No. 719,198. PATENTED JAN. 27, 1903.

J. T. CYR.

PINWHEEL AND STAR WHEEL MOTION.

APPLICATION FILED NOV. 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig 1.

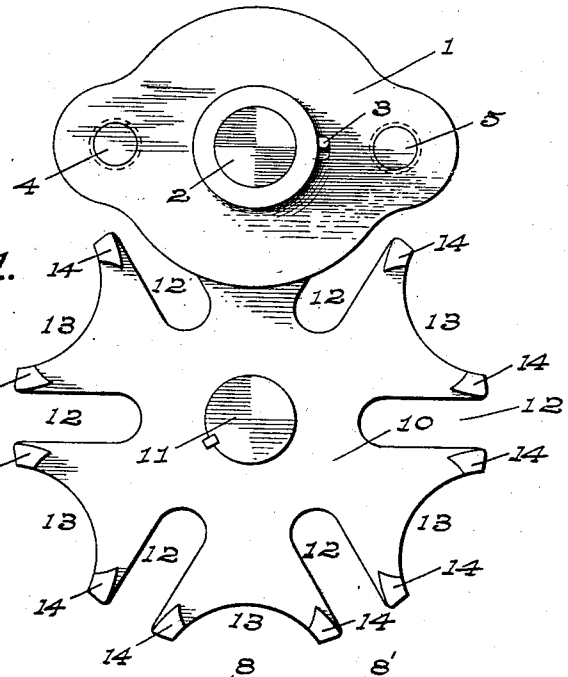
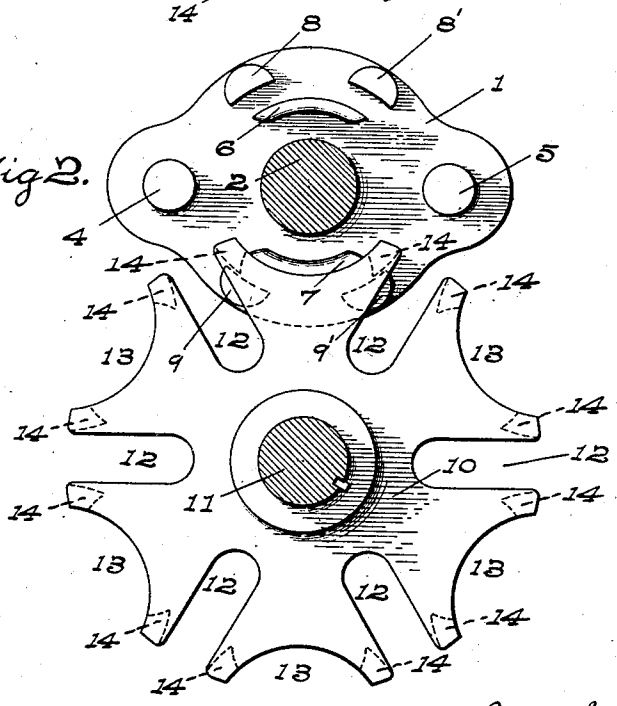


Fig 2.



Witnesses:
H. M. Rugg
M. Haas.

Inventor
Joseph T. Cyr
By J. L. Dewey
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 719,198.

PATENTED JAN. 27, 1903.

J. T. CYR.

PINWHEEL AND STAR WHEEL MOTION.

APPLICATION FILED NOV. 15, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

Fig 3.

