

N. R. Bates,

Pipe Coupling.

No. 98,833.

Patented Jan. 11. 1870.

Figure 1.

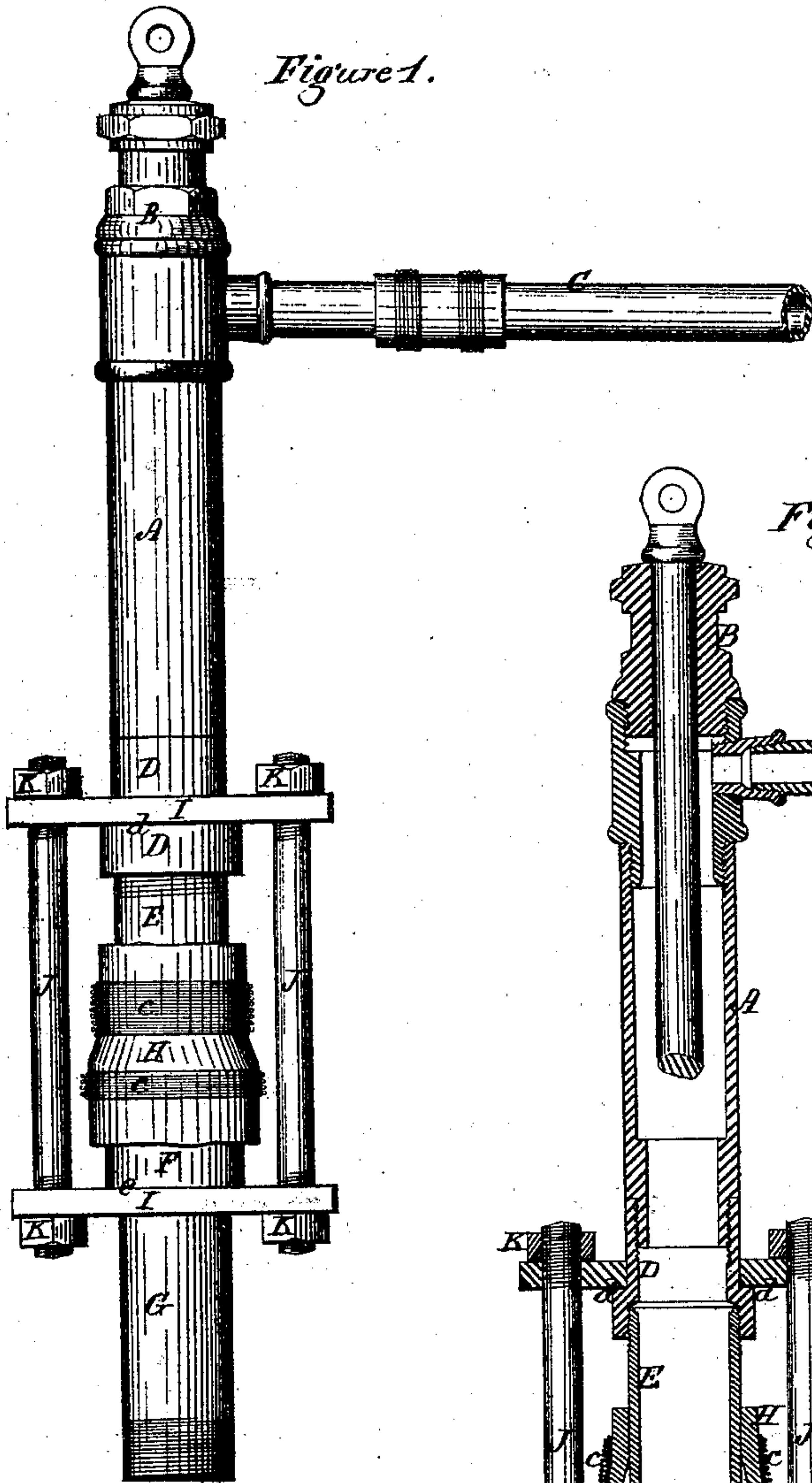


Figure 2.

