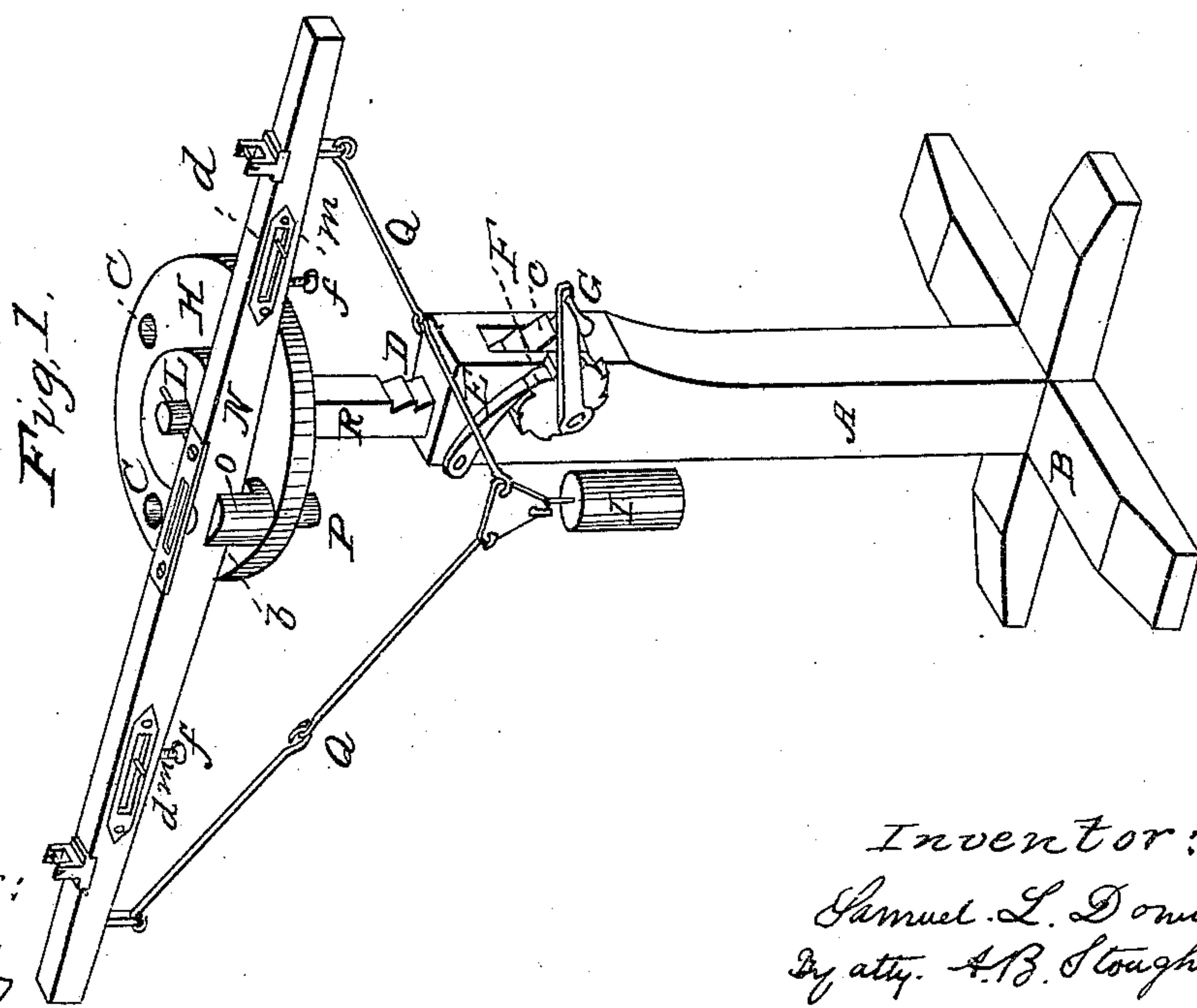
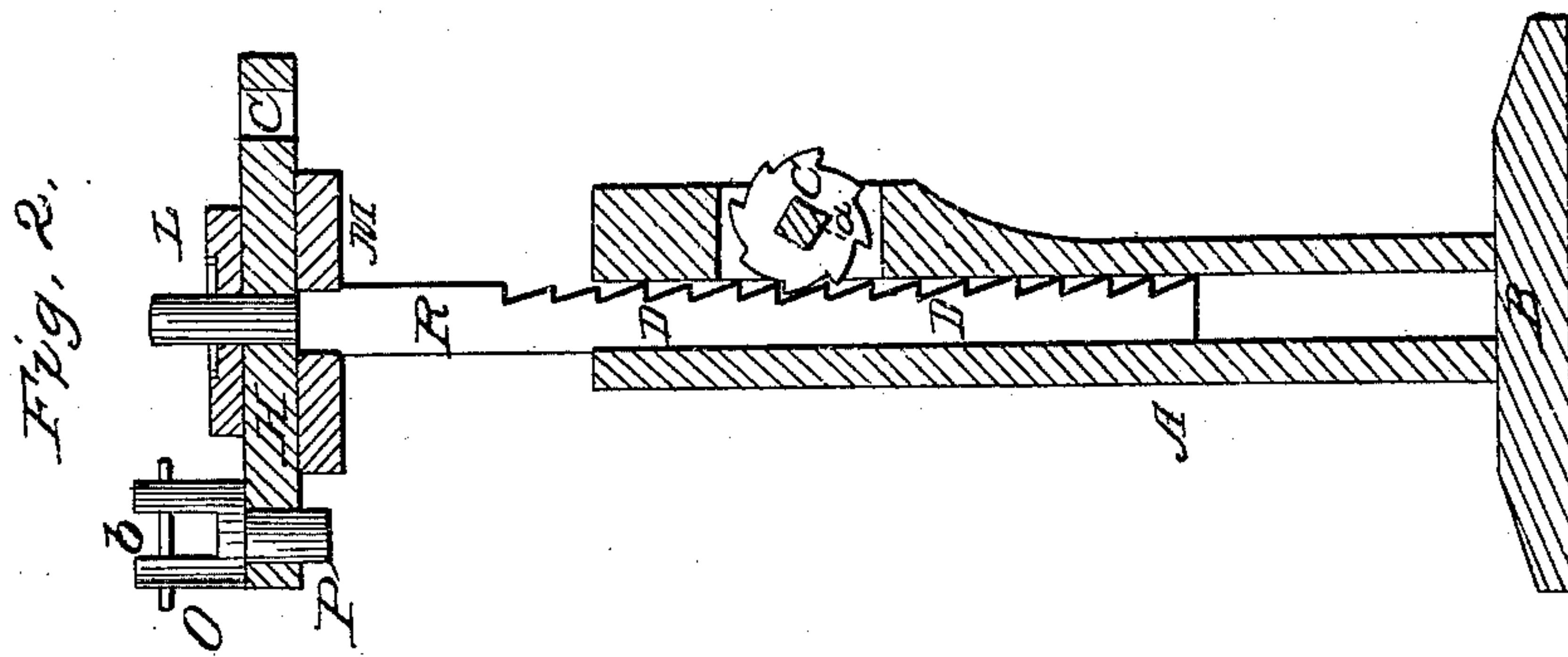


