

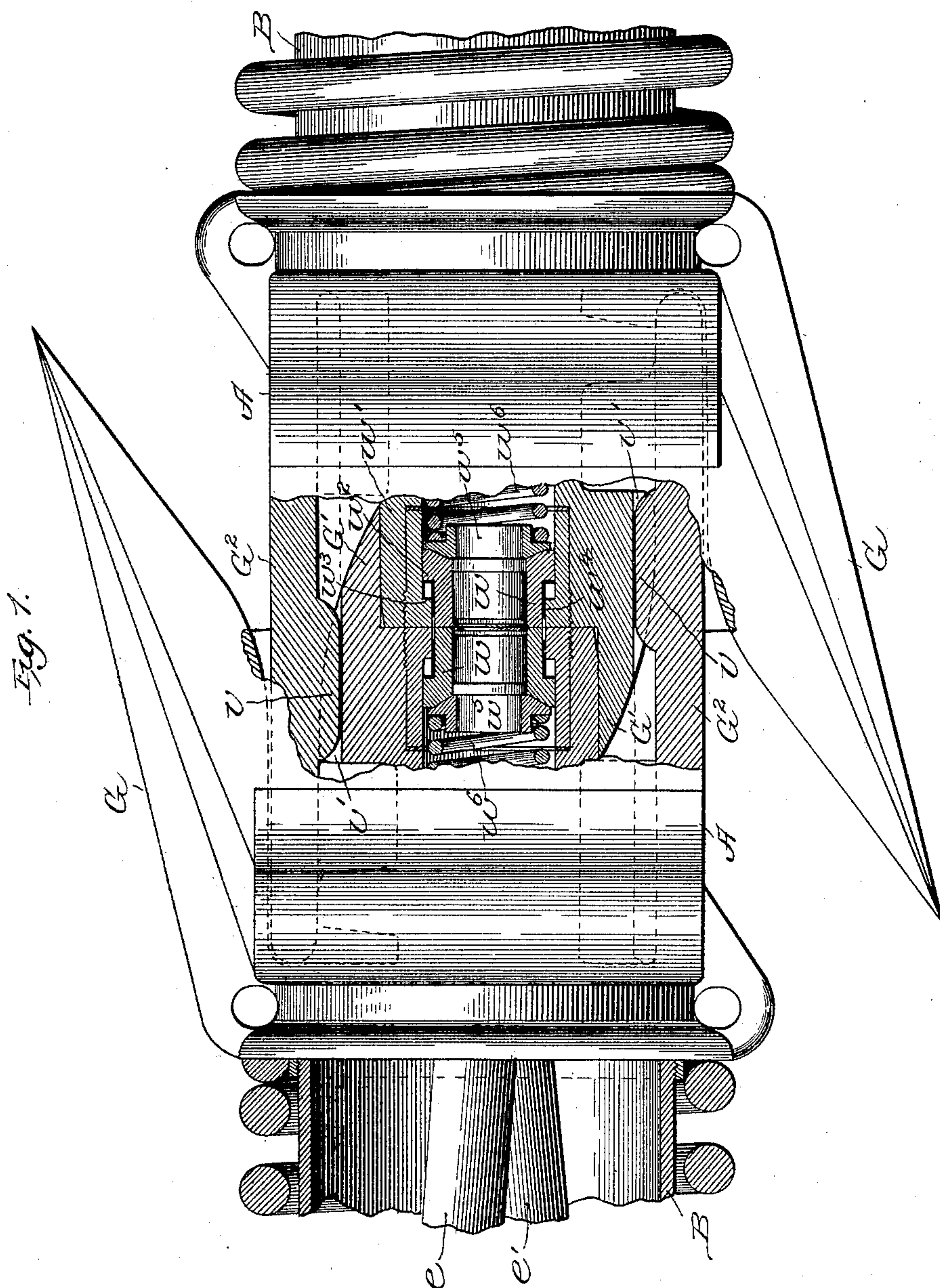
(No Model.)

2 Sheets—Sheet 1.

J. E. MARBLE.
TRAIN PIPE COUPLING.

No. 592,523.

Patented Oct. 26, 1897.



