2 Sheets—Sheet 1.

J. D. SMITH.

Stump-Extractor.

No. 204,627. Patented June 4, 1878.

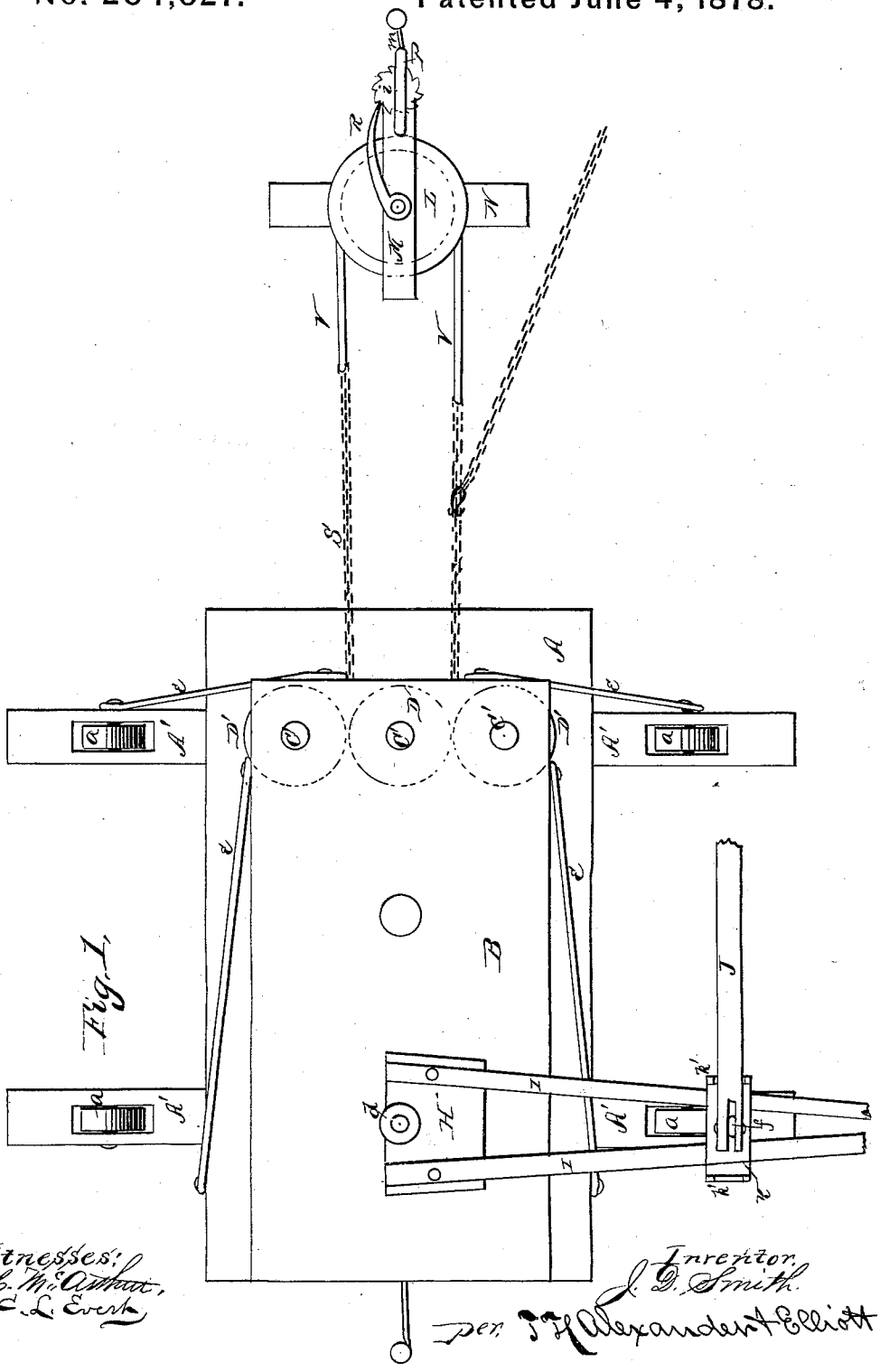

Fig. 1.

Witnesses:
W. C. McArthur,
C. L. Everett

Inventor.
J. D. Smith.
per Alexander & Elliott
Attorneys.

