

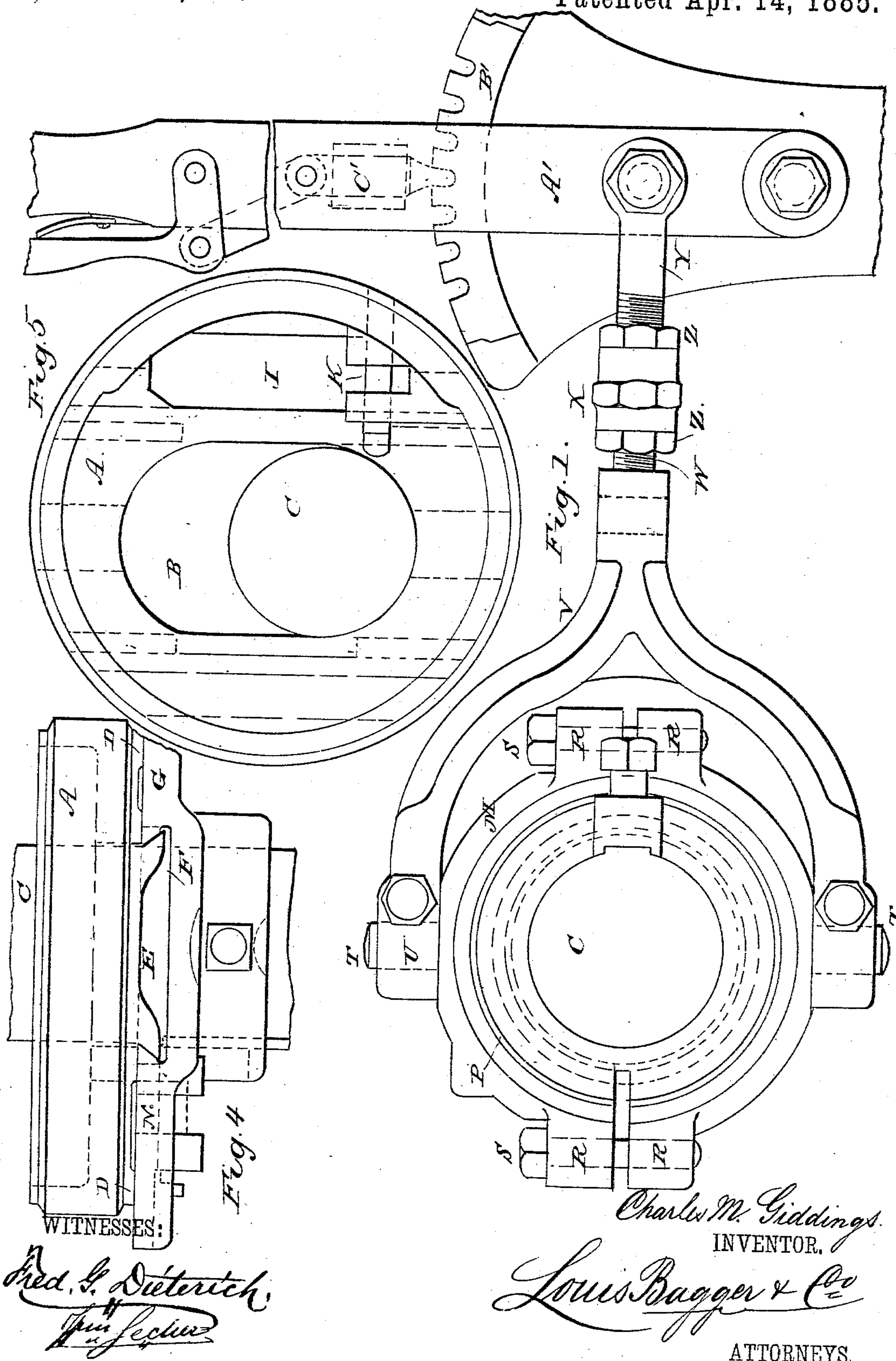
(No Model.)

C. M. GIDDINGS.
REVERSING GEAR.

2 Sheets—Sheet 1.

No. 315,762.

Patented Apr. 14, 1885.



WITNESSES:

Fred. G. Dietrich
Inspector

Charles M. Giddings
INVENTOR.

Louis Bagger & Co
ATTORNEYS.

