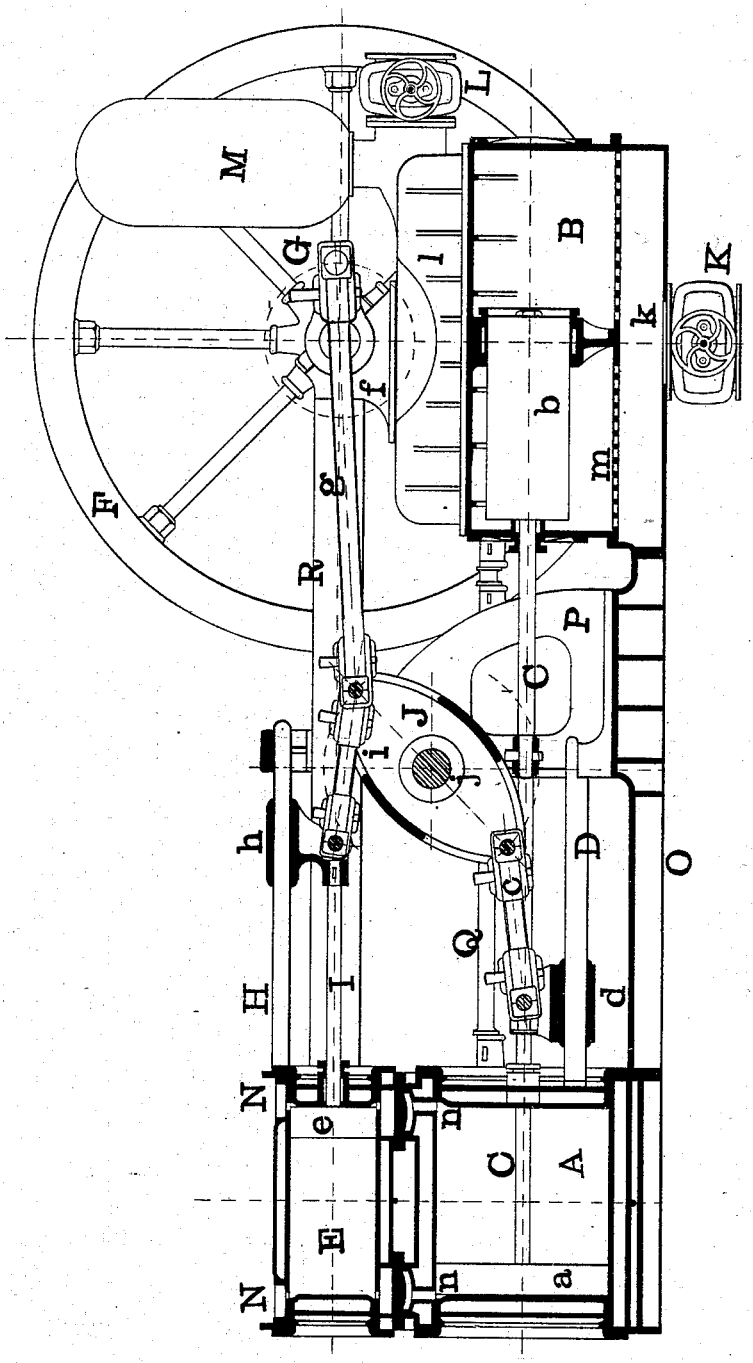
(No Model.)

H. F. GASKILL.

PUMPING ENGINE.

No. 263,694. Patented Sept. 5, 1882.



ATTEST

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UNITED STATES PATENT OFFICE.

HARVEY F. GASKILL, OF LOCKPORT, NEW YORK.

PUMPING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 263,694, dated September 5, 1882.

Application filed May 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, HARVEY F. GASKILL, of Lockport, in Niagara county, New York, have invented certain new and useful Improvements in Pumping-Engines, of which the following is a specification.

The ordinary direct-acting steam-pumps are of a low efficiency as compared with crank and fly-wheel engines, while the latter are expensive to build as compared with the former.

It is the object of my invention to secure the advantages of both these constructions. This I do by certain novel combinations of parts, which I shall particularly point out in the claims at the end hereof.

In the drawing I have shown a longitudinal section of an engine containing my improvements. It represents a horizontal pumping-engine of the compound or "Woolf" type. Briefly described this engine consists of a direct-acting steam-pump, a crank and fly-wheel engine mounted on the direct-acting pump as a foundation, and a beam connecting the two together.

A is one of the steam-cylinders; *a*, its piston; B, the pump in line with cylinder A; *b*, the pump-plunger; C, the pump and piston-rod; K *k*, the suction-pipe and box, and L *l* the discharge of the pump. M is an air-chamber on the discharge. D is a guide-bar, and *d* a cross-head on the rod C. E is another steam-cylinder mounted on cylinder A as a bed. The two cylinders E and A are arranged to operate as high and low pressure, respectively, the cylinder E exhausting into cylinder A. *e* is the piston of cylinder E; I, its piston-rod; *h*, a cross-head moving on a guide-bar, H. J is a beam oscillating on a center at *j*, and connected at one end with rod I by link *i* and at the other end with rod C by link *c*. As pistons *a* and *e* are connected to opposite ends of the beam J, they will move in opposite directions, the piston *a* making a backward stroke while *e* makes a forward stroke, and vice versa. By this arrangement I am enabled to conduct the exhaust-steam from cylinder E directly into cylinder A without the loss of pressure that results from long tortuous passages or an intermediate receiver. F is a fly-wheel; G, the crank; *g*, the pitman-connection between the crank and the piston *e*. The box *f* of the crank-shaft is mounted on the pump-box *l* as a foundation.

The air-pumps may be driven from the beam-shaft *j*. I have not thought it necessary to show them or the valves, as any suitable valves may be used, and their presence in the drawing would simply complicate it.

I prefer ordinarily to arrange two of these machines side by side with a single crank-shaft, the cranks being at right angles, thus forming a duplex engine.

What I claim is—

1. The combination of the two steam-cylinders mounted one upon the other, the pump in line with one of said cylinders, the crank and fly-wheel mounted on the pump, and the beam connecting the whole into one machine, substantially as described.

2. The combination of the two steam-cylinders mounted one upon the other, the beam-connection between the two, the pump in line with one of said cylinders, and the crank and fly-wheel mounted on the pump, said two cylinders bearing the relation of high and low pressure to each other as in a compound or Woolf engine, substantially as described.

3. The combination of the low-pressure cylinder, the high-pressure cylinder mounted thereon, the pump in line with the low-pressure cylinder, the crank and fly-wheel mounted on the pump, and the beam, substantially as described.

HARVEY F. GASKILL.

Witnesses:
D. A. DECROW,
F. W. HOLLY.