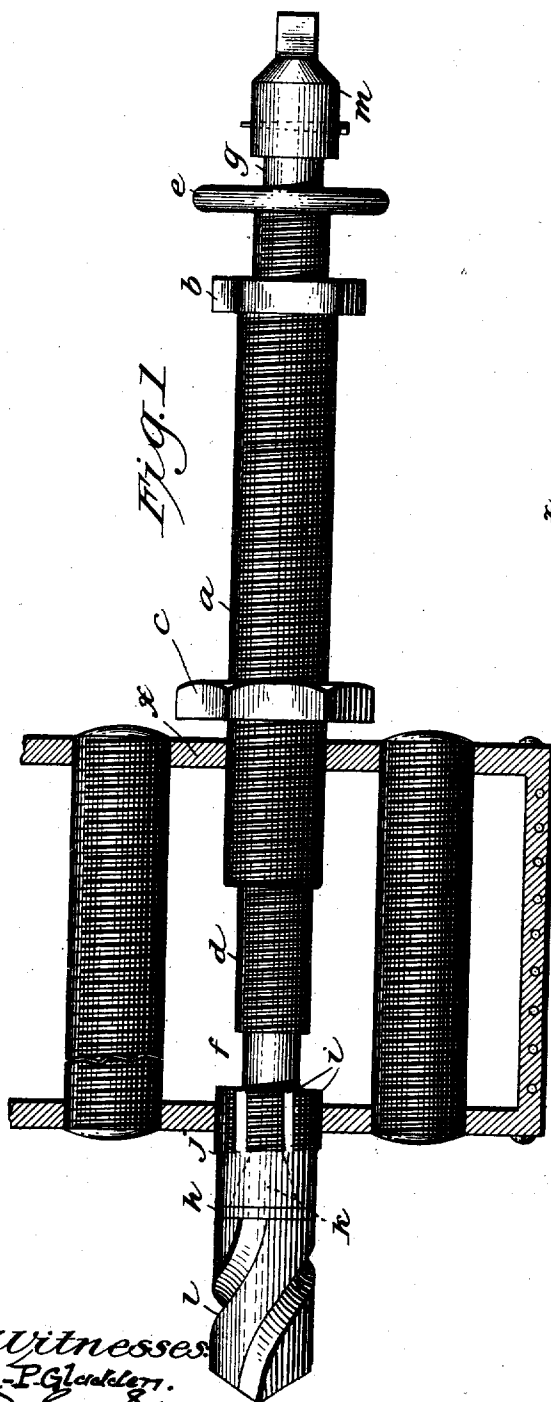


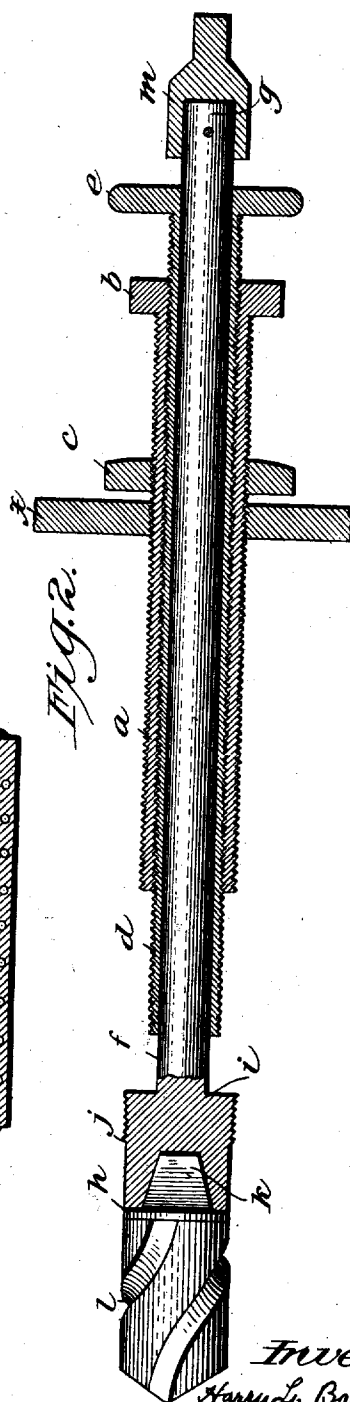
H. L. BARRICKMAN.
STAY BOLT DRILL.
APPLICATION FILED OCT. 7, 1909.

980,139.

Patented Dec. 27, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY L. BARRICKMAN, OF RICHWOOD, WEST VIRGINIA, ASSIGNOR OF ONE-THIRD
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STAY-BOLT DRILL.

980,139.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed October 7, 1909. Serial No. 521,637.

