

(No Model.)

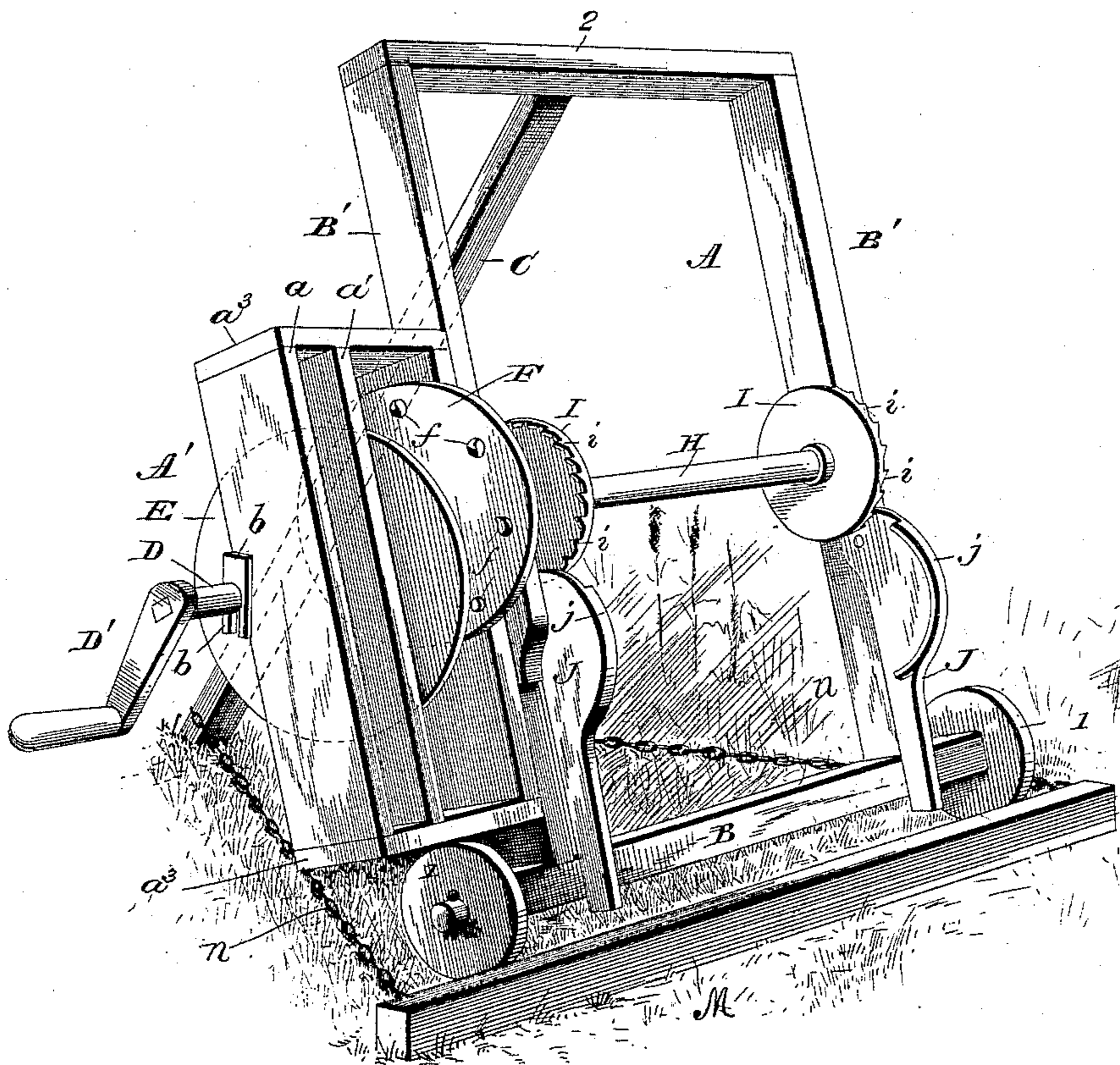
2 Sheets—Sheet 1.

A. ARONS.
STUMP PULLER.

No. 431,929.

Patented July 8, 1890.

Fig. 1.



