

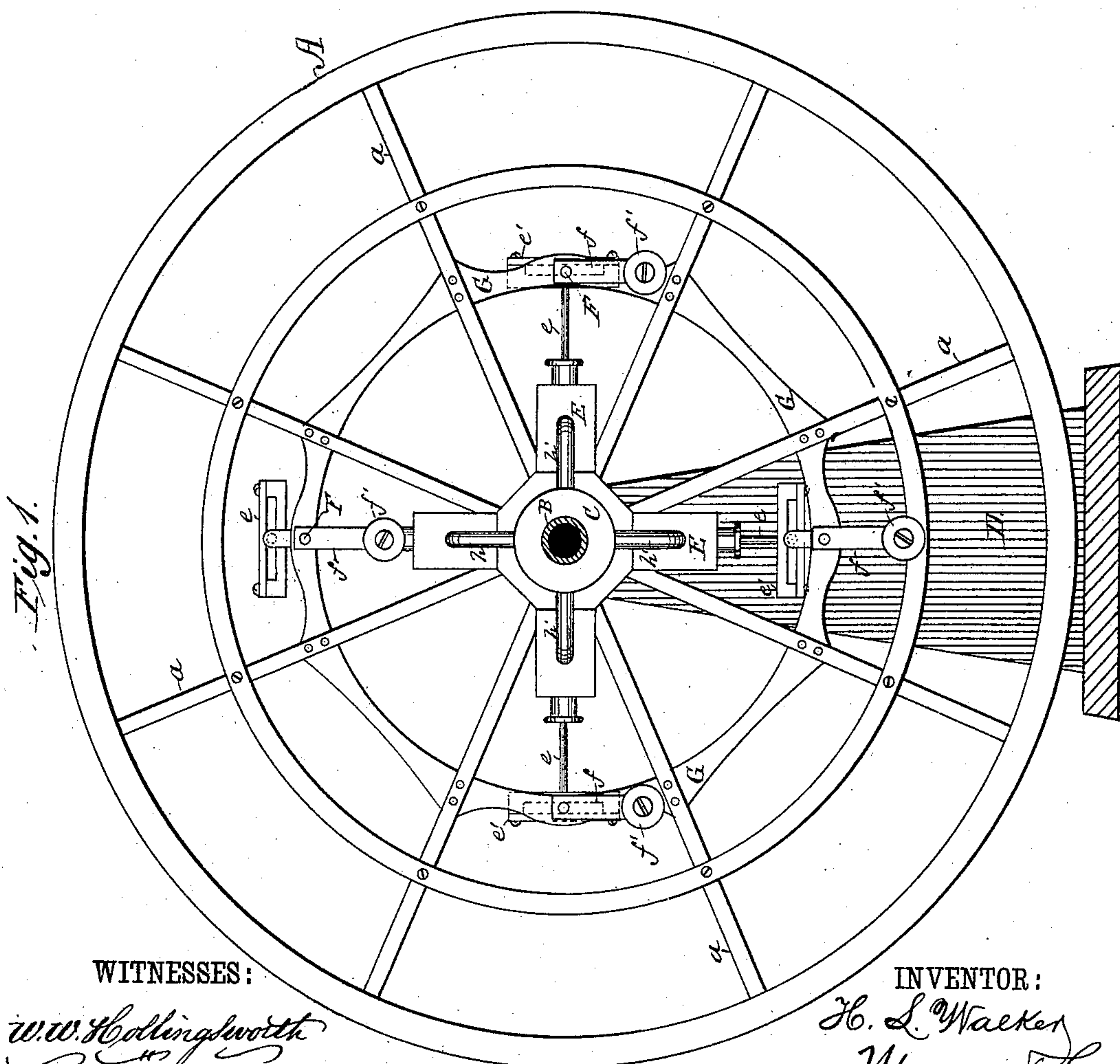
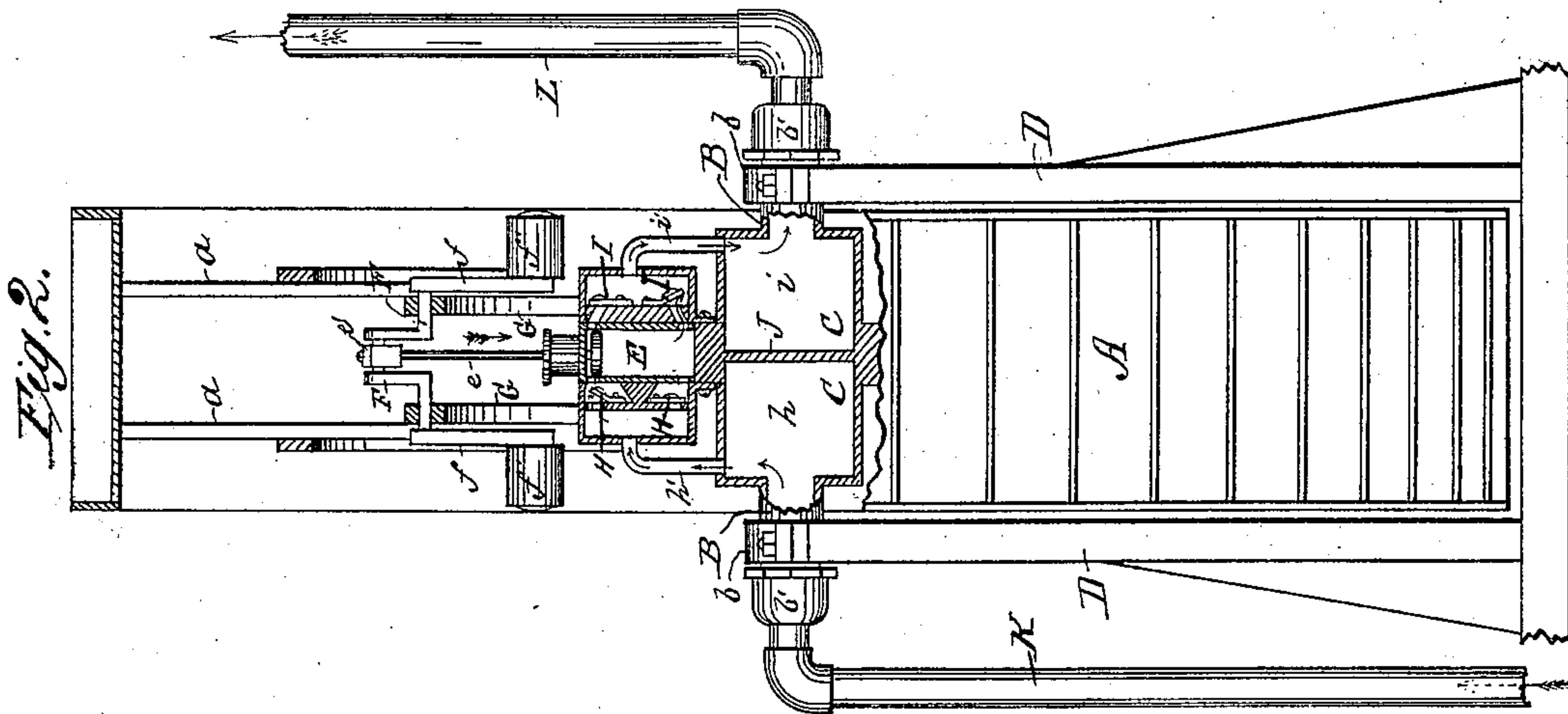
(No Model.)