WITNESSES:

Harry E. Rohrer.
J. M. Cleary.

INVENTOR,

INVENTOR,
James E. Marble,
BY
Fleming & Goldborough,
ATTORNEYS.

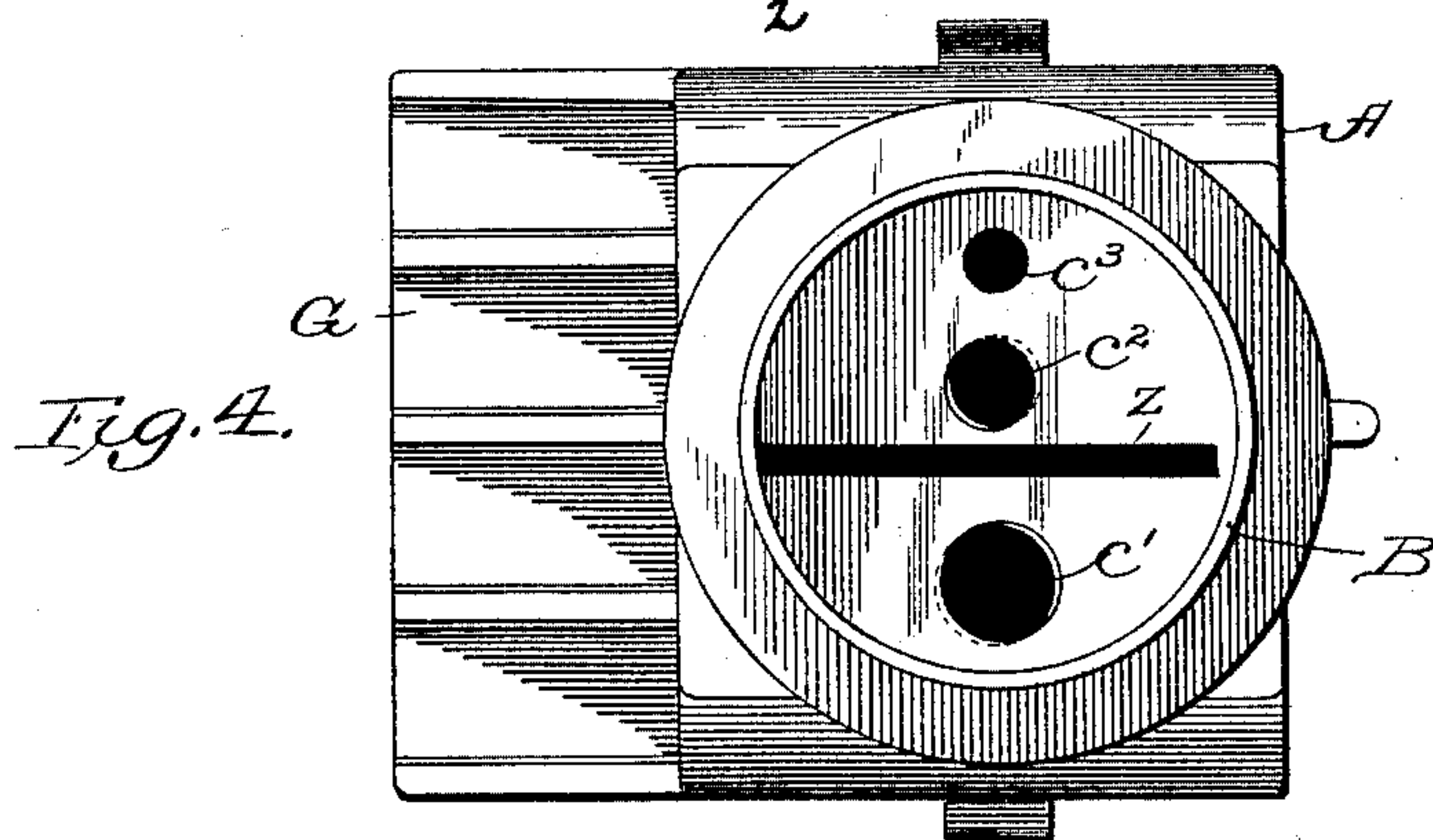
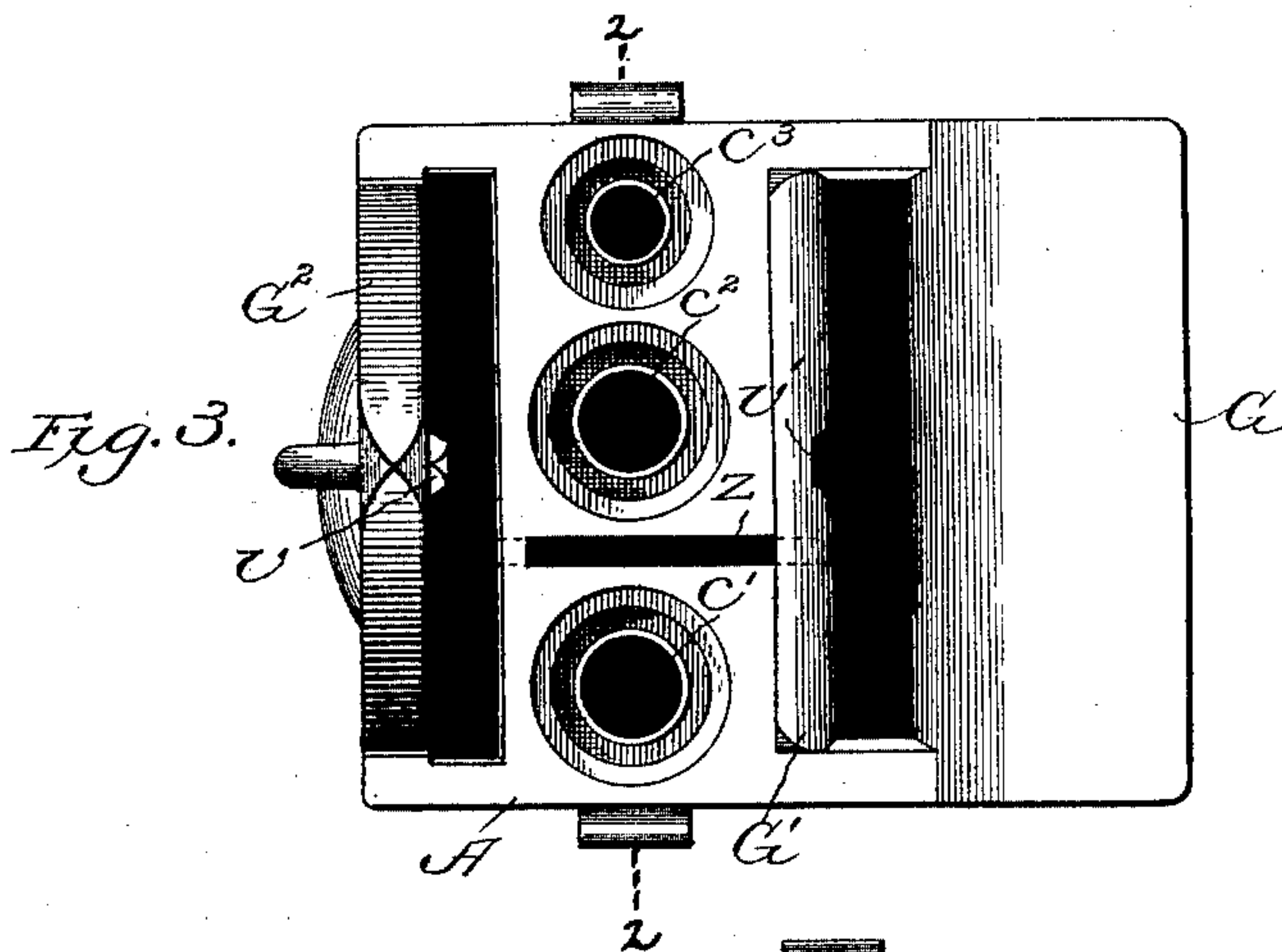