Axel Arons

Inventor

by *[Signature]*
Attorney

Witnesses

L. S. Elliott.

E. M. Johnson

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

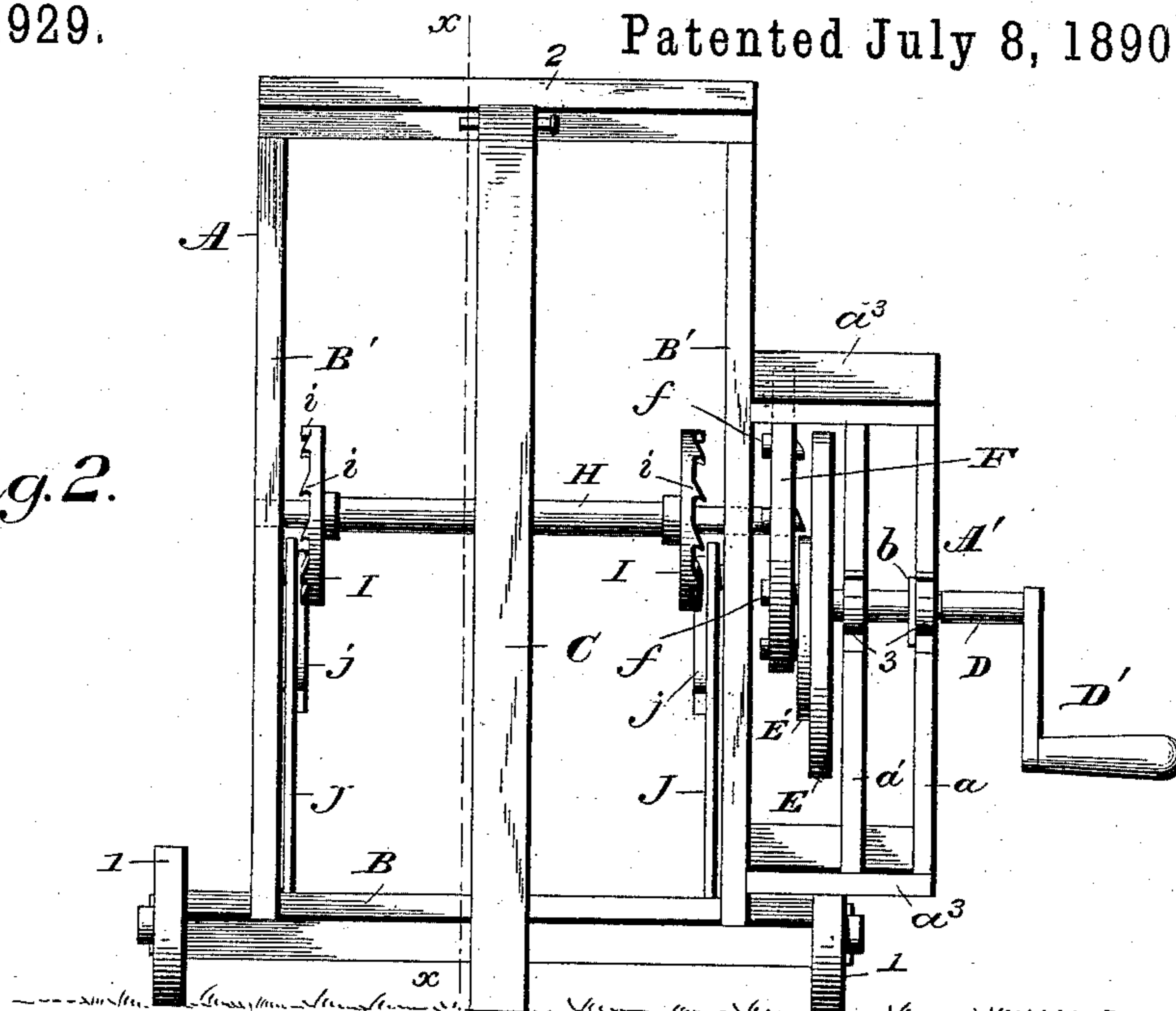


Fig. 3.