2 Sheets—Sheet 2.

J. D. SMITH.

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No. 204,627. **Patented June 4, 1878.**

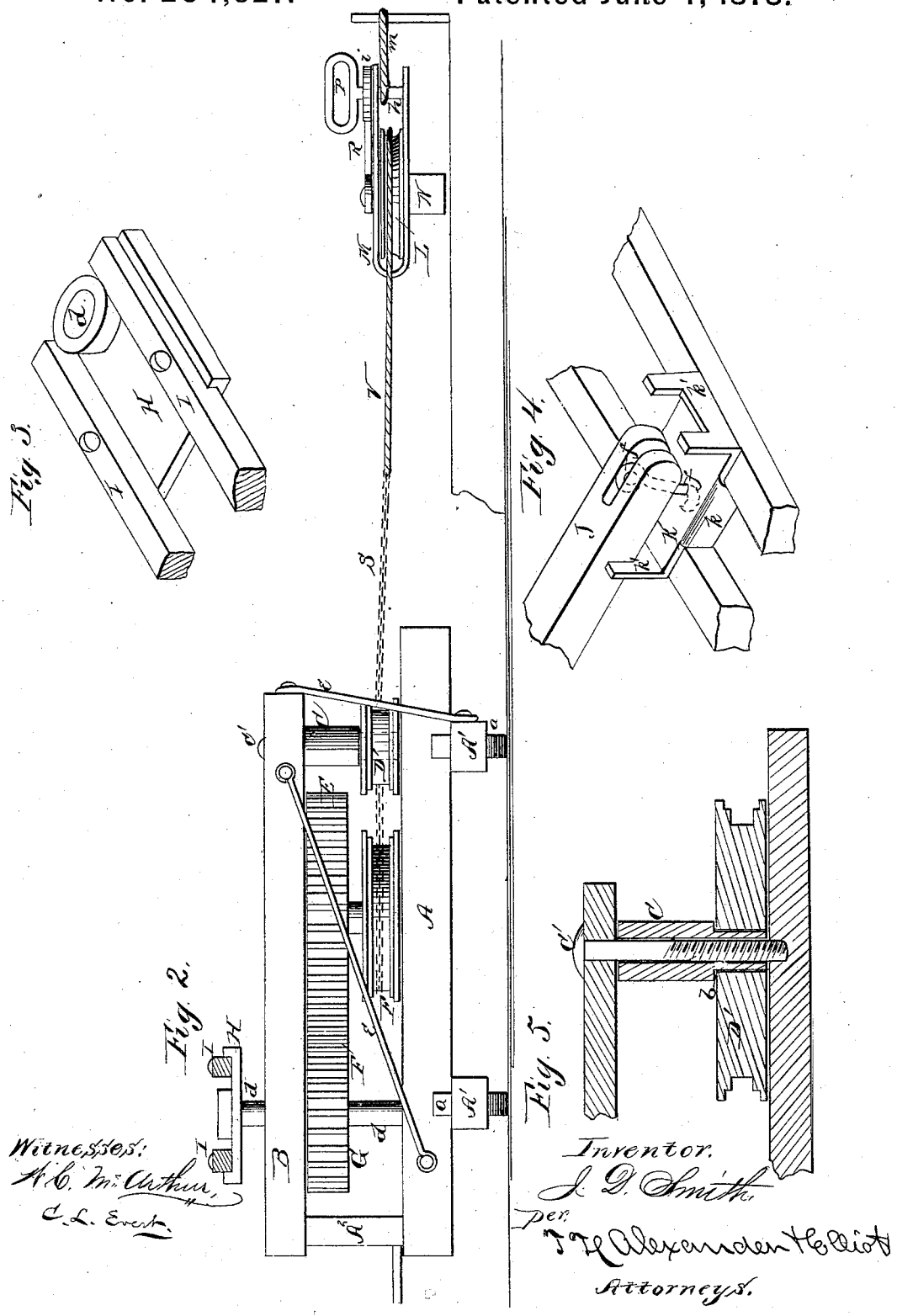

Fig. 3.

Fig. 4.

Fig. 2.

Fig. 5.

Witnesses:
H. C. McArthur,
C. L. Evert.