S. L. DONNELL.  
Leveling Instrument.

No. 29,955.

Patented Sept. 11, 1860.



Witnesses:  
E. Cohen  
J. Hersch

Inventor:  
Samuel L. Donnell  
By atty. A. B. Stoughton

# UNITED STATES PATENT OFFICE.

SAMUEL L. DONNELL, OF SOUTH CARROLL, TENNESSEE.

## GRADING INSTRUMENT.

Specification of Letters Patent No. 29,955, dated September 11, 1860.

*To all whom it may concern:*

Be it known that I, SAMUEL L. DONNELL, of South Carroll, in the county of Carroll and State of Tennessee, have invented certain new and useful Improvements in Horizontal Land and Grade Levels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of said leveling instrument. Fig. 2 represents a vertical central section through the stand of the instrument.

My invention relates to the arrangement of a suspended bubble block with a plumb, sliding weights, and a stand to which the bubble block is suspended by means of which the adjustments for leveling and grading can be made with great facility and sufficient accuracy while the entire instrument is simple in its construction and adaptable to easy transportation.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A represents the stand of the instrument the foot, B, of which may be made removable for transportation. The stand, A, is hollow and the square rod, R, which supports the table and instrument is inserted in the hollow stand and may be raised or lowered by means of the ratchet C, which meshes into the rack D, the former being prevented from turning backward by the pawl, E, which bears against the teeth of the ratchet F; both ratchets are secured to the shaft, *a*, and may be turned by means of the crank, G.

H represents a disk or table which is set loosely on the round end of the rod, R, and

which is held between the two stationary plates L, M. It can turn on the rod, R, and serves to support the bubble block N, which is pivoted at, *b*, to the swivel block, O, the shank, P, of which is inserted into either of the holes, *c*. The bubble block, N, is held in a horizontal position by means of the plumb, I, which is suspended to the same by means of the chains or rods, Q, which are secured to said bubble block at or near its ends.

*d*, represents sliding weights which are secured in recesses within the bubble block and which can be moved longitudinally by means of their protruding pins or shanks, *m*. They serve the purpose of adjusting the position of the bubble block when the instrument is to be used for grading and afford the means of making the nicest adjustments without the application of screws or other devices used heretofore. When adjusted to their proper positions the weights, *d*, are secured by means of the set screws, *f*, by which they are prevented from moving.

The position of the bubble block when set on the table, H, may be adjusted by either turning the swivel block, O, or by turning the table on the rod R and the desired elevation is obtained by turning the crank G.

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

The arrangement of the suspended bubble block, N, with the sliding weights, *d*, plumb, I, turning table, H and supporting rod, R, substantially in the manner and for the purpose herein described.

S. L. DONNELL.

Witnesses:

W. W. HERRON,  
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