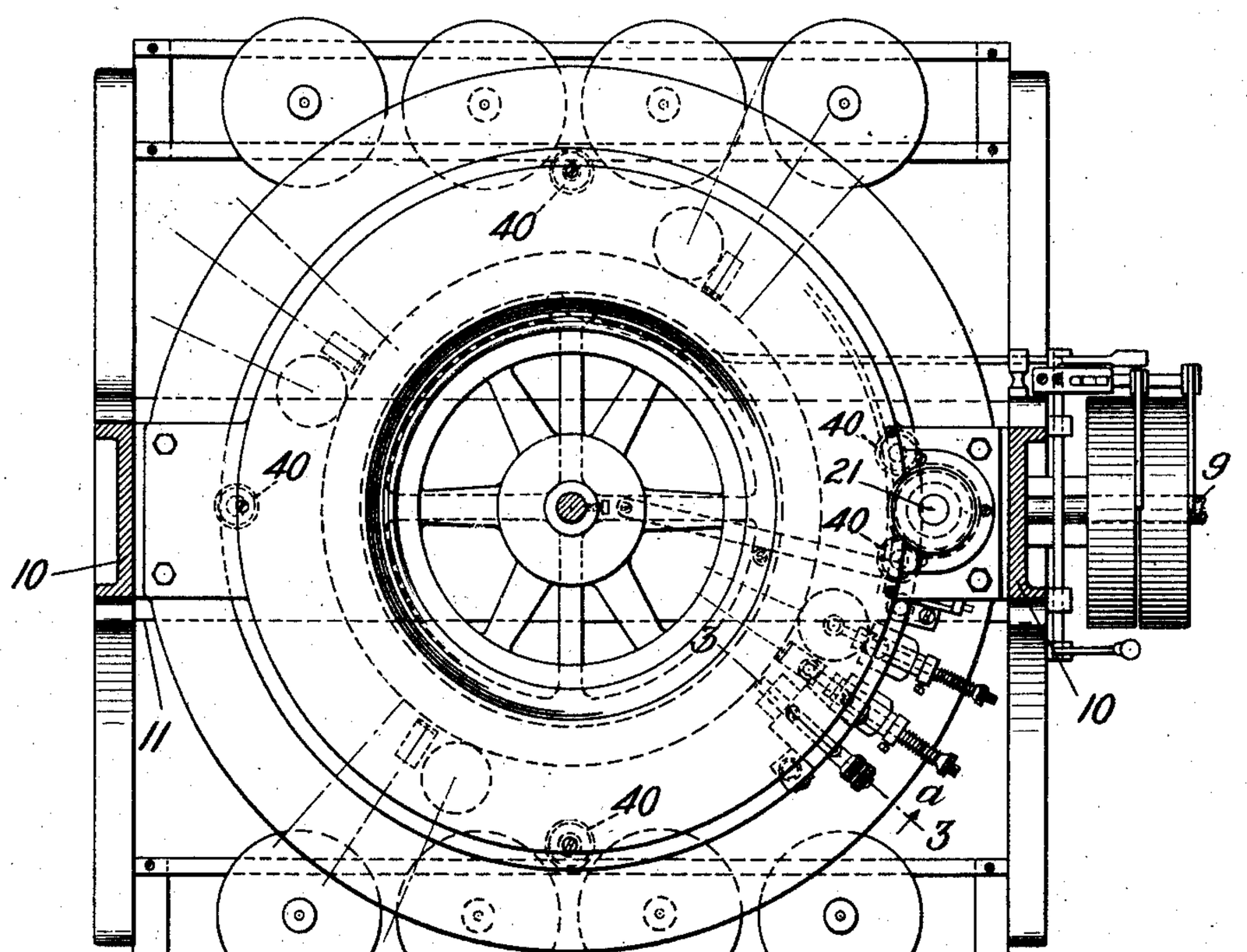


Fig. 1.

