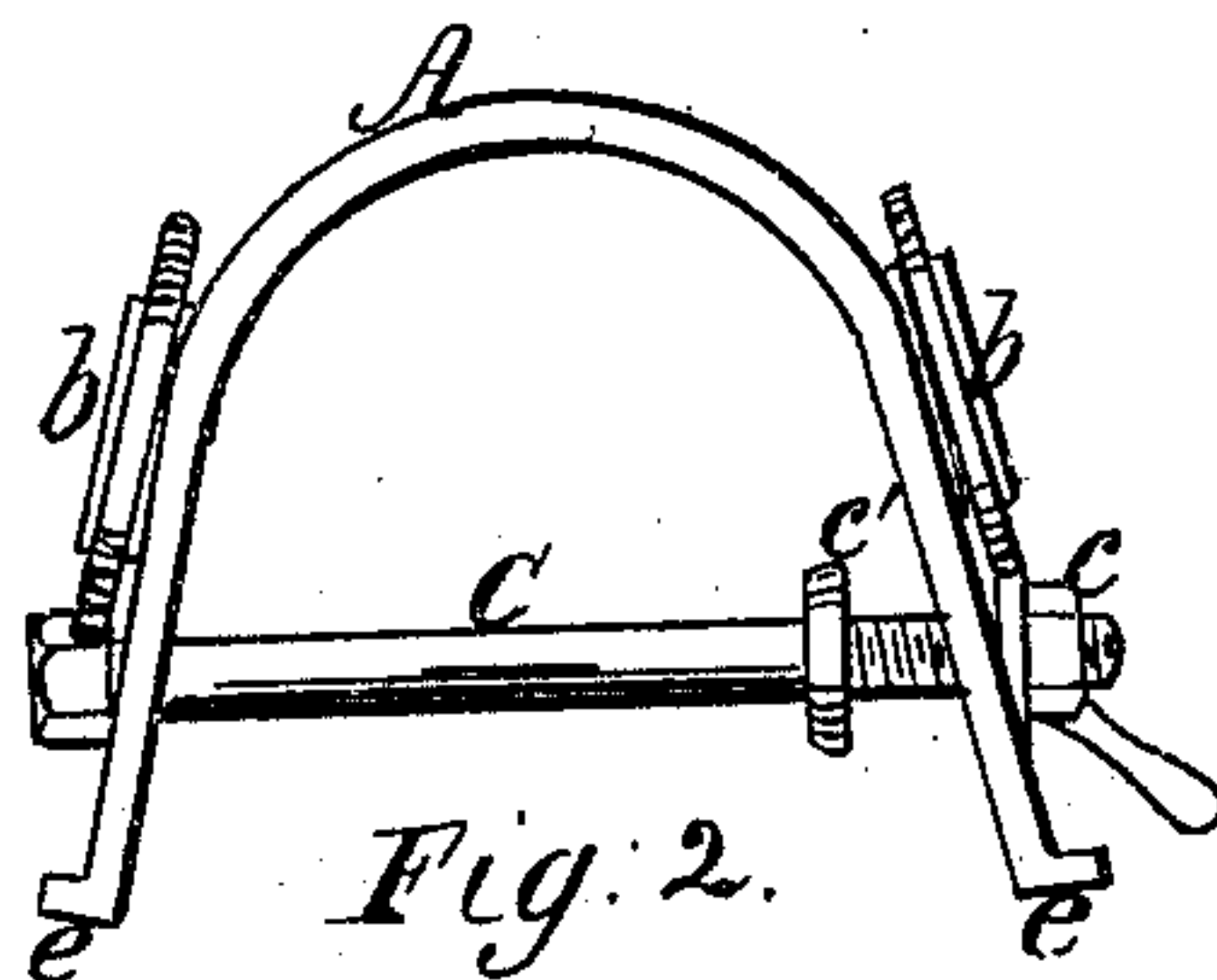
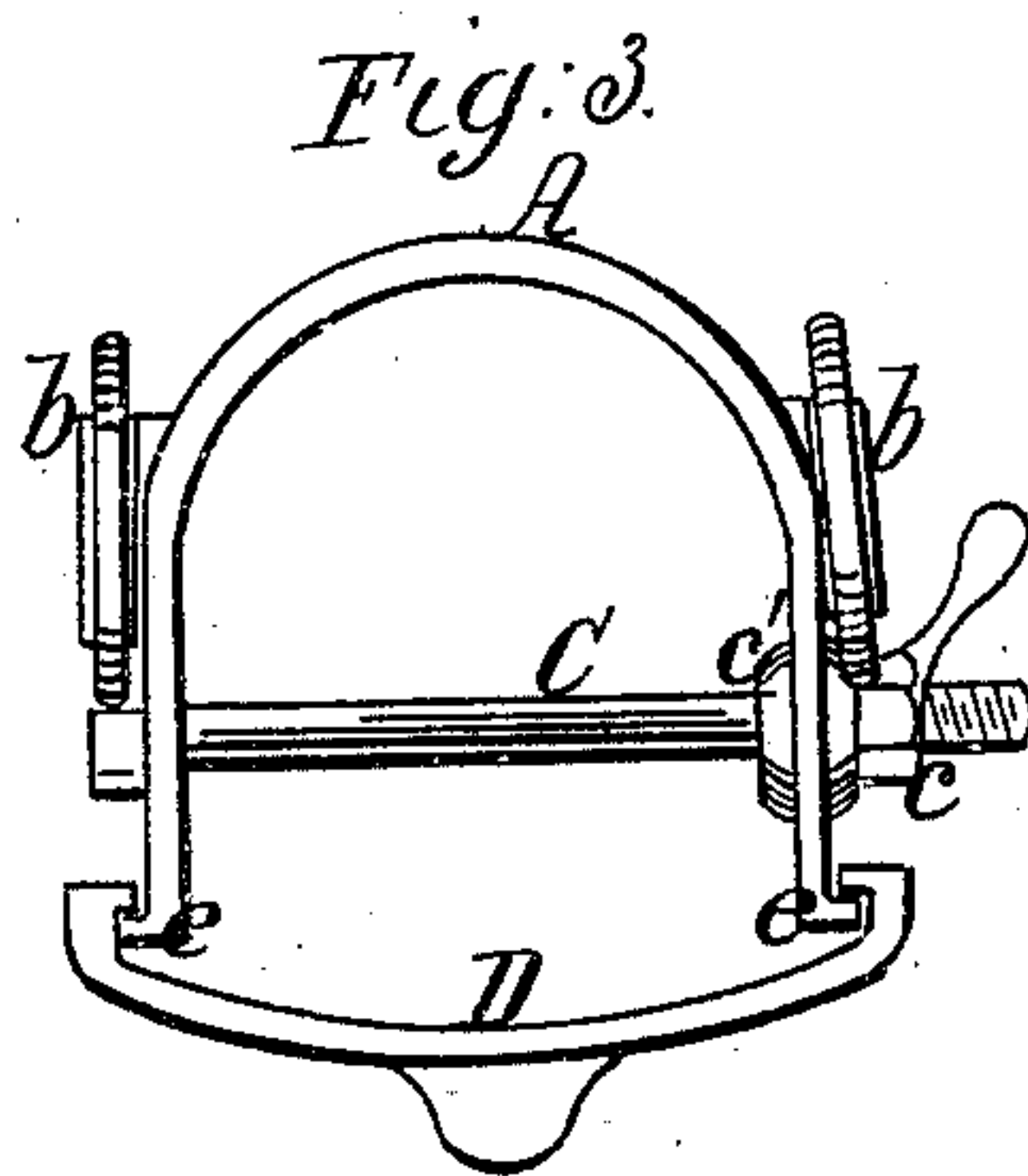
