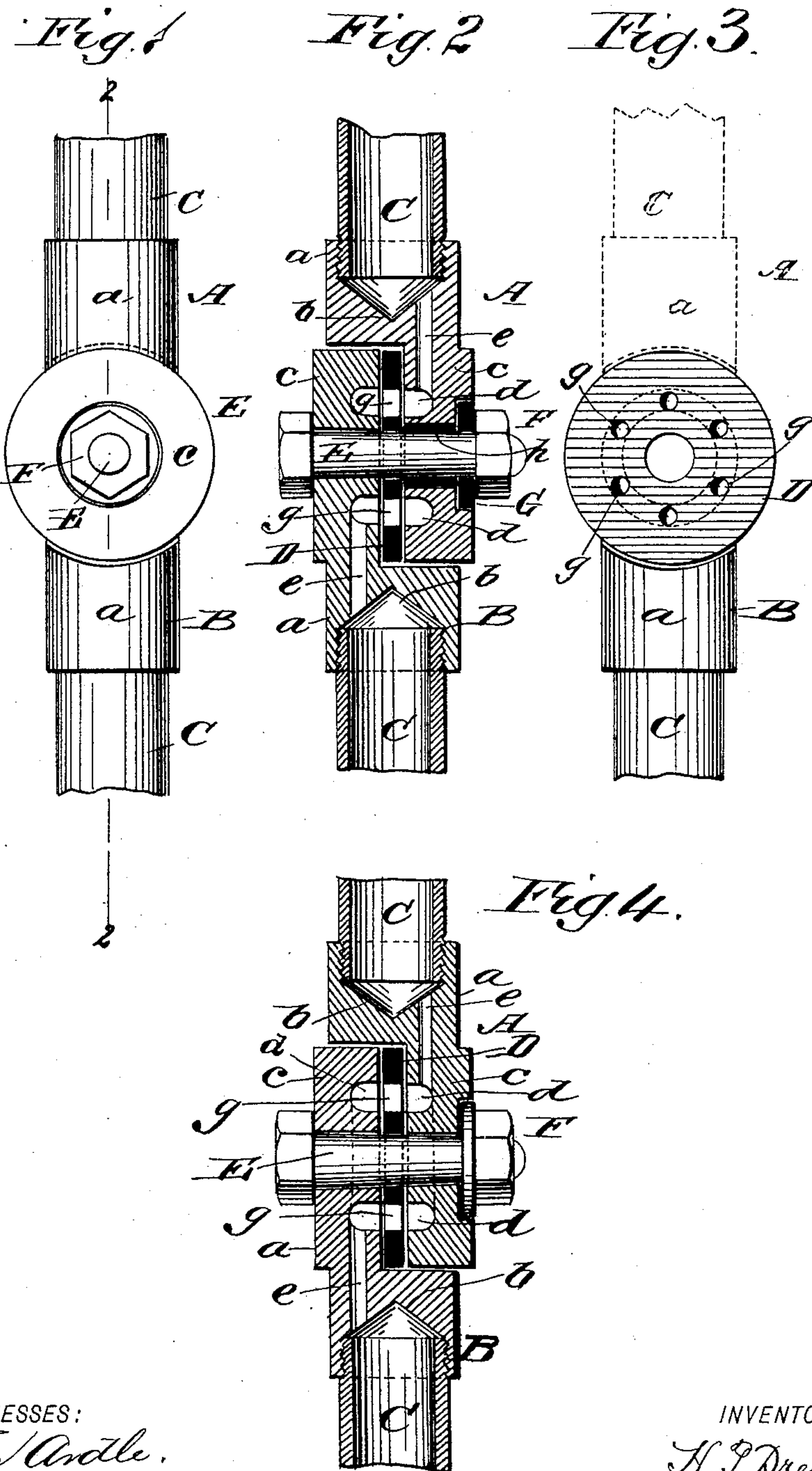


(No Model.)

H. P. DREW.
INSULATING SWING JOINT.

No. 451,300.

Patented Apr. 28, 1891.



WITNESSES:
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HENRY P. DREW, OF NEW YORK, N. Y.

INSULATING SWING-JOINT.

SPECIFICATION forming part of Letters Patent No. 451,300, dated April 28, 1891.

Application filed January 24, 1891. Serial No. 378,927. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. DREW, of New York city, in the county and State of New York, have invented a new and useful Improvement in Insulating Swing-Joints, of which the following is a full, clear, and exact description.

The object of this invention is to provide a connecting-joint for gas-pipe which will afford means to freely conduct gas through the joint either in a straight line or at various angles, and also to provide electrical insulation in the flexing joint to prevent escape of electricity through said joint when gas and electric-light fixtures are mounted together and receive support through the parts of the swing-joint.

