

No. 790,925.

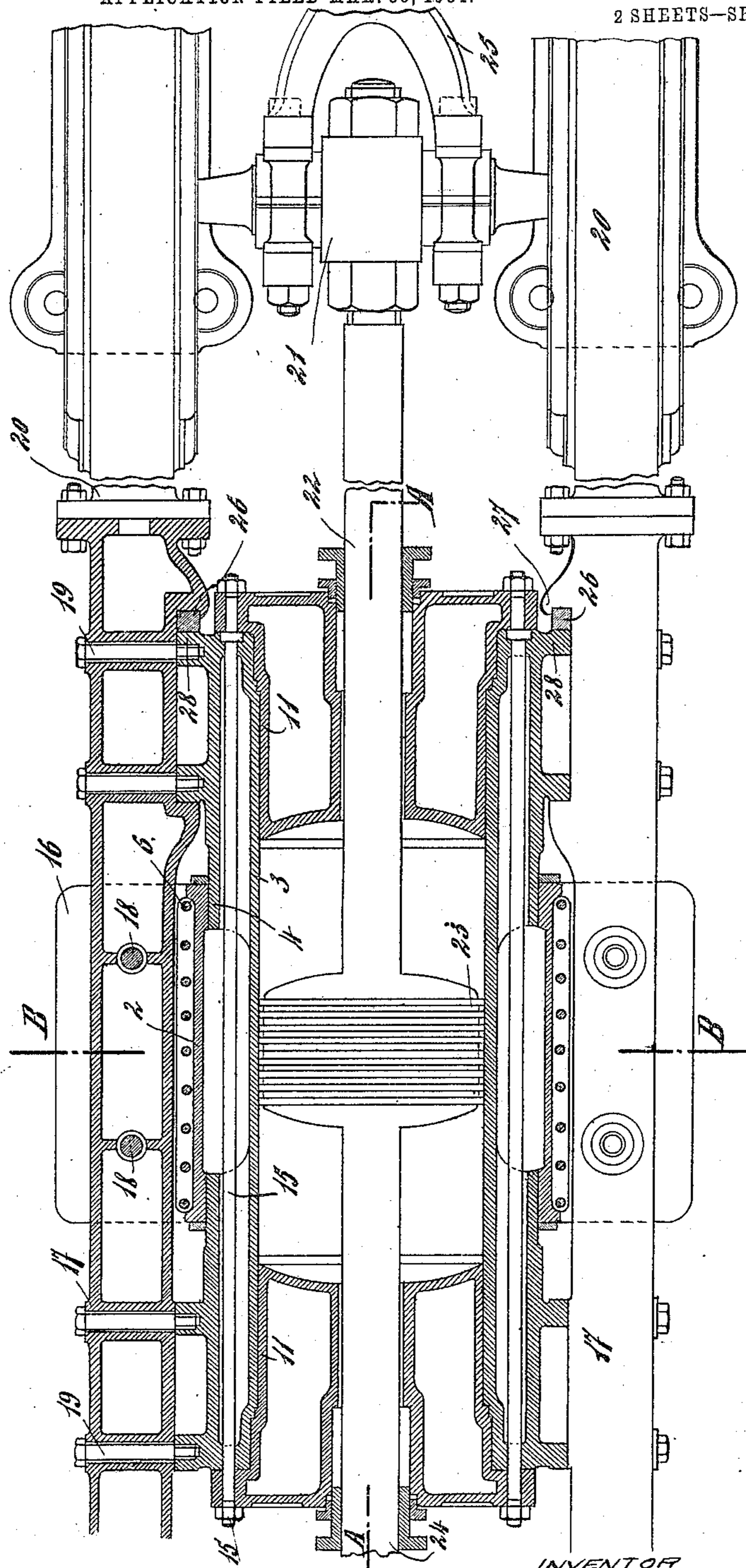
PATENTED MAY 30, 1905.

