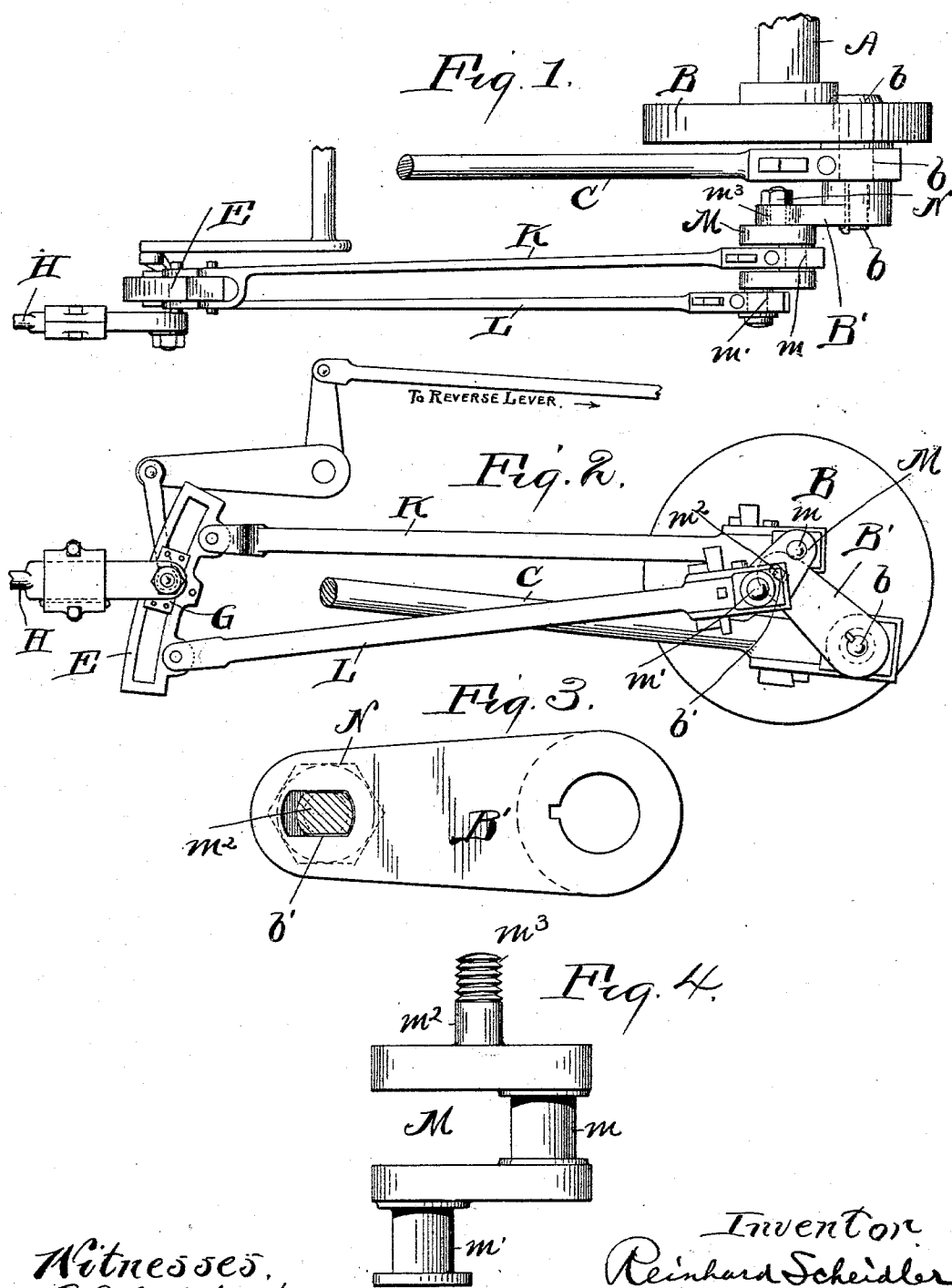


(No Model.)

R. SCHEIDLER.
LINK MOTION VALVE GEAR.

No. 562,921.

Patented June 30, 1896.



Witnesses,
E. B. Gilchrist
[Signature]

Inventor
Reinhard Scheidler
By M. D. Leggett & Co.
his attorneys

UNITED STATES PATENT OFFICE.

REINHARD SCHEIDLER, OF NEWARK, OHIO.

LINK-MOTION VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 562,921, dated June 30, 1896.

Application filed January 5, 1895. Serial No. 533,943. (No model.)

