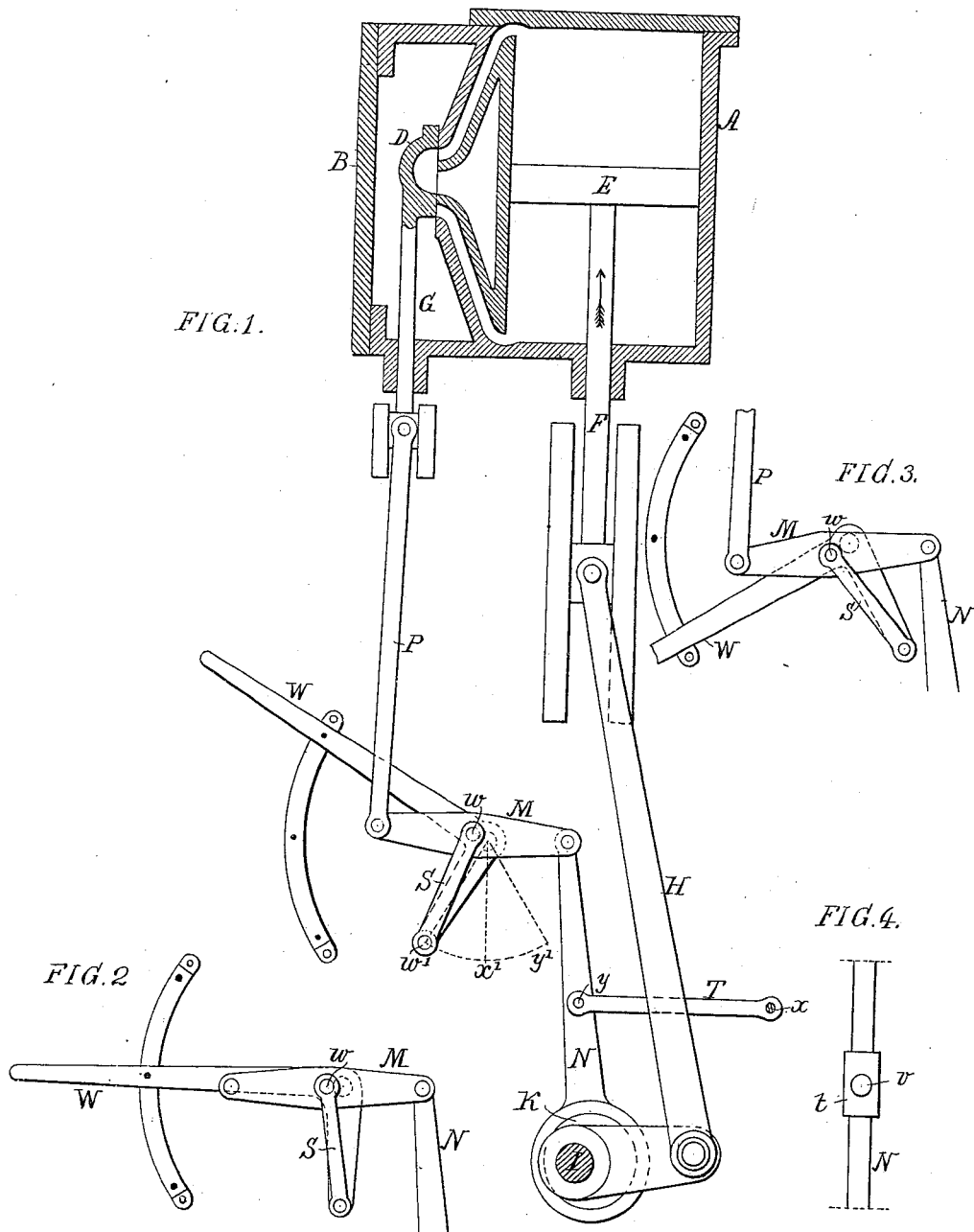


(No Model.)

J. HAUG.
VALVE GEAR.

No. 266,141.

Patented Oct. 17, 1882.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN HAUG, OF PHILADELPHIA, PENNSYLVANIA.

VALVE-GEAR.

SPECIFICATION forming part of Letters Patent No. 266,141, dated October 17, 1882.

Application filed August 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN HAUG, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Valve-Gear, of which the following is a specification.

The object of my invention is to provide a steam-engine with a simple valve-motion which will perform all the functions of the more costly link-motion.

In the accompanying drawings, Figure 1 is a diagram showing sufficient of a steam-engine to illustrate my improved valve-motion; Figs. 2 and 3, diagrams showing the devices in different positions from that shown in Fig. 1; and Fig. 4 a view illustrating a modification of my invention.

A is the cylinder of the engine; B, the valve-chest; D, the valve; E, the piston; F, the piston-rod; G, the valve-rod, and H the connecting-rod, I being the crank-shaft, provided with an eccentric, K.

One arm of a lever, M, is connected to the eccentric-rod N, the other arm being connected to the valve-rod G by a connecting-rod, P, the said lever having its fulcrum w in one end of a link, S, the other end, w' , of which is adjustable, the adjustment being effected in the present instance by a bell-crank lever, W, pivoted to a pin on any available part of the frame-work, the short arm of the lever being connected to the said link, and the long arm being the stopping, starting, and reversing lever of the engine. The eccentric-rod N is connected by a link, T, to a fixed pin, x , on some part of the frame of the engine, so that as the crank-shaft rotates two movements will be imparted to the lever M, one being a reciprocating motion, due to the throw of the eccentric, and the other a vibrating motion, not the usual vibration of an eccentric-rod, due to the throw of the eccentric, but a different vibration, due to the controlling influence of the link T, the pin y of which is a fulcrum on which the rod vibrates, while the link permits it to be reciprocated by the eccentric. When the outer end, w' , of the link S has been adjusted to the position shown in Fig. 2, and indicated by the point x' , Fig. 1, the fulcrum w of the lever M will have such a movement imparted to it that the said lever M has but lit-

tle, if any, influence on the valve; but when the end w' of the link S has been adjusted either to the position shown in Fig. 1 or that illustrated by Fig. 3, and indicated by the point y' , Fig. 1, there will be a full throw of the valve, and this throw will be diminished as the end w' of the link is adjusted toward the central position, x' , either from the position shown in Fig. 1 or from that shown in Fig. 3.

It will be understood that the action of the valve, and consequently of the engine, will be reversed by moving the end w' of the link to the position indicated by the point y' .

It is not essential to my invention that the adjustment of the outer end of the link should be effected by a bell-crank lever, as other adjusting mechanisms will readily suggest themselves to a skilled mechanic.

While a fulcrum-pin, y , is necessary for effecting the desired movement of the eccentric-rod, it is not essential that this fulcrum should be in a link, T. For instance, the desired motion will be imparted to the eccentric-rod by causing it to slide through a block, t , Fig. 4, having a pivot, v , journaled to a fixed bearing. I however prefer the plan first described.

It will be seen that by the above-described simple mechanism and with one eccentric the valve can be controlled in the same manner as by the complex and costly link-motion and its two eccentrics.

I claim as my invention—

A steam-engine valve-motion in which are combined the following elements—namely: first, the valve and valve-rod; second, an eccentric and an eccentric-rod; third, a fulcrum, y , for the eccentric-rod; fourth, a lever, M, one arm of which is connected to the eccentric, the other arm being connected to the valve-rod; fifth, a link, S, on one end of which is the fulcrum for the lever M; and, sixth, mechanism whereby the outer end of the said link may be adjusted, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HAUG.

Witnesses:

JAMES F. TOBIN,
HARRY DRURY.