

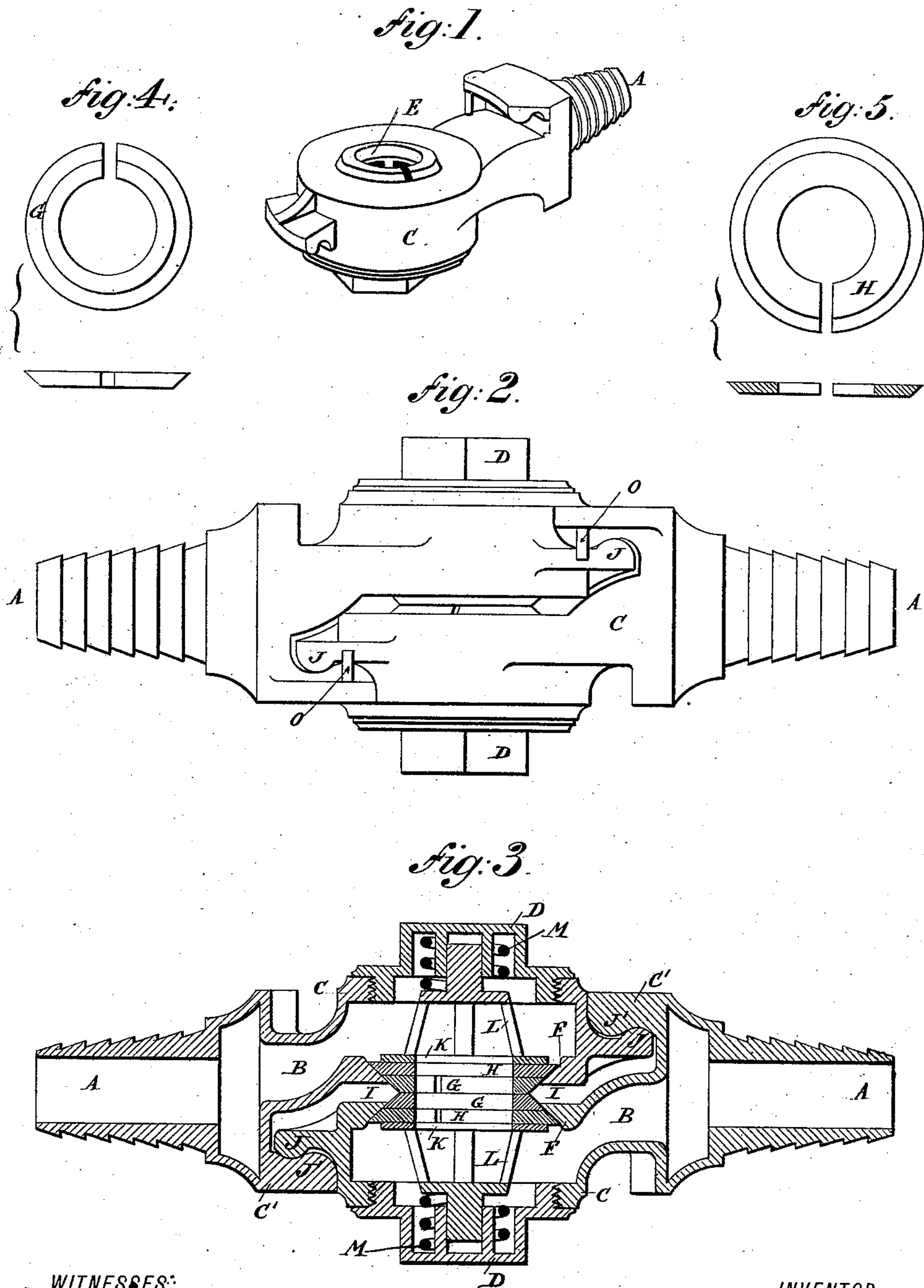
(No Model.)

G. H. BENJAMIN.

PIPE COUPLING.

No. 368,906.

Patented Aug. 23, 1887.



WITNESSES:

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GEORGE H. BENJAMIN, OF NEW YORK, N. Y.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 368,906, dated August 23, 1887.

Application filed March 12, 1887. Serial No. 230,599. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BENJAMIN, of the city, county, and State of New York, have invented certain new and useful Improvements in Pipe-Couplings, of which the following is a specification.

My invention relates to pipe-coupling of the class designed and adapted for use with a flexible hose, such as is usually employed for transmitting heated water or steam. It may also be employed for pipe-coupling purposes generally.

My invention is applicable to pipe-couplings generally, and especially to pipe-couplings of the class described in United States Letters Patent No. 157,951, dated December 22, 1874, reissued as No. 8,291, dated June 18, 1878, and granted to George Westinghouse, Jr., of Pittsburg, Pennsylvania.

My invention comprehends the use of divided metallic packing-rings, which will not be injuriously affected by the temperature of the body transmitted through the coupling, in place of the india-rubber packing-rings usually employed, and as specified in the patent.

For the purpose of illustration I will describe my invention in connection with and as applicable to a coupling made substantially in accordance with that described in the before-mentioned patent, the novel features of my invention consisting of the modified "box" and the combination, with such a box in a half-coupling, of two or more divided metallic packing-rings.