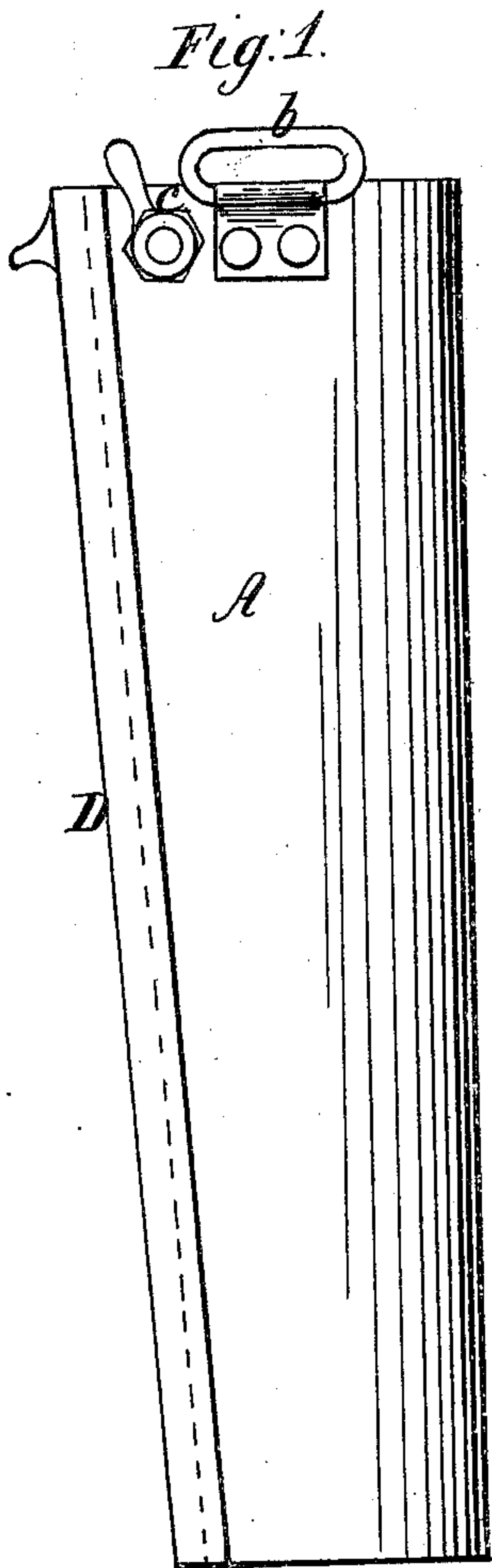