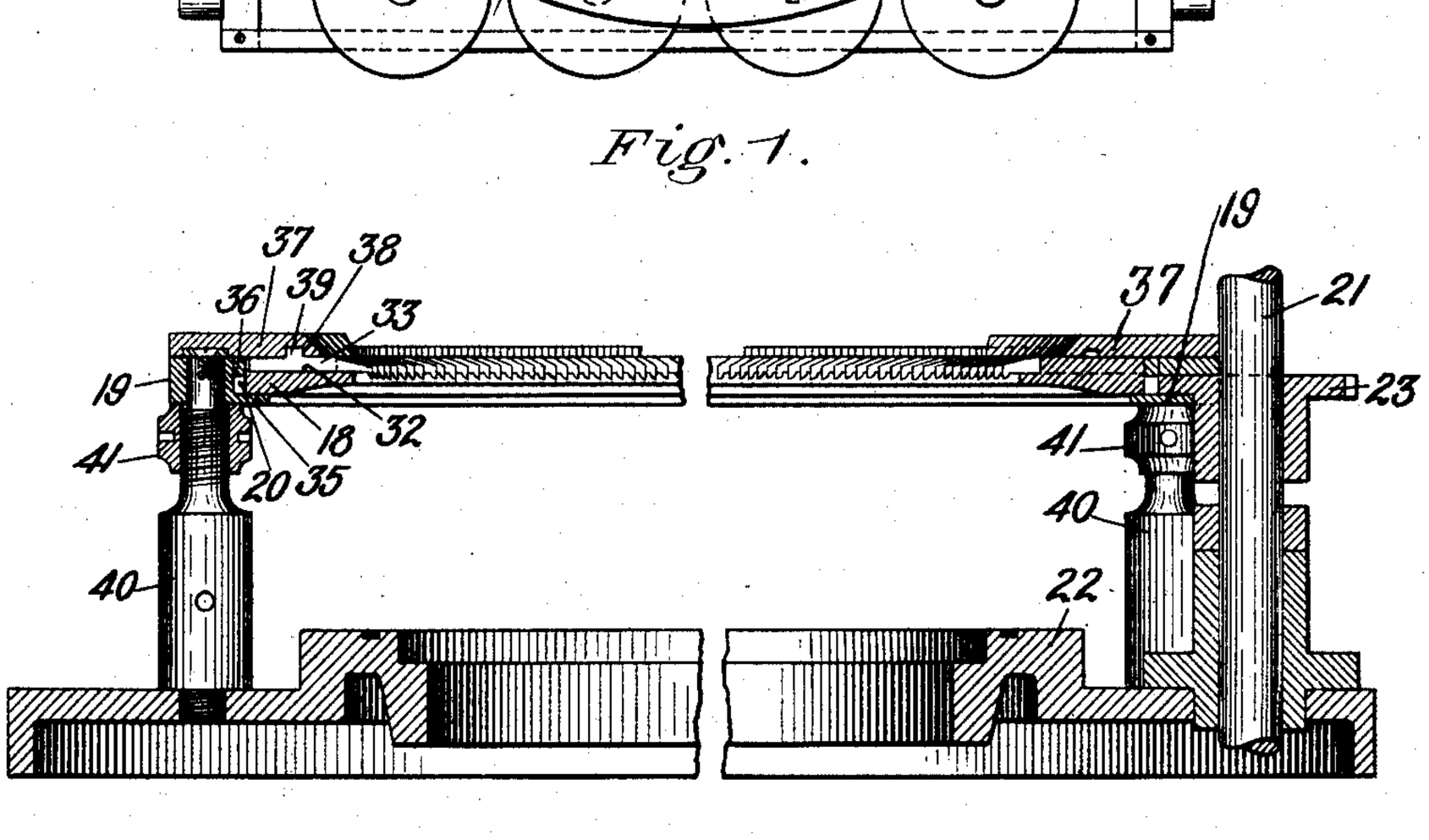


Fig. 2

Witnesses:
Ernest A. Helfer
Francis H. Bishop.

Inventors:
Daniel Hurley
William T. Barratt
by their attorney,
Charles J. Frooding

THE NORRIS PETERS CO., WASHINGTON, D. C.

D. HURLEY & W. T. BARRATT.

CIRCULAR RIB KNITTING MACHINE.

APPLICATION FILED MAR. 4, 1907.

908,994.

Patented Jan. 5, 1909.

