

ALFRED GOULDING'S

IMPROVEMENT IN OSCILLATING STEAM ENGINE

No. 121,457.

Patented Dec. 5, 1871.

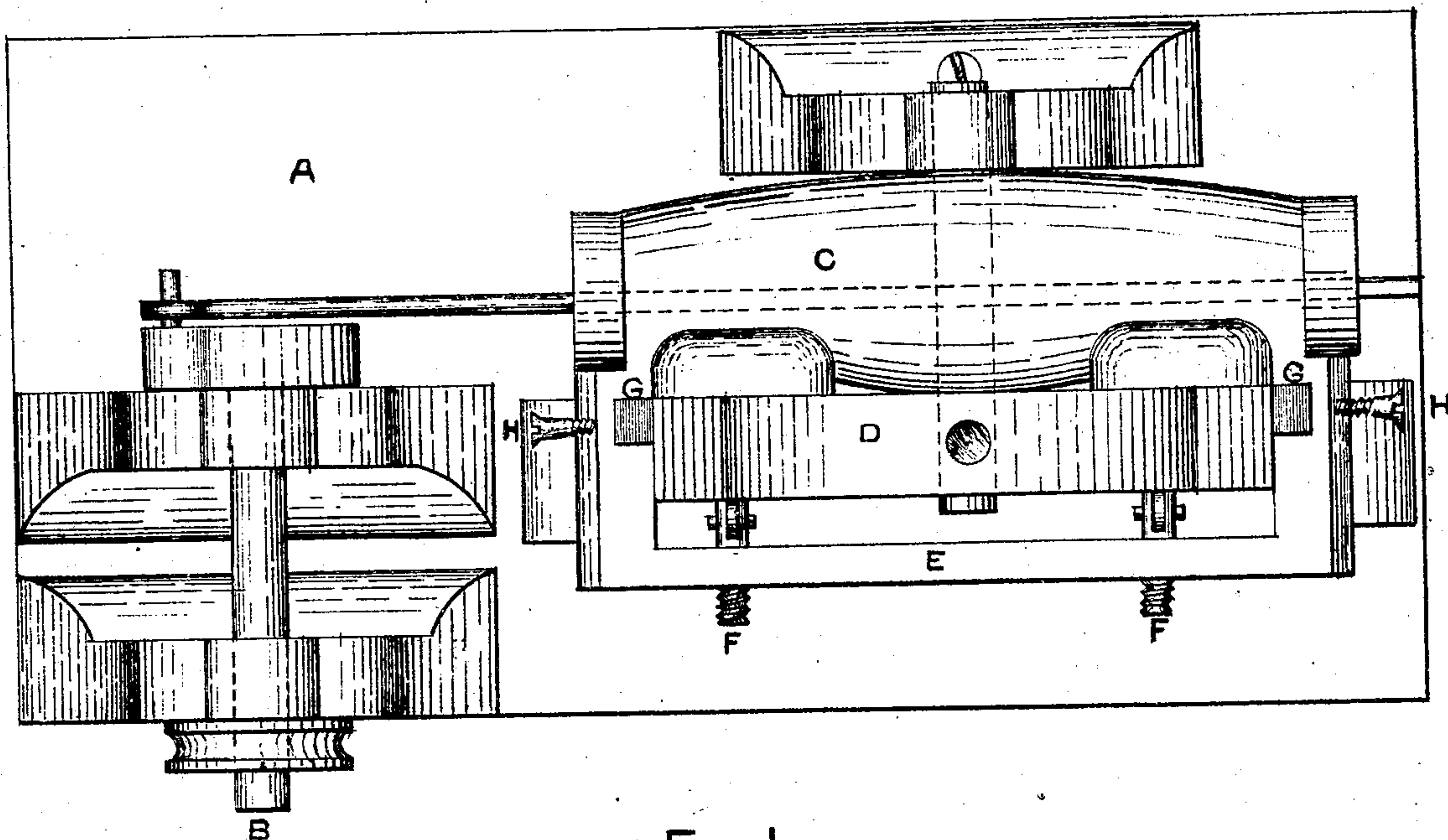


FIG. 1.