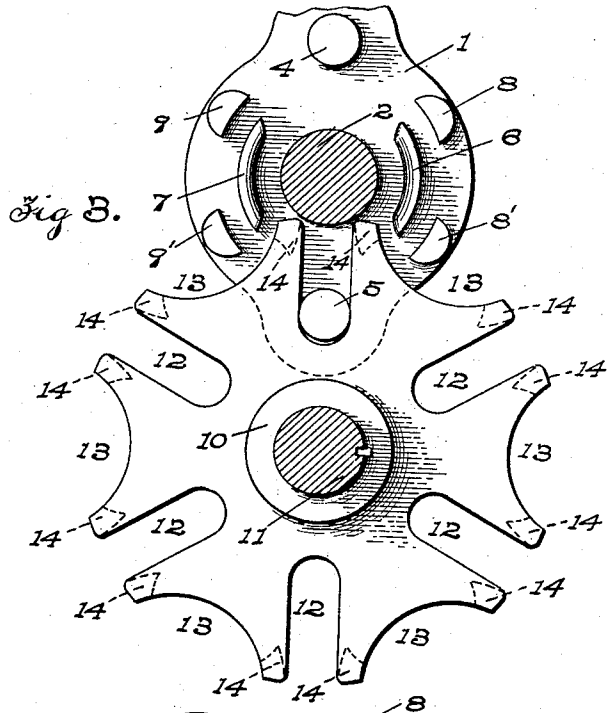
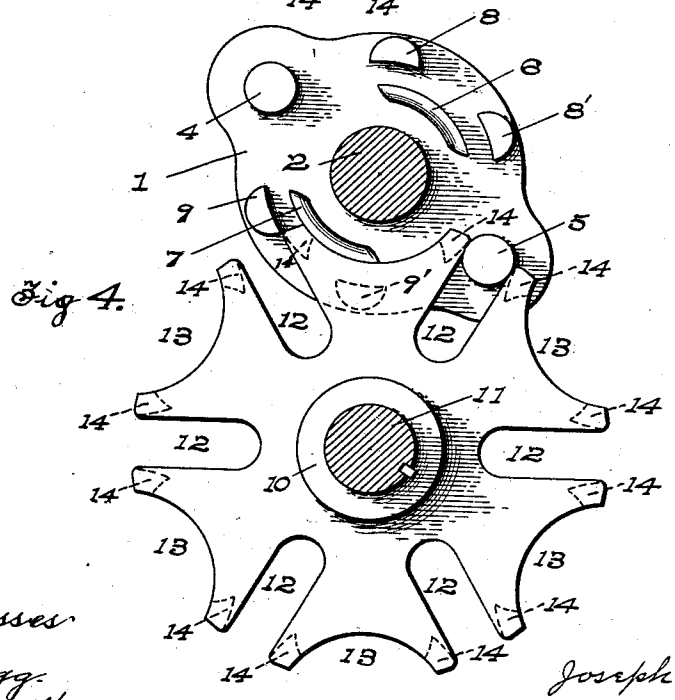


Fig 4.



Witnesses.
H. M. Rugg.
M. Haas.

Inventor
Joseph T. Cyr
By J. G. Dewey
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH T. CYR, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

PINWHEEL AND STAR-WHEEL MOTION.

SPECIFICATION forming part of Letters Patent No. 719,198, dated January 27, 1903.

Application filed November 15, 1902. Serial No. 131,479. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. CYR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Pinwheel and Star-Wheel Motions, of which the following is a specification.

My invention relates to a pinwheel and star-wheel motion, technically termed "Geneva" motion, in which a continuous rotation of the pinwheel communicates an intermittent rotary motion to the star-wheel; and my invention more particularly relates to a modified construction of the pinwheel and star-wheel motion shown and described in my United States Letters Patent No. 699,910. In said patent the pinwheel only has one driver-pin; but in my present invention the pinwheel has two driver-pins and two oppositely-arranged curved offset flanges and two pair of pins or studs to operate in connection with projections on the segments of the star-wheel to lock or hold the star-wheel when one of the driver-pins is not in engagement with one of the slots in the star-wheel.

Referring to the drawings, Figure 1 is a side view of a pinwheel and star-wheel motion embodying my improvements. Fig. 2 corresponds to Fig. 1, but shows the reverse view of the pinwheel and star-wheel motion. Fig. 3 corresponds to Fig. 2, but shows a different position of the pinwheel; and Fig. 4 corresponds to Fig. 3, but shows a different position of the pinwheel.

In the accompanying drawings, 1 is a pinwheel secured on a driven shaft 2, in this instance by a set-screw or bolt 3. The pinwheel 1 has the two driver-pins 4 and 5 extending out from the same side thereof upon opposite sides of the shaft 2. On the same side of the pinwheel 1 as the driver-pins 4 and 5 are two curved flanges or extensions 6 and 7 upon opposite sides of the shaft 2 and intermediate the pins 4 and 5. Also on the same side of the pinwheel 1, on opposite sides of the shaft 2 and outside of the flanges 6 and 7, are two pairs of pins or studs 8 8′ and 9 9′.

