

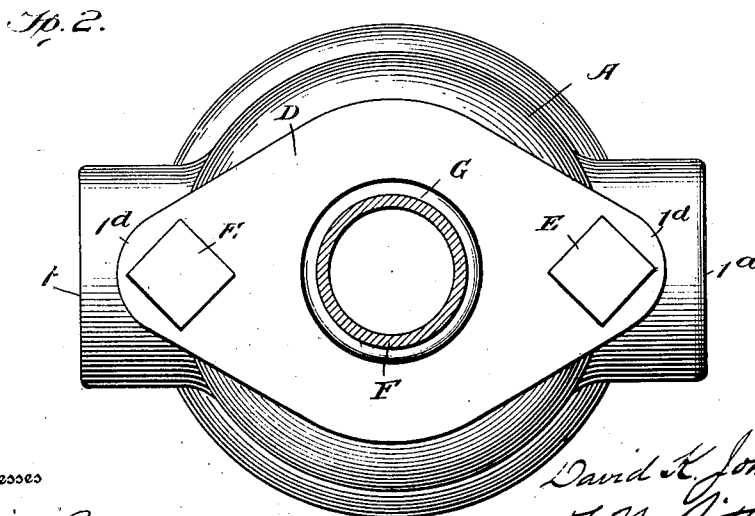
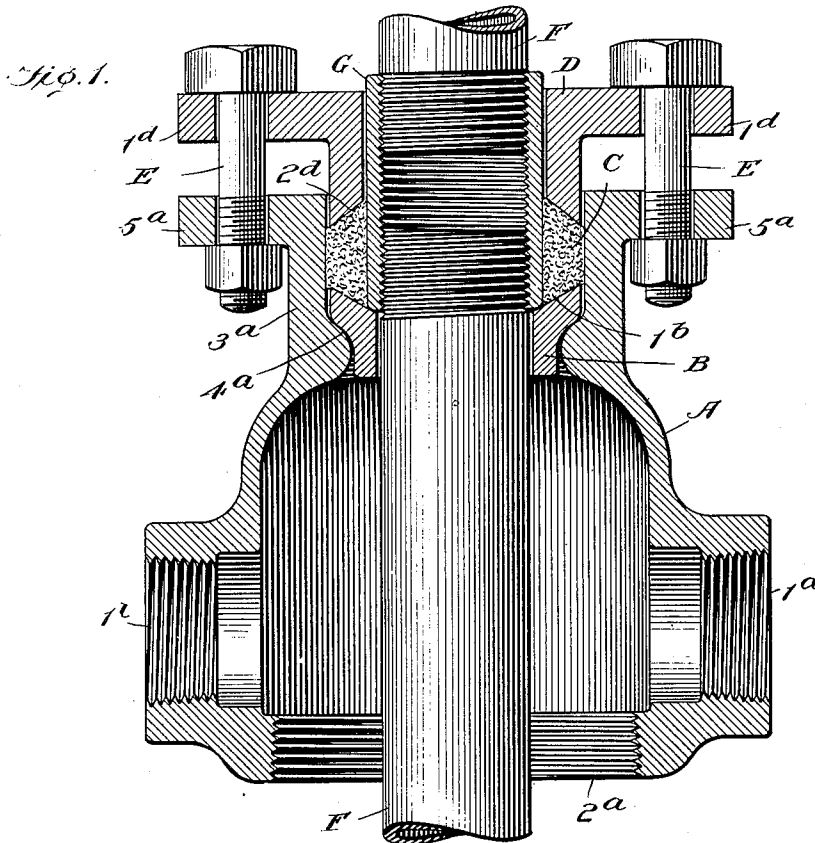
No. 878,067.

PATENTED FEB. 4, 1908.

D. K. JOHNSTON..

CASING HEAD.

APPLICATION FILED NOV. 29, 1907.



Witnesses

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UNITED STATES PATENT OFFICE.

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CASING-HEAD.

No. 878,067.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed November 29, 1907. Serial No. 404,372.

To all whom it may concern:

Be it known that I, DAVID K. JOHNSTON, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Casing-Heads; 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 the construction of casing heads for oil wells, and is particularly designed to prevent leakage of gas around the top of the casing head and to support the tubing in such manner that it is not apt to be broken at a point which would let such tubing drop into the well.