The object of my invention is to produce a coupling through which a highly-heated body—such as steam or hot water—may be transmitted without injury to the coupling, and which shall be steam-tight at the joint of the half-couplings, and effectually rendered so by the pressure of the transmitted body upon the base of the packing-rings, which pressure also serves, as will be hereinafter more fully explained, to more effectually lock the half-couplings together than is possible when a packing-ring depending upon the resiliency of its material, aided by a spring, is employed.

In the drawings similar letters of reference indicate like parts.

Figure 1 is an outline perspective view of one-half of a coupling. Fig. 2 is a side elevation or edge view of the two parts of the couplings when united. Fig. 3 is a longitudinal sectional elevation in a plane passing vertically through the axial line of Fig. 2. Fig. 4 is a plan view of one of the divided metallic packing-rings. Fig. 5 is a sectional view of two of such rings.

The drawings show the half-couplings to be duplicates of each other, and each is provided with a thimble or tube, A, by means of which they may be connected to flexible hose. An open port or passage, B, leads thence to the inner ported end part, C, of the half-couplings, which end part, for brevity, I herein term a "box." This end part or box, C, is closed on one side by a cap, D, screwed therein, and the open or port side E is provided with a seat, F, shaped as the frustum of a cone, the base being within the half-coupling. Located on the seat are the metallic packing-rings G H, divided through one side and conical in configuration. The ring G is somewhat deeper than the ring H, and is so made for the purpose of having it project through and a short distance beyond the port, as at I, and arranged in each half, so that when the two half-couplings are brought together these packing-rings will be in apposition. Their openings, being inline, will thus afford an uninterrupted though circuitous through passage for the body transmitted through the coupling. The projecting parts I of the packing-rings G, when thus brought face to face in coupling, are pressed backward within the box by the action of the hooks J on the extremities of the boxes C. Each of the hooks J engages a bead or counter-hook, J', on the under side of the flange C', made for that purpose on the other half-coupling at the side of the port-opening opposite to its hook J.

The metallic rings G should project far enough to be capable of still further recession in case of any unusual strain to which they may be subjected—as, for instance, by the accidental parting of the coupled cars of a train.

In order to hold the rings in the required position when no body such as steam or wa-

ter is flowing through the coupling, I provide the ring-follower K, superposed upon the ring H and slightly smaller in diameter than the ring, thus allowing for the wear of the packing-rings in use.

The follower is mounted on the skeleton frame L, such as will not interfere with flow of the transmitted body, and a spring, M, is interposed between it and the cap.

By reason of the spring the recession of the rings is allowed, as described, in uniting the half-couplings, and by its resiliency the rings G are brought closely in contact and the hooks J pushed firmly against the flanges J', thereby aiding in maintaining the integrity of the coupling when no body is transmitted through it.

It will readily be understood that when a body such as steam, hot water, or air is transmitted through the coupling the pressure of the body upon the divided conical rings, which are arranged to break joints, acts to force the rings along the seat, contracting their diameter by reason of their division and projecting the apex of the ring G farther without the port-opening; or, as the faces of the rings are in contact and their motion limited, the effect of the pressure is to move the boxes along the rings, thereby forcing the hooks J into close contact with the flanges J'.

The hooks are made with a slight level, so that while retaining their hold on each other under the strain to which they are subjected in ordinary use, they will be pulled apart or become automatically disengaged when exposed to more than the usual strain. This function is further secured by the fact that the packing-rings G project beyond the faces of the ports, and hence must be depressed to allow the hooks J to slip over one another, and thus become disengaged.

The coupling parts are united by a rotary motion of each on the axis of its port-opening. The half-couplings are brought together, their port-openings coinciding, but with the hooks J J projecting past each other, and

then, each hook being curved in the direction of its length to the proper radius, the couplings are rotated, the hooks engaging each other, till each hook J comes against a proper stop, O, when the coupling is completed.

I do not wish to limit myself to divided metallic coupling-rings in combination with a coupling made as described, as it will be obvious that such rings may be employed in many other forms of pipe-couplings.

I claim as my invention—

1. A pipe-coupling comprising two similar half-couplings provided with ring-seats in the bodies thereof, formed as the frustum of a cone, and each provided with two or more conical and divided metallic packing-rings loosely applied to said seats.

2. In the pipe-coupling described, the combination, with the lateral port-openings provided with the inclined ring-seats, of two or more conical and divided metallic packing-rings and a spring-follower behind said rings in each half-coupling, substantially as described.

3. A two-part coupling the parts of which are provided with port-openings in the same axial line, and two or more divided metallic packing-rings loosely arranged in conical packing-seats in each half-coupling, one of which rings in each half-coupling is adapted to project through and beyond the face of its half-coupling, whereby the projecting rings of the respective half-couplings are brought into apposition and the coupling packed by the pressure of the body transmitted.

4. The combination, in a pipe-coupling composed of two similar half-couplings, the port-openings of which are coincident and provided with inclined ring-seats, of two or more conical metallic packing-rings loosely arranged in each half-coupling and bearing upon said inclined ring-seats, substantially as described.

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Witnesses:

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