To all whom it may concern:

Be it known that I, REINHARD SCHEIDLER, of Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Link-Motion Valve-Gears; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in link-motion valve-gears, the object being to dispense with eccentrics and eccentric-straps, to effect a great saving in lubricant, to reduce the friction to a minimum, to provide a valve-gear that is not liable to change the position of the valve operated by the gear, to obtain perfect motion of the valve, and to provide a construction whereby more or less lead can with great facility be given to the valve.

With this object in view, and to the end of realizing certain other advantages herein-after referred to, my invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a top plan of a link-motion valve-gear embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged side elevation showing crank-arm B' and the adjustable connection therewith of the double crank employed in my improved construction. Fig. 4 shows said double crank detached.

Referring to the drawings, A designates an engine-shaft, B a crank wheel or disk that is operatively mounted upon one end of said shaft, and C the connecting-rod operatively connected to the wrist *b* of said crank-disk. Crank-disk B is provided with a radially-arranged arm B', fixed upon wrist *b* at the outer side of rod C, and extends inwardly adjacent to the central portion of disk B.

E designates the link of my improved link-motion valve-gear, G the block that is adjustable endwise of the slot in said link, and H the valve-rod that is operatively connected in the usual manner with said block.

K and L designate the link-actuating rods that at one end are operatively connected with opposite ends, respectively, of the link.

Rods K and L correspond to the eccentric-

rods employed in a link-motion valve-gear wherein eccentrics are used, and said rods K and L, at their opposite end, are operatively connected with wrists *m* and *m'*, respectively, of the double crank M, that is firmly, and preferably adjustably, secured to the outer side of crank-arm B'. Wrists *m* and *m'* are located at opposite sides, respectively, of the axis of crank-disk B and diametrically opposite each other, so that one of said wrists and connected link-engaging rod are designed for the forward movement of the engine and the other wrist and connecting-rod are designed for the backward movement of the engine.

That arm or member of the double crank that engages arm B' of crank-disk B is shown slotted laterally and longitudinally at or near its outer end, as at *b'*, and said member of the double crank is provided with a laterally and inwardly projecting lug *m*², that extends through the aforesaid slot in arm B' and terminates, at the inner side of said arm B', in a stud *m*³, engaged by a nut N, which, when tightened against the double crank, securely holds the latter in the desired adjustment. By loosening nut N the double crank can be adjusted endwise of slot *b'* in arm B' of crank-disk B toward or from the wrist *b* of said crank-disk, according as it is desired to decrease or increase the lead of the valve.

Any one conversant with the operation of link-motion valve-gears will readily understand the advantages of my improved valve-gear over the old style of gear involving the use of eccentrics and eccentric-straps.

Among the merits of my improved gear as compared with gears involving eccentrics are the more regular and perfect motion of the valve, the great saving in lubricant, the great reduction of friction, and the easier operation of the link-actuating rods.

I would also remark that my improved gear is especially well adapted for traction-engines, wherein the boiler is located below the engine-shaft at the inner side of the crank-disk B, and wherein the engine-shaft is supported in boxes borne by standards on top of the boiler, and wherein it is desirable to reduce the height of said standards as much as practicable in order to obtain greater stability and steadiness at the bearings. Now, eccen-

tries are necessarily large and heavy, and require the location of the engine-shaft at a greater elevation above the boiler to accommodate the location and operation of the eccentrics.

5 In my improved gear the double crank M is located at the outer side of crank-disk B and away from the boiler heat, and hence the journals of the link-actuating rods are kept
10 comparatively cool by revolving in the air.

Concluding, I would remark that I desire to have it understood that my invention is not limited to the exact details of construction shown, but involves, broadly, the combination,
15 with the engine-shaft and crank B, operatively connected with said shaft, of a radially-arranged and inwardly-extending arm B', secured to the wrist of said crank, the two link-actuating rods, and the wrists or journals *m m'*, located at opposite sides of the axis
20 of the aforesaid crank.

What I claim is—

The combination with the engine-shaft and crank B operatively connected with said shaft, of arm B' secured to said wrist, said arm
25 being arranged radially and extending inwardly substantially as indicated, link-actuating rods K and L, journals *m* and *m'* for said rods, said journals being arranged at opposite sides of the axis of the aforesaid crank
30 and supported from the aforesaid arm in such a manner as to be capable of adjustment toward and from the wrist of the aforesaid crank, substantially as and for the purpose set forth.
35

In testimony whereof I sign this specification, in the presence of two witnesses, this 21st day of November, 1894.

REINHARD SCHEIDLER.

Witnesses:

C. H. DORER,

L. WARD HOOVER.