

(No Model.)

J. C. HAGGETT.

UNIVERSAL METAL JOINT.

No. 397,981.

Patented Feb. 19, 1889.

Fig.1.

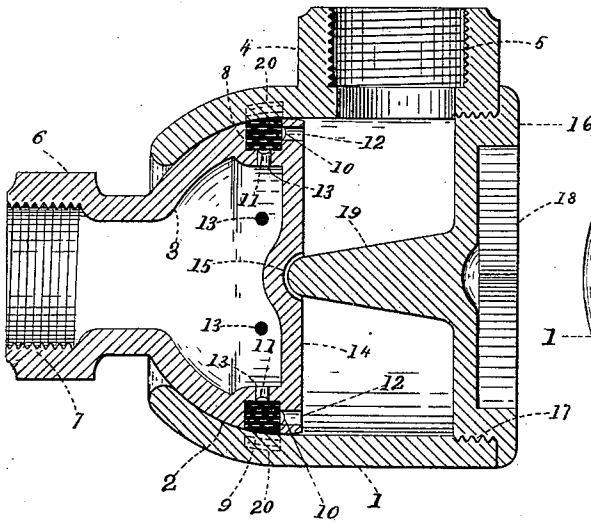


Fig.2.

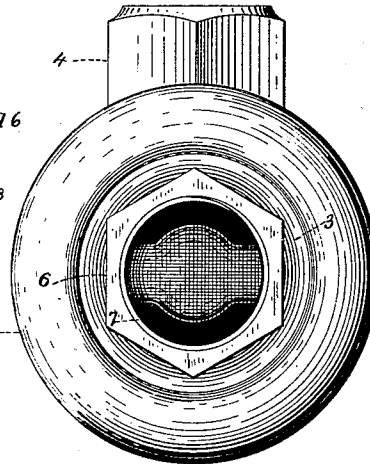
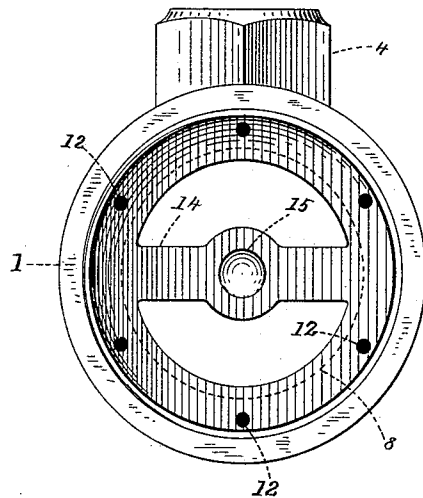


Fig.3.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOTHAM C. HAGGETT, OF DUNKIRK, NEW YORK.

UNIVERSAL METAL JOINT.

SPECIFICATION forming part of Letters Patent No. 397,981, dated February 19, 1889.

Application filed October 8, 1888. Serial No. 287,549. (No model.)

To all whom it may concern:

Be it known that I, JOTHAM C. HAGGETT, a citizen of the United States, residing in Dunkirk, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Universal Metal Joints, of which the following is a specification.

My invention relates to certain new and useful improvements in universal metal joints. Its object is to simplify the construction of the well-known ball-joint and to increase its effectiveness and durability, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal central section through the device. Fig. 2 is a bottom view, and Fig. 3 is a top view, of all that portion below the cover.

In said drawings, 1 represents the cylindrical socket-case or body of the joint, one end being contracted, so as to form the socketed portion or seat 2, adapted to receive the semi-spherical hollow ball portion 3.

At one end of the case 1 is a hexagon or other exterior shaped tubular portion, 4, having an internal screw-thread, 5, for attachment to a pipe through which steam or air may be conducted. The semi-spherical portion 3 is a hollow shell, as shown, and is provided with a nut-section, 6, having an internal screw-threaded portion, 7, by which it may be attached to a pipe for conveying steam or hot air from one car to another, or for other purposes for which it may be adapted.

