

No. 694,514.

Patented Mar. 4, 1902.

F. WULFF.

SCREW JOINT FASTENER FOR DRILL RODS, &c.

(Application filed Sept. 4, 1901.)

(No Model.)

Fig. 1.

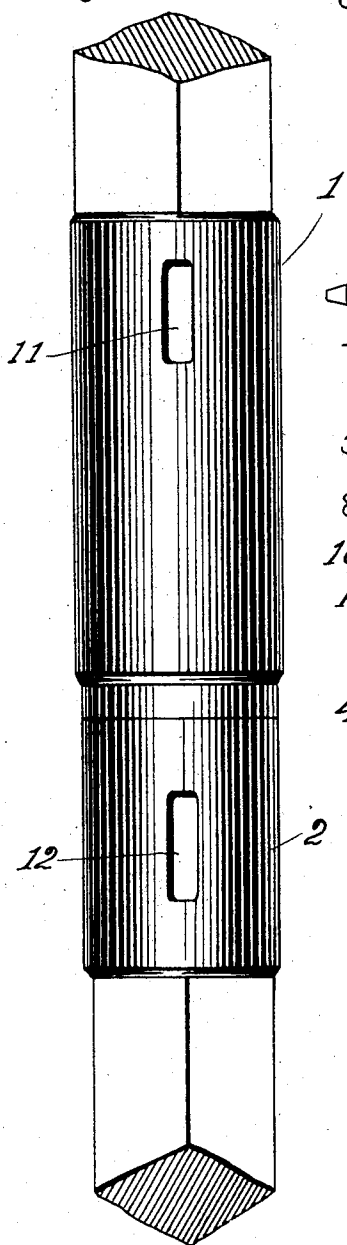


Fig. 2.

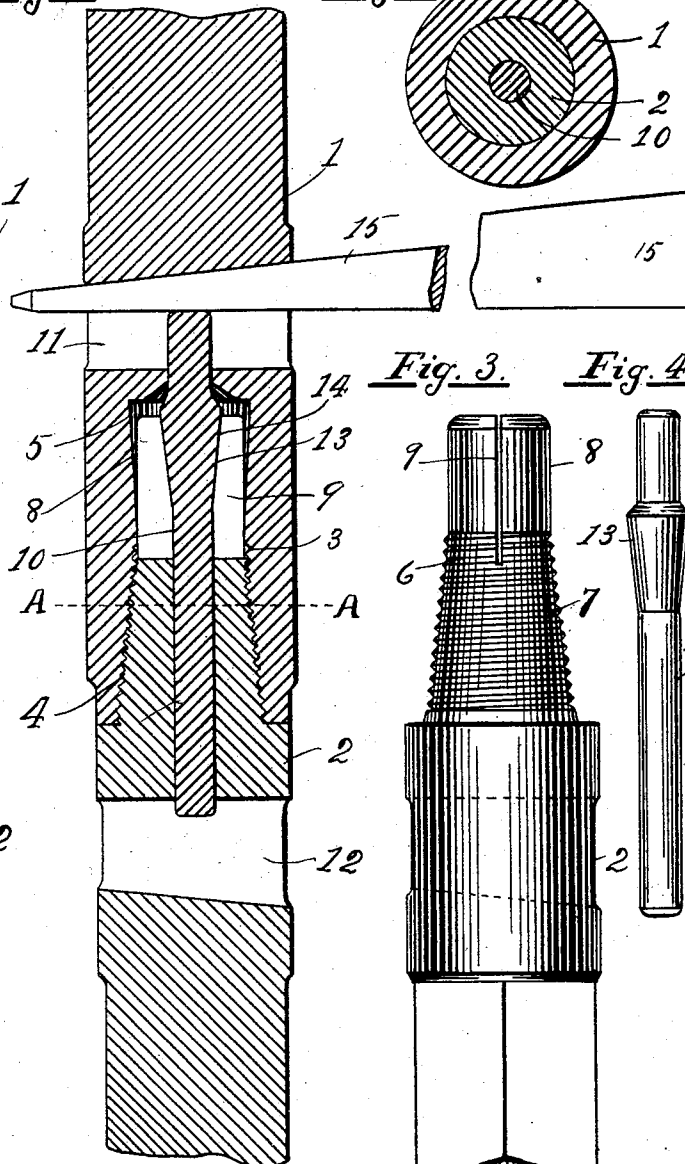


Fig. 6.

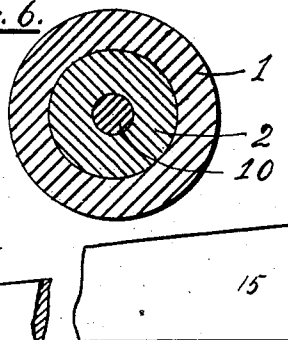


Fig. 3.

Fig. 4.

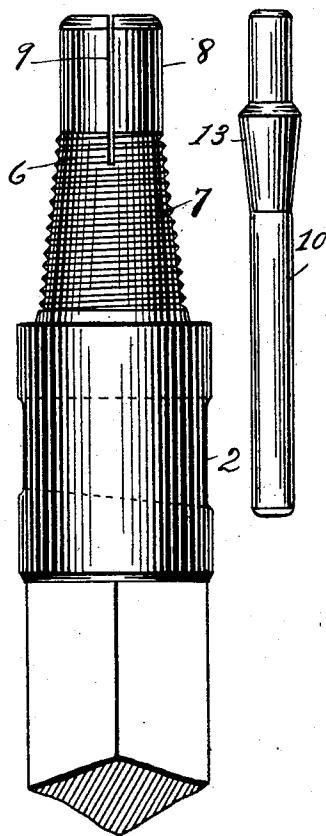
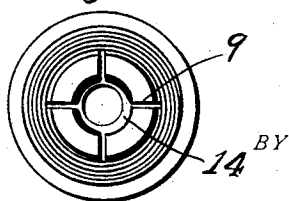


Fig. 5.



