N. NILSON.

MECHANICAL MOVEMENT.

No. 190,066. Patented April 24, 1877.

Fig. 1.

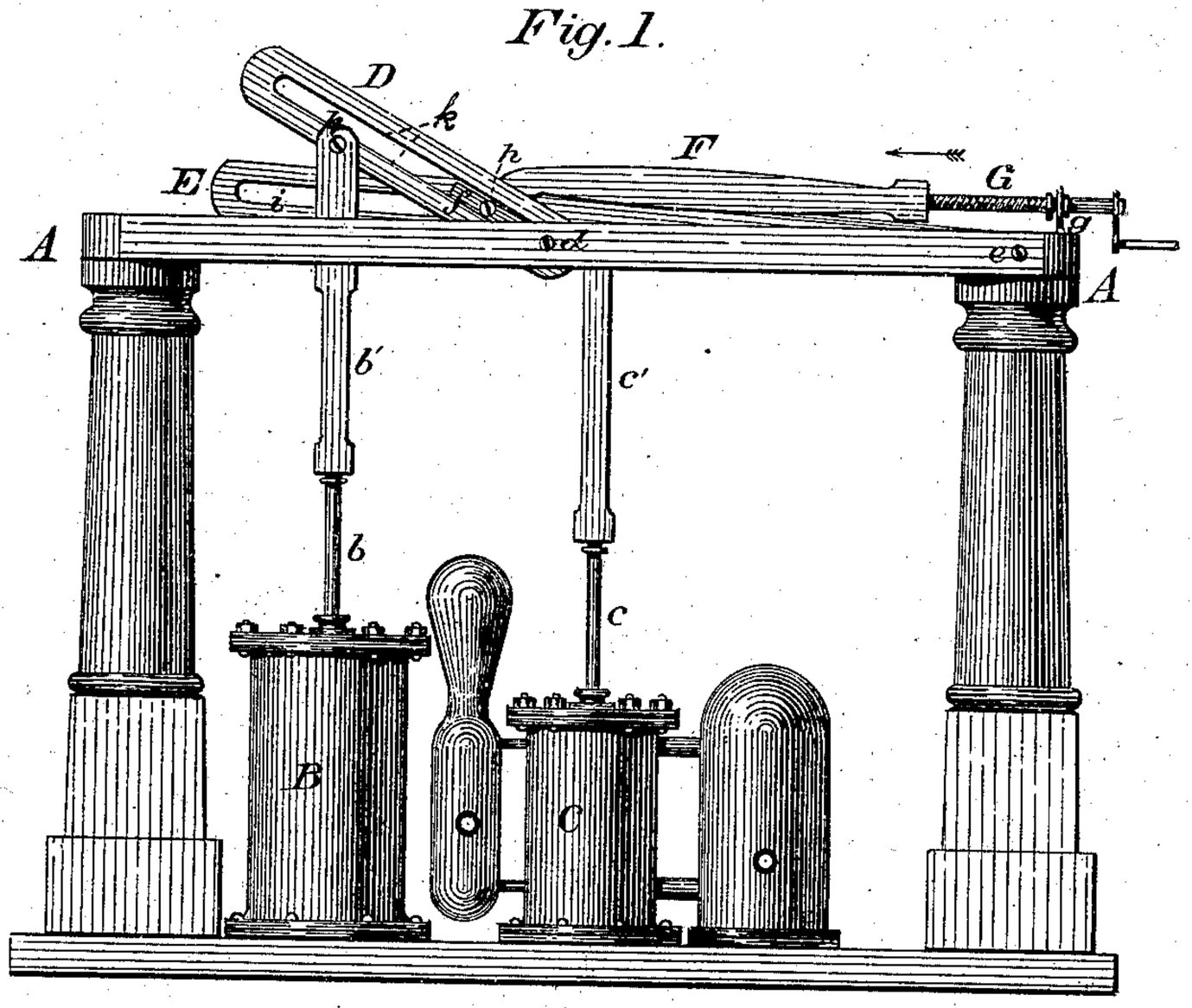
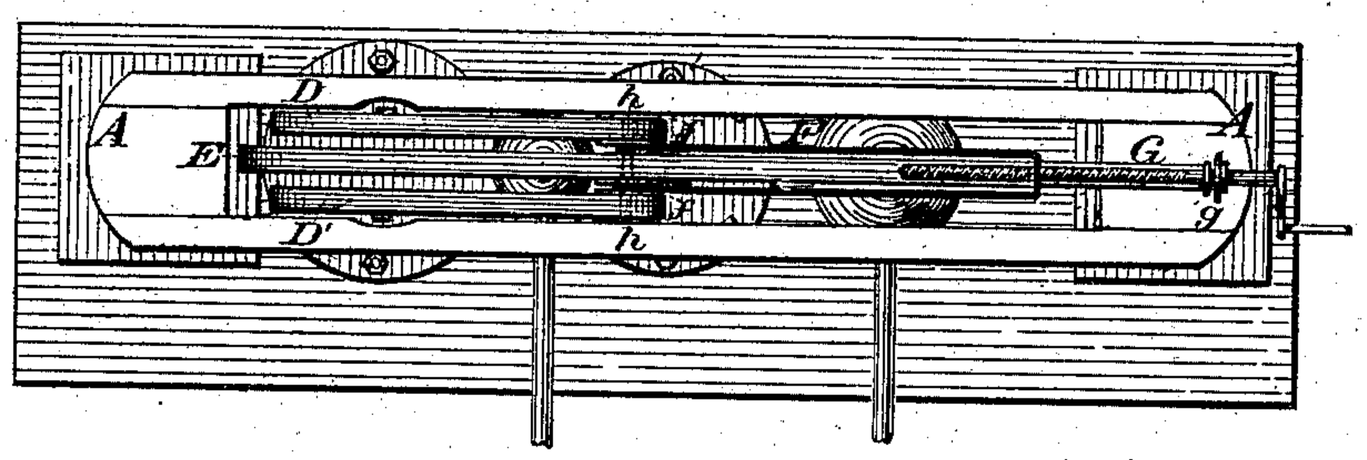