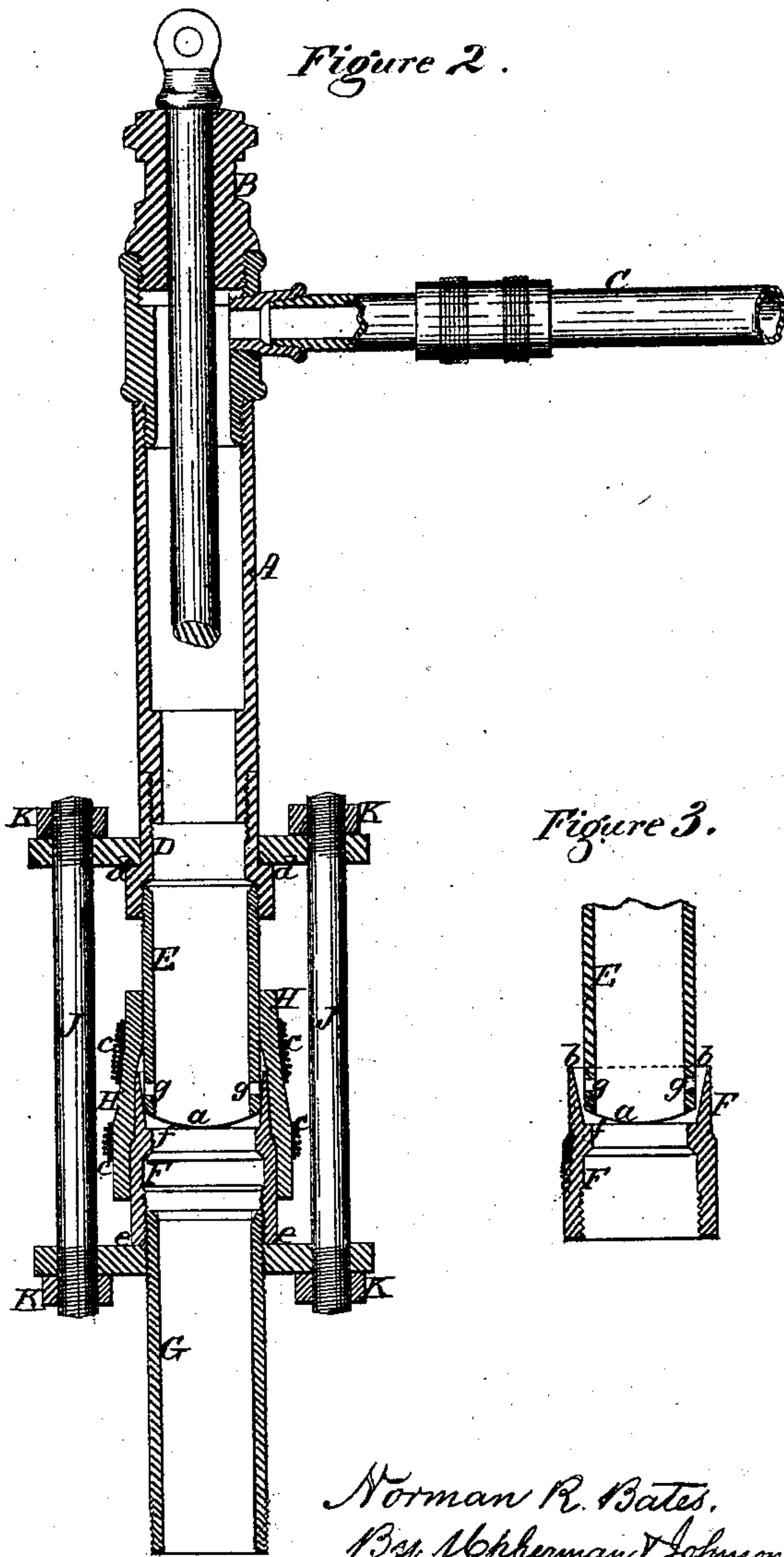
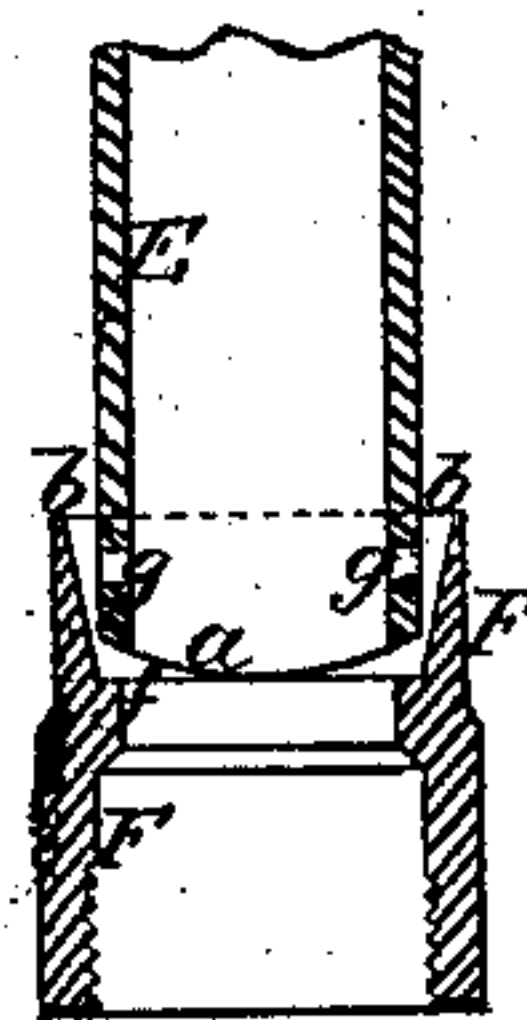


Figure 3.