F. K. DE LA SAULX.
CONSTRUCTION OF CYLINDERS FOR GAS ENGINES.

APPLICATION FILED MAR. 30, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

H. M. Reiche
Wm M. Golden Jr.

INVENTOR

Frederic Kraft de la Saulx

BY *Richardson*
ATTORNEYS

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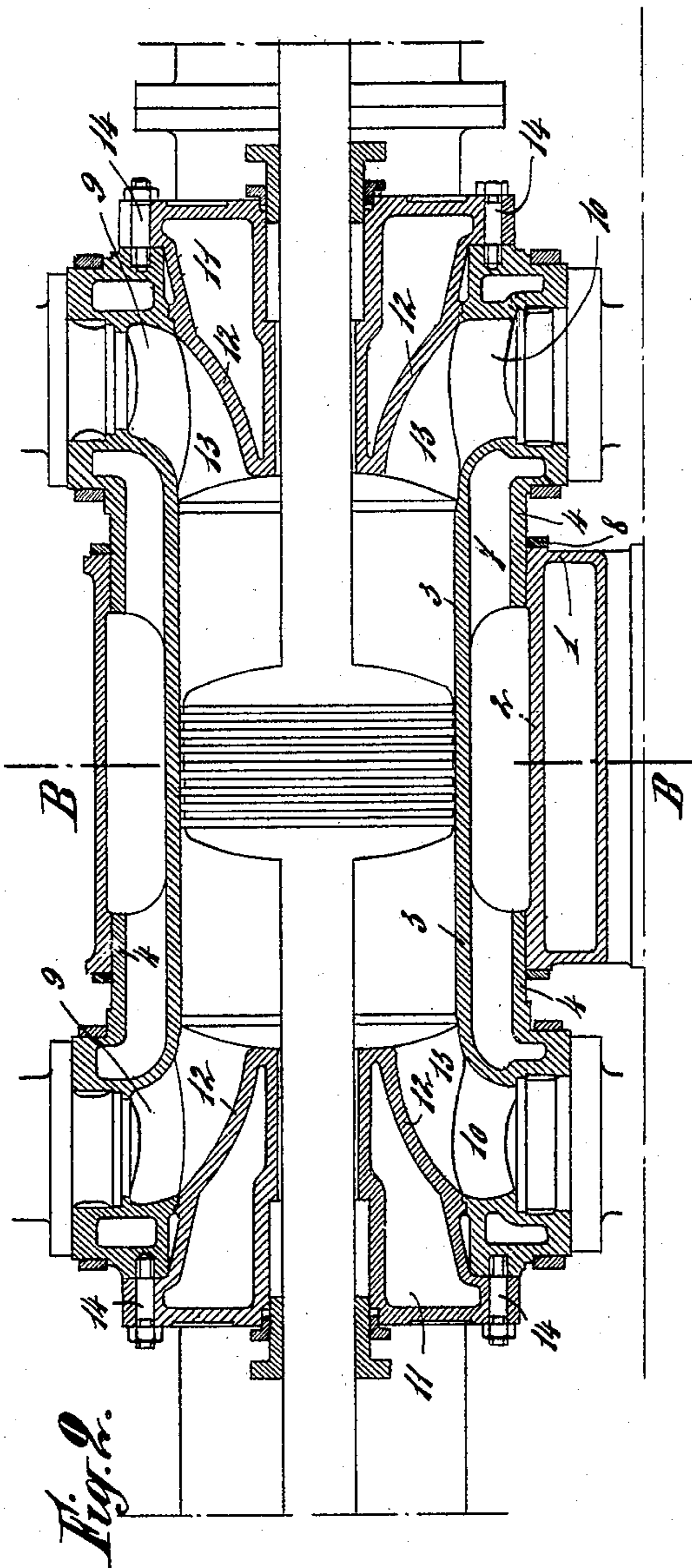


Fig. 2.