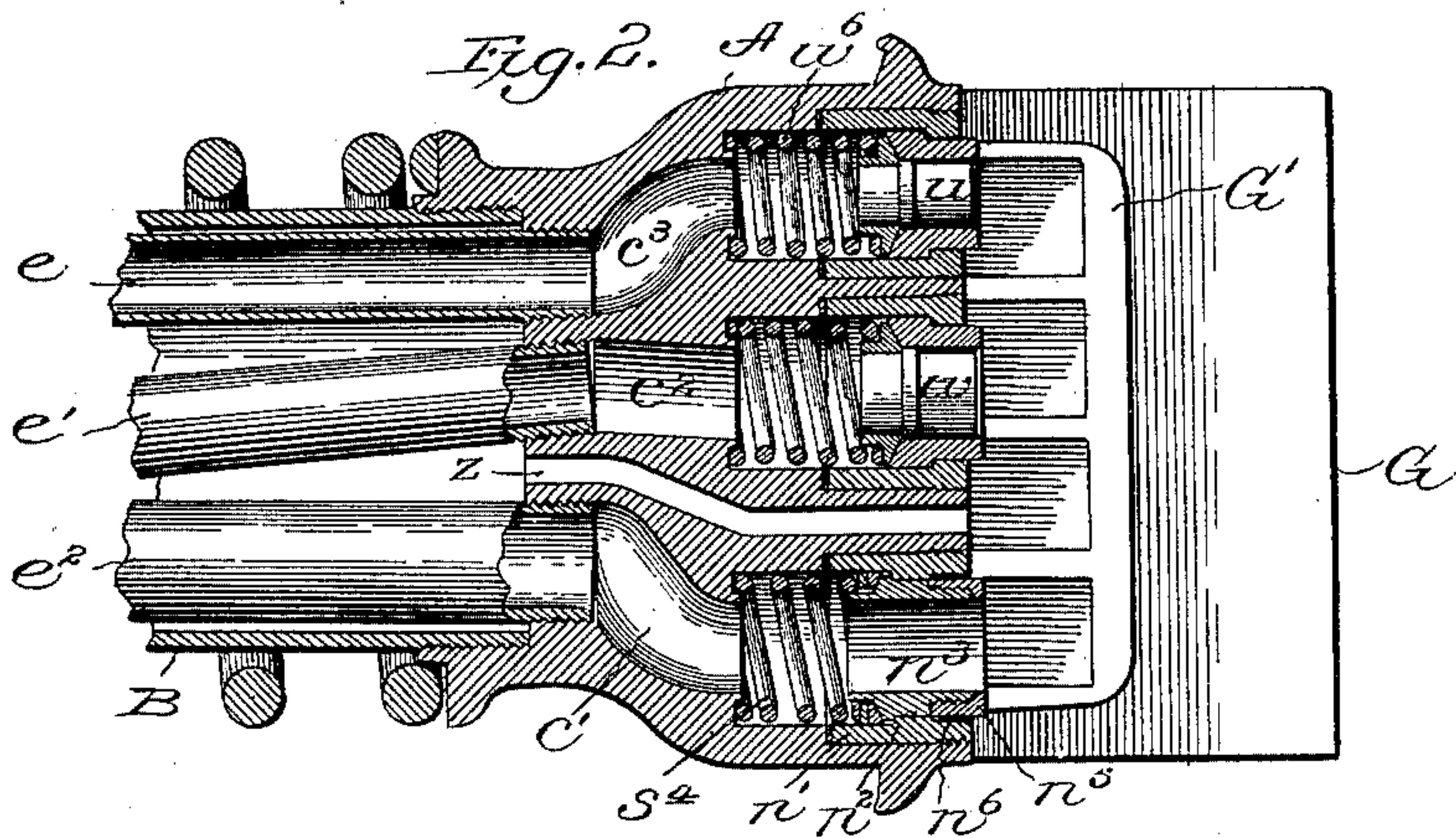
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F. D. McCleary.