Witnesses
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NORMAN R. BATES, OF TITUSVILLE, PENNSYLVANIA.

Letters Patent No. 98,833, dated January 11, 1870.

IMPROVEMENT IN FLEXIBLE JOINTS FOR TUBES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, NORMAN R. BATES, of Titusville, in the county of Crawford, and State of Pennsylvania, have invented certain new and useful Improvements in Flexible Joints for Tubing, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings of the same, which make part of this specification, and in which—

Figure 1 represents an elevation of sections of tubing, having my improved flexible joint applied thereto.

Figure 2 represents a vertical section of the same.

Figure 3 represents a vertical section of the tubes of the joint, with the flexible surrounding-tube removed.

My improved flexible joint is designed to connect that part of the tubing used in oil-wells which is above the derrick-floor, and where the stuffing-box of the connecting-rod is elevated above said floor, which joint has heretofore been unyielding, by being screwed together.

The walking-beam, used to give motion to the sucker-rod, describes the arc of a circle, and the connecting-rod, stuffing-box, and tubing, must, of necessity, vibrate with every stroke of the pump, and must spring or bend, to accommodate such vibration, which has the effect of destroying the screw-threads of the sections of tubes, at their connection near the derrick-floor, producing great strain upon the joint, and a consequent leakage, while the stiffness of the tubing increases the friction of the connecting-rod, and, by the movement of the walking-beam in the arc of a circle, wears the opening in the stuffing-box to an oval shape, thereby destroying its capacity to retain the packing, and rendering it almost useless.

My improvements are designed to overcome these difficulties, and consist in the employment of a flexible joint, instead of the inflexible screw-joint, to allow the tubing to accommodate itself to the arc described by the walking-beam.

In the accompanying drawings—

A represents the upper section of the tubing, to which the stuffing-box B of the connecting-rod and the delivery-pipe or nozzle C are secured.

To the lower end of this section is secured a short coupling-piece, D, the lower end of which is screwed on to the end of a section of tubing E.

The lower end of this last-named section of tubing has two of its sides, *a*, made convex, so as to form rockers, which project within the lower tube F, and rest upon a shoulder or seat, *f*, formed therein.

The object of so forming the end of this tube E, is, to allow its end to rock within the lower tube F, without binding against it, because the tube rocks in the direction of the length of the walking-beam.

This lower tube is about six inches long, with the

inner side *b* of its upper end made slightly flaring, so as to receive the end of the upper section of tube E, and is fitted with a screw-thread, to admit of its being coupled with the tubing G, near the derrick-floor.

The convex sides *a* of the tube E are fitted within the flaring end *b* of the lower tube, and the enclosed end of the upper tube is provided with two holes, *g*, directly opposite each other, to allow the oil which may get in the joint formed by the junction of the two tubes, to pass therefrom into the upper tube, at each vibration of the lower end of said upper tube, thereby preventing the joint from clogging.

These two sections of tubes E and F constitute the joint, and to connect and support one upon and within the other, so as to allow them to yield with the vibrations of the walking-beam, I employ a piece of fine stout rubber tubing, H, or other flexible connection, of sufficient length to overlap the contiguous ends of these two sections of tubing E F, and to be firmly secured thereto by a wrapping of strong wire, *c*, or its equivalent, so as to perfectly bind the two ends of this flexible tube H to the contiguous ends of the metallic tubes E F, whereby I obtain a flexible connection and lateral support for one tube upon and within the other, and, at the same time, a closed covering for the joint.

The means for preventing the separation of the tubing of the flexible joint, consist of two clamping-plates I, the upper one resting upon a shoulder, *d*, on the upper coupling-tube D, and the lower one against a shoulder, *e*, on the lower joint-piece F, and the two, thus arranged, are clamped by two side-screw rods, J, and nuts K, thus constituting the clamp for the tube-joint.

This flexible joint may be made of malleable iron or steel, and instead of forming the supporting-seat on the lower tube, it may be made in the upper tube, and the latter may be made to embrace the former.

Having described my invention,

I claim—

1. A coupling-joint, consisting of tubes E and F, the part E rounded at its end, and resting upon the annulus *f*, within the part F, the upper end of F flaring, the whole covered by an elastic band, free at its centre, but held toward its ends to the parts E and F, all substantially as described.

2. The combination of the rounded ends *a* with the shoulder or seat *f*, the flaring mouth *b*, and the escape-openings *g g*, arranged at the junction of the tubes E F, substantially as before described.

3. The combination of a lateral flexible enclosing-band, H, with the tubes E F, and a clamping-device, I, J, K, substantially as before described.

In testimony whereof, I have signed my name.

Witnesses: NORMAN R. BATES.

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