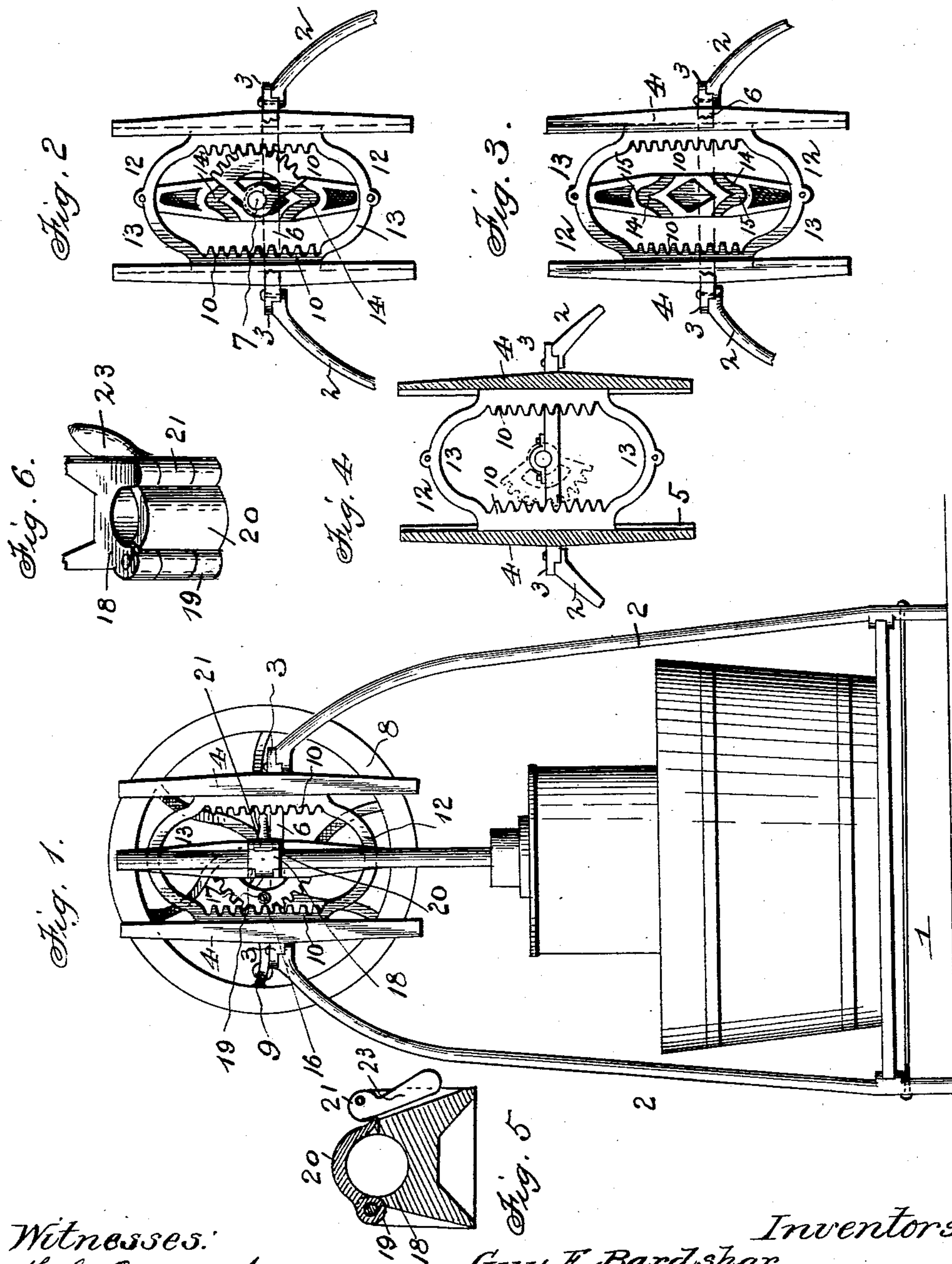


(No Model.)

G. E. BARDSHAR & A. HEIBERGER.
DEVICE FOR CONVERTING MOTION.

No. 571,939.

Patented Nov. 24, 1896.



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UNITED STATES PATENT OFFICE.