Fig. 2.



Attest:

C. F. Smith

Jno. D. Madigan

Inventor:

Nils Nilson

by Louis Bagger & Co.

Attys.

UNITED STATES PATENT OFFICE.

NILS NILSON, OF MINNEAPOLIS, MINNESOTA.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **190,066**, dated April 24, 1877; application filed June 16, 1876.

To all whom it may concern:

Be it known that I, NILS NILSON, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention consists in the construction and arrangement of parts of a mechanical movement for producing a reciprocating motion and regulating the same, substantially as hereinafter more fully explained and pointed out in the claim.

In the drawings hereto annexed I have represented my invention as applied to a steam-engine, in which—

Figure 1 is a front elevation, and Fig. 2 is a top plan.

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

A is the frame of the engine, having my improvement. B is the steam, water, or air cylinder, having a piston rod, *b;* and C is a force or feed pump, having piston-rod *c*. The piston-rod *b* of cylinder B operates a short lever, D, hinged at *d* in the upper part of frame A by means of the intervening oscillating link *b′*, and the rod *c* of pump C is hinged in a similar manner (by the oscillating link *c′*) upon a long lever, E, hinged at *e* in frame A.

From Fig. 2 it will be seen that lever D consists of two parts, D and D′, between which is arranged the single lever E. Both D and D′ are slotted, so as to form guides *k* for slides *f* that are pivoted upon the end of a bent rod, F. Slides *f* may be placed in any desired position within the slots *k* by operating the screw G, having its bearing *g* upon the end of the long lever E above the pivoting point *e*, and engaging with the bent rod F, as shown in the top plan, Fig. 2, in such a manner that by operating the screw G the bent rod F and the slides *f* may be made to move forward or backward within the slotted lever D D′. The slides *f f* are united by a short rod or cross-piece, *h*, and the long lever E is slotted at *i*, the rod *h* sliding within the slot *i*.

By this arrangement it will be observed that when the slides *f*, operated by the screw G and bent rod F, are moved forward in the direction of the arrow, the short rod *h* will move with them, thereby changing its bearing-point upon the lever E within its slot *i*, and consequently lengthening the stroke of the piston-rod *c*. When the screw G is turned in the opposite direction the slides *f* and rod F are made to recede within the guide-slots *k* within the lever D D′, and with them rod *h* is moved back in its guide-slot in the lever E, thereby decreasing the upward pitch of said lever, and the piston-rod *c* of the pump C being hinged upon this lever its stroke is consequently decreased in the same proportion.

From the foregoing description the operation of my improvement will be readily understood without any further explanation. The construction and arrangement of parts is such that it requires very little power to adjust the stroke of pump C, which may be adjusted to any given position by simply operating the screw G, which may be done while the machine is in motion without it being stopped.

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

A mechanical movement for producing a reciprocating motion and regulating the same, consisting of the slotted levers D D′ E, bent rod F, and adjusting-screw G, all arranged and combined to operate substantially in the manner and for the purpose herein shown and specified.

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

NILS NILSON.

Witnesses:

HARRISON G. O. MORRISON,

NILS OLSON.