

W. T. DUNN & J. P. SILLIMAN.
Extensible Brace for Excavations.

No. 168,085.

Patented Sept. 28, 1875.

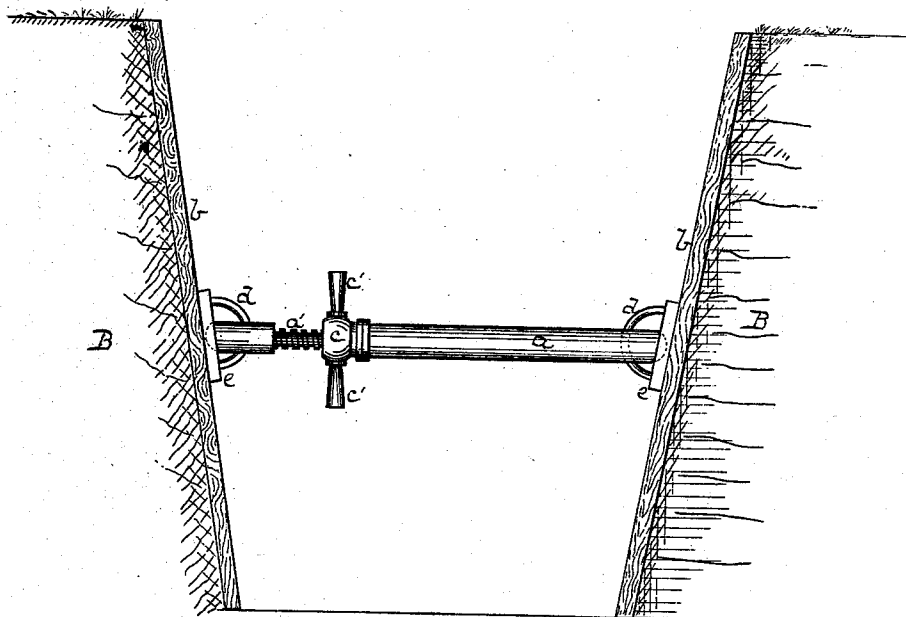


FIG. 1.

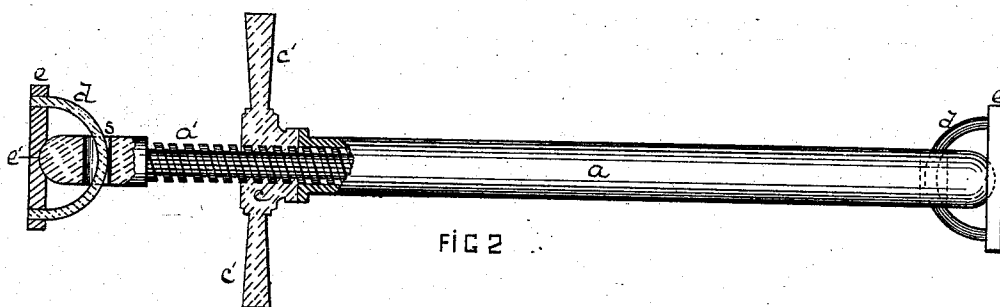


FIG 2

WITNESSES.
Claudius Parker
J. E. Boggs

INVENTOR
William T. Dunn,
James P. Silliman
by George H. Christy
their Atty.

UNITED STATES PATENT OFFICE

WILLIAM T. DUNN, OF PITTSBURG, AND JAMES P. SILLIMAN, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN EXTENSIBLE BRACES FOR EXCAVATIONS.

Specification forming part of Letters Patent No. **168,085**, dated September 28, 1875; application filed September 1, 1875.

To all whom it may concern:

Be it known that we, WILLIAM T. DUNN, of Pittsburg, and JAMES P. SILLIMAN, of Allegheny, county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Cross-Brace or Support for Earth-Excavations; and we do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—like letters indicating like parts—

Figure 1 illustrates our improvement as employed in actual use; and Fig. 2 is an enlarged view, partly in section, of the device itself.

In making deep cuts or excavations, especially in laying gas and water pipe, and in constructing sewers, difficulty is met with and danger encountered in many soils from the caving in of the sides or walls of the excavation. To avoid this heavy planks have been set up against the walls, directly opposite each other, and a cross-timber inserted between the two, which, if not cut to the right length, had to be driven down or recut, or wedged up at one or both ends, and timber cut to the right length for one part of the excavation is seldom of just the right length for another part. In any case material is wasted, time and labor lost, and the work, which often requires haste, is seriously delayed. By our improvement we make an extensible brace or cross-piece, which is adjustable for all ordinary breadths of such excavations, and which is fitted with a self-adjusting shoe at each end, whereby a broad, firm bearing is secured, and one not liable to rotate. At B B we have shown the walls of an ordinary street-excavation. To prevent caving we set up the usual planks *b b*. Our extensible brace or cross-support consists of a tubular piece, *a*, and a threaded stem, *a'*, which enters the tubular aperture of the piece *a*, and is adjustable in or out, so as to increase or lessen the length of the entire device, by means of a screw-nut, *c*,

which works on the stem *a'*, and in so doing bears against the end of the piece *a*. To each end of the device we attach a shoe, *e*, which gives a seat, as at *e'*, for the end of the piece to which it is attached, and by having a broad bearing on the plank *b* prevents the ends of the extensible parts from breaking through the planks. The nut *c* is turned by a wrench or by arms *c'*, or in any other suitable way, and to prevent the parts *a a'*, either or both, from rotating, we connect each shoe *e* with its piece by means of a *U*, *d*, fixed to each shoe, and passing through a hole or slot, *s*, as shown. The joint permits the shoes *e* to adapt themselves to the shape of the plank *b* on which they bear, while at the same time accomplishing the useful results above referred to.

The construction may be varied somewhat without any substantial departure from the thing invented, the essential elements being a brace made in at least two pieces, extensible in or on each other by means of a screw-joint, and a self-adjusting shoe affixed at each outer end in such manner as to prevent one or both the parts from rotating when the screw is operated, and also so as to give a firm, even bearing against the sloping walls of the excavation.

We claim herein as our invention—

1. The self-adjusting shoes *e*, capable of automatic adjustment to the slope of the excavation, permanently connected with, to, and in combination with, the parts *a a'*, extensible by a screw-joint, substantially as set forth.
2. The shoes *e* attached to the outer ends of the extensible parts *a a* by means of *U*-shaped clips *d* playing loosely in slots or holes *s*, the combination of said parts named being substantially as set forth.

In testimony whereof we have hereunto set our hands.

WILLIAM T. DUNN.
JAMES P. SILLIMAN.

Witnesses:

JAMES M. CHRISTY,
GEO. H. CHRISTY.