J. E. KELLER.

WELL CASING RIPPER.

APPLICATION FILED JAN. 7, 1922.

1,417,331. Patented May 23, 1922.

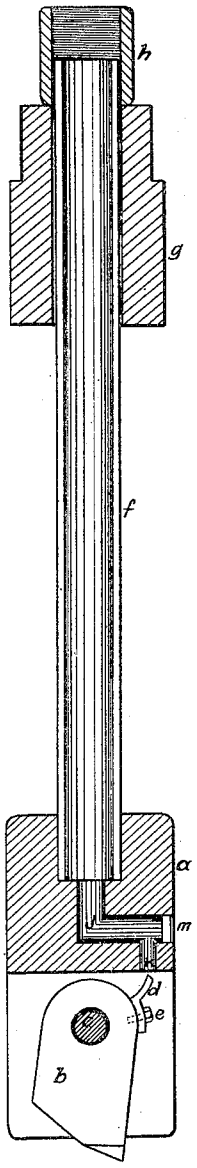


Fig 1

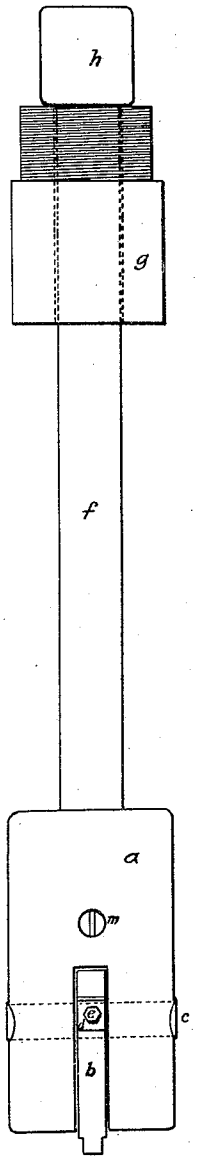


Fig 2

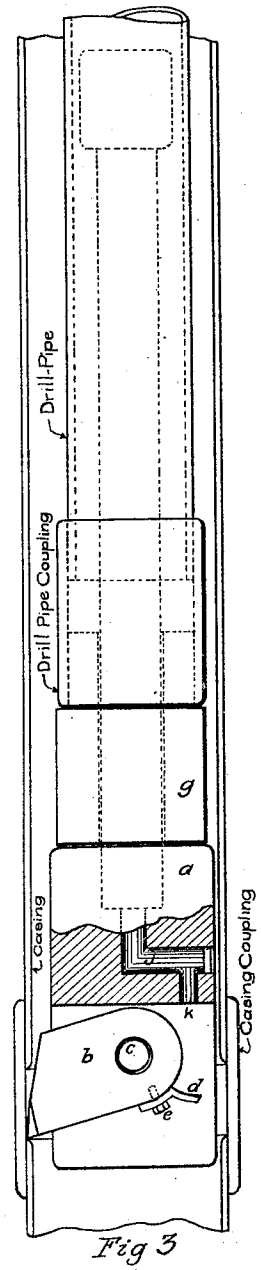


Fig 3

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INVENTOR

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JOHN ELMER KELLER, OF INDEPENDENCE, KANSAS.

WELL-CASING RIPPER.

1,417,331. Specification of Letters Patent. Patented May 23, 1922.

Application filed January 7, 1922. Serial No. 527,633.

To all whom it may concern:

Be it known that I, JOHN ELMER KELLER, a citizen of the United States, and a resident of Independence, county of Montgomery, State of Kansas, have invented a new and useful Improvement in Well-Casing Rippers, of which the following is a specification.

My invention relates to an improvement in well casing rippers in which a blade or knife is held against the well casing by means of water pressure and driven into the well casing and downward by the weight of the drill-pipe on which it is used. It is designed for use with rotary drilling tools and for the purpose of splitting, ripping, perforating, or parting casing in wells at a considerable depth from the surface. I attain these objects by the mechanism illustrated in the accompanying drawing in which:

Fig. 1 is a longitudinal sectional view of my invention,

Fig. 2 is a side elevation of my invention,

Fig. 3 is a side elevation, part in section, taken at ninety degrees from that shown in Fig. 2 and showing also, drill-pipe, attached to the top of the tool, and the casing. Similar letters refer to similar parts in each view.

The lower half of the cylindrical block "*a*" is slotted to receive the flat blade or knife "*b*", which swings freely upon the pin "*c*". To the side of the knife "*b*", is held the vane or blade "*d*" by the screw "*e*". Into the top of the block "*a*", is screwed the hollow tube "*f*", on which slides the cylindrical block "*g*". The block "*g*" is threaded on the upper end to fit an ordinary drill-pipe coupling so that it may be screwed to the bottom of the drill-pipe. On the upper end of the tube "*f*", is screwed a collar "*h*" to prevent the tube "*f*" from slipping entirely through the block "*g*". Or the collar may be an enlargement of the end of the tube "*f*". In the block "*a*", is a passageway or watercourse "*j*" connecting the inside of the tube "*f*" with the small orifice "*k*". The hole left by the drill in making the passageway "*j*" is plugged with the plug "*m*".

When it is desired to split or rip the casing in the lower half of a coupling, so that the casing may be pulled apart at that point, the tool is lowered into the well on the bottom of the drill-pipe in the position shown in Fig. 1, the knife "*b*" hanging vertically by its own weight with the point downward and the vane "*d*" near the orifice "*k*". When the tool has nearly reached the depth in the well, at which it is desired to part the casing, water is forced down through the drill-pipe by means of the pumps used in drilling, through the tube "*f*" and out through the orifice "*k*", striking the vane "*d*" and driving it downward to the position shown in Fig. 3; thus holding the knife "*b*" against the casing. When the tool reaches a casing coupling, the point of the knife "*b*" catches upon the top of the joint of casing below. As the block "*g*" descends, sliding on the tube "*f*", it strikes the top of the block "*a*" as shown in Fig. 3. The drill-pipe is then raised less than the length of the tube "*f*" and let fall, the block "*g*" driving the block "*a*" downward and with it the knife "*b*"; thus splitting or ripping the casing. The tool is then raised above the coupling, turned, and the process repeated at several points in the coupling. This will allow the coupling to be pulled off the joint of casing below it.

In order to use the tool as a ripper or perforator, when it is desired to rip or perforate the casing at some point other than at a coupling, it is only necessary to make the point of the knife "*b*" very sharp and apply enough water pressure through the orifice "*k*" to hold the knife against the casing firmly enough to cause it to catch and enter the casing at the point desired. The ripping or perforating is then done as before by raising and dropping the drill-pipe, a process commonly known among rotary drillers as "spudding".

Having thus described my invention I claim—

The combination, in a well-casing ripper, of a block slotted so as to carry a knife or blade, a knife or blade hinged upon a pin and carrying a projection or vane, a pin, a means of holding the point of said knife or blade against the casing, a water-course or channel through said block, there being an orifice directing the flow of water against

said vane or projection, a threaded recess in the top of said block, a hollow tube one end of which is threaded to screw into said recess and the other end of which is threaded to receive a collar, a collar to screw on said tube, and a second block threaded on one end to receive a drill-pipe coupling and having a hole through it longitudinally to receive said tube.

JOHN ELMER KELLER.

Witnesses:
H. P. HALL,
O. S. O'BRIEN.