As is well known, the tubing is frequently broken by the blowing down of the derrick and also by the vibration due to the operation of pumping the well, and, with casing heads now in common use, the result of such break is usually that the tubing drops into the hole and the producer is put to much labor and annoyance in an attempt to recover it. To overcome these difficulties I construct a casing head in which the coupling that connects the tubing rests upon a casing head ring that is supported upon an annular seat formed within the casing head, a packing ring, which prevents the leakage of gas and the vibration of the tubing in the well, being firmly pressed against the tubing coupling by means of a stuffing box gland.

In the drawings chosen for the purpose of illustrating my invention, the scope whereof is pointed out in the claims, Figure 1 is a vertical central section of a casing head embodying my invention, and Fig. 2 is a plan view thereof.

Like symbols refer to like parts wherever they occur.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A is the casing head; B the casing head ring, C the packing ring, D the gland or stuffing-box follower, E, E the bolts by which the gland D is forced against the packing ring C, F, F the sections of tubing adjacent to the casing head, and G the

coupling by which the sections of tubing F, F are connected.

Intermediate of its ends, the casing head A is provided with one or more gas outlets 1^a of the usual or any other suitable form. The lower end of the casing head is interiorly threaded, as at 2^a, to afford a means of connection with the threaded end of the well casing, while the upper end of said casing head is formed with a vertically extending extension 3^a constituting a stuffing-box. The lower end of the stuffing-box chamber is contracted to form an annular shoulder, as 4^a, which affords a seat or support for the casing-head ring B.

The casing-head ring B, which is appropriately formed to have a firm bearing on the seat or support 4^a, has a central opening which is somewhat smaller than the tubing coupling G, but which is sufficiently large to permit the passage of the tubing F. The upper face of the ring B is preferably coned or dished, as at 1^b, to assist in forcing the packing ring C tightly against the sleeve coupling G, such conical form, moreover, being advantageous in centering the tubing F, the lower sections of which, it will be observed, are supported by the casing-head A through the intermediacy of the casing-head ring B and tubing coupling G.

Interposed between the casing-head ring B and the gland D is a rubber or other suitable packing ring C the upper and lower faces of which are preferably coned or beveled to correspond to the proximate faces of the said casing-head ring and gland. The packing ring C is formed with a central aperture which is large enough to permit it to be slipped upon the tubing coupling G.

The stuffing-box gland D, which is provided with perforated lugs 1^d for the reception of the follower bolts E, E that pass through the lugs 5^a formed upon the body of the casing-head, is sufficiently large to embrace the coupling G and is preferably coned or beveled at its lower end 2^d in order to most effectively cooperate with the casing-head ring B in forcing the packing C against the coupling G.

The casing-head heretofore described is particularly advantageous in use as it permits the stuffing box gland to be slipped over the last joint of tubing after such tubing has

been placed in the well, while in stuffing-box casing-heads now employed such gland must be placed upon the last joint of tubing prior to lowering said tubing into the well. It will be noted that by placing the packing ring C around the coupling G, instead of directly around the tubing, the said coupling is so supported that any break in the tubing, due to vibration or the blowing over of the derrick, is most apt to occur at a point above the tubing coupling, thus preventing such tubing from dropping into the well.

In addition to its use as a device for supporting the tubing of a well, my casing-head may be employed as an oil saver, when drilling in oil sand while the well is flowing. For such purpose the usual short cylindrical tube or oil saver barrel, which is of a diameter that will pass through the casing-head ring B and gland D, is substituted for the tubing F, F and coupling G. The drilling cable is passed through the tube and packed by rope yarn in the customary manner. The tube thus works up and down with the drilling cable through the closely fitting packing ring C, and the oil is led off and saved through the outlets 1^a in the sides of the casing-head.

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

1. In a casing-head, the combination with means for supporting a well tube coupling,

of a packing ring adapted to be pressed laterally against the coupling, and means for pressing said packing ring against said coupling. 35

2. A casing head having one or more gas outlets, a stuffing-box extension formed with a seat for supporting a casing-head ring, a casing-head ring which is adapted to support a well tube coupling, a stuffing-box gland, and a packing ring located within the stuffing-box and adapted to be pressed against the coupling by said gland and casing-head ring. 40

3. A casing-head having one or more gas outlets, a stuffing-box extension provided upon its interior with an annular seat for supporting a casing-head ring, a casing-head ring which is adapted to engage and support a well tube coupling, a stuffing-box gland which is adapted to embrace the coupling, and a packing ring which is interposed between said casing-head ring and said gland and which is also adapted to embrace the coupling. 50

4. A casing-head having a stuffing-box, a gland, and means located within said stuffing-box for supporting a well tube coupling. 55

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

DAVID K. JOHNSTON.

Witnesses:

GEO. N. REED,
E. R. GNADE.