

(No Model.)

A. J. SPRAGUE.

HARROW.

No. 321,458.

Patented July 7, 1885.

Fig. 1.

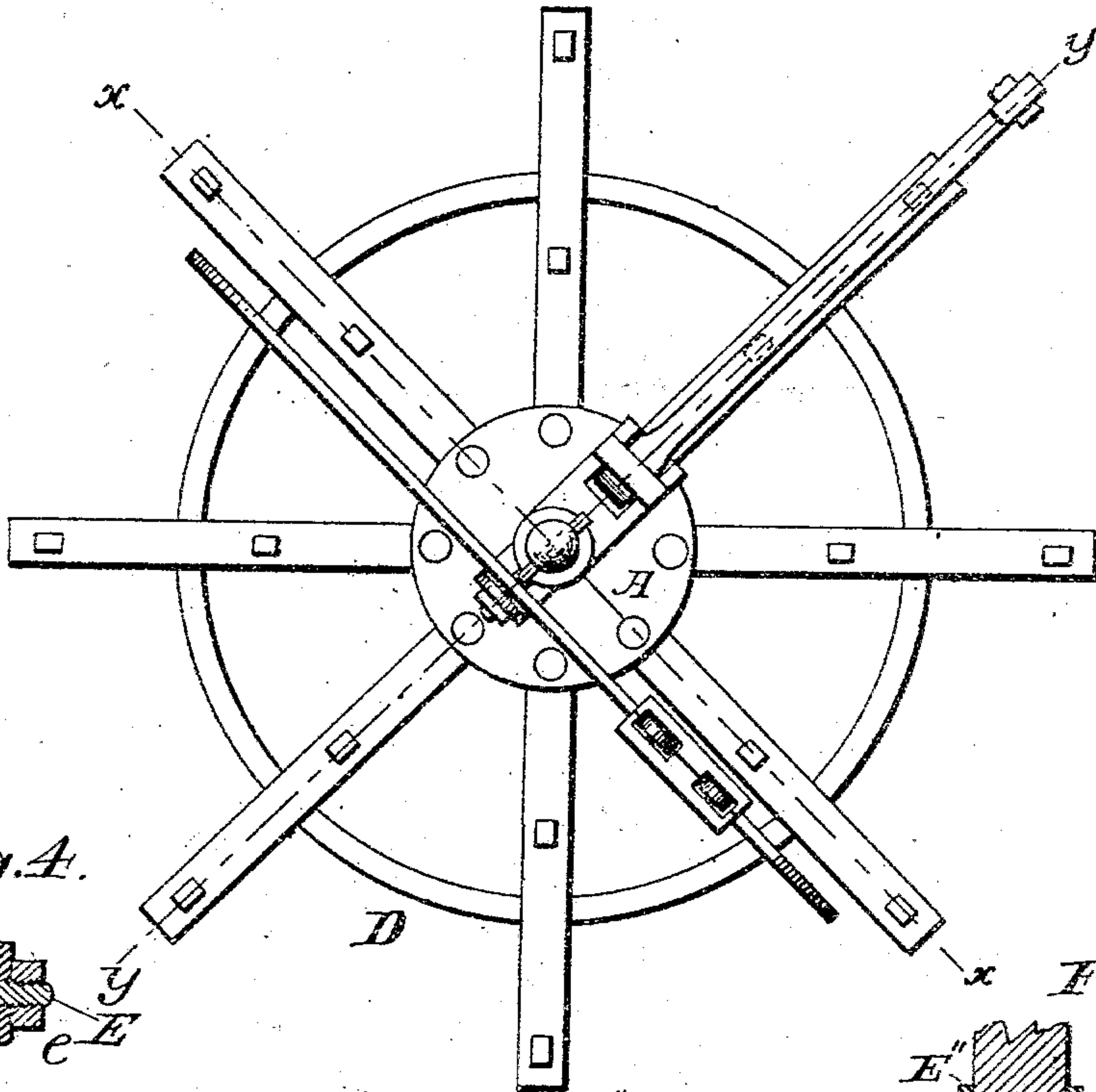


Fig. 4.