WITNESSES

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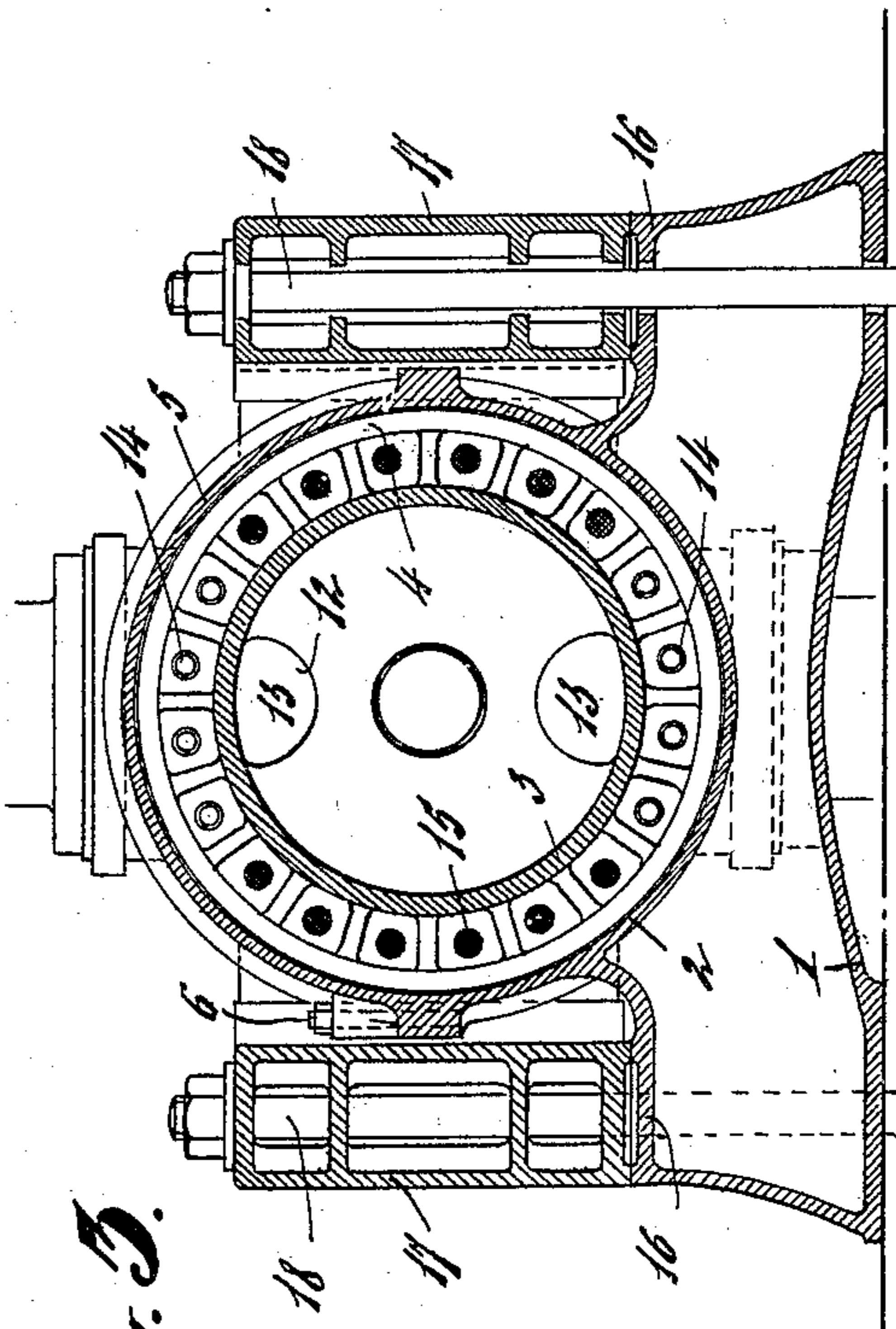


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERIC KRAFT DE LA SAULX, OF SERAING, BELGIUM.

CONSTRUCTION OF CYLINDERS FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 790,925, dated May 30, 1905.

Application filed March 30, 1904. Serial No. 200,852.

To all whom it may concern:

Be it known that I, FREDERIC KRAFT DE LA SAULX, engineer, a subject of the King of Belgium, residing at Seraing, in the Kingdom of Belgium, have invented certain new and useful Improvements in the Construction of Cylinders for Gas-Engines, of which the following is a specification.

This invention relates to the construction of cylinders for gas-engines, and has for its purpose to provide a new and improved construction for double-acting gas-engines especially adapted for tandem-working engines.

Another object of the invention is to provide for a construction allowing of opening easily a double-acting cylinder, being of absolutely symmetrical structure and avoiding internal tensions resulting from unequal repartition of the cast-iron masses; and a further object of the invention is to provide means for avoiding the traction stresses on the body of the cylinder resulting from the pressure of the explosion on the cylinder-heads.

With these objects in view my invention essentially consists in certain novel features of construction and combinations of parts, as will be explained in the following description, and pointed out in the appended claims.

Referring to the annexed drawings, Figure 1 is a sectional plan of the cylinder of a gas-engine constructed according to the invention, showing only the essential parts of the cylinder to which the invention relates. Fig. 2 is a vertical section through the axis of the cylinder, said section being taken on line A A, Fig. 1. Fig. 3 is a transverse section taken on line B B, Figs. 1, 2.