The star-wheel 10 is in this instance keyed on a shaft 11 to communicate an intermittent motion thereto and has six radial slots or recesses 12 in its periphery to be engaged by the driver-pins 4 and 5. Intermediate the radial slots 12 the periphery of the star-wheel 10 has the concave recesses or depressions 13, the curvature of which corresponds to the curvature of the two offset flanges 6 and 7. Upon the side or face of the star-wheel 10 contiguous to the pinwheel 1 and at the outer or open ends of the radial slots 12 are projections 14, having their inner edges slightly curved. The width or thickness of the projections 14 is a little less than the distance between one of the offset flanges 6 or 7 and a pair of pins or studs 8 8′ or 9 9′, so that said projections can pass between the same. (See Fig. 2.)

The operation of the pinwheel and star-wheel motion shown in the drawings and above described will be readily understood by those skilled in the art. The continuous motion of the shaft 2 communicates a continuous revolution to the pin-wheel 1, and the engagement of one of the driver-pins 4 or 5 with a radial slot 12 in the star-wheel 10 communicates a partial rotation to said star-wheel, in this instance one-sixth of a revolution, and then there is a dwell of the star-wheel. The pinwheel 1, with the two driver-pins 4 and 5, communicates two partial revolutions to the star-wheel 10 at each complete revolution of said pinwheel.

By means of the two curved flanges 6 and 7 and the two pair of pins or studs 8 8′ and 9 9′ and the projections 14 on the star-wheel 10 the star-wheel is locked or held in position during the time it is stationary or when one of the driver-pins 4 or 5 is not in engagement with one of the slots 12 in the star-wheel.

Referring to Fig. 2, it will be seen that when both of the driver-pins 4 and 5 are out of engagement with the star-wheel and at equal distances therefrom, as shown in said figure, the projections 14 on the edge of the star-wheel will extend between one of the curved flanges 6 or 7 and one pair of pins or studs 8 8′ or 9 9′ on the pinwheel 1, and thus lock or hold the star-wheel stationary. The continued revolution of the pinwheel 1 in the direction of arrow *a* will cause one of the

driver-pins, as 5, to enter one of the radial slots 12 in the star-wheel 10, and at the same time one of the pairs of pins, as 8 will pass beyond the projection 14 on the star-wheel (see Fig. 4) and leave the star-wheel free to be moved by the engagement of the pin 5 with the radial slot 12, and the continued revolution of the pinwheel 1 moves the star-wheel 10 from the position shown in Fig. 4 to the position shown in Fig. 3, carrying the projection 14 on the star-wheel 10 away from the curved flange 6 and the pin or stud 8 and leaving the star-wheel free to be turned by the revolution of the pinwheel. As the driver-pin 5 passes out of the radial slot 12 in the star-wheel 10 (supposing the pinwheel to be revolving in the direction of arrow *b*, Fig. 4) the projection 14 enters between the curved flange 6 and the pin or stud 8 to lock or hold the star-wheel in position after the driver-pin 5 passes entirely out of the radial slot 12.

The advantages of my improvements will be readily appreciated by those skilled in the art. By means of two driver-pins on the pinwheel two partial rotations are communicated to the star-wheel at every complete revolution of the pinwheel, and by means of the curved flanges 6 and 7 and the pairs of pins or studs 8 8′ and 9 9′ the star-wheel is firmly held or locked in position every time it comes to a stop.

It will be understood that the details of construction of my improvements may be varied, if desired. For example, a pinwheel with more than two driver-pins may be used.

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

1. In a pinwheel and star-wheel motion, a pinwheel having two driver-pins, two curved flanges or extensions and two pairs of pins or studs, intermediate the driver-pins, and a star-wheel having radial slots in its periphery, and concave recesses or depressions intermediate said slots, and projections at the outer ends of said slots, on the side of the star-wheel contiguous to the pinwheel, substantially as shown and described.

2. In a pinwheel and star-wheel motion, the combination with a pinwheel having a plurality of driver-pins, and a plurality of curved flanges or extensions and pins or studs, to hold or lock the star-wheel, of a star-wheel having radial slots in its periphery and concave recesses or depressions intermediate said slots, and projections at the outer side of said slots on the side of the star-wheel contiguous to the pinwheel, substantially as shown and described.

JOSEPH T. CYR.

Witnesses:
J. C. DEWEY,
M. HAAS.