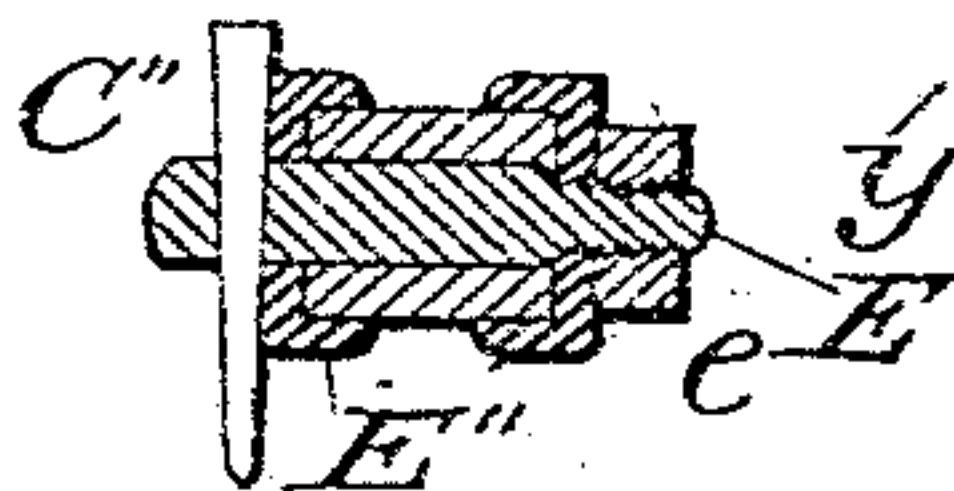


Fig. 2.

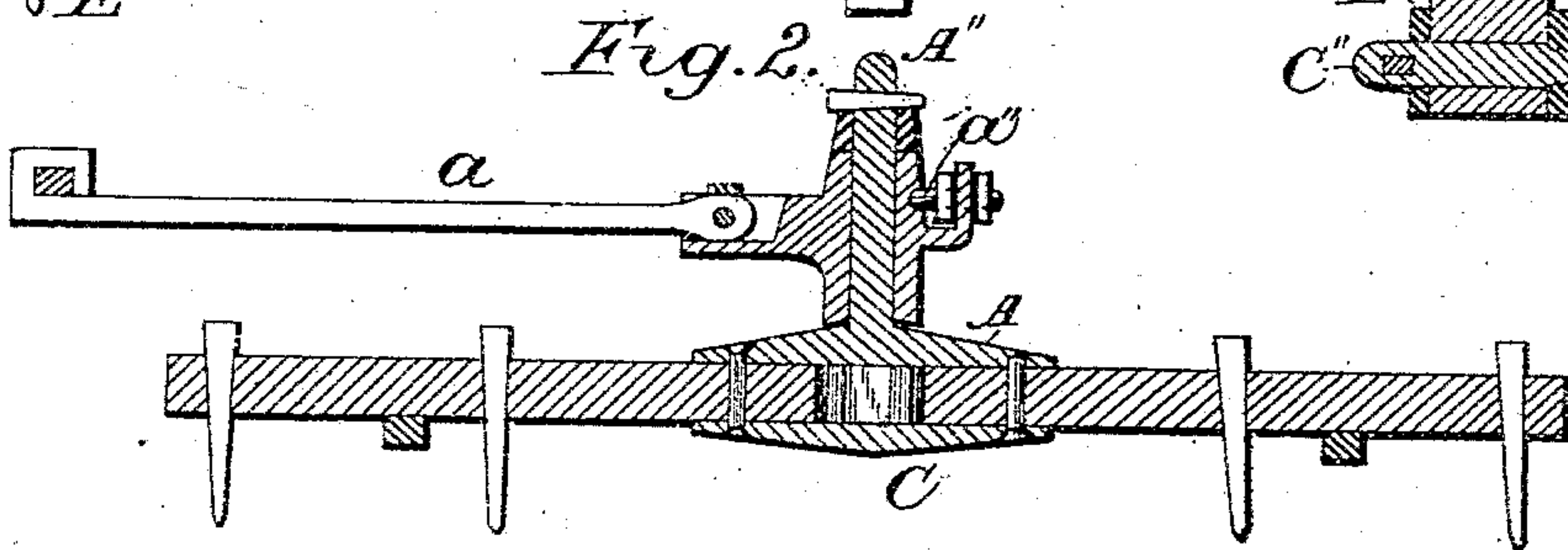


Fig. 5.