To these ends my invention consists in certain features of construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an exterior view of the joint and attached pipes shown broken. Fig. 2 is a longitudinal section of the parts shown in Fig. 1, taken on the line 2 2 in said figure. Fig. 3 is a view of one joint-section in full lines and the mating joint-section in dotted lines, an insulating packing-joint being shown exposed and in position; and Fig. 4 is a longitudinal axial section of a slightly-modified form for the swing-joint.

The device consists of two similar joint-sections A B, which are made of a suitable metal cast into form, each consisting of a socket *a*, that is internally threaded for the attachment thereto of the threaded ends of the pipes C. The socket cavities each terminate in an end wall *b*, from which a peripherally-circular joint-leaf *c* integrally projects, these equal portions of the device being longitudinally extended in alignment or in a parallel plane with one side wall of each socket *a*, and of such a proportionate thickness as compared to the outer diameter of said socket-walls that a circular joint-washer D, of proper thickness, if introduced between the joint-leaves when they are lapped upon each other, will cause the projecting sockets *a* to axially

align with each other, as shown in Figs. 2 and 4. The transverse dimensions of each joint-leaf *c* is proportional to the diameter of the socket ends *a*, so as to render them efficient in service, and each leaf is transversely perforated at its center for the introduction of a connecting-bolt E, which is of proper length to pass through the lapped leaves *c* and centrally-apertured joint-washer D when the parts are to be connected. Each joint-leaf *c* is concentrically grooved on the inner face, as at *d*, said grooves being of equal diameter exteriorly considered and of the same width, so that they will be located directly opposite each other when the joint-leaves are correctly imposed on each other and so held by the bolt E. A sufficient depth is given to each annular groove *d* for their effective service as gas-passages, the longitudinally-extending channels *e*, that are formed in the joint-leaves *c*, forming direct connections between the annular grooves and the sockets *a*, so as to permit gas to flow from the pipe attached to one socket into a groove *d*, and thence through a series of perforations *g* in the washer D into the other mating groove and to the opposite pipe in an obvious manner. The grooves *d* are located a sufficient distance from the center hole of the leaves *c* on their inner edges to afford a seat around the bolt E on each leaf whereon the washer D will bear, and when properly confined by the adjustment of the binding-nut F of said bolt will effect a gas-tight joint between the joint-leaves of the two sections A B, while a flexure of these connected portions is permitted so as to throw one of the attached pieces of gas-pipe C out of alignment with the other pipe at any desired angle of divergence.

The preferred use of the device is to transmit gas through it either in a straight line or at an angle, and also to utilize the sealing-joint between the sections A B to insulate said sections from each other, as is indicated in Fig. 2; and to this end the annular perforated washer D is made of any suitable material which will effect a tight joint between the connected sections and serve as an insulator to prevent the transmission of electricity through the metal pieces, and thence through the pipes to the ground.

There are several available substances

which may be utilized for the designated service as a sealing-joint and insulator, such as hard wood, hard rubber, and vegetable fiber compressed, the latter named being preferred for the purpose. Around the bolt E an encircling sleeve *h* is placed, which is of a proper length to extend through one joint-leaf *c*, fitting the enlarged cylindrical hole made in said leaf for its reception and having its inner end seated upon the joint-washer D, the outer end having a loose contact with the insulating joint-washer G, which is preferably seated in an annular depression produced in the outer face of the joint-leaf around the bolt end, whereon the nut F is placed and has bearing-contact with the washer named. By the provision of the insulating-sleeve *h* and its co-operation with the joint-washers D and G a secure gas-tight joint is effected between the two sections A B, and as these parts do not have contact at any point, owing to their formation and method of insulation described, the device will prevent any escape of electricity from wires that may be connected to a gas-fixture which is used to support electric lamps, the joint being placed between said fixture and the gas-service pipe that has a ground-connection.

Fig. 4 illustrates a modification of my improved joint in which the sleeve *h* and washer G are omitted.

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

1. The combination, with two flat joint-leaves, each having a radially-extended internally-threaded socket and an annular groove laterally formed therein, which grooves provide parallel passages for gas and are connected with their respective sockets by longitudinal passages that lie in parallel planes with the annular grooves, of an interposed joint-washer that is provided with a series of annularly-arranged gas-passages in it that conduct gas from one annular groove to the similar opposite groove, and an insulated clamping bolt and nut for the joint-leaves, substantially as described.

2. In an insulating swing-joint for gas-service, the combination, with two flat joint-leaves, each provided with a radially-projecting socket internally threaded for pipe-connection, and also furnished with opposite annular grooves that are joined with the sockets by longitudinal passages, of an interposed annular joint-washer made of insulating material and provided with gas-passages that connect the annular grooves, a connecting-bolt for the joint-leaves having a binding-nut on its end, an insulating-sleeve which encircles the bolt-body, and a joint-washer of insulating material between the sleeve end and binding-nut, substantially as set forth.

HENRY P. DREW.

Witnesses:

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