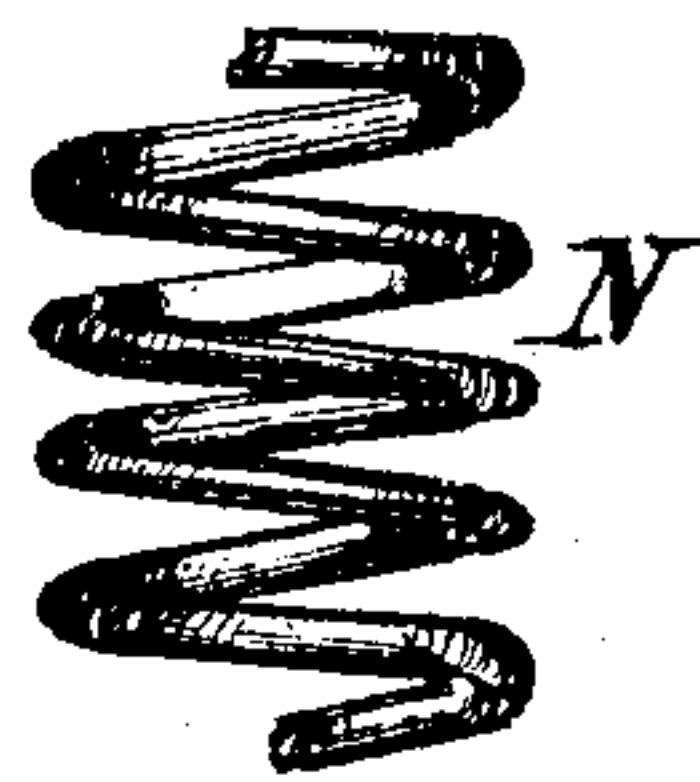
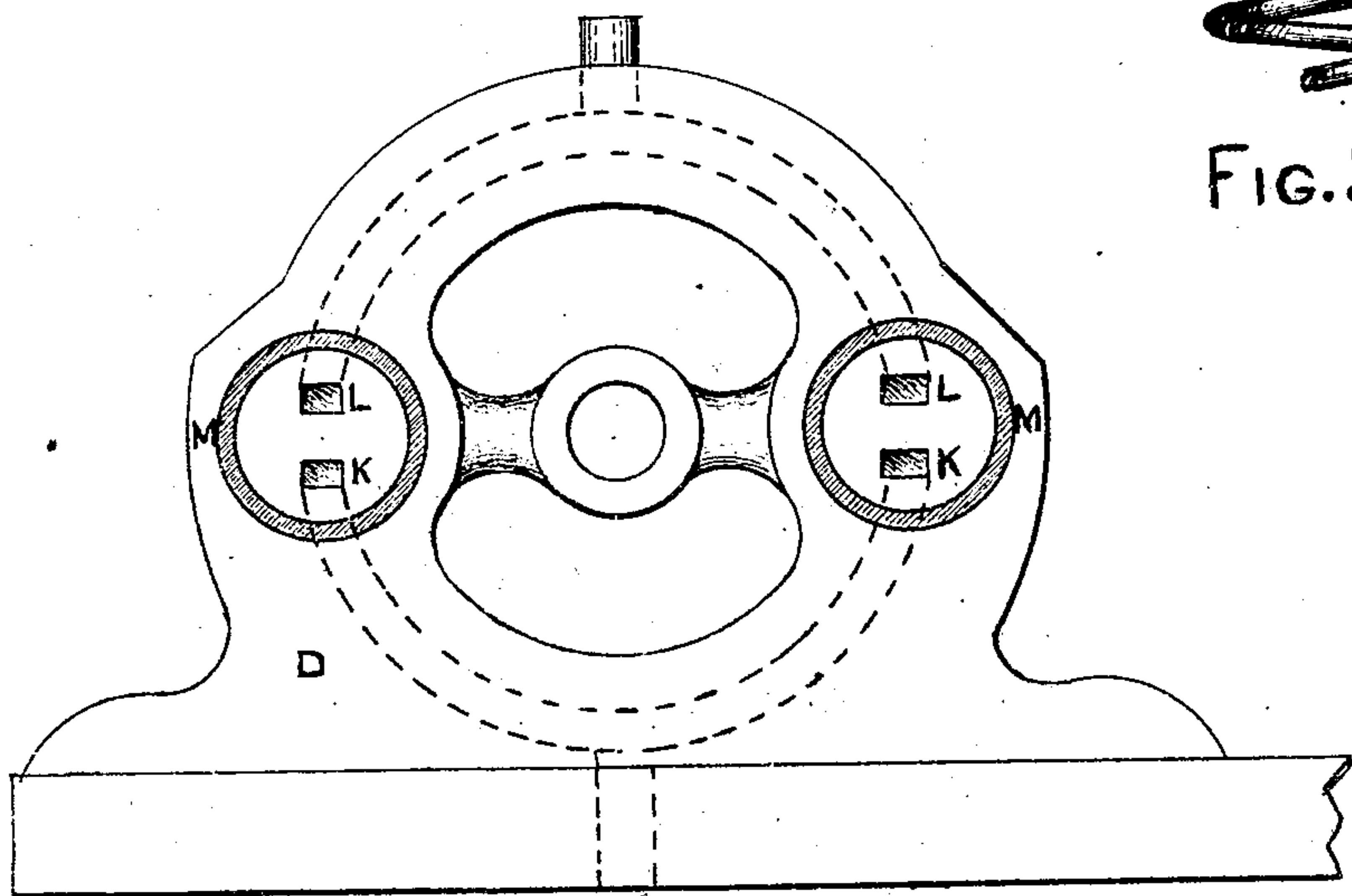


