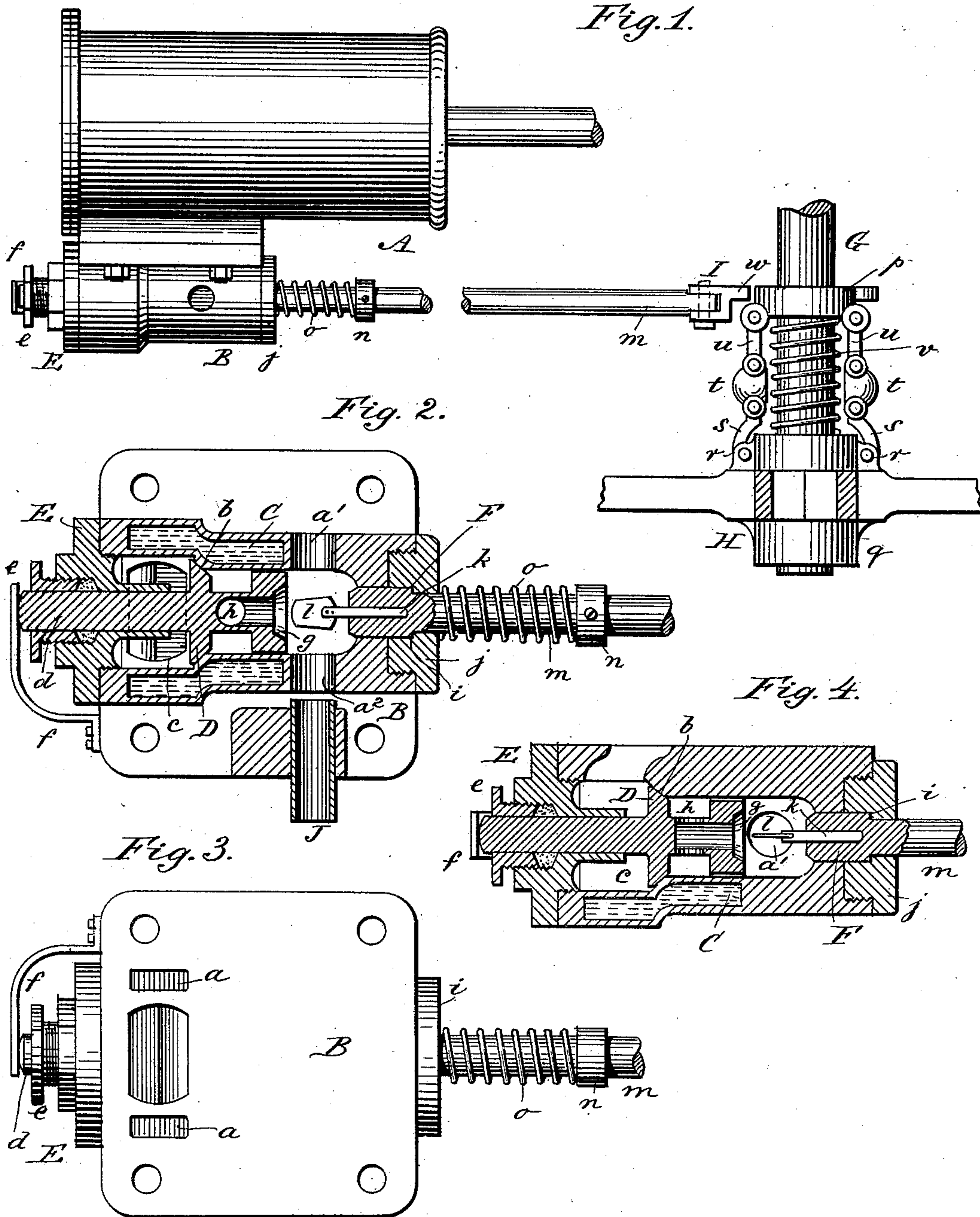


(No Model.)

J. J. PEARSON & J. KUNZE.
IGNITOR FOR GAS ENGINES.

No. 428,858.

Patented May 27, 1890.



WITNESSES:

D. C. Reusch.
C. Sedgwick

INVENTOR:

J. J. Pearson
J. Kunze
BY Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN J. PEARSON, OF NEW YORK, AND JULIUS KUNZE, OF YONKERS, NEW YORK.

IGNITOR FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 428,858, dated May 27, 1890.

Application filed August 19, 1889. Serial No. 321,248. (No model.)

To all whom it may concern:

Be it known that we, JOHN J. PEARSON, of New York city, in the county and State of New York, and JULIUS KUNZE, of Yonkers, in the county of Westchester and State of New York, have invented a new and Improved Ignitor for Gas-Engines, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in
10 which—

Figure 1 is a plan view of the power-cylinder with the igniting-plate attached. Fig. 2 is a vertical longitudinal section of the igniting-valve. Fig. 3 is an inverted rear view of the same; and Fig. 4 is a longitudinal horizontal section.