1 is a frame mounted on the foundation of the engine and forming a semicircular trough 2, in which is placed the cylindrical body 3 of the cylinder, provided with an outer jacket 4, resting in the trough 2. The trough 2 is closed at its upper part by a semicircular cover 5, fixed to the trough by aid of bolts 6. The space 7 between the cylindrical body 3 and the outer jacket 4 is filled with water and used as water-jacket. One or more rings 8 of suitable material—for example, india-rubber—are used to secure a water-tight joint between the outer jacket 4 and the trough 2.

The cylindrical body 3 is provided at each end and in the upper part with a port 9, adapted to receive the seat of an admission-valve (not shown on the drawings) of any suitable construction. Two ports 10 are similarly disposed at the ends in the lower part of the cylinder and adapted to receive the seats for the outlet-valves. These ports 9 and 10 are absolutely identical in position and dimension in such a manner that the structure of the cylinder is a quite symmetrical one with regard to the axes of the cylinder.

The cylinder is provided at each end with a head or cover 11, suitably shaped or cut at 12, so as to form a passage 13 corresponding to the ports 9 and 10. The said heads may be fitted with any auxiliary devices, such as an igniting device and valves, (not shown,) as ordinarily used for starting with compressed air.

The heads 11 are bolted to the cylinder-body 3 by pins 14 at the upper and lower parts of the cylinder where the passages 13 are formed. On the sides they are connected to each other by bolts 15 passing from one side of the cylinder to the other. The section of said bolts is sufficiently strong to resist the total pressure on the heads resulting from the explosion in such a manner that the cylinder is released from any longitudinal stress or pulling action.

The frame 1 forms two lateral extensions 16, on which are mounted side frames 17 by means of bolts 18. The said side frames are connected by pins or bolts 19 with the outer jacket 4 and are jointed to the lateral guides 20 for the cross-head 21, to which is connected the rod 22 of the piston 23, sliding to and fro in the cylinder 3 and provided with a connecting-rod 24, passing through the head 11 at the rear of the cylinder. The said rod 24 may serve only as guide-rod for the piston or be connected to the piston of a second similar cylinder in case of a tandem gas-engine. To the cross-head 21 is connected the connecting-rod 25, acting, as usually, on the crank (not shown) of the motor-shaft.

The cylinder 3 is held further in position by means of suitable keys 26, placed between projections 27 of the side frames 17 and cor-

responding projections 28 of the outer jacket of the cylinder.

Having thus described my invention, what I claim is—

5 1. The above-described construction of gas-engine cylinder comprising a cylinder of symmetric structure, suitable heads for said cylinder, two side frames and a lower frame forming a trough between the two side frames, said
10 trough being adapted to support the cylinder.

2. In combination a frame, two side frames bolted on said frame, a trough formed between the two side frames, a cylinder, an outer jacket for said cylinder supported by the trough, a
15 cover for the trough, means for holding the cylinder in position within the trough and suitable heads bolted to the cylinder, substantially as described.

3. In combination a frame, two side frames
20 bolted on said frame, a trough formed integrally with the frame between the two side frames, a cylinder, an outer jacket for said cylinder, supported by the trough, a cover for the trough bolted thereto, means for securing
25 a water-tight joint between the outer jacket of the cylinder and the trough, keys holding the cylinder in position within the trough and suitable heads bolted to the cylinder substantially as described.

30 4. In combination a frame, two side frames bolted on said frame, a trough formed between the two side frames, a cylinder, an

outer jacket for said cylinder supported by the trough, a cover for the trough bolted thereto, means for securing a water-tight joint
35 between the outer jacket of the cylinder and the supporting-trough, keys holding the cylinder in position within the trough, a port at each end and at the upper part of the cylinder, a similar port at each end and at the lower
40 part of the cylinder and, heads bolted to the ends of the cylinder, said heads being shaped so as to form passages corresponding to the ports at the ends of the cylinder, substantially
45 as described.

5. In combination a frame, two side frames bolted on said frame, a trough formed between the two side frames, a cylinder, an outer jacket for said cylinder supported by the trough, a
50 cover for the trough bolted thereto, means for securing a water-tight joint between the outer jacket of the cylinder and the supporting-trough, means for holding the cylinder in position within the trough, suitable heads
55 bolted to the cylinder ends and bolts connecting the heads to each other substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FREDERIC KRAFT DE LA SAULX.

Witnesses:

H. SAVAGE,
V. GUÉRIN.