To all whom it may concern:

Be it known that I, HARRY L. BARRICKMAN, a citizen of the United States, residing at Richwood, in the county of Nicholas and State of West Virginia, have invented a new and useful Stay-Bolt Drill, of which the following is a specification.

My invention is a stay-bolt drill for removing broken stay-bolts from the boiler-plate or -sheet behind the engine frame and expansion pad of a locomotive steam-engine, without stripping the engine. I attain this result by means of the mechanism illustrated in the accompanying drawing wherein—

Figure 1 is a side view of the device in operation, and Fig. 2 is a central longitudinal section thereof.

Similar letters refer to similar parts throughout.

In said drawings *a* is a drill-barrel consisting of a cylindrical piece of tool-steel, the length and diameter, approximately, of a stay-bolt, and threaded to correspond with the threads on a stay-bolt, from one end to the other, with the exception of the end *b* farthest from the drill-bit, which end is not threaded, but is of a diameter approximately fifty per cent. greater than that of a stay-bolt, and which enlarged end is nut-shaped, to take the jaws of a wrench which may be used for turning or screwing said cylinder into the threaded hole in the boiler-plate or -sheet *x*, and upon the threads upon the exterior surface of which barrel travels a threaded jam-nut, *c*, and which barrel *a* is cylinder-bored its entire length to a caliber of approximately three-fourths of one inch and threaded on the inside its entire length to take a feed-screw, *d*, which feed-screw is also made of tool-steel, approximately 7 inches in length and of a diameter equal to the caliber of drill-barrel, *a*, with the exception of the end, *e*, farthest away from the seat of the drill-bit, which end *e*, for a distance of about one-fourth of one inch from its end, is enlarged to a diameter several times greater than that of the main feed-screw body and shaped into an annular disk; and which feed-screw, beginning at the end nearest the drill-bit, is spiraled or threaded on its periphery its entire true-cylindrical length to the disk, head or point of enlargement on the other end, to correspond with the female threads within the cylindrical-bored barrel, *a*; and is cyl-

inder-bored its entire length, the caliber of said bore being approximately one-half of one inch, to take the drill-spindle, *f*, which latter is a solid piece of tool-steel, approximately eight inches in length, true cylinder shaped from the end *g*, farthest away from the drill-bit end *h*, to a point *i* within about one inch of the drill-bit end, *h*, from which point, *i*, on to the end, *h*, of said spindle, *f*, the diameter of said spindle, *f*, is increased approximately fifty per cent; and, beginning at a point, *j*, on the periphery of said enlargement, approximately one-half inch from the enlarged end of said spindle, and covering the periphery of the entire portion of said enlargement between the points *j* and *i*, a fluted spiral is laid, corresponding to the spiral or thread on the barrel, *a*; and said larger end, *h*, of which spindle contains, in the center thereof, an angular opening, *k*, approximately one-half of one inch in diameter at its beginning and tapering as it sinks, and approximately three-fourths of one inch in depth, shaped so as to take and hold firmly and truly a drill-bit, *l*; and the opposite end of which spindle, *f*, is shaped to connect with an air-motor or other suitable device, *m*, employed to impart a rotary motion to said spindle and drill-bit.

By means of my device, the drill-containing barrel, *a*, having been turned or screwed into the threaded stay-bolt hole of the anterior boiler-plate or -sheet, *x*, and held firmly and rigidly therein by means of the jam-nut, *c*, the axis of the drill-bit, *l*, is at all times, during the operation of the drill-mechanism, held and maintained in a line with the axis of the broken piece of stay-bolt contained in the hole situated in the posterior boiler-plate or -sheet located approximately four inches in a diametrically opposite position from the stay-bolt hole in the anterior plate or sheet; and said drill-bit, being projected against said broken stay-bolt by means of the feed-screw *d*, and receiving a rotary motion imparted to it by the spindle, *f*, will cut out all of said broken stay-bolt, excepting the spiral or male thread, which latter will be left in the female thread in the boiler-plate or -sheet to be readily removed by the male thread on the spindle *f*, and the female thread will be cleaned out and trued in the same operation for a new stay-bolt.

What I claim as my invention and desire to secure by Letters Patent is:—

The combination of a tubular barrel *a* having an enlargement at one end thereof,
5 a tubular feed screw *d* screw-threaded in said barrel *a*, a spindle *f* fitting and longitudinally movable in said feed screw *d*, and having a drill-bit secured at one end thereof and the other end shaped to engage with a
10 motor or other device suitable for imparting a rotary motion to it, the periphery of the

barrel *a* being screw-threaded from the end nearest the drill-bit to the enlargement at the opposite end of the barrel, and said enlargement being shaped to be engaged by a 15 wrench, and a jam-nut on said screw-threaded periphery of the barrel *a*.

HARRY L. BARRICKMAN.

Witnesses:

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