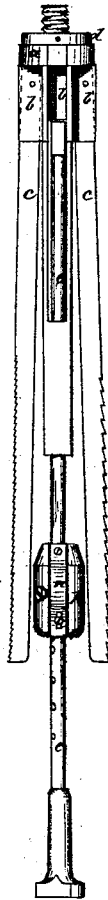
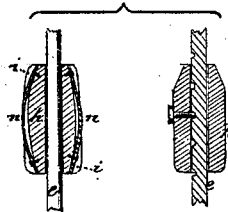


*T. Donnelly,*  
*Enlarging Wells.*  
*No. 111,620. Patented Feb. 7. 1871.*

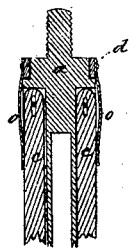
*Fig 1*



*Fig 2*



*Fig 3*



**Witnesses:**

*H. J. Stritz*  
*Thomas R. D. [Signature]*

**Inventor:**

*Thos Donnelly.*

*PER*

*Wm V B*

**Attorneys.**

# United States Patent Office.

THOMAS DONNELLY, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 111,620, dated February 7, 1871.

## IMPROVEMENT IN DEVICES FOR ENLARGING WELLS.

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, THOMAS DONNELLY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Well-Mouse or Device for Enlarging Wells; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a side elevation, with one of the cutting-bars removed; and

Figure 2 is a detached longitudinal section of the adjustable-knob on the drill-rod.

This invention relates to an arrangement of four or more cutting-bars, which are jointed at their upper ends, in sockets formed at the base of a stock, said cutting-bars being held vertical with their backs against the stock, by means of springs attached to a ring that is slipped over and suitably secured to the stock, there being a jar-stem connected with said stock in such manner as that the latter has a vertical play thereon, on which jar-stem a knob is so secured that it may be slipped upward or downward on the stem, said knob being provided with as many external grooves running lengthwise as there are cutting-bars, so that when the stock and cutting-bars are forced downward the latter at the same time are, by reason of their riding the springs in the grooves of the knob, forced outward until they strike the walls of the well and thus enlarge the bore.

In the drawing—

*a* is the stock.

*b*, the sockets, constructed at the base of the same.

*c*, the cutting-bars, jointed at their upper ends in the sockets *b*.

*d*, a ring, that is slipped over the stock *a*, and has attached to it at points equidistant apart springs, *e*, which hold the cutting-bars against the stock.

*e* is the jar-stem, which enters a cylindrical orifice bored in the lower part of the stock *a*, and is provided with a head that slides in a slot cut in the stock above

the orifice, this being the usual manner of connecting the parts of a jar.

*h* is the knob, fitted to the jar-stem, and held in any desired position thereon by means of a set-screw entering at its point one of a series of conical depressions formed in the stem.

*i* are longitudinal grooves, cut or otherwise formed in the knob *h*, and corresponding in number with the cutting-bars.

Secured at one end in these grooves *i* are springs, *n*, which serve to relieve the cutting-bars from too great a shock.

The drill having been removed from the rod and the above-described apparatus attached in its place, the latter is let down into the well until the jar-stem strikes the bottom; the cutting-bars are then forced downward, and, coming in contact with the springs and rounded bottom of the grooves, they are forced outward and in contact with the wall of the well as they descend with sufficient force to chip away the surface.

The extent to which the cutting-bars are forced outward may be regulated by changing the position of the knob on the stem.

The springs prevent the cutting-bars from striking with too great force against the walls of the well.

As soon as the apparatus is drawn upward above the knob the spring attached to the ring on the stock forces them against the stock, so as to be out of the way in withdrawing them from the well.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the stock *a*, sockets *b*, cutting-bars *c*, springs *d*, jar-stem *e*, and knob *h*, as and for the purpose described.

THOS. DONNELLY.

Witnesses:

GEO. W. HUMBERT,  
ANDREW HUMBERT.