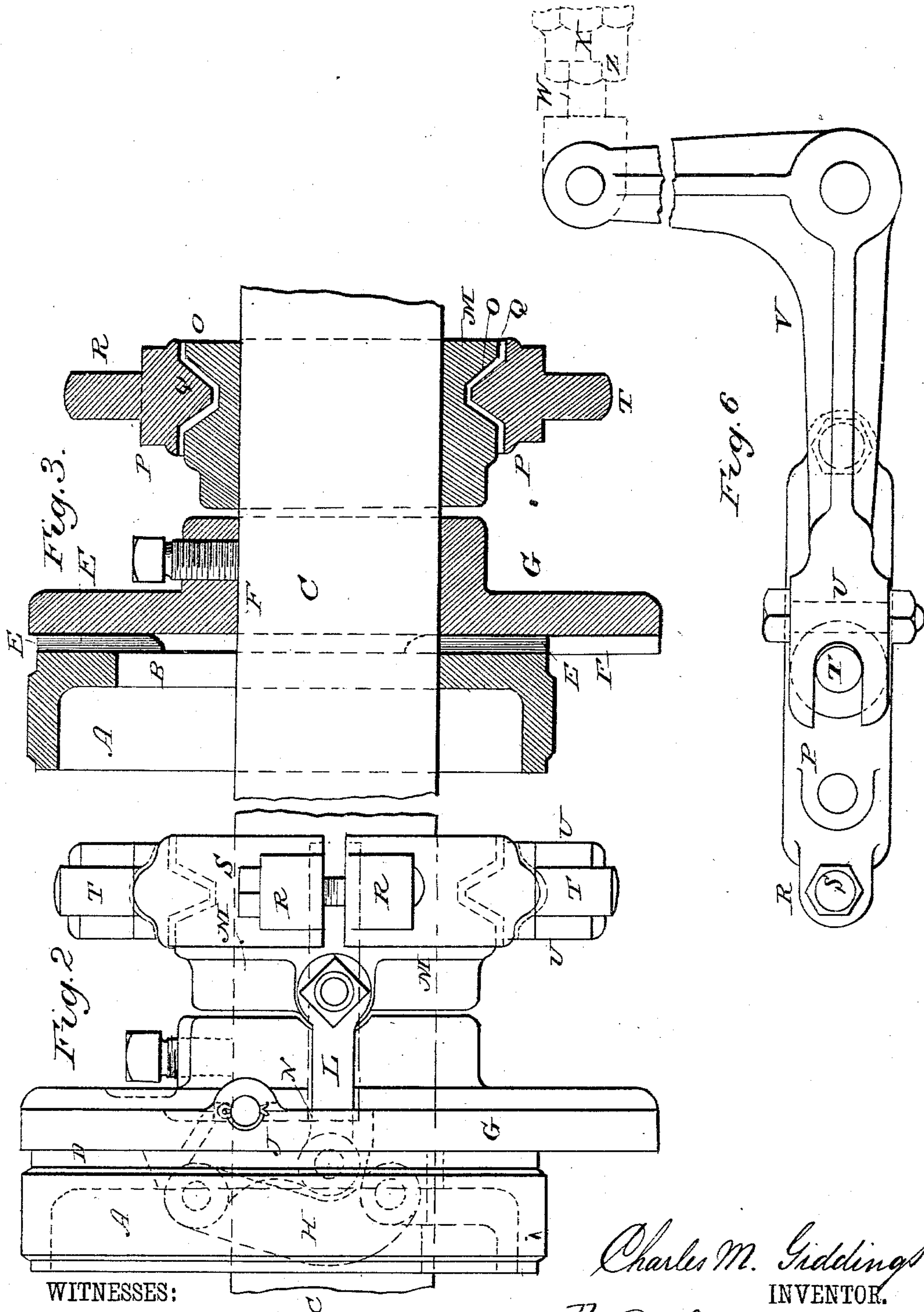
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2 Sheets—Sheet 2.

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REVERSING GEAR.

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WITNESSES:

Thos. S. Dietrich.
Wm. J. Fisher

Charles M. Giddings.
INVENTOR.

By *Louis Ragger & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES M. GIDDINGS, OF MASSILLON, OHIO.

REVERSING-GEAR.

SPECIFICATION forming part of Letters Patent No. 315,762, dated April 14, 1885.