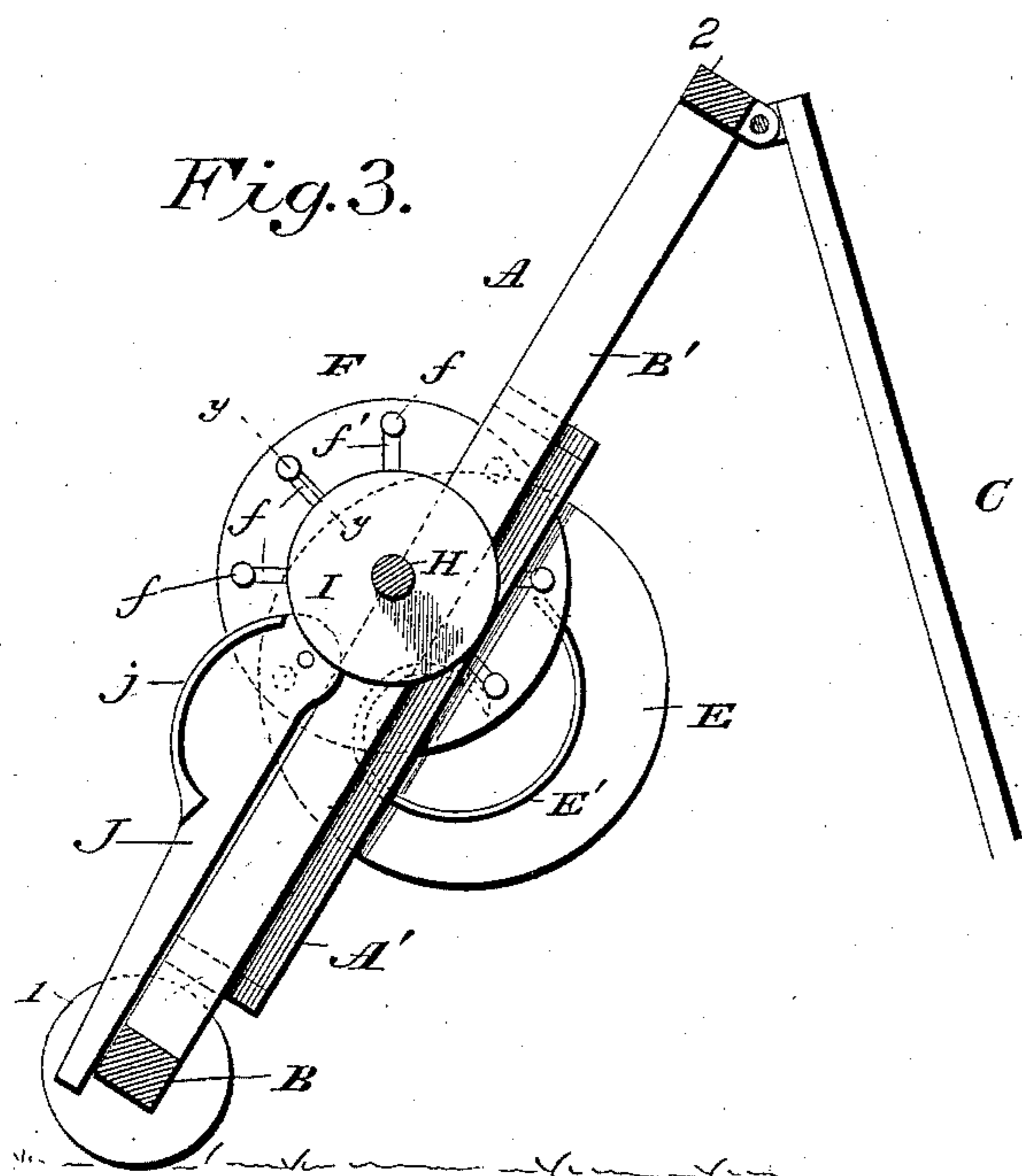
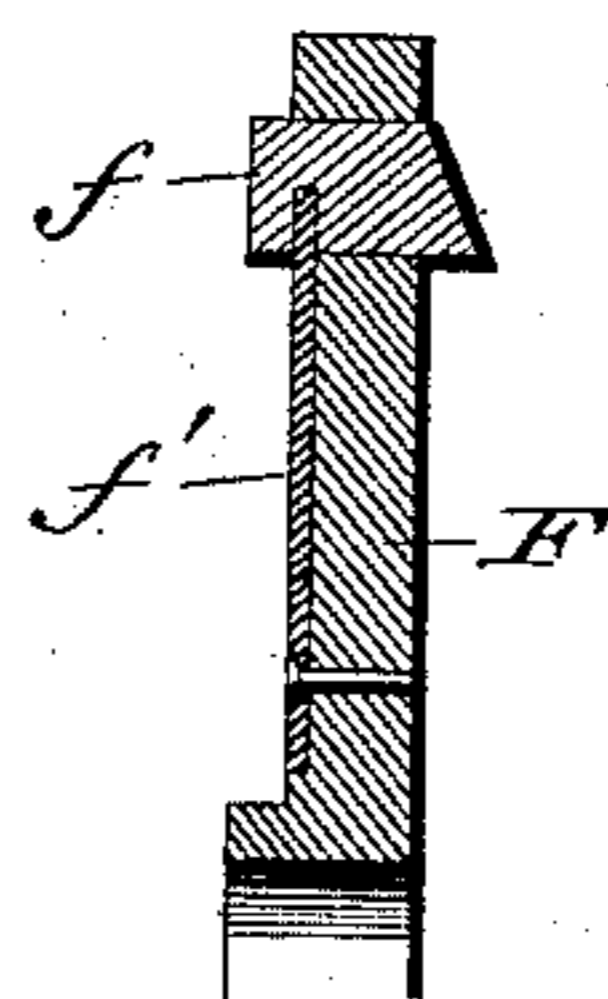