H. L. WALKER.

WATER MOTOR.

No. 321,262.

Patented June 30, 1885.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HORACE LIVINGSTON WALKER, OF OTTUMWA, IOWA.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 321,262, dated June 30, 1885.

Application filed September 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, HORACE L. WALKER, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State

5 of Iowa, have invented certain new and useful Improvements in Water-Motors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a side elevation of my improved water-motor, showing the main shaft and frame in section. Fig. 2 is a part cross-section through my motor, showing the one half of it and one of the pumps in section.

15 Similar letters refer to corresponding parts.

A represents what is designed to be an overshot water-wheel, from the motion of which, when a sufficient supply of water is

20 supplied to it, the other parts of my motor derive their movement.
B is the main shaft, made hollow and firmly secured to the center casting, C, which also forms the hub of the water-wheel A, to

25 which it is rigidly connected by the arms or spokes *a a*.
D D is the framing of the machine, which runs in bearings *b b* on the main shaft B, which is provided with the packing boxes or glands

30 *b' b'*, connecting it with the suction and delivering-pipes.
E E are pumps attached to the center casting, C. Four of these are shown in the drawings, but any other number may be

35 used. Each pump is provided with a piston and a piston-rod, *e*, working through a stuffing-box in the cover of the pump. Each piston-rod *e* is provided with a yoke, *e'*, in which a block, *e''*, works and receives motion

40 from a crank, F, the crank-pin of which passes through it.
G G are rings attached to the arms of the water-wheel, and form bearings for the crank-shaft, on the ends of which are fastened the

45 levers *f f*, provided with weights *f' f'*. Each pump E is provided, further, with complete sets of suction and delivery valves, so that they may be double acting, of which the

50 suction-valves H are connected with the space *h* in one part of the center casting, C,

by the pipes *h'*, and the delivery-valves I are connected with the space in the corresponding opposite part, *i*, of the center casting, C, by the pipe *i'*.

The two spaces *h* and *i* in the center casting, C, are separated from each other by a partition-wall, J.

The weights *f' f'*, attached to the ends of the levers *f f*, always keep the said levers hanging downward by the action of gravity. 60 The cranks F are connected to the opposite ends and upon opposite sides of the levers *f f* to that to which the weights *f' f'* are connected, so that said cranks will change their positions with reference to the water-wheel 65 A exactly as influenced by the said weights, and being connected to the pump piston-rods and pistons by the yokes *e'*, each pump-piston will be at the top of its pump when vertical in the top half of the water-wheel, 70 will be at the bottom of its pump when vertical in the lower half of the water-wheel, and will be in various midway positions when between these two points. Consequently each pump-crank F will make one entire revolution 75 to each complete revolution of the water-wheel, and will draw a supply of water from the suction-pipe K and deliver the same up the delivery-pipe L.

Having thus described my invention, what I 80 claim, and desire to secure by Letters Patent, is—

1. In a water-motor, the combination of a water-wheel, A, with a series of double-acting pumps, E, which rotate with it, the 85 weights *f'*, attached to levers *f*, for working said pumps, and cranks F, connected to the pump-pistons and to said levers, substantially as described and shown, and for the purpose set forth.

2. In a water-motor, the combination of the 90 hollow center casting, C, divided centrally by the partition J, with the water-wheel A, of which it forms the hub, with the pumps E, and the cranks F, connected to the pump- 95 pistons and to the said wheel, substantially as described and shown.

3. In a water-motor, the combination of rings G, water-wheel A, to the arms of which they are attached, pumps E, provided with 100

yokes *e'*, cranks *F*, and levers *f*, provided with weights *f'*, substantially as described and shown.

4. In a water-motor, the combination of
5 the packing-boxes *b'* with the hollow shaft *B*, center casting, *C*, divided by partition *J*, pipes *h* and *i*, pumps *E*, and water-wheel *A*,

having connection with the pump-pistons through the cranks *F*, substantially as shown and specified.

HORACE LIVINGSTON WALKER.

Witnesses:

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W. R. LAMME.