W. T. SEARS.

GAPPED GEAR.

APPLICATION FILED AUG. 22, 1910.

987,920. Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.

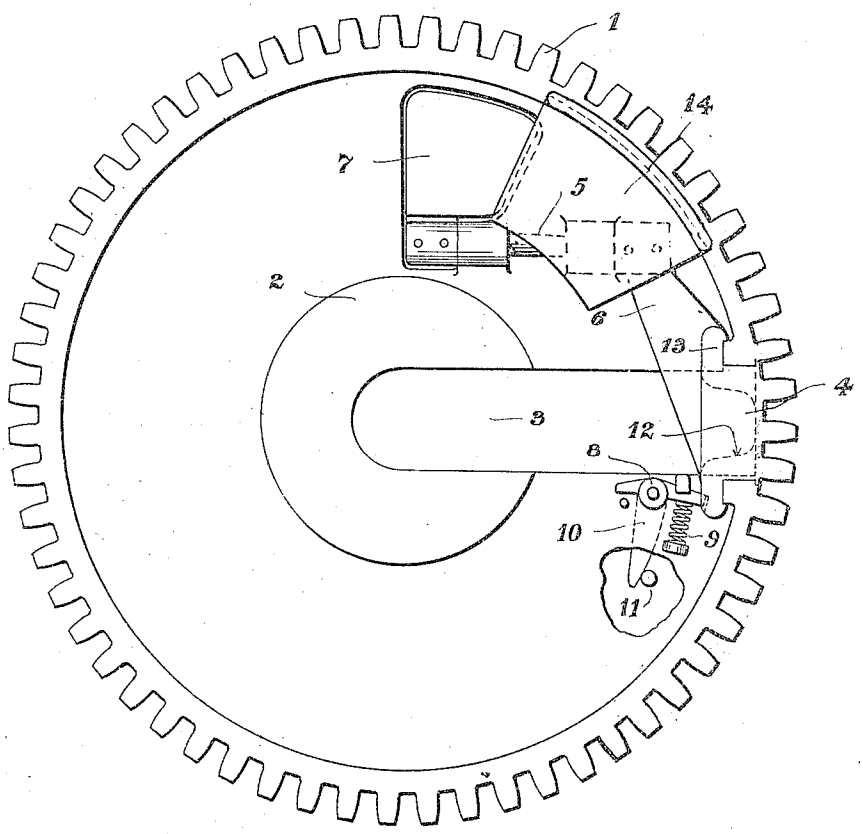

Fig. 1

Witnesses
Victor E. Sullivan
Geo. Johnson.

Inventor
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by James W. See
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2 SHEETS—SHEET 2.

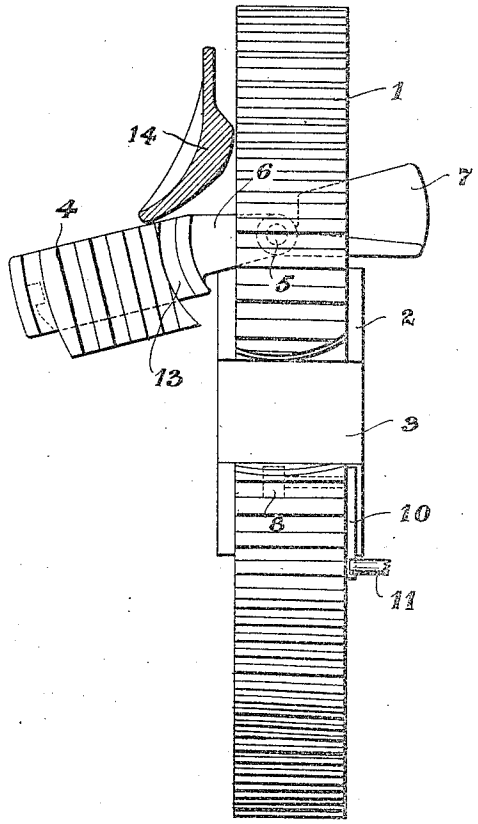

Fig. 2

Witnesses
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UNITED STATES PATENT OFFICE.

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GAPPED GEAR.

987,920. Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed August 22, 1910. Serial No. 578,265.

To all whom it may concern:

Be it known that I, WILLARD T. SEARS, a citizen of the United States, residing at Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful Improvements in Gapped Gears, of which the following is a specification.

This invention pertains to gears provided with a gap extending through the rim and inwardly, such gears being frequently employed in car wheel lathes designed for the turning of car wheels while on their axles, portions of the driving apparatus, including a gapped gear, surrounding the axle between the wheels.

The invention relates to the system for moving the patch which opens and closes the gap in the rim laterally to the plane of the gear. By "laterally to the plane of the gear" I mean in a direction contrary to or at an angle to the plane of the gear, and it will be understood that I have illustrated in the drawings only one of several constructions which may be employed to swing the patch laterally to the plane of the gear.

Figure 1 is a side view of a gapped gear exemplifying my invention, the patch being in closed position; and Fig. 2 is a view of the front edge, the right-hand edge of Fig. 1, of the gear, the patch being shown in open position, and the closing cam being shown in section in a curved plane concentric with the axis of the gear.