*H. Sutliff.*  
*Transplanter.*  
*N<sup>o</sup> 94,790. Patented Sept. 14, 1869.*



*Witnesses,*  
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# United States Patent Office.

HENRY SUTLIFF, OF WAVERLY, NEW YORK.

Letters Patent No. 94,790, dated September 14, 1869.

## IMPROVEMENT IN POST-HOLE EXCAVATORS.

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, HENRY SUTLIFF, of Waverly, in the county of Tioga, and State of New York, have invented a new and improved Post-Hole Excavator; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure I is a side elevation of my improved instrument, in the position it is when withdrawn from the earth.

Figure II is a plan of the semi-cylindrical portion, as it appears when thrust into the ground.

Figure III is a plan of the same after its sides have been compressed and the slide connected therewith, preparatory to drawing it from the hole.

Like letters refer to like parts in each of the figures.

My improved excavator consists of a semi-cylindrical or U-formed spade, of a diameter equal to that of the required post-hole, which is forced into the ground to the required depth of the hole, when its sides, at the top, are compressed, by means of a cross-rod and nut, so as to permit a slide to be connected with the edges thereof, which is then forced into the earth, whereby the instrument is partially freed from contact with the sides of the hole, and the dirt, within the instrument sufficiently compressed to be retained therein and withdrawn with the instrument.

In the drawings—

A represents the U-formed portion of my instrument, slightly tapering toward the lower end, and preferably made of steel, with sharpened lower end, of suitable thickness and strength to adapt it to withstand the strain it is subjected to in being forced into the earth. It is provided with suitable handles *b b*, for holding and withdrawing it from the ground.

C is a cross-rod, connecting the sides near the top, provided with a hand-nut, *c*, by which the sides are compressed, as before stated, and with a stop, *c'*, which

prevents the contraction beyond the degree necessary to permit the engagement therewith of the slide D. This slide is preferably made of slightly curved form, and of suitable strength and material, and with a sharpened lower end, to enable it to be readily thrust into the earth. Its edges are turned inward, so as to engage with the portion A, by hooking around the edges thereof, which are bent outward for the purpose, as shown at *e*, Fig. III.

In operating with my improved excavator, which is designed for loose soils, comparatively free from stone, the U-portion is first forced into the ground by the foot, after the manner of an ordinary spade, with its sides slightly distended, as indicated in Fig. II.

The sides are then drawn together, by turning the hand-nut *c*, till they assume the position, or substantially that shown in Fig. III, which permits the engagement of the end of the slide D therewith. This slide is now forced with the earth, gradually compressing the sides of A and the dirt therein as it descends. This contraction of the sides and compression of the earth, in connection with the lesser area of the lower end of the excavator, frees the instrument from its adherence to the sides of the hole, and enables it and the dirt therein to be readily withdrawn together, leaving the hole of the required size, and excavated to the required depth.

It is evident that the manner of connecting the slide with the portion A may be varied, without changing the nature of my instrument.

The advantages of my improvement are obvious.

What I claim as my invention, is—

The rod and nut C *c*, arranged and operating with the partially-cylindrical portion A and slide D, substantially as set forth.

HENRY SUTLIFF.

Witnesses:

HOWARD ELMER,  
C. A. THOMPSON.