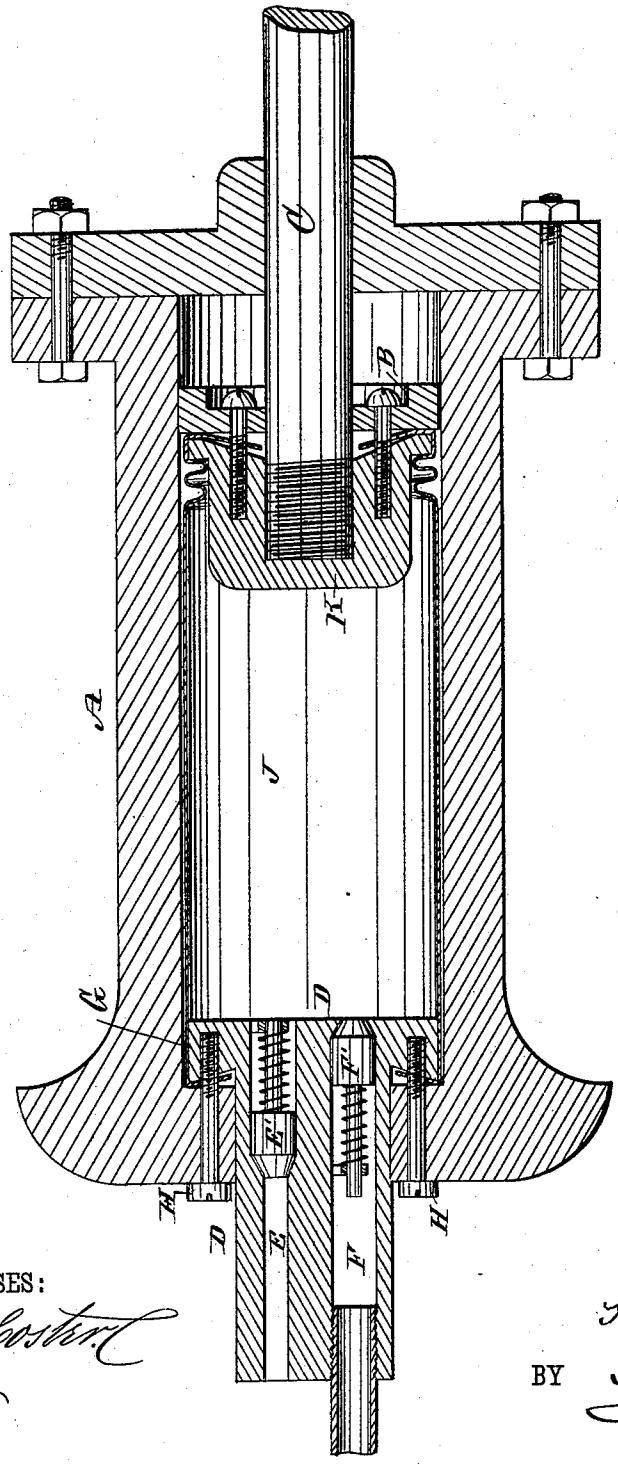
(No Model.)

H. MECKERT.

AIR PUMP.

No. 305,214. Patented Sept. 16, 1884.



WITNESSES:

Theo. G. Hoster.

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UNITED STATES PATENT OFFICE.

HERMANN MECKERT, OF HANNIBAL, MISSOURI, ASSIGNOR OF THREE-FOURTHS TO ALVIN SHEUKER, JOHN LOGAN, JR., AND HARRY LOGAN, ALL OF SAME PLACE.

AIR-PUMP.

SPECIFICATION forming part of Letters Patent No. 305,214, dated September 16, 1884.

Application filed September 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, HERMANN MECKERT, of Hannibal, county of Marion, Missouri, have invented a new and Improved Air-Pump, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved air-pump, which is very simple in construction and effective in use.

The invention consists in an air-pump constructed with an outer rigid metal cylinder and an inner cylinder made of flexible material, impervious to air, and secured air-tight to one end of the outer cylinder, and to a piston working in the said cylinder. When the inner cylinder is being extended, air is drawn into it, and by compressing the said cylinder the air in the same is compressed and expelled, all as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which a longitudinal sectional elevation of my improved air-pump is shown.

A metal cylinder, A, contains a close-fitting piston, B, secured to a piston-rod, C, which works through one head of the cylinder. To the other head of the cylinder a head-block, D, is fastened, which contains an air-inlet channel, E, and an air-outlet channel, F, the said channels containing the spring-valves E′ and F′, respectively.

The head-block B is provided at its inner end with an annular flange, G, which is slightly undercut, the outer edge of the said flange fitting quite closely against the inner surface of the cylinder. The head-block is held in place by screws H, pressed through the bottom of the cylinder and into the flange G. A cylinder, J, made of flexible material impervious to air—for instance, rubber, leather, &c.—has one end held to the bottom of the cylinder A by the flange G of the head-block, and the other end of the said cylinder is held by a nut, K, to the under side of the piston, the nut being secured on the end of the piston-rod, and the said nut having a smaller diameter than the piston, so that an annular space will be formed between the nut and the inner surface of the cylinder, into which the folded flexible cylinder J can pass—that is, the said cylinder folds around the nut K. When the piston moves upward, the flexible cylinder is extended and air again drawn into it through the channel E, and when the piston moves downward the flexible cylinder is folded or wrinkled, and air is forced out through the channel F. The connections of the flexible cylinder must be made air-tight. The pump is very simple, as no packing, &c., is required. The metal cylinder prevents the flexible cylinder from bulging outward while being compressed, and thus protects it from being ruptured.

I am aware that a packing composed of a tubular sack of leather or other suitable material has been secured between the cylindrical cups of a piston and between the sections of the piston-cylinder, and I therefore do not claim such invention.

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

1. In an air-pump, the combination, with a rigid cylinder, of a flexible cylinder having one end secured to a piston working in said cylinder and its other end to the end of the cylinder opposite the one through which the piston-rod works, substantially as herein shown and described,

2. In an air-pump, the combination, with the metal cylinder A, provided with inlet and outlet valves at one end, and the piston B, working in said cylinder, of the flexible cylinder J, having one end secured to the piston and the other to the end of the cylinder provided with the valves, substantially as herein shown and described.

3. In an air-pump, the combination, with the metal cylinder A, of the piston B, the cylinder J, made of flexible material, the head-block D, which holds one end of the cylinder J to one end of the cylinder A, and of the nut K, which holds the other end of the cyl-

der J on the piston B, substantially as herein shown and described.

4. In an air-pump, the combination, with the metal cylinder A, of the head-block D, provided with channels E F, containing valves E′ F′, the cylinder J, made of flexible material, and held to one head of the cylinder A by the head-block D and to the piston by the nut K, substantially as herein shown and described.

HERMANN MECKERT.

Witnesses:
W. V. TWIN,
H. LOGAN.