T. Welham.

Hydromotor.

No 42,979. Patented May 31 - 1864.

Fig: 1.

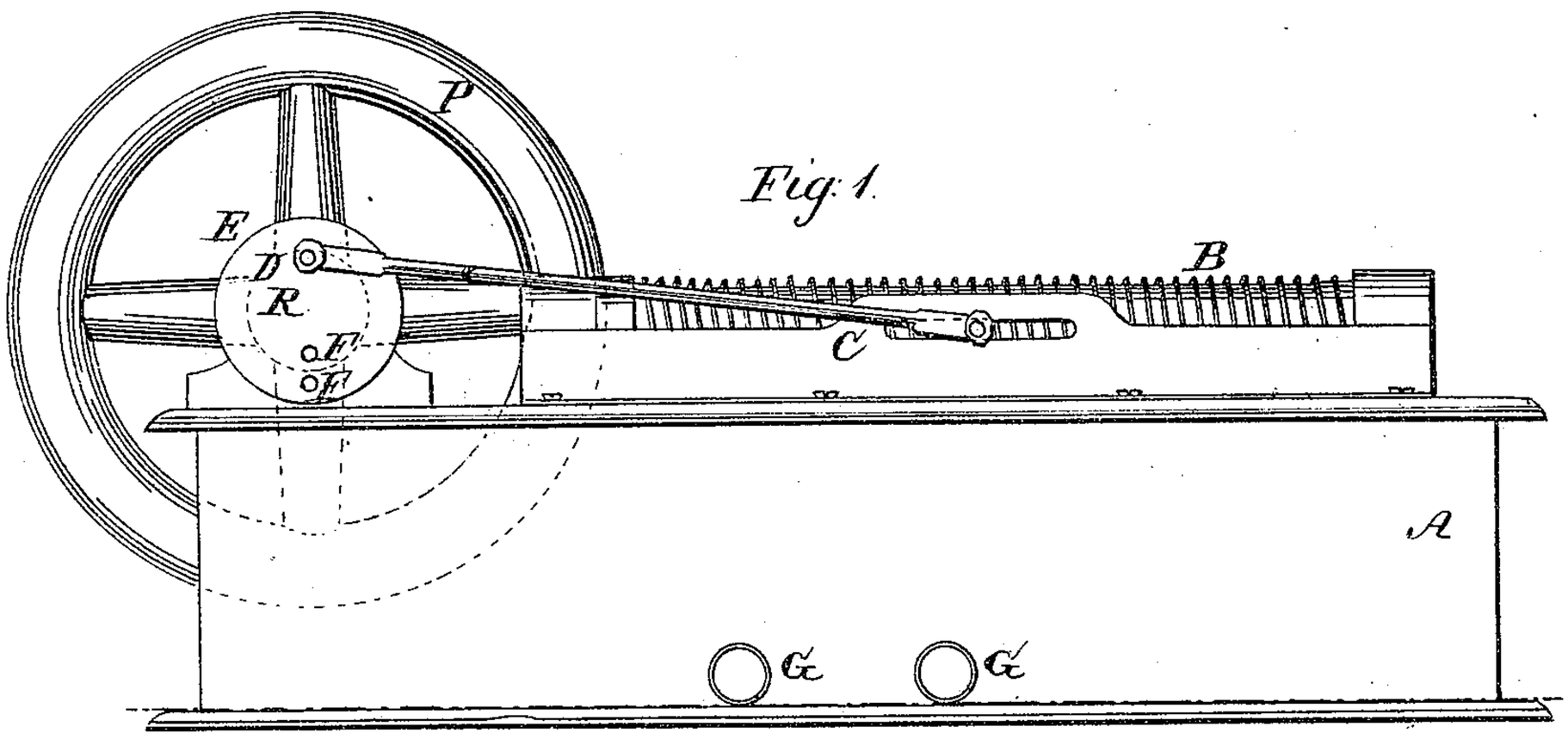
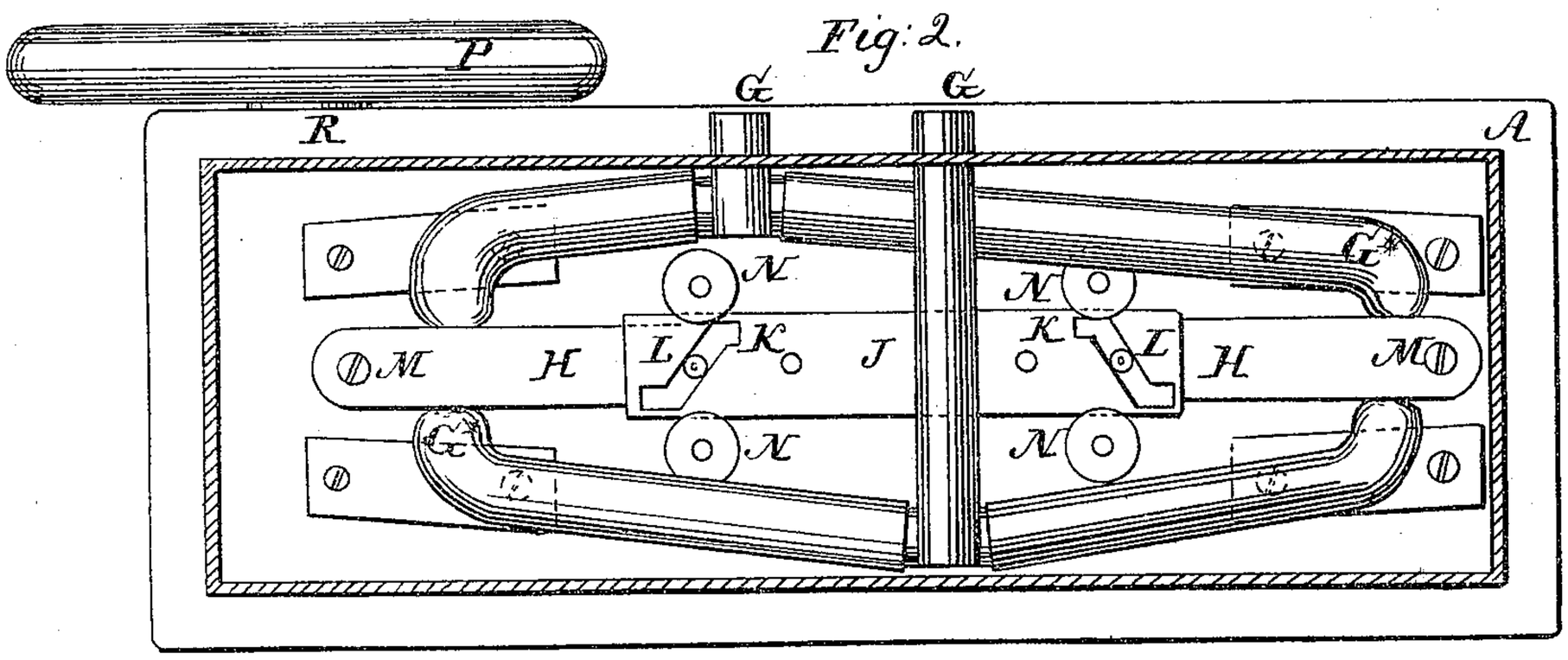


