

(No Model.)

2 Sheets—Sheet 1.

T. JELLINGHAUS.
PISTON.

No. 502,462.

Patented Aug. 1, 1893.

Fig. 1.

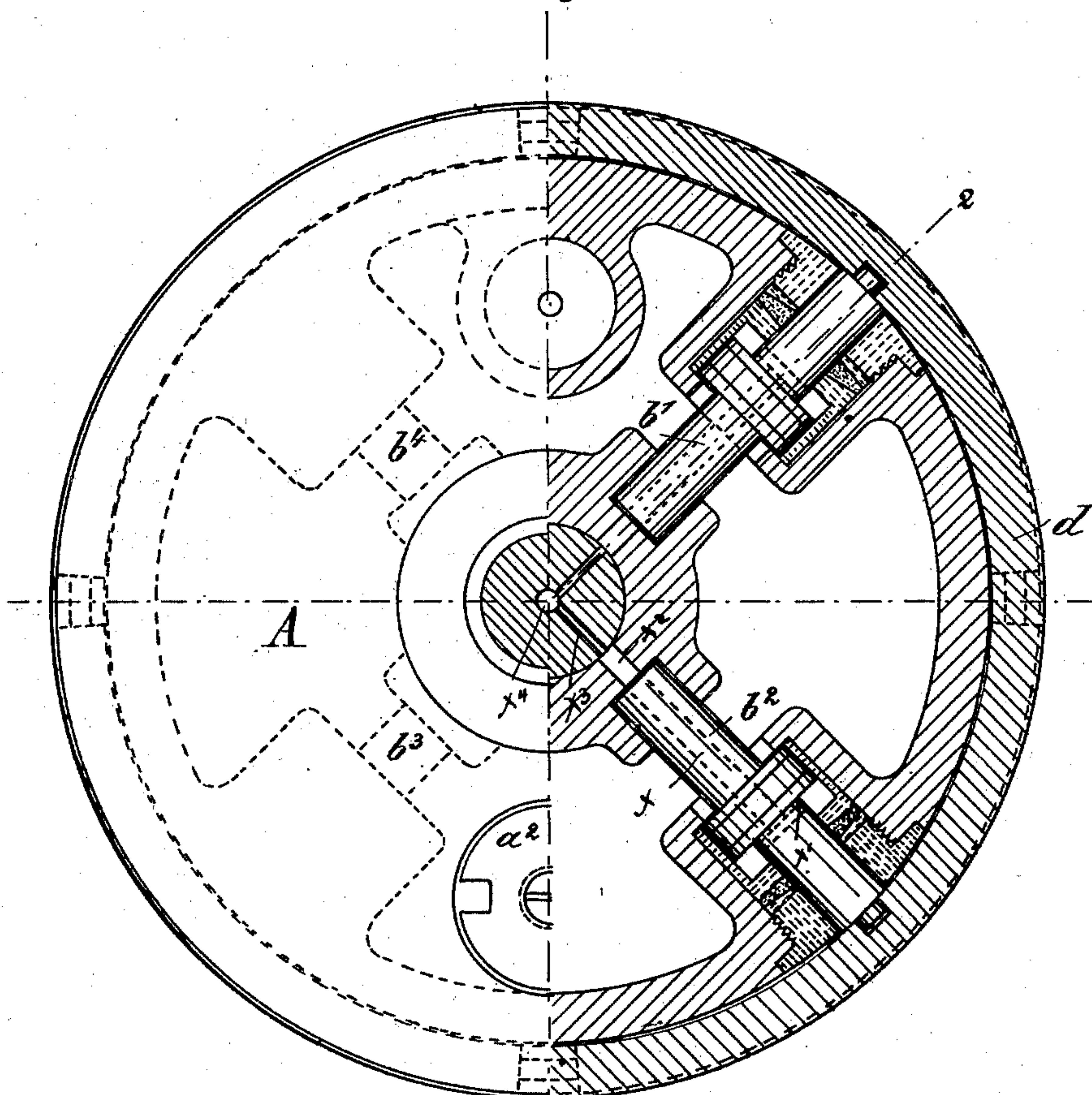
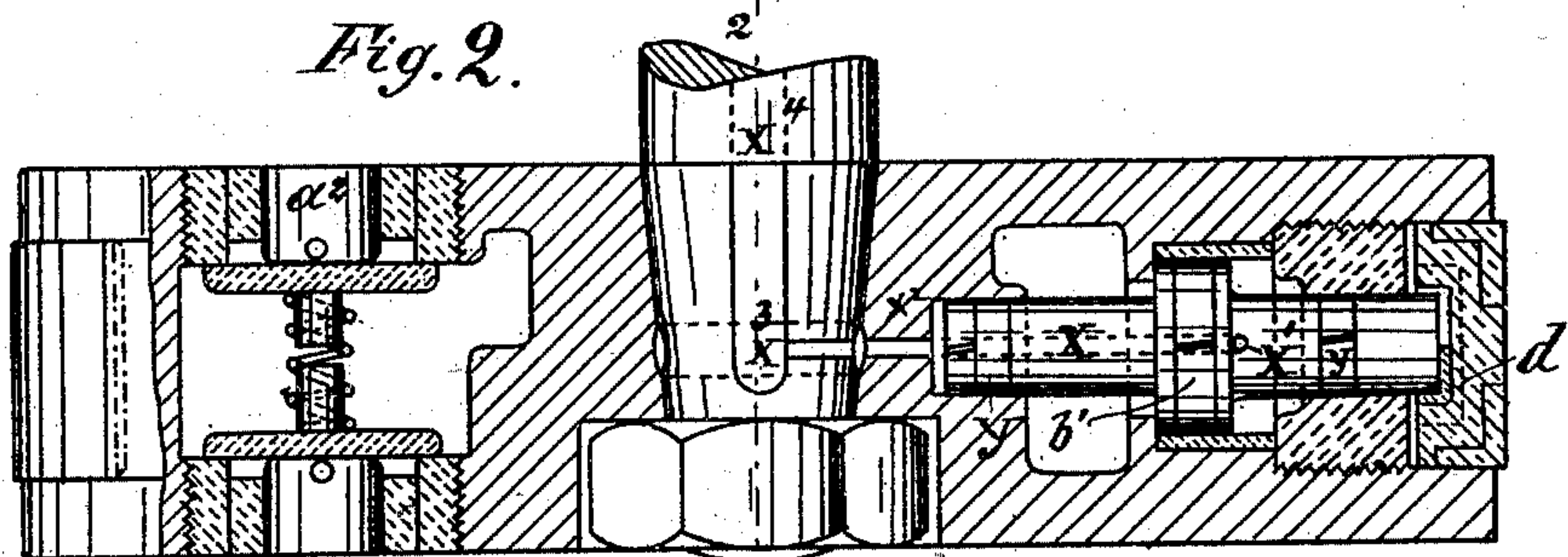