INVENTOR;

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James E. Marble,
BY
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES E. MARBLE, OF ALBANY, NEW YORK, ASSIGNOR TO EDWARD G. COX, OF SAME PLACE.

TRAIN-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 592,523, dated October 26, 1897.

Application filed June 20, 1896. Serial No. 596,337. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. MARBLE, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Train-Pipe Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in train-pipe couplers for connecting automatically the fluid-conducting pipes of railway-trains—as, for instance, the pipes for conveying steam and compressed air to the several cars. In train-pipe couplings of this general character it is desirable (in order to economize space and material and to obtain a compact and satisfactory structure) to bring the ports close together and preferably in vertical series one above the other. This arrangement involves, of course, the near proximity of the steam port or passage in the coupler-head to the adjacent air ports or passages thereof and is attended with the disadvantage that the heat transmitted by conduction through the body of the coupler-head from the steam-port tends to vulcanize the composition nipples projecting from the air-ports, thereby hardening said nipples, causing them to contract and to lose their elasticity, and consequently diminishing and ultimately destroying their capacity to form air-tight joints.

My invention is designed to correct this objectionable feature by interposing between the steam-port and the adjacent air-port a channel for the free passage of a body of air, which shall serve to keep the temperature of the walls of the air-ports below that of vulcanization.

In the preferred form of my invention I carry the channel or passage referred to completely through the coupler-head from the front to and through the rear wall thereof and cause it to widen out rearwardly, as will hereinafter more fully appear.

Another feature of my invention is to provide against the tilting of one coupler-head

with respect to the other after the coupling has been effected, and thus to guard against leakage at the joints of the steam and air ports. To this end I provide a tongue of each coupler-head with a longitudinal side projection adapted to fit into an interlocking recess of the other coupling-head in such manner as to prevent any independent tilting of either coupler-head in a vertical plane. The recess referred to is preferably formed within an inner tongue forming a part of the wall of the central fluid-passages of the coupler and which has an inwardly-inclined guiding-surface, and the side projection mentioned may extend rearwardly to the base of the tongue of which it forms a part, so as to constitute a strengthening-rib therefor.

In the accompanying drawings, Figure 1 represents, partly in section and partly in elevation, two coupler-heads coupled together in accordance with my invention. Fig. 2 represents a central sectional view of one of the coupler-heads on the line 2 2 of Fig. 3. Fig. 3 represents a front elevation of one of the coupler-heads, and Fig. 4 represents a rear elevation thereof.

Similar letters of reference indicate similar parts throughout the several views.

The coupling members on adjacent cars are designed to be homologous counterparts of each other and are suspended from the car-truck frame in like manner. Each comprises a coupling-head A, provided with passages with which the steam and air pipes register, a protecting tube or casing B, and a universal joint between the truck-frame and the tube at the rear end of the latter, one form of which joint is exhibited, for instance, in my United States Patent No. 491,291, and another in my application for United States Patent, Serial No. 549,421, filed May 15, 1895.

In the embodiment of my invention illustrated in the drawings I have shown the same as applicable to a train-pipe system having a steam-conduit, an air-signaling conduit, and an air-brake conduit, for which purpose I arrange the corresponding coupling-pipes in such manner that the steam-pipe e^2 shall occupy the lowest position within the tube B and shall be connected to the lowermost pas-

sage c' , while the air-brake pipe e' and signal-pipe e are respectively connected to the passages c^2 and c^3 above.

As in my application above referred to, the coupler-head is of general rectangular shape, and at its outer end is provided with outlying tongues or tenons G G^2 , separated from the walls of the central passages by intervening mortises for the reception of the corresponding tongues of the conjoining coupler-head. A third tongue G' , forming a part of one of the walls of the central fluid-passages and inwardly inclined upon its outer surface, forms with the outwardly-inclined tongues G a flaring guide-opening to direct the tongue G^2 of the conjoining head into the space between them. In order now to prevent any tilting of the one coupler-head upon the other after the coupling has been effected, I provide one of the tongues G^2 of each coupler-head with a longitudinal side projection v , adapted to engage a corresponding interlocking longitudinal groove or recess v' , made in the other coupler-head. This groove or recess is preferably made along the surface of the third tongue G' and at the middle part thereof, and by reason of engagement with the projection v locks the heads against all possible tilting individually upon one another. It will be noted that the forward end of the projection v is tapered, so as to enable it to enter the recess without binding. Moreover, as indicated in dotted lines, it may be continued rearwardly to form a continuous bracing-rib for the tongue.

