(No Model.)

M. DALEY.

HARROW.

No. 251,418. Patented Dec. 27, 1881.

Fig. 1.