Inventor.
J. D. Smith.
per
T. Alexander Elliott
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH D. SMITH, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN STUMP-EXTRACTORS.

Specification forming part of Letters Patent No. **204,627**, dated June 4, 1878; application filed April 30, 1878.

To all whom it may concern:

Be it known that I, JOSEPH D. SMITH, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Stump-Extractors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to stump-pullers; and it consists in certain improvements upon Letters Patent No. 201,297, granted to me March 12, 1878, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of my improved stump-puller. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the inner end of the sweep. Fig. 4 is a similar view of the center portion of the sweep. Fig. 5 is an enlarged detailed section of a part of the frame.

A represents the bed-piece or platform, secured upon sills A^1 A^1, which have wheels or rollers *a a* mounted in mortises near their ends. At the rear end of the platform A is a cross-bar, A^2, to which the cap or top-plate B is secured. The front end of the cap B is supported by means of tubes or sleeves C C, through which bolts or screws C′ C′ are passed for connecting the cap to the platform. The lower end of each tube or sleeve C is turned down, as shown at *b* in Fig. 5, to form a bearing for the side roller D′. D is the center roller between the rollers D′. E is the large cog-wheel on the shaft, with sprocket-wheel F, and G is the cog-wheel, to the shaft *d* of which the power is applied. These wheels are all constructed and arranged in the same manner as described in my former patent above referred to. The cap B is braced to the platform A and sills A^1 by means of braces *e e*, substantially in the manner shown. To the upper end of the shaft *d* is secured a flanged casting, H, on top of which are firmly bolted two bars, I I, forming the sweep. The outer ends of these bars are brought together, fastened by bolts, and provided with a suitable clevis for attaching the team. About midway on top of the sweep is secured a plate or casting, K, which has downwardly-projecting side flanges *k k*, fitting between the two bars I I, and acting as central braces for the sweep. At each end of the plate or casting K is an upwardly-projecting crotch, *k′*, to receive and hold the bar J, the front of which is to be attached to the collar of the horse. The inner end of this bar J is pivoted to a rod, *f*, which is swiveled in the center of the plate K, so that the bar J can easily be turned over or swung around from one side to the other. L represents the pulley, mounted in a frame, M, and said frame secured to a bar, N, in the same manner as in my former patent. In the present case I extend the frame M in the rear, and provide the same with an upright shaft or roller, *h*, provided with a suitable eye, P, to receive a lever for turning the same. I also provide said shaft or roller with a ratchet-wheel, *i*, into which takes a pawl, R, pivoted on the frame M. To the shaft *h* is attached a rope or cable, *m*, the other end of which is to be anchored at any suitable distance from the machine. S is the chain, which passes around the sprocket-wheel F, and its ends between the center roller D and side rollers D′ D′. In my former patent this chain also passed around the pulley L in the frame M, and said pulley-frame had at all times to be anchored at the same distance from the machine. This is oftentimes inconvenient, and sometimes impossible to do; and to obviate such difficulty I attach to one end of the chain S a strap, cord, or cable, V, and this is passed around the pulley L, and then fastened by a hook to any link desired in the chain, leaving one end of the main chain free to be placed around the stump, or for the attachmetn of other chains, as may be desired. This, in connection with the rope or cable *m* and windlass on the pulley-frame M, admits of anchoring the machine in any place and of using a comparatively short chain where otherwise a very long one would be required.

It will be noticed that, when the cord or cable V is attached as described, there is nevertheless an endless connection between the

sprocket-wheel F and pulley L, just the same as in my former patent.

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

1. The shaft *h*, with eye P, ratchet-wheel *i*, and pawl R, in combination with the pulley L, pulley-block M, and bar N, for the purposes herein set forth.

2. The combination of the pulley-frame M, pulley L, windlass *h* P, pawl and ratchet *i* R, cable *m*, and chain S with cord or cable V, for the purposes herein set forth.

3. The plate or casting K, with side flanges *k k*, and end crotches *k' k'*, in combination with the sweep I I, bar J, and swiveled rod *f*, substantially as and for the purposes herein set forth.

4. In combination with the platform A and cap B, the shouldered sleeves C, pulleys D', and bolts or screws C', substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH D. SMITH.

Witnesses:
T. H. ALEXANDER,
A. V. ELLIOTT.