For the steam-passage c^2 I employ the same form of joint described in my aforesaid patent application and consisting of a bushing n' , screwed into the outer end of the steam-passage and provided with a retaining-shoulder n^2 . Within this bushing, which is made of brass or other practically non-corrodible material, is fitted a hollow non-corrodible nipple n^3 , having a shoulder adapted to bear against the shoulder n^2 . Upon the screw-threaded end of the nipple n^3 is screwed an annular washer n^5 , of a material sufficiently flexible to make a tight butt-joint. This annular washer is surfaced with a protecting-ring n^6 , of non-corrodible material, separate from the washer n^5 , or within which the composition body portion of the washer may be cast in the manufacture of said washer. A spiral spring s^4 acts against the nipple through the intermediacy of the packing-disks shown. This construction and its advantages are pointed out in my former application referred to. On account of its greater cost, however, I prefer to limit its employment to the steam-port and to employ for the air ports or passages the more simple and cheaper construction illustrated more fully in Figs. 1 and 2. The air-ports are accordingly provided with washers w , located within the bushings w' and having shoulders w^2 , which are adapted to engage with shoulders w^3 of the bushings, or preferably a metallic cap w^4 , flanged at its

base, fits over the annular washer w , so as to reduce the friction when the washer moves backward or forward. At the base of the washer w is located an expander w^5 , of metal, seated upon the spiral spring w^6 . In order now to prevent the vulcanization of the annular washers w by the heat of the steam-pipe, I core out the casting in such manner as to interpose a space z between the steam-passage and air-passages and utilize such space for the free circulation of a body of air. The space z is preferably carried entirely through the coupler-head from front to rear thereof and widens out rearwardly, so as to the more effectually subserve its useful function. It interrupts to a very large extent the conduction of heat from the steam-passage to the air-passages and keeps the washers w at a temperature below vulcanization, so that they retain their effective elasticity even after long-continued use.

Having thus described my invention, what I claim is—

1. A coupler-head for train-pipes, consisting of a casting having ports or channels connected to the air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a way having an inlet and a separate outlet so as to provide for the free circulation of a current of air through the casting and between the two ports; substantially as described.

2. A coupler-head for train-pipes, consisting of a casting having ports or channels connected to air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a throughway extending from the front wall of the coupler-head entirely through the rear wall thereof; substantially as described.

3. A coupler-head for train-pipes, consisting of a casting having ports or channels connected to air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a throughway extending from the front wall of the coupler-head entirely through the rear wall thereof, and widening out from front to rear; substantially as described.

4. A coupling for train-pipes, consisting of duplicate coupler-heads each provided with central fluid-passages and outlying tongues separated from the walls of the central fluid-passages by intervening mortises, said coupler-heads being provided with interlocking supplemental longitudinal recesses and projections for preventing the one coupler-head from tilting with respect to the other after their engagement; substantially as described.

5. A coupling for train-pipes, consisting of duplicate coupler-heads each provided with central fluid-passages and outlying tongues separated from the walls of the central fluid-passages by intervening mortises, one tongue of each of said heads being provided with a supplemental longitudinal side projection,

engaging an interlocking longitudinal recess of the other coupler-head; substantially as described.

5 6. A coupler-head for train-pipes provided with central fluid-passages, outlying tongues, and a third tongue forming a part of the wall of the central fluid-passages, said third tongue and one of the outlying tongues having respectively a longitudinal side projection and
10 a corresponding recess, whereby after coupling the coupler-head is prevented from tilting with respect to the cooperating coupler-head; substantially as described.

15 7. A coupler-head having central fluid-passages and outlying tongues, one of which is straight and the other inclined outwardly and both of which are separated from the walls

of the central fluid-passages by intervening mortises, and a third tongue forming a part of one of said walls, and having an inwardly- 20 inclined face, said third tongue being provided with a longitudinal recess, and the straight tongue being provided with a corresponding longitudinal side projection, whereby corresponding coupler-heads are adapted to inter- 25 lock and are held against tilting by means of said recesses and side projections; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. MARBLE.

Witnesses:

WM. C. GORDON,
NATHANIEL NILES.