Fig. 4.



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UNITED STATES PATENT OFFICE.

AXEL ARONS, OF CUMBERLAND, WISCONSIN.

STUMP-PULLER.

SPECIFICATION forming part of Letters Patent No. 431,929, dated July 8, 1890.

Application filed January 23, 1890. Serial No. 337,816. (No model.)

To all whom it may concern:

Be it known that I, AXEL ARONS, a citizen of the United States of America, residing at Cumberland, in the county of Barron and State of Wisconsin, have invented certain new and useful Improvements in Stump-Pullers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in stump-pullers; and it consists in the special construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a stump-puller constructed in accordance with my invention. Fig. 2 is a rear view. Fig. 3 is a vertical sectional view taken through the line *xx* of Fig. 2. Fig. 4 is a detail sectional view on line *yy* of Fig. 3.

A refers to the main frame of the apparatus, which is mounted on a horizontal beam B, the ends of which carry rollers or wheels 1 1 for moving the machine from place to place. To the beam B are secured vertical beams B', which are connected to each other at their upper ends by a transverse beam 2, to the central portion of which is hinged a leg C.

To one side of the frame A and rigidly attached to one of the side beams B' thereof is a supplemental frame A', made up of vertical pieces *a a'*, as shown, which are braced by transverse strips *a³*. The vertical pieces *a* and *a'* of the supplemental frame are provided with bearings or boxes 3 3 for supporting a shaft D, which is laterally movable in said bearings, and one end of this shaft has attached thereto a crank-handle D', while the opposite end carries a disk E, upon the inner face of which is formed a projecting scroll E', which scroll or spiral begins at a point adjacent to the center of the disk and terminates at a point near the periphery thereof. This scroll may be either formed integral with the

disk or bolted thereto. The shaft D is provided with annular grooves or recesses, within which the journals or boxes lie, so that the shaft can be moved laterally to throw the scroll out of engagement with the disk F, to be hereinafter described, and it can be held in engagement therewith by a bifurcated key *b*, which is passed over the shaft D on either side of the board *a*.

H refers to the main shaft or drum, which is journaled in boxes secured to the beams B', and to this shaft or drum the flexible connection (not shown) is attached, so that when the shaft is turned it will wind thereon, the other end being secured to the stump. To one end of this shaft is rigidly secured a disk F, which is provided adjacent to its periphery with a series of perforations, in which are located spring-teeth *f*. The projecting portions are beveled. These teeth are projected or thrown outwardly by means of springs *f'*, which engage with recesses formed therein, said springs being attached to the disk by means of screws or bolts. By this construction it will be seen that the teeth *f* are projected automatically outward, so as to engage with the projecting scroll on the disk E, and will be moved inward when they contact with said scroll, as when the drum or shaft H is being turned in an opposite direction.