Application filed December 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. GIDDINGS, of Massillon, in the county of Stark and State of Ohio, have invented certain new and useful
5 Improvements in Reversing-Gears; and I 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,
10 reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved reversing-gear. Fig. 2 is a front view of the
15 same. Fig. 3 is a vertical sectional view taken axial with the shaft; and Figs. 4, 5, and 6 are detail views of the several parts of the gear.

Similar letters of reference indicate corresponding parts in all the figures.

20 My invention has relation to that class of reversing-gears in which the valve-operating eccentric disk slides with a diametrical slot upon the shaft; and it consists in the improved construction and combination of parts of the
25 same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates a disk which has a diametrical slot, B, with which it slides upon the shaft C, and
30 which disk has the ring to which the valve-rod operating connecting-rod is secured, sliding around its periphery. The face of this disk has narrow bearing-ribs D, and a dove-tailed diametrical rib, E, parallel with the
35 slot, which rib fits in a corresponding groove, F, in the face of a disk, G, keyed or otherwise secured upon the shaft by the side of the shifting-disk, and the narrow bearing-ribs of the
40 shifting-disk A bear against the face of the rigid disk G. A curved arm, H, is pivoted at its lower end in one end of a recess, I, in the face of the shifting-disk, which said recess is parallel
45 with the slot, and the other end of the arm is pivoted to one arm of a bell-crank, J, which has its fulcrum in a recess, K, in the face of the rigid disk. A rod, L, is pivoted to the
50 other arm of the bell-crank, and the other end of the said rod is pivoted to a disk or collar, M, sliding upon the shaft, the rod passing through a perforation, N, in the rigid disk. The sliding collar M has a peripheral groove,

O, V-shaped in section, and a ring, P, having a rib, Q, corresponding in shape to the groove, is secured around the collar, the said ring consisting of two halves, having perforated lugs
55 R at their ends, which are secured by means of screws S, which serve to tighten the ring upon the collar when either the rib or the groove becomes worn. The ring has two diametrically-opposite lugs or pins, T T, and the
60 ends U of a bifurcated bell-crank, V, are pivoted upon these lugs, the said ends having means for tightening their bearings upon the lugs. The bell-crank is pivoted upon the frame of the engine or upon the boiler, or any
65 other suitable place, and a connecting-rod, W, is pivoted to the other arm of the bell-crank, and has its other end screw-threaded and fitting into a common right and left hand threaded sleeve, X, into the other end of which fits
70 the screw-threaded end of a short rod, Y, the said screw-threaded ends of the rods being secured in the sleeve by means of jam-nuts Z Z. The end of the short screw-threaded rod is pivoted to a hand-lever, A', which is piv-
75 oted in the center of a graduated notched segment, B', which segment is engaged by a spring-lock, C', upon the lever, serving to adjust the said lever in any desired angle. It will now be seen that as the lever is tilted
80 the connecting-rod will rock the bell-crank, which again will slide the sleeve to one side or another, and the said sleeve or collar will tilt the bell-crank in the rigid disk by means of its connecting-rod, which bell-crank again
85 will either draw or push the curved arm and either slide the shifting-disk to one side or the other, thus serving to regulate the stroke of the valve, and consequently the speed of the engine, and at the same time serving to re-
90 verse the engine by shifting the disk from one position to its diametrically-opposite position.

Having thus described my invention, I claim and desire to secure by Letters Patent of the
95 United States—

In a reversing-gear, the combination of the shifting-disk having the diametrical slot, the diametrical dovetailed rib, and the recess parallel with the slot, the rigid disk having
100 the dovetailed groove in its face with means for taking up wear, and having the recess and

the perforation, the curved arm pivoted at one
end in one end of the recess in the shifting-
disk, the bell-crank pivoted in the recess in
the rigid disk, the collar sliding upon and
5 turning with the drive-shaft and having the
V-shaped groove in its periphery, the con-
necting-rod pivoted to the arm of the bell-
crank and to the sliding collar, the ring hav-
ing the V-shaped rib and the diametrically-
10 opposite studs, the bifurcated bell-crank hav-
ing its ends pivoted upon the said studs, the
connecting-rod pivoted to the other arm of

the bell-crank and having means for adjusting
its length, the hand-lever having the spring-
lock, and the notched segment, as and for the 15
purpose shown and set forth.

In testimony that I claim the foregoing as
my own I have hereunto affixed my signature
in presence of two witnesses.

CHARLES M. GIDDINGS.

Witnesses:

E. D. DOXSEE,

ISAAC ULMAN.