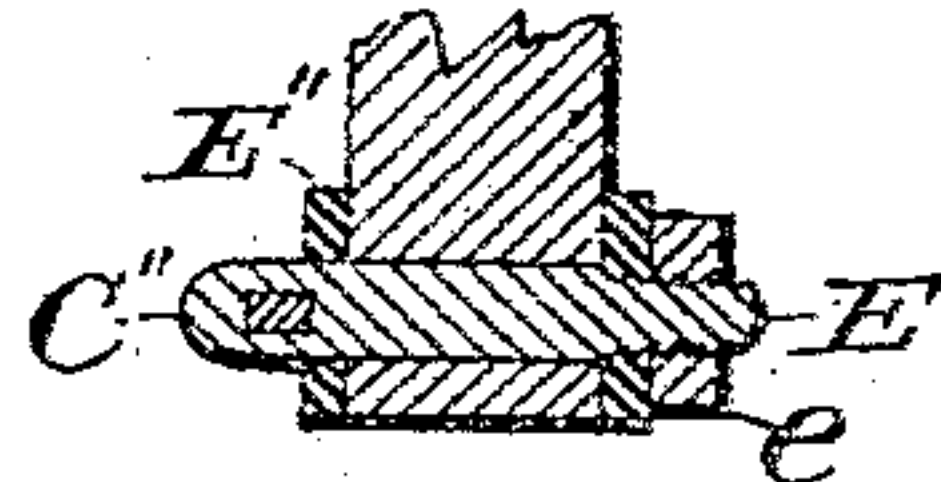
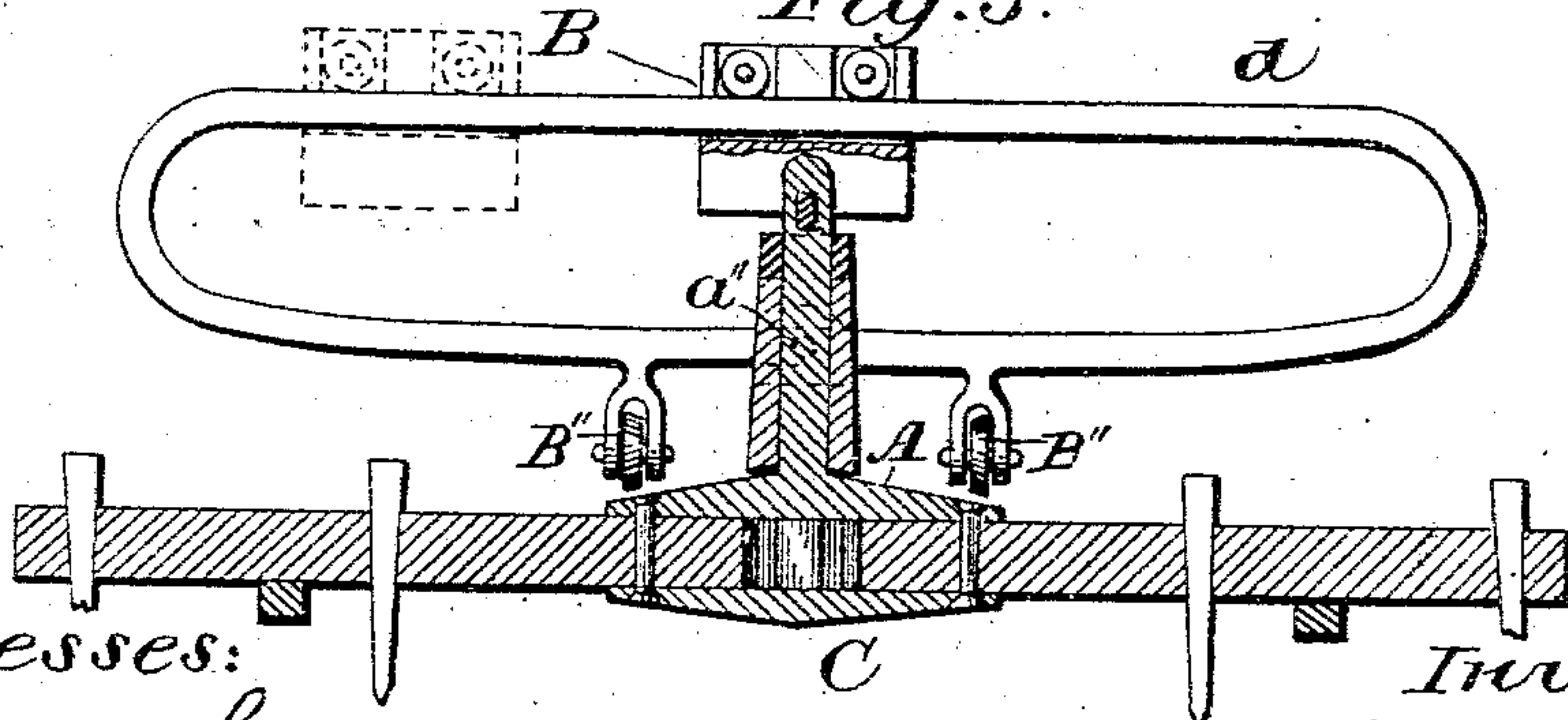


Fig. 3.



