

WILLIAM H. DOWNING.

Improvement in Devices for Cutting off Tubes.

No. 124,198.

Patented March 5, 1872.

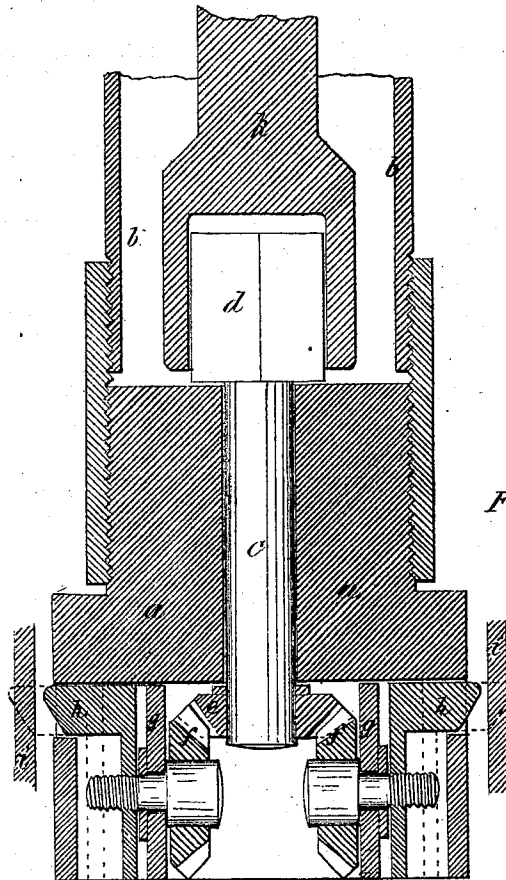


Fig. 1.

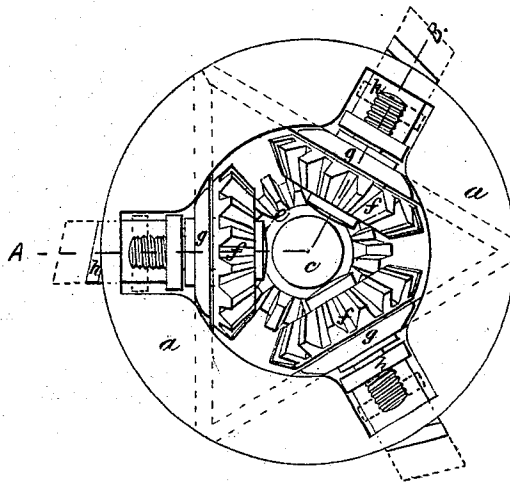


Fig. 2.

J. H. Beach

Witnesses:

J. P. Bushnell

William H. Downing

Inventor

by A. B. Howland
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UNITED STATES PATENT OFFICE.

WILLIAM H. DOWNING, OF SHAMBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO BENJAMIN MASSETH, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR CUTTING OFF TUBES.

Specification forming part of Letters Patent No. 124,198, dated March 5, 1872.

SPECIFICATION.

Specification describing certain Improvements in Casing-Cutters, invented by WILLIAM H. DOWNING, of Shamburg, in the county of Venango and State of Pennsylvania.

My invention relates to the class of devices used for cutting off and removing the outer tubing or casing in artesian wells whenever said cutting or removal becomes necessary by reason of the casing getting fast and wedged within the bore of the well.

Figure 1 is a vertical section of a cutter embodying my invention taken on line A B of Fig. 2, and Fig. 2 is an inverted plan of the same.

a is the frame or body, within which the cutters and the mechanism for feeding them are placed. A screw-thread is cut upon its upper end, so that it can be attached to and lowered into the well by means of the tubing *b*. *c* is a vertical spindle passing through the central upper portion of the body *a*. Said spindle is provided with a square head, *d*, at its upper end, for use as hereinafter described, and has a small bevel-gear wheel, *e*, fixed upon its lower end. Said gear-wheel *e* meshes into three similar bevel-gear wheels, *f f f*, with horizontal axes, having their supports or bearings in the plates *g g*. A screw-thread is cut upon the axis of each of the gears *f f f*, as shown. *h h h* are adjustable cutters, made of the form shown, and projecting through and beyond the outer surface of the body *a*. The threaded axes of the gears *f* pass through the cutters *h*, as shown. The upper and lower surfaces of the cutters *h*, where they pass through and outside of the body *a*, are parallel and horizontal. *i* represents a section of the casing upon which the tool is to be used.

Assuming that the casing *i* has become fast and immovable in the well, and that it is desired to cut apart and remove it, the tool is

screwed upon and lowered into the well by means of the ordinary well-tubing *b* until it reaches the desired point, when the tubing is supported by clamps at the top of the well, and a rod or rods, *k*, provided with a square socket at its lower end, is lowered down within the tubing *b* until its socket passes over the square head of the spindle *c*, when the operation of the device is as follows: By turning the rod *k* and spindle *c*, the cutters *h*, moving upon the threaded axes of the gears *f*, are "fed" outward until they come in contact with the inner surface of the casing *i*. The tubing *b* is then rotated to the right, carrying with it the cutting-tool. As the cutting progresses, the cutters are fed outward by rotating the rod *k* until the casing is cut through, when it will be seen that the weight of the casing is borne by and upon the projecting ends of the cutters. The rod *k* may then be withdrawn from the tube *b*, when, by raising the latter, the whole device, and with it the casing, may be drawn out of the well. A reverse rotation of the rod *k* withdraws the cutters, if desirable, and the entire manipulation of the work is under the positive and convenient control of the operator at the top of the well at whatever depth the cutting is required.

The dotted lines represent the varying position of the cutters.

I claim as my invention—

The described arrangement and combination of the spindle *c*, with its bevel-gear *e*, the bevel-gears *f f f*, with horizontal threaded axes, and the cutters *h h h*, moving upon and held in place by the latter, the whole being placed within the body *a*, and operated by means of the tube *b* and rod *k*, substantially as and for the purposes set forth.

WILLIAM H. DOWNING.

Witnesses:

C. L. POOR,
W. H. MCKE.