FIG. 3.



WITNESSES

*W. H. M. M. M.*

*C. P. Dietmell*

FIG. 2. INVENTOR *Alfred Goulding*

# UNITED STATES PATENT OFFICE.

ALFRED GOULDING, OF WORCESTER, MASSACHUSETTS.

## IMPROVEMENT IN OSCILLATING ENGINES.

Specification forming part of Letters Patent No. 121,457, dated December 5, 1871.

*To all whom it may concern:*

Be it known that I, ALFRED GOULDING, of Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented certain Improvements in Oscillating Steam-Engines, of which the following is a specification:

The first part of my invention relates to the combination of packing-rings with steam-ports for oscillating engines to make a steam-tight joint. The second part of my invention relates to the combination of end pieces, cross-bar, and rollers with the cylinder to keep it up to the steam-chest.

In the accompanying drawing, Figure 1 is a top view of the engine. Fig. 2 is a side view of the steam-chest, and Fig. 3 represents the spiral spring used under the packing-rings, shown in Fig. 2.

A is the frame of the engine, which frame should be substantially constructed to resist the vibrations of the operating parts. B is the crank-shaft, to which the piston of the engine is attached. C is the cylinder. D is the steam-chest. E is the cross-bar to hold the cylinder up to the steam-chest D, and the rollers F F serve to hold each end of the cylinder up to steam-chest and

relieves the friction of the same. G G is packing on the ends of the cylinder to make them steam-tight. H H are the screws to set up the packing G G. M M are packing-rings around both the ingress and egress ports L L and K K so that the ports in the steam-cylinder are at all times inclosed in the ring and prevent the escape of steam. The spiral spring represented in Fig. 3 I place under the rings M M to keep them snug to the cylinder C. The ports are represented at L L for the ingress of steam, and at K K for the egress of steam.

I claim as my invention—

1. The arrangement of the cylinder C, the cross-bar E, the end pieces G G, rollers F F, rings M M, and springs N, all constructed and operating as shown, and for the purpose set forth.

2. In combination with the cylinder C, the cross-bar E, the end pieces G G, and rollers F F, substantially as and for the purposes hereinbefore set forth.

ALFRED GOULDING.

Witnesses:

W. I. WOODWORTH,  
E. P. BICKNELL.

(150)