2 SHEETS—SHEET 2.

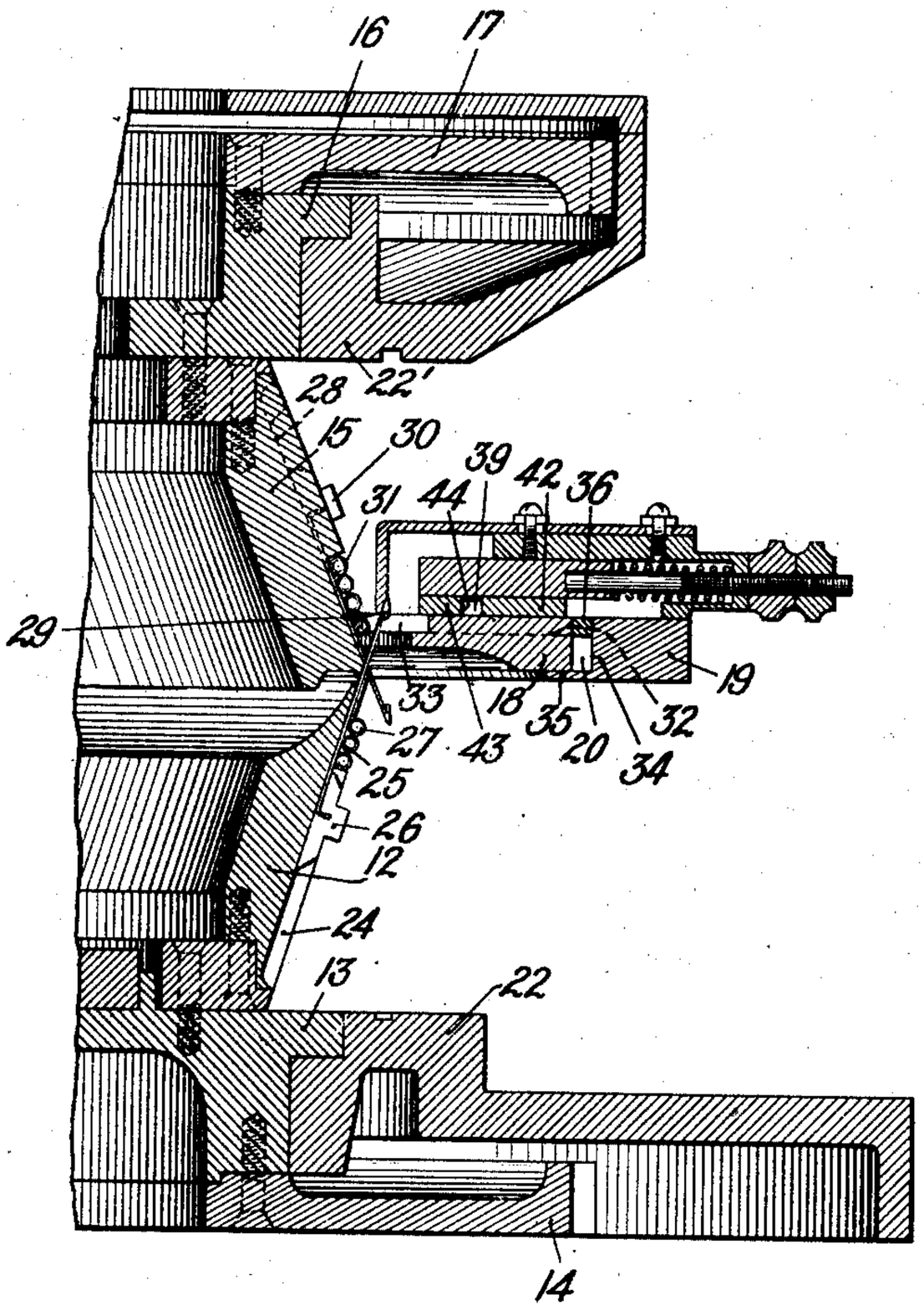


Fig. 3

Witnesses:
Ernest A. Tebbs
Francis H. Bishop.

Inventors:
Daniel Hurley
William T. Barratt,
By Charles J. Goodwin
their attorney.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANIEL HURLEY AND WILLIAM T. BARRATT, OF BENNINGTON, VERMONT, ASSIGNORS, BY MESNE ASSIGNMENTS, TO ANNIE COOPER, ALEXANDER J. COOPER, AND CHARLES S. KEHOE, OF BENNINGTON, VERMONT, EXECUTORS OF CHARLES COOPER, DECEASED.

CIRCULAR-RIB-KNITTING MACHINE.

No. 908,994. Specification of Letters Patent. Patented Jan. 5, 1909.

Application filed March 4, 1907. Serial No. 360,304.

To all whom it may concern:

Be it known that we, DANIEL HURLEY and WILLIAM T. BARRATT, citizens of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented new and useful Improvements in Circular-Rib-Knitting Machines, of which the following is a specification.

This invention relates to certain improvements in circular rib knitting machines of the class in which two cylinders are used in connection with a sinker bed, the object of the invention being to provide certain improvements in the sinker bed and the bearing plate therefor which will render it possible and convenient to apply rotary pressers to the upper set of needles and which will also support the sinker bed and prevent any dust from passing between the gear teeth upon its periphery, besides rendering the same convenient and ready of access.

This invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a plan, partly in section, of a portion of a circular rib knitting machine, the super-structure, including the fabric take-up mechanism being removed. Fig. 2 is an enlarged detail section, partly in elevation and partly broken away, of the sinker bed, sinkers, sinker bed driving gear and lower cylinder bed. Fig. 3 is an enlarged detail vertical section taken on line 3—3 of Fig. 1 viewed in the direction of the arrow *a*, illustrating a portion of the upper and lower cylinders and their respective driving gears with the needles upon the cylinders and a slur cock shown in the proper relation to the rotary sinker bed and its bearing plate.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10, 10 are the frame standards joined together by a tie-plate 11. The lower needle cylinder 12 Fig. 3, is a hollow frustum of a cone and is fastened to a rotary annular ring 13 which rotates in the lower bed plate 22, said ring having fastened to the under side thereof a gear 14. The upper needle cylinder 15 is also frusto-conical in form and is fastened to a rotary annular ring 16 which rotates in the upper bed plate 22′, said ring 16 being fast to a gear 17. A rotary annular sinker bed 18 concentric with the conical cylinders 12 and 15 rotates in an annular bearing plate 19, said sinker bed being provided upon its periphery with gear teeth 20. The sinker bed 18 is rotated by a pinion 23 fast to a vertical shaft 21 and meshing into the gear teeth 20 upon the periphery of said sinker bed. The cylinders 12 and 15 are rotated by pinions fast to said shaft and meshing into the gears 14 and 17, respectively.

A rotary motion is imparted to the shaft 21 by a bevel gear fast thereto and meshing into a bevel gear fast to the horizontal main driving shaft 9, but not shown in the drawings.

The lower cylinder 12 is provided with a series of grooves 24 in which are located the lower needles 25 and jacks 26 said needles and jacks being held in said grooves by springs 27. The upper cylinder 15 is also provided with a set of grooves 28 in which are located the upper set of needles 29 and jacks 30, said needles and jacks being held in the grooves 28 by springs 31.

The sinker bed 18 is provided in its upper face with radial grooves 32 in which are located sinkers 33. Said sinker bed rotates in an annular recess 34 formed in the bearing plate 19. The bottom face of the sinker bed 18 rests upon a flange 35 integral with said annular bearing plate. A guard ring 36 extends around said sinker bed adjacent to the upper face of the gear teeth 20 and across the outer ends of the radial sinker grooves 32, said guard ring acting as a guide for the sinker bed and also preventing any dust from passing downwardly into the gear teeth 20. An annular cap plate 37, formed in separate sections, is fastened to the top of the bearing plate 19 and extends inwardly therefrom over the tops of the sinkers 33 and the sinker bed 18. Said cap is provided in its under side with a groove 38 into which the driving shanks 39 of the sinkers project. (Fig. 2.)

It will be seen that the teeth 20 on the sinker bed 18 are formed on the periphery of said sinker bed below the horizontal plane in which the bottoms of the radial grooves 32 lie and that the flange 35 projects from said sinker bed bearing plate beneath and in con-

tact with the bottom face of said sinker bed adjacent to the periphery thereof, thus supporting said sinker bed.

The sinker bed bearing plate 19 is formed in one piece and is supported upon posts 40 fast to the lower bed plate 22 (Fig. 2) said posts being provided with screw-threads below said bearing plate to receive adjusting nuts 41. The adjusting nuts 41 bear against the under face of the bearing plate 19 so that by rotating said nuts said bearing plate may be raised or lowered, as may be desired.

It will be understood that in the operation of the machine the driving shanks 39 of the sinkers 33 are at all times guided in the annular groove 38 of the different sections of the cap plate 37 or by the cam groove 44 between the sinker cams or slur cocks 42 and 43.

The general operation of the mechanism hereinbefore specifically described is as follows: The cylinders 12 and 15 and the sinker bed 18 are rotated by their respective pinion gears which are fast to the shaft 21. The needles of the upper and lower cylinders are given a reciprocatory motion by means of cams (not shown in the drawings) and the sinkers are moved in and out between the needles by the slurcock cams 42 and 43. The sinker bed 18 rotates in the annular recess 34 formed in the annular bearing plate 19 and rests upon the flange 35, the guard ring 36 covering the gear teeth upon the periphery of the sinker bed and preventing dust or other foreign matter from entering between said teeth.

Having thus described our invention, what we claim and desire by Letters Patent to secure is:

1. In a circular rib-knitting machine, a rotary annular sinker-bed provided with radial grooves in its upper surface for the reception of sinkers, gear teeth formed upon the periphery of said sinker-bed, a bearing plate provided with an annular groove in which said sinker-bed rotates, and a guard ring extending around said sinker-bed adjacent to the upper face of said gear teeth and extending across the outer ends of said radial grooves.

2. In a circular rib-knitting machine, a rotary annular sinker-bed provided with radial grooves in its upper surface for the reception of sinkers, gear teeth formed upon the periphery of said sinker-bed, a bearing plate provided with an annular groove in which said sinker-bed rotates, a guard ring extending around said sinker-bed adjacent to the upper face of said gear teeth and extending across the outer ends of said radial grooves, and an annular cover fast to said sinker-bed and projecting over said gear teeth.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

DANIEL HURLEY.
WILLIAM T. BARRATT.

Witnesses:
CHARLES S. KEHOE,
ANNA V. MURPHY.