To avoid confusion in delineation no teeth are shown in the gear in Fig. 2, and in Fig. 1, the teeth have been omitted at the patch and its neighborhood.

In the drawings:—1, indicates the rim of the gear: 2, its hub: 3, the gap extending through the rim and inwardly, the gap, at the rim, having a convex upper wall and a concave lower wall, the curvature of these walls being struck from a common center: 4, the patch adapted to bridge the gap at the rim, the patch having upper and lower surfaces to fit the curved surfaces of the walls at the gap of the rim: 5, a shaft mounted in the gear with its axis at right angles to and above the axis of the gear, this shaft forming a hinge on which the patch may swing into and out of the gap: 6, an arm projecting from the patch and secured to the shaft: 7, a counterweight secured to the shaft, opposite the patch and adapted to serve in counterbalancing it, the body of the gear being provided with an opening through which this counterweight may swing: 8, a latch-lever pivoted to the gear on the side of the gap opposite the side to which the patch is hinged, the outer end of this latch-lever taking into a notch in the inner lower portion of the patch when the patch is in closed position: 9, a spring acting on the latch-lever and urging it to latching position in the patch: 10, a cam-arm connected with the latch-lever: 11, a fixed pin or projection in the path of the cam-arm and adapted, as the gear turns in counter-clockwise direction, to engage the cam-arm and release the latch-lever: 12, a recess in the rear of the patch to lighten the patch and permit of the employment of a lighter counterweight: 13, the innermost portion of the patch, the same engaging within the rim of the gear and having arm 6 projecting from it: and 14, a fixed cam presenting itself near the side of the gear and adapted, as the gear revolves in counter-clockwise direction, to be engaged by the open patch and force the patch to closed position.

In Fig. 1, assuming the gear to be turning in counter-clockwise direction, the patch is in closed position and the latch is on the point of release. The instant it is released the counterweight swings outward and swings the patch laterally out of the gap leaving the entire gap open, at which time, of course, the rotation of the gear is to be arrested, leaving matters in the condition indicated in Fig. 2. As soon as the gear is again started, in counter-clockwise direction, cam 14 forces the patch to closed position and the latch automatically engages and holds it in such position until the latch-cam again comes around and coöperates with pin 11, which it will do at each turn of the gear if the pin be not arranged for displacement in case it be not desired to have the gap open at each turn of the gear.

I claim:—

1. A gapped gear comprising, a gear provided with a gap extending through its rim and inwardly, the walls of the gap at the rim being concentric arcs, a patch having concentrically curved upper and lower surfaces adapted to fit and bridge the gap in the rim, a hinge-axis carried by the gear at right angles to the axis of the gear, an arm

hinging the patch to said axis, and means for swinging the patch into and out of the gap, combined substantially as set forth.

2. A gapped gear comprising, a gear provided with a gap extending through its rim and inwardly, the walls of the gap at the rim being concentric arcs, a patch having concentrically curved upper and lower surfaces adapted to fit and bridge the gap in the rim, a hinge-axis carried by the gear at right angles to the axis of the gear, an arm hinging the patch to said axis, means for swinging the patch into and out of the gap, a latch to lock the patch in closed position, and means for releasing said latch, combined substantially as set forth.

3. A gapped gear comprising, a gear provided with a gap extending through its rim and inwardly, the walls of the gap at the rim being concentric arcs, a patch having concentrically curved upper and lower surfaces adapted to fit and bridge the gap in the rim, a hinge-axis carried by the gear at right angles to the axis of the gear, an arm hinging the patch to said axis, means for swinging the patch into and out of the gap, a latch to lock the patch in closed position, and a fixed projection in the path of a part of the latch to serve in releasing the latch as the gear turns, combined substantially as set forth.

4. A gapped gear comprising, a gear provided with a gap extending through its rim and inwardly, the walls of the gap at the rim being concentric arcs, a patch having concentrically curved upper and lower surfaces adapted to fit and bridge the gap in the rim, a hinge-axis carried by the gear at right angles to the axis of the gear, an arm hinging the patch to said axis, a counterweight connected with the patch, and means for swinging the patch into the gap, combined substantially as set forth.

5. A gapped gear comprising, a gear provided with a gap extending through its rim and inwardly, the walls of the gap at the rim being concentric arcs, a patch having concentrically curved upper and lower surfaces adapted to fit and bridge the gap in the rim, a hinge-axis carried by the gear at right angles to the axis of the gear, an arm hinging the patch to said axis, a counterweight connected with the patch and adapted to serve in swinging the patch to open position, and a fixed cam adapted to engage the patch when in open position and force it to closed position while the gear turns, combined substantially as set forth.

6. A gapped gear comprising a gear provided with a gap extending through its rim and inwardly, a patch adapted to fit and bridge the gap in the rim, said patch being arranged to swing laterally to the plane of the gear, and means for swinging the patch into and out of the gap.

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Witnesses:
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