Around the periphery of the portion 3 is a groove, 8, into which is fitted a fiber packing or other suitable packing-ring, 9. (Shown in Fig. 1.) The bottom of this groove is shown by the dotted lines 8 in Fig. 3. At the bottom and at the side of the surrounding groove 8 are smaller grooves, 10 and 11, and leading into these grooves are small perforations 12 and 13. The object of the supplementary grooves 10 and 11 is to leave a small opening on each side of the packing 9 to permit the steam to enter through the holes 12 and 13 to press the packing outward and against the seat, and thereby keep a perfectly-tight joint while in use, and also to allow for the wear of the packing by forcing it outward against the

seat as it wears away, so that the packing can be nearly all used up before being replaced by another. In some cases the openings 10 and 11 and the holes 12 and 13 may be dispensed with, because for many purposes the device can be used without them.

At the top of the portion 3 is a cross-bar, 14, having a hollow or depression, 15.

The cover 16 is provided with a screw-threaded portion, 17, adapted to screw into the top of the case or shell 1. It is provided with an ordinary hollow wrench-section, 18, by which it may be screwed into or removed from the case. This wrench-section may be a well-known nut-section projecting outward, if desired. On the opposite or inner side of the cover 16 is a tapering projecting portion, 19, (see Fig. 1,) adapted when screwed home in place to project down nearly to the bottom of the hollow or depression 15 in the cross-bar 14, so as to leave a small space between them. The object of this construction is to permit the semi-spherical ball portion to rest loosely against its seat when not in use, thereby differing materially in this respect from a spring, which keeps a constant pressure of the ball portion against the socket or seat, whether it is in use or not, which is an objectionable feature, as it adds an additional pressure with the steam, consequently an additional tendency to wear, and it is not so convenient to handle while repairing or cleaning.

The packing may be put in the case 1, instead of in the ball portion 3, substantially as shown by the dotted lines 20 in Fig. 1, without changing the invention.

This invention is designed more particularly for the transmission of steam in continuous railroad-train heating, and, unlike all other devices for that purpose, has neither bolts nor springs to hold the joints in position, being kept steam-tight by the pressure of the steam alone. At all other times the joint is released from all pressure, thereby overcoming almost entirely any wearing of the parts that would otherwise occur under great friction. This joint is composed of three pieces only, and is so constructed that under no conditions can any of the parts get loose or out of position.

I claim as my invention—

1. The combination of the case 1, having a socket-seat, 2, a cover, 16, adapted to screw

onto the head of the case, and having an inwardly-projecting piece, 19, and a semi-spherical hollow portion, 3, adapted to fit the seat 2 and provided with a cross-bar having a depression, 15, to receive the end of the projecting portion 19, and having a screw-thread at the opposite end for attachment to a pipe, substantially as described.

2. In a universal metal joint, the combination of a socket-case having a socket-seat at one end and a cover at the opposite end provided with a projecting piece, 19, to keep the ball portion in place, a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing-ring secured in a groove surrounding the ball portion, substantially as and for the purposes described.

3. In a universal metal joint, the combination of a socket-case having a projecting internal screw-threaded portion on one side, a socket-seat at one end, and a screw-threaded portion at the opposite end to receive the cover, a semi-spherical ball portion adapted to

fit the socket-seat, having at one end an internal screw-threaded portion and at the ball end a cross-bar provided with a recess or depression, and a cover having an inner projecting portion reaching down into the recess in the cross-bar, substantially as described.

4. In a universal metal joint, a socket-case having a socket-seat at one end and a cover at the opposite end provided with a projecting piece to keep the ball portion in place, in combination with a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing-ring secured in a circular groove between the seat and the ball portion, a supplementary groove leaving an opening between the side of the packing-groove and packing, and holes for admitting steam thereto, substantially as and for the purposes described.

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Witnesses:

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