GUY E. BARDSHAR AND AUGUST HEIBERGER, OF SANDUSKY, OHIO.

DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 571,939, dated November 24, 1896.

Application filed March 18, 1896. Serial No. 583,697. (No model.)

To all whom it may concern:

Be it known that we, GUY E. BARDSHAR and AUGUST HEIBERGER, citizens of the United States, and residents of Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Devices for Converting Motion; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in devices for converting rotary into reciprocating movement; and its object is to provide an improved construction of the same by which we secure superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts herein-after fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of an apparatus constructed in accordance with our invention. Fig. 2 is a detail view looking from the opposite side, the fly-wheel being removed. Fig. 3 is a similar view, the cogged segment being removed. Fig. 4 is a similar view, the grooved plate being removed. Fig. 5 is a detail sectional view, on an enlarged scale, of the clamp and eccentric for locking the same. Fig. 6 is a detail perspective view of the same.

In the said drawings the reference-numeral 1 designates a base of any suitable construction provided with inclined standards 2, the upper ends of which are bolted to lugs 3 on two parallel vertical guide-bars 4, formed with grooves 5 in their under sides. These bars are connected together at or near their centers by a horizontal bar 6, having a central opening, in which is journaled a rotatable driving-shaft 7, provided with a fly-wheel 8, having a crank 9. Secured to the inner end of said shaft is a cogged segment, which is adapted to alternately engage with rack-teeth 10 on the inner sides of an open vertically-reciprocating frame 12. The outer sides of said frame work in the grooves in the guide-bars 4. The ends of said frame consist of curved or rounded bars 13 to allow free pas-

sage for the segment as it reaches the end of each stroke of the frame. Secured to the rounded ends of said frame is what we term a "governor," consisting of a vertical plate having formed on its inner side, above and below the center, two oppositely-extending V-shaped grooves 14, open at the ends, and the sides of which are curved, as seen at 15, Fig. 3.

The segment is provided with a pin 16, on which is journaled a roller 17, which alternately engages with the said grooves.

The outer side of the governor or guide plate is formed with curved projections 18, provided with lugs 19. To the lugs of one of these projections is hinged a curved clamp 20, adapted to span the space between the projections and be locked in place by an eccentric 21, journaled to the lugs of the other projection and provided with an operating-handle 23. A shaft, rod, or bar to be reciprocated can be thus clamped to the guide-plate, so as to move therewith.

The operation will be readily understood. As the shaft is rotated the segment will be correspondingly moved, causing the cogs to alternately engage with the cogs or teeth at opposite sides of the frame, whereby the latter will be reciprocated. As the cogged frame completes each stroke the roller of the segment will engage with the V-shaped slots, thereby carrying and guiding the segment across the frame. The curving of the said grooves is important, as the roller will work easily therein with a minimum of friction and comparatively noiseless, which would not be the case if the grooves were made straight from the junction of the inclined sides to the ends thereof.

We have illustrated the device or apparatus as being applicable for operating churns, but it is obvious that it may be used in connection with all other objects or machines generally in which rotary motion is converted into reciprocating, or vice versa, and the cogged frame may work horizontally instead of vertically, as shown, if desired.

Having thus fully described our invention, what we claim is—

1. In a device for converting motion, the combination, with the parallel guide-bars, the reciprocating open frame, having rounded

- ends and its inner sides formed with cogs or teeth, and the guide-plate secured to said frame, formed with oppositely-extending V-shaped grooves at opposite sides of the center of said plate, the ends of which are open and opposite said cogs or teeth, of the rotatable cogged segment having a roller adapted to engage with said grooves, substantially as described.
2. In a device for converting motion, the combination, with the parallel guide-bars, the reciprocating open frame, having rounded ends, and its inner sides formed with cogs or teeth, and the guide-plate secured to said frame formed with oppositely-extending V-shaped grooves the sides of which are curved from their ends to their juncture, and the ends of said grooves being open and opposite said cogs or teeth, of the rotatable cogged segment having a roller adapted to engage with said grooves, the curved projections on said plate, provided with lugs, the hinged clamp and the eccentric, substantially as described.
- In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.
- GUY E. BARDSHAR.
AUGUST HEIBERGER.
- Witnesses:
ARTHUR PHINNEY,
JOHN J. MURPHY.