WITNESSES:

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FRANK WULFF, OF COLUSA, CALIFORNIA.

SCREW-JOINT FASTENER FOR DRILL-RODS, &c.

SPECIFICATION forming part of Letters Patent No. 694,514, dated March 4, 1902.

Application filed September 4, 1901. Serial No. 74,328. (No model.)

To all whom it may concern:

Be it known that I, FRANK WULFF, a citizen of the United States, residing at Colusa, in the county of Colusa and State of California, have
5 invented certain new and useful Improvements in Screw-Joint Fasteners for Drill-Rods and the Like, of which the following is a specification.

My invention relates to an improved screw-joint fastener for drill-rods and the like, the object of my invention being to provide an improved device whereby the drill-bit may be more securely attached to the drill-rod than has hitherto been the case.

15 In drilling oil-wells great loss is occasionally experienced by the dropping of the drill-bit from the rod and support. Oftentimes it is impossible to recover the drill-bit by "fishing," as it is called, so that the well has to be
20 abandoned, with the loss of the labor and time of months.

The object of my invention is to provide a device by which the drill-bit may be more securely fastened to the drill-rod or whereby
25 two sections of drill-rods may be more securely fastened to each other than has heretofore been the case. The invention is, however, also applicable to other fastenings, and I do not desire to limit my invention to the
30 application of the same to drill-rods or drill-bits.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully
35 specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved screw-joint fastener. Fig. 2 is a vertical section of the same, the wedge being shown as inserted in the upper slot. Fig. 3 is a side elevation of the lower section of the joint detached. Fig. 4 is a side elevation of the expanding-pin detached. Fig. 5 is a top plan view of the lower
40 section of the joint, and Fig. 6 is a section on the line A A of Fig. 2.

Referring to the drawing, 1 represents the upper section, and 2 the lower section, of the screw-joint. The upper section 1 is formed
50 at its lower end with a socket 3, flaring from about the center outwardly, as shown at 4, and slightly flaring from the same point in-

wardly, as shown at 5, and the lower section has a head 6, tapering in its lower portion 7 and cylindrical in its upper or outer portion 8. The cylindrical portion 8 of the head is adapted to enter the inner end of the socket, while the tapering portion 7 is screw-threaded and is screwed into the flaring outer portion 4 of the socket. The head is formed with
60 slits 9, extending longitudinally thereof from the upper end and at right angles to each other, thus permitting said head to expand under suitable pressure. When so expanded, if in position in the socket, the head will bind
65 tightly in the slightly-flaring inner end of the socket and will prevent the lower section from unscrewing from the upper section. In order to produce said expansion, there is provided an expanding-pin 10, inserted in central longitudinal holes in the head and in the upper section
70 above the socket, the ends of said expanding-pin extending into upper and lower transverse slots 11 12. The pin 10 is formed with a tapering or conical surface 13, which engages
75 a conical seat 14 in the upper end of the head, and thus when said pin 10 is pressed down said head is caused to expand, thereby binding the parts together, as already described. The pin 10 may be thus driven down to bind
80 the parts by driving transversely through the upper slot 11 a suitable wedge 15, thereby forcing the upper end of the pin downward, and, conversely, the pin 10 may be driven upward by driving said wedge 15 through the lower
85 slot 12.

By the above construction there is provided a screw-joint fastening which is perfectly secure against separation of the parts and which does not materially weaken the strength of
90 the parts or necessitate any protuberances which would interfere with the movement of the drill-bit.

I claim—

1. In a screw-joint fastening, the combination of a section having a socket converging or tapering inwardly at its outer portion and also screw-threaded thereat and flaring or diverging inwardly at its inner portion, a second section having a head converging or tapering outwardly at its inner portion and also
100 screw-threaded thereat to engage the screw-threaded portion of the socket, said head also having an outer portion expansible into an

outwardly-flaring form to fit snugly and bind within the inner portion of the socket, and means for so expanding the outer portion of said head after the head is screwed into the 5 socket, substantially as described.

2. In a screw-joint fastening, the combination of a section having a socket converging or tapering inwardly at its outer portion and also screw-threaded thereat and flaring or 10 diverging inwardly at its inner portion, a second section having a head converging or tapering outwardly at its inner portion and also screw-threaded thereat to engage the screw-threaded portion of the socket, said head also 15 having an outer portion expansible into an outwardly-flaring form to bind within the flaring inner portion of the socket, the two sections having an axial aperture running

through said head and through the portion of the section adjacent to the socket therein, 20 said aperture being tapering or wedge-shaped in one portion of its length in said head, and a key in said aperture correspondingly tapering, said section above and below said aperture having transverse slots into which said 25 aperture extends, whereby the key may be moved longitudinally in said aperture by suitable wedges in said slots, substantially as described.

In witness whereof I have hereunto set my 30 hand in the presence of two subscribing witnesses.

FRANK WULFF.

Witnesses:

FRANCIS M. WRIGHT,
CECELIA POWNING.