Similar letters of reference indicate corresponding parts in all the views.

Our invention relates to ignitors for gas-engines; and it consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

To the power-cylinder A is attached a valve-chamber B, which is provided with a water-jacket C, communicating with the water-jacket of the power-cylinder through apertures *a a*. The interior of the valve-chamber is provided with a valve-seat *b*, to which is fitted a valve D, which opens into a cavity *c*, the said cavity being in communication with the interior of the power-cylinder A. The end of the valve-chamber B is closed by a head E, which forms a guide for the stem *d* of the valve D, and in the said head E is arranged a stuffing-box *e*, which forms a tight joint between the valve-stem and the head. The valve D is pressed to its seat by a spring *f*, attached to the rear end of the valve-chamber. The valve-stem *d* is prolonged beyond
40 the valve and at its extremity it is enlarged and provided with a valve-seat *g*. The prolongation of the stem is also bored longitudinally and provided with transverse holes *h*.

In the forward end of the valve-chamber B is placed a valve F, provided with a shoulder *i*, which rests against a corresponding shoulder in the cap *j*, screwed into the end of the chamber. The valve F is fitted to the seat *g* in the end of the prolongation of the valve-stem *d*, and the said valve F is bored axially

to receive a rod *k*, which projects beyond the end of the valve and carries an igniting-plate *l*, the said igniting-plate being made of platinum or other metal, which when hot will ignite gas. The said igniting-plate is capable
55 of entering into the longitudinal bore of the valve-stem *d* when the valve F is seated. The stem *m* of the valve F projects beyond the cap *j* and is furnished with a collar *n*, between which and the said cap is placed a spiral
60 spring *o*, which tends to keep the valve F against the shoulder in the cap *j*.

Upon the crank-shaft G is loosely mounted a cam *p*, which is capable of sliding in the direction of the length of the said shaft G. The
65 hub *q* of the fly-wheel H, mounted on the shaft G, is provided with ears *r*, to which are pivoted links *s*, which in turn are pivotally connected with the governor-balls *t*, and in a similar way the cam *p* is connected with the
70 governor-balls by the links *u*. Between the cam *p* and the hub *q* of the fly-wheel H is placed a spiral spring *v*, which presses the cam *p* away from the hub *q*.

To the side of the engine-frame is pivoted
75 a lever I, which is pivoted to the valve-stem *m* and is provided with a lug *w*, which extends into the path of the cam *p* when the said cam is not drawn back by the governor, in the manner presently to be described.
80

The walls of the chamber B are provided with apertures *a' a'* at diametrically-opposite sides in a vertical direction, so that a gas-flame passing through the apertures will strike the igniting-plate *l* and keep it at a suffi-
85 ciently high temperature to ignite the gas when brought into contact therewith. Underneath the chamber B is supported a Bunsen burner J, the flame of which passes up through the apertures *a' a'*.
90

The operation of our improved ignitor is as follows: The plate *l* being maintained at a high temperature in the manner described, when the gas in the power-cylinder is compressed ready for ignition, the cam *p* engages
95 the lever I, pushing forward the rod *m*, bringing the valve F to its seat *g* and introducing the heated plate *l* into the bore of the stem *d*. By the continued motion of the valve F the valve D is pushed from its seat, when the gas
100

from the power-cylinder is permitted to pass into the space in front of the said valve D, when it will enter the apertures *h* and come into contact with the hot plate *l*, which will
5 ignite it and cause an explosion, which will be communicated to the mixture contained within the power-cylinder. When the lever I is released by the cam *p*, the valves D F will be returned to their seats by the springs *f* *o*
10 and the plate *l* will again be subjected to heating by the Bunsen burner J. This operation is repeated whenever an ignition is required. When the governor-balls *t* fly out by centrifugal action, the cam *p* is drawn toward the fly-
15 wheel H, against the pressure of the spring *v*, when the said cam misses the lever I and an explosion is skipped.

Having thus described our invention, we claim as new and desire to secure by Letters
20 Patent—

1. The combination, with the power-cylinder A, of the water-jacket valve-chamber B, the spring-pressed valve D, seated in the said chamber and provided with an apertured stem *d* and valve-seat *g*, as described, the valve F, 25 fitted to the valve-seat *g*, the plate *l*, carried by the valve F, the burner J, adapted to heat the plate *l*, and the movable cam *p*, arranged to push forward the valves F D, substantially as specified. 30

2. The combination, with the valve F and the plate *l*, carried thereby, of the valve-operating lever I, the cam *p*, the governor-balls *t*, the links *u* *s*, and the spring *v*, substantially as specified.

JOHN J. PEARSON.
JULIUS KUNZE.

Witnesses:

IGNAZ KUNZE,
M. JAEGER.