Fig: 2.



Witnesses;
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(A)

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UNITED STATES PATENT OFFICE.

THOMAS WELHAM, OF BROWNSVILLE, NEBRASKA.

IMPROVED HYDRO-MOTOR.

Specification forming part of Letters Patent No. **42,979**, dated May 31, 1864.

To all whom it may concern:

Be it known that I, THOMAS WELHAM, of Brownsville, county of Nemaha, and Territory of Nebraska, have invented a new and Improved Hydromotive Engine; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention is an elastic cylinder with connections on the outside of the cylinder to operate the driving-shaft; also, a flange with apertures in which the crank-pin is fastened for the purpose of shortening or lengthening the stroke of the cylinder by shifting the connecting-rod at any distance from the center to the outside of the flange; also, the arrangement and combination of a slide and levers operating as cut-offs for the elastic feed and discharge pipes working horizontally under the main cylinder.

To enable others skilled in the art to make and use my invention, I describe its operation and construction as follows:

Figure 1 represents a side elevation; Fig. 2, view of the bottom, showing the pipes and cut offs.

A represents the box or frame which supports the operating devices of the engine.

B is the elastic cylinder, made of india-rubber or other elastic substance or material, surrounded and strengthened by a coil of wire placed on the outside, or manufactured in the cylinder.

C is the connecting-rod attached to the outside of cylinder B, and also to the crank-pin D of the flange E. This flange E is a circular plate, and has two or more holes, F, for the purpose of shifting the crank-pin D nearer to or farther from the center of the flange E, so as to lengthen or shorten the stroke of the cylinder B, according to the pressure and supply of water and power required.

G G represent elastic pipes underneath, which act as feed and discharge pipes, so that as the flow of water is let into either pipe G it passes through that pipe up into the cylinder B, and is again discharged from the cylinder through the other corresponding pipe, G, and as the water enters one pipe G it is cut off by the horizontal lever H at the other end of the other pipe G, as lettered G* G*. The levers H being moved to the right or left by the center horizontal slide, J, (which has diagonally-shaped slots K at each end, in which rollers L revolve on pins at the end of each lever H,) operate alternately. The levers working on screws or pivots M at their opposite ends, and as the levers H move to either side, one lever presses against one of the elastic pipes G, at the point G*, closes it, and cuts off the flow of water, while the opposite lever H recedes from the opposite pipe G, at the point G*, and it is opened for the water to continue its flow, thus alternately opening and shutting the pipes G, at the point G*. The center slide, J, moves backward and forward between four side rollers, N, and is operated by the action of the cylinder B by being connected with the cylinder B or shaft D, as I deem most convenient or effective.

P is a fly-wheel attached to the one end of the main driving-shaft R, and the flange E is located on the other end.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The elastic cylinder B and its outside connection, in combination with the driving-shaft at the flange E by a connecting-rod, C, as described.

2. The flange E, with its apertures F, in combination with the connecting-rod C, and the elastic cylinder B.

3. The construction of the slide J and levers H, when arranged and combined as cut-offs, as herein described.

4. The construction, arrangement, and combination of the elastic cylinder B, with its elastic feed and discharge pipes G and their cut-offs H, when constructed, arranged, and combined as herein described.

THOS. WELHAM.

Witnesses:

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