Witnesses:
J. Harwood
H. Mahoney

Inventor:

Albert J. Sprague

UNITED STATES PATENT OFFICE.

ALBERT J. SPRAGUE, OF CLARINGTON, OHIO.

HARROW.

SPECIFICATION forming part of Letters Patent No. 321,453, dated July 7, 1885.

Application filed October 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. SPRAGUE, a citizen of the United States, residing at Clarington, in the county of Monroe and State of Ohio, have invented a new and useful Improvement in Harrows, of which the following is a specification.

My improvement relates to revolving harrows, as presently shown and explained by the following drawings and specification.

Figure 1 is a top view. Fig. 2 is a vertical sectional view of the draft-beam and the spindle upon which the same revolves when said draft-beam is in its true position on the harrow, taken in the line of yy , Fig. 1. Fig. 3 is a cross-vertical sectional view taken in the rear of the draft-beam c^2 and spindle A'' , Fig. 2, in the line of xx , Fig. 1, showing the arrangement used to change the rotation of the harrow. Figs. 4 and 5 are sectional views showing the tooth-fastening devices.

The main point of my improvement consists in the ease and ready manner with which the rotation of the harrow can be changed, suited both to level and hilly land, to work either automatically or to be readily controlled by hand, as hereinafter explained.

Aside from my improvement, my harrow revolves upon a spindle like other rotary harrows in use, the construction of which is well known to those skilled in this art. I prefer, however, to run all the beams to point to and meet at one common center, and to hold the beams firmly together I bolt them between two iron plates, A and C , Figs. 1, 2, and 3, and which may be further strengthened with iron bands, like D , Fig. 1, bolted to the beams.

To the upper plate, A , is fastened a spindle to answer as a revolving hub for the rotation of the harrow, and to which the end of the draft-beam a is attached, secured at the upper end of the spindle with a washer and pin, as shown at A'' , Fig. 2.

I am fully aware that the above last-described construction is old, and therefore I do not claim it, but only my combination, which consists of a traveling weight supported on wheels upon a frame, d , which is attached to the rear of the said draft-beam a , across or at right angles with the same, on a pivot or pin, a'' , Figs. 2 and 3, and which frame d is supported

on caster-wheels B'' , one of which comes to a bearing on plate A , Figs. 1 and 3, when the motion is changed.

I am also aware that others use wheels to relieve the spindle from friction and strain, but not in the manner described by me.

It is plain to be seen from the above construction that said weight-frame d has two motions—one horizontal, the other an up-and-down tilting motion, so to speak—that is to say, said frame d being fastened to the rear end of the said draft-beam, as explained, must follow it as it turns horizontally supported on one of said wheels B'' ; and also as the said weight-frame, standing in a line at right angles with the draft-beam, turning on a pivot, a'' , Figs. 2 and 3, will tilt down when the harrow is used on hilly land by reason of the traveling wheels B on said frame, by their own gravity, running to the lower side to overbalance the weight, to change the motion of the harrow.

The said wheels B are attached to a kind of frame-work to travel on the weight-frame d , the construction of which is plainly shown by Fig. 3.

No particular form is required for the successful working of said wheels, and it is immaterial whether the weight is on the frame which holds the wheels or the wheels themselves are made sufficiently heavy to overbalance said frame d , and therefore I do not limit myself to any precise mode of construction.

While it is a matter of ease for a harrow to work automatically on hilly land, cases often arise where the incline of the ground is not sufficient to overbalance the weight to change the rotation; but with my arrangement described, by the merest lift of the hand, the said weight-frame can be tilted over to control the motion.

Fig. 4 is a vertical sectional view across the harrow-beam, and Fig. 5 is a horizontal sectional view.

Experience has shown that unless a tooth be firmly secured to the harrow-beam it will soon be wrenched off in striking roots or stones, &c. I overcome this difficulty by using two washers, each with a double lip, and place one on each side of the beam to clasp it firmly, and through said washers I run a bolt hori-

zontally, with a vertical eye at one end, to hold the tooth, with a nut on the bolt to tighten the same, as shown by tooth C, bolt E, washers E'', and nut e, Fig. 4.

5 I do not claim my said invention, broadly; but

What I do claim, and desire to secure by Letters Patent, is—

The self-adjusting tilting weight-frame d,

pivoted to the rear of draft-beam a, in combination with the traveling weighted wheels B and the caster-wheels B'', constructed substantially in the manner described, and for the purposes set forth.

ALBERT J. SPRAGUE.

Witnesses:

R. G. TIMMONS,
JOHN AVERMAL.