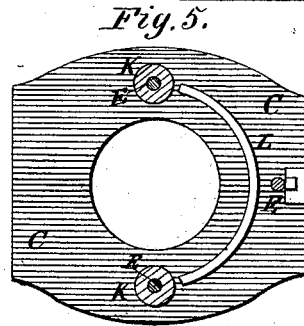
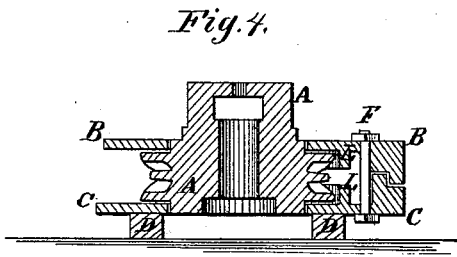
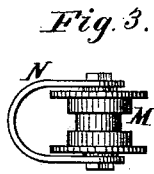
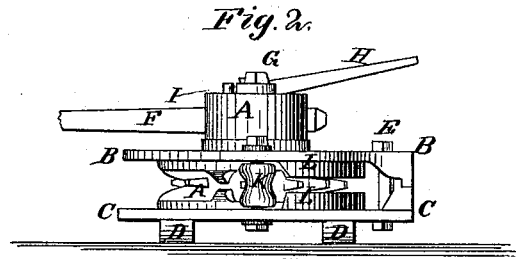
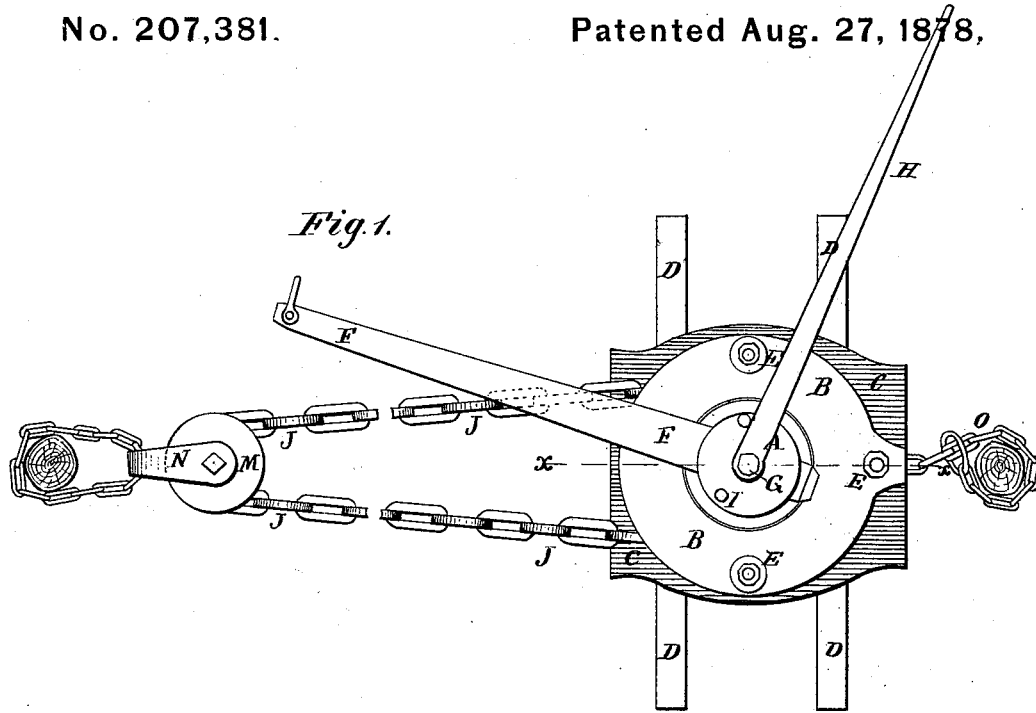


A. J. ALLEY.  
Stump-Extractor.

No. 207,381.

Patented Aug. 27, 1878.