The shaft H between the side beams B' is provided with circular plates I, the outer face of each being provided with ratchet-teeth *i*, which are rounded and undercut on one edge, while the remaining portion is beveled, as shown, and with these teeth curved flanges *j*, formed on the levers J, engage, said levers being pivoted to blocks fastened to the side beams, a sufficient space between the disk and side beam being left to allow the lever to pass over the teeth, and when thrown in engagement with said teeth the lever may be depressed to rotate the drum H.

When the device is to be operated, the frame is so arranged on the ground that the drum to which the chain is attached will be over the stump, and after the chain is made fast thereto the shaft D is moved to one side, so that the projecting scroll formed on the disk E will engage with one or more of the teeth *f* in the disk F, after which the shaft

can be turned and the chain tightened. After the chain is tightened to the full extent of the crank-shaft the operator or operators grasp the ends of the levers J and by raising them cause the projecting flanges to engage with the ratchet-teeth on the disks I, and as these levers are worked alternately or simultaneously the drum is further rotated sufficiently to remove the stump.

It will be observed that the ratchet-teeth *i* are concaved on the surface with which the curved flanges on the levers J engage, so that when power is applied to said lever it will not slip off the ratchet, and as the faces of these ratchet-teeth are beveled the levers will be thrown to one side when raised.

Having thus described the essential features of the improvement, I reserve the right to modify the proportions and the construction of the parts upon which no special stress has been laid without departing from the spirit of my invention.

The disk E, attached to the shaft D, may be placed at an angle with said shaft and with the face of the disk F, so that the projecting scroll will better engage with the teeth thereon; but this scroll may be thicker at one end and thereby accomplish the same result. The teeth carried by the disk F are rounded on one side, so that there will be but little contact of the scroll therewith, while the faces are beveled, so that when said disk is moved in an opposite direction the teeth will move inwardly and over the scroll.

A transverse sill M is employed to rest upon the ground and bear against the wheels 1 1, so as to not only "chock" the same, but serve as a medium for the connection of chains *nn*, extending each side of the machine and connected to the leg C to limit the spread of the machine.

I claim—

1. In a stump-extractor, a wheel or disk E, provided with a scroll E', in combination with a disk or wheel F, carrying near the circumference thereof a series of spring-actuated teeth *f*, with which the scroll is adapted to engage for the purpose of rotating the shaft upon which the disk F is mounted, substantially as set forth.

2. In combination with a driving-shaft D, carrying a projecting scroll, a second shaft H, having a disk mounted thereon with a series of spring-projected teeth *f*, which engage with the scroll and ratchet-wheels, and levers with curved projecting flanges on said second shaft for engagement with the ratchet-teeth, substantially as shown.

3. In a stump-extractor, the combination of a suitable supporting-frame, a shaft D, mounted in bearings and supported to move laterally, said shaft carrying a disk with a projecting scroll, substantially as shown, together with a second shaft carrying a disk with teeth which are adapted to engage with the scroll, and a disk with ratchet-teeth with which levers pivoted to the frame of the machine engage, substantially as shown, and for the purpose set forth.

4. In a stump-extractor, a shaft or drum H, mounted in a suitable frame and provided with disks having ratchet-teeth *i*, with inclined edges, and levers J, pivoted to the frame and provided with curved projecting flanges *j*, adapted to engage with the concaved faces of the ratchet-teeth, substantially as set forth.

5. In a stump-extractor, a laterally-movable shaft mounted in a suitable frame and provided with a crank-handle at one end and at the opposite end with a disk having a projecting scroll thereon, a shaft H, journaled to one side of the first-mentioned shaft and provided with a disk F, carrying near the periphery thereof a series of spring-projected teeth having beveled edges, the shaft or drum H being also provided with ratchet-disks, beneath which are pivoted levers having inwardly-projecting portions which are curved and engage with the ratchet-teeth when the levers are raised, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

AXEL ARONS.

Witnesses:

WM. SCHULTZ,
THOMAS WALSH.