Fig. 2.



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Fig. 3.

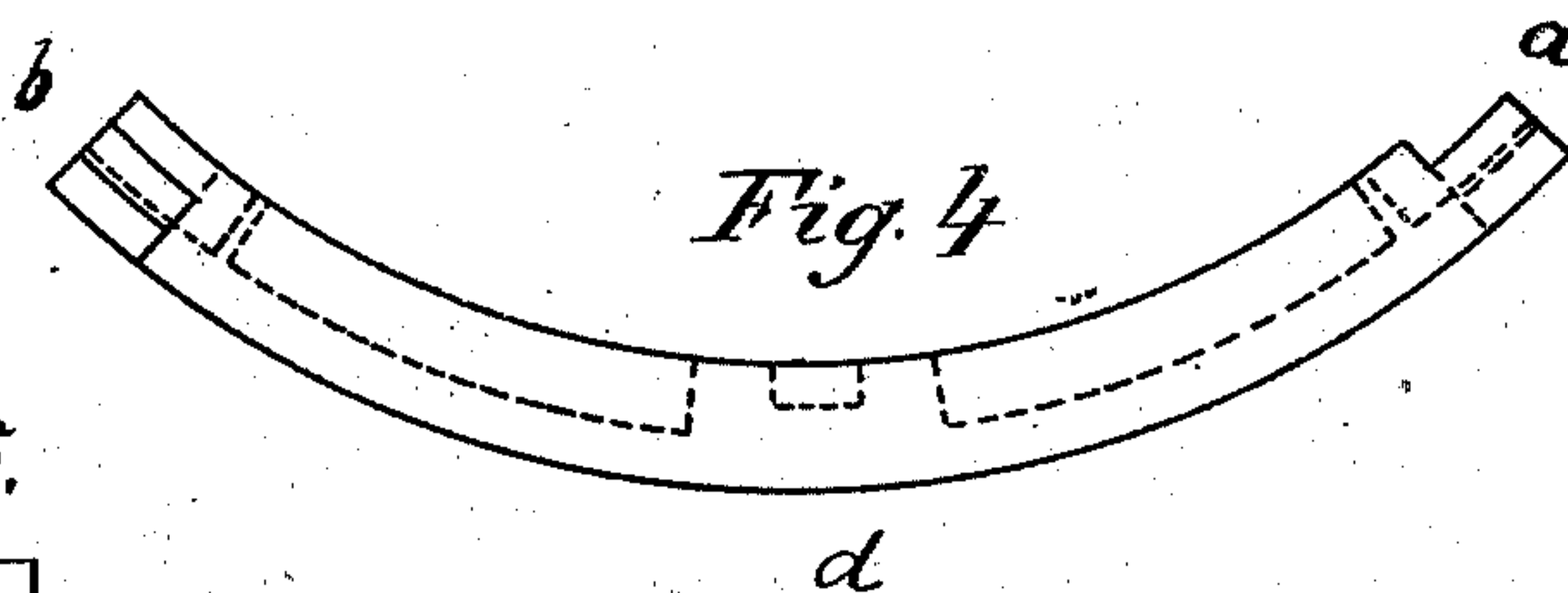
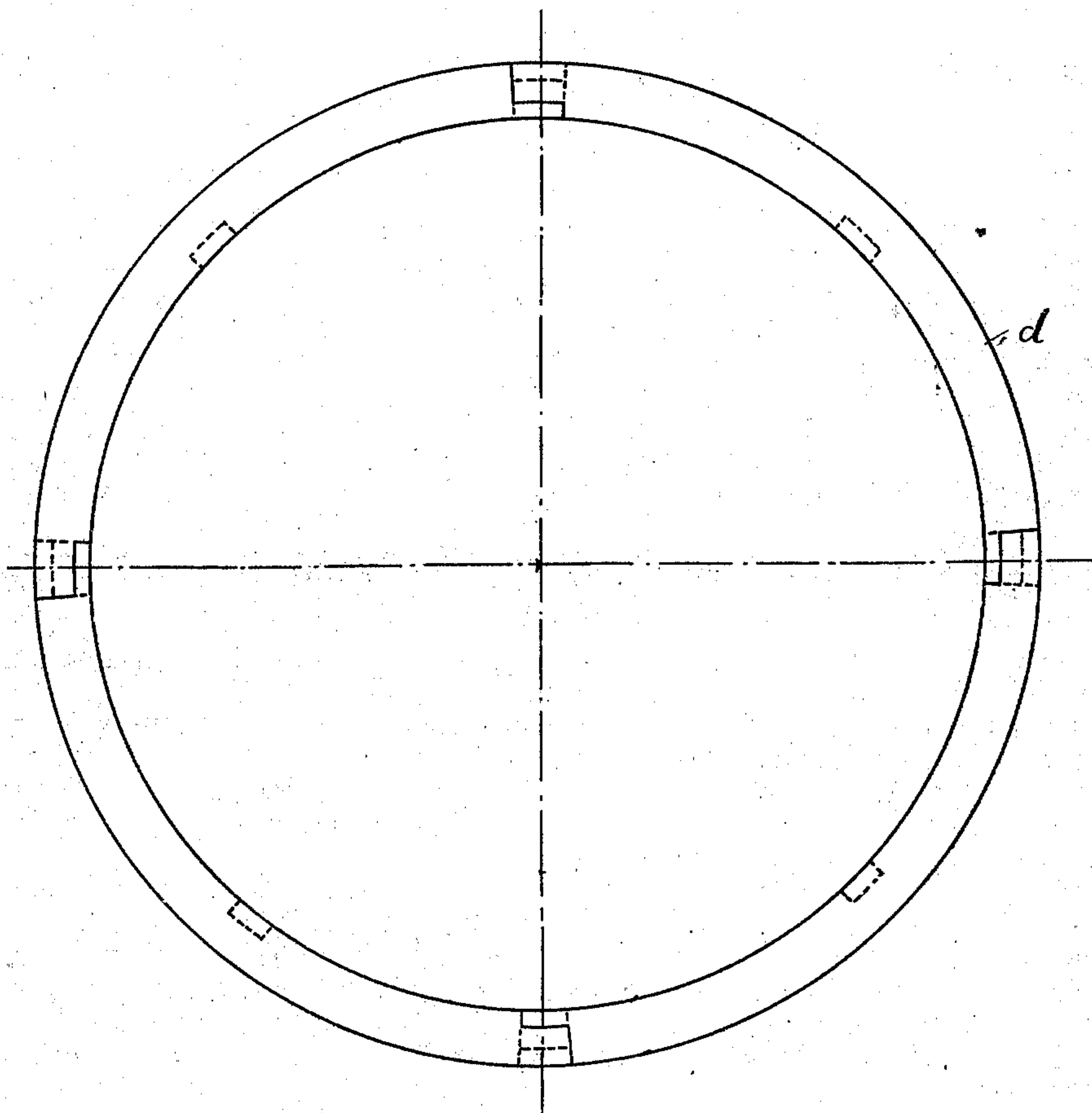


Fig. 5.

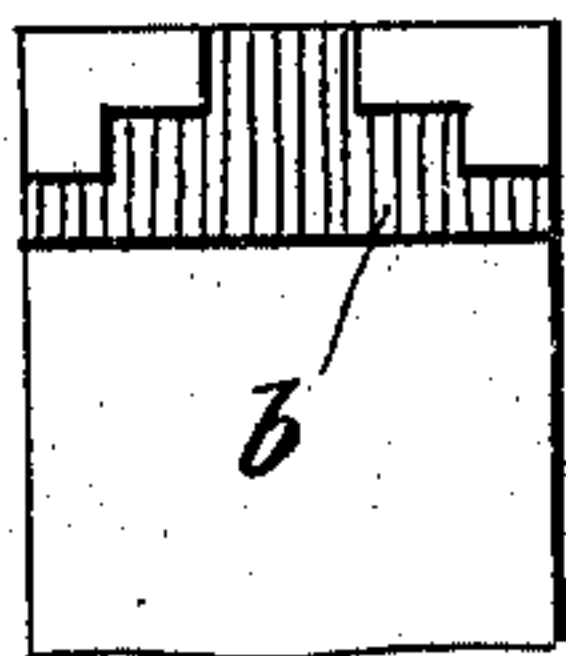
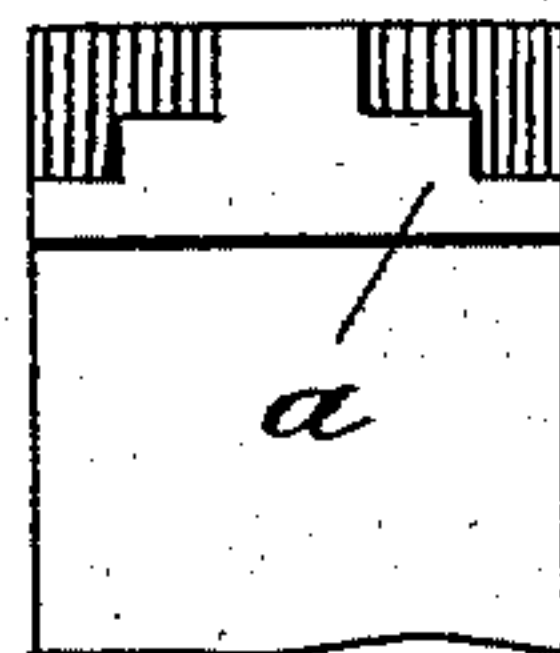


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODOR JELLINGHAUS, OF CAMEN, GERMANY.

PISTON.

SPECIFICATION forming part of Letters Patent No. 502,462, dated August 1, 1893.

Application filed October 22, 1892. Serial No. 449,590. (No model.) Patented in Germany September 28, 1890, No. 57,529, and June 28, 1892, No. 67,376.

To all whom it may concern:

Be it known that I, THEODOR JELLINGHAUS, a subject of the King of Prussia, residing at Camen, in the Kingdom of Prussia, Germany, have invented new and useful Improvements in Pistons, (for which I have received Letters Patent in Germany, No. 57,529, dated September 28, 1890, and No. 67,376, dated June 28, 1892,) of which the following is a specification.

The object of this invention is to construct pistons of motor engines or the like in such a manner that the packing of the same is provided in as thorough a manner as possible, by the water, steam or other medium under pressure, the back-pressure being relieved and excess of friction avoided so that both the packing-ring and the cylinder walls are protected from too rapid wear.

In the accompanying drawings, Figure 1 is a plan-view of my improved piston, half being shown in horizontal section. Fig. 2 is a transverse section of the same, on the line 2 2, Fig. 1. Fig. 3 is a plan-view of the packing-ring. Fig. 4 is a plan-view of one of the sections, and Figs. 5 and 6 are detail views of the ends of the same.

Similar letters of reference indicate corresponding parts.

The piston A is provided in each side with inwardly-opening spring-valves a^2 , which when open permit the same pressure that exists in the cylinder to exist in the interior of the hollow piston and to act on the small pistons b' b^2 b^3 b^4 that are arranged radially in suitable cylinders formed within the main piston A, said small pistons b' b^2 b^3 b^4 having stems, the outer ends of which rest and bear against the inner edges of the packing-ring d , which is made in as many sections as there are auxiliary pistons b' b^2 b^3 b^4 . The back-pressure between the auxiliary pistons and the packing-ring is avoided by providing the stem of each auxiliary piston with a longitudinal bore x and a side aperture x' in front of the auxiliary piston and providing the main piston with bores x^2 and the piston-rod with radial bores x^3 communicating with the longitudinal bore x^4 of the main piston-rod, so as to permit the back-pressure, either by water, steam, air or any other medium, to escape. The rods of the auxiliary pistons and

also these pistons themselves may be guided and packed by means of spring or spring-controlled packing-rings y , Fig. 2.

If the main piston is of small size, a spiral spring may be substituted for the auxiliary pistons, providing it be so arranged as to act radially on the packing-ring. The packing-ring d consists of several sections, which surround the piston in such a manner that each part may be pressed against the inner surface of the cylinder wall. The joints between the central sections of the packing-ring d are so constructed that one end has a series of stepped projections a fitting into a series of stepped recesses b in the adjacent one of the other section, so as to produce a tight joint and a better locking.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a hollow piston, of a series of auxiliary pistons in the same, a sectional packing ring on which the auxiliary pistons can act, self-closing valves for admitting the medium under pressure from the hollow piston, the stems of the auxiliary pistons being provided with channels for the back pressure, which channel in the stems of the auxiliary valves communicate with the channels in the hub of the main piston and in the rod of the main piston, substantially as set forth.

2. The combination, with a hollow piston provided with a series of cylinders in its interior, of auxiliary pistons in said cylinders in the main piston, stems on said auxiliary pistons, which stems have longitudinal bores and side apertures in front of the auxiliary pistons, the hub of the main piston and the rod of the main piston being provided with bores communicating with the stems in the auxiliary pistons and self closing valves for admitting the medium under pressure into the main piston, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEODOR JELLINGHAUS.

Witnesses:

PAUL CARNEY,
A. KLINGHAMMER.