WITNESSES:

*Henry N. Miller*  
*C. Sedgwick*

INVENTOR:

*A. J. Alley*  
BY *Miner*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ALBERT J. ALLEY, OF FOND DU LAC, WISCONSIN.

## IMPROVEMENT IN STUMP-EXTRACTORS.

Specification forming part of Letters Patent No. 207,381, dated August 27, 1878; application filed June 14, 1878.

*To all whom it may concern:*

Be it known that I, ALBERT J. ALLEY, of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Stump-Pullers, of which the following is a specification:

Figure 1 is a top view of my improved machine. Fig. 2 is a side view of the capstan and its attachments. Fig. 3 is a side view of the pulley-block. Fig. 4 is a detail vertical section taken through the line *x x*, Fig. 1. Fig. 5 is a detail top view of the lower capstan-plate.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved stump-machine, grubber, or capstan-power for pulling stumps and grubs, for moving buildings, and for other similar uses, and which shall be simple in construction, convenient in use, effective in operation, and comparatively inexpensive in manufacture.

A is the capstan, which revolves in holes in the plates B C. The lower plate, C, is bolted to two runners, D, upon which the machine is moved from place to place.

The plates B C are secured to each other, securing the capstan A between them, by three bolts, E. The capstan A is kept from longitudinal movement between the plates B C by shoulders formed upon it, and which bear against the inner sides of the said plates B C.

The capstan A is made of cast-iron and hollow, so that it may be made of suitable size without being too heavy, and in its upper end is formed a cross-mortise to receive the end of the sweep F, to the outer end of which the horse is attached, and which is secured in place by a single bolt, G, passing in through the closed upper end of the said capstan.

H is the lead-bar, the inner end of which is pivoted to the upper end of the capstan A by the bolt G, that secures the sweep F to the said capstan.

Upon the upper end of the capstan A are formed, or to it are attached, two stops, I, to prevent the lead-bar H from being drawn too close to the sweep F, and at the same time to allow it to be swung from one side to the other when the motion of the capstan A is reversed

by changing the horse from one side to the other of the sweep F.

The capstan A, between the plates B C, has cogs and ribs formed upon it for the main chain J to fit upon, so that the said chain J cannot slip upon it. The chain J is kept in place upon the capstan A by two guide pulleys or rollers, K, placed upon the side bolts E, and by the curved flanges L formed upon the inner side of the plates B C, around the rear side of the capstan A, the edges of the said flanges being far enough apart to allow the outer edges of the horizontal links of the chain J to pass between them. The chain J also passes around a pulley, M, the block, case, or clevis N of which is secured to a stump or post in any convenient position.

The pulley-block M N serves simply to keep the chain J extended and prevent the accumulation of slack at the side of the capstan. The main chain J need not necessarily be endless, as shown in Fig. 1; but an open chain may be used, if desired. In this case one end of the chain J may be secured to the capstan-frame, and its other end attached to the end of a lighter chain passed around a second guide-pulley, and having its other end hooked into the said main chain J, the object of the lighter chain being simply to take care of the slack of the main chain J; or one end of the main chain may be attached to the stump or grub to be pulled, and a light chain attached to its other end, passed around a guide-pulley, and having its other end hooked into the said main chain, the object of the light chain, in this case also, being simply to take care of the slack of the said main chain J. In the first case short chains are attached to the stumps or grubs to be pulled, and then hooked into the main chain J. In the second case the pulley-block M N is attached to the stump or grub to be pulled.

The capstan is anchored to a stump or post by a short chain, O, through a link or hook of which the rear bolt, E, passes.

When an open chain J is used, and the said chain has been drawn nearly out of the capstan, the horse may be turned to the other side of the sweep F, the lead-bar H swung around to rest against the other stop I, and

the capstan turned in the other direction, thus avoiding the trouble and labor of drawing the said chain back through the capstan.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the capstan, connect-

ing with stump-holding mechanism by chain J, of the sweep F, lead-bar H, and stops I, arranged as and for the purpose specified.

ALBERT J. ALLEY.

Witnesses:

GEO. P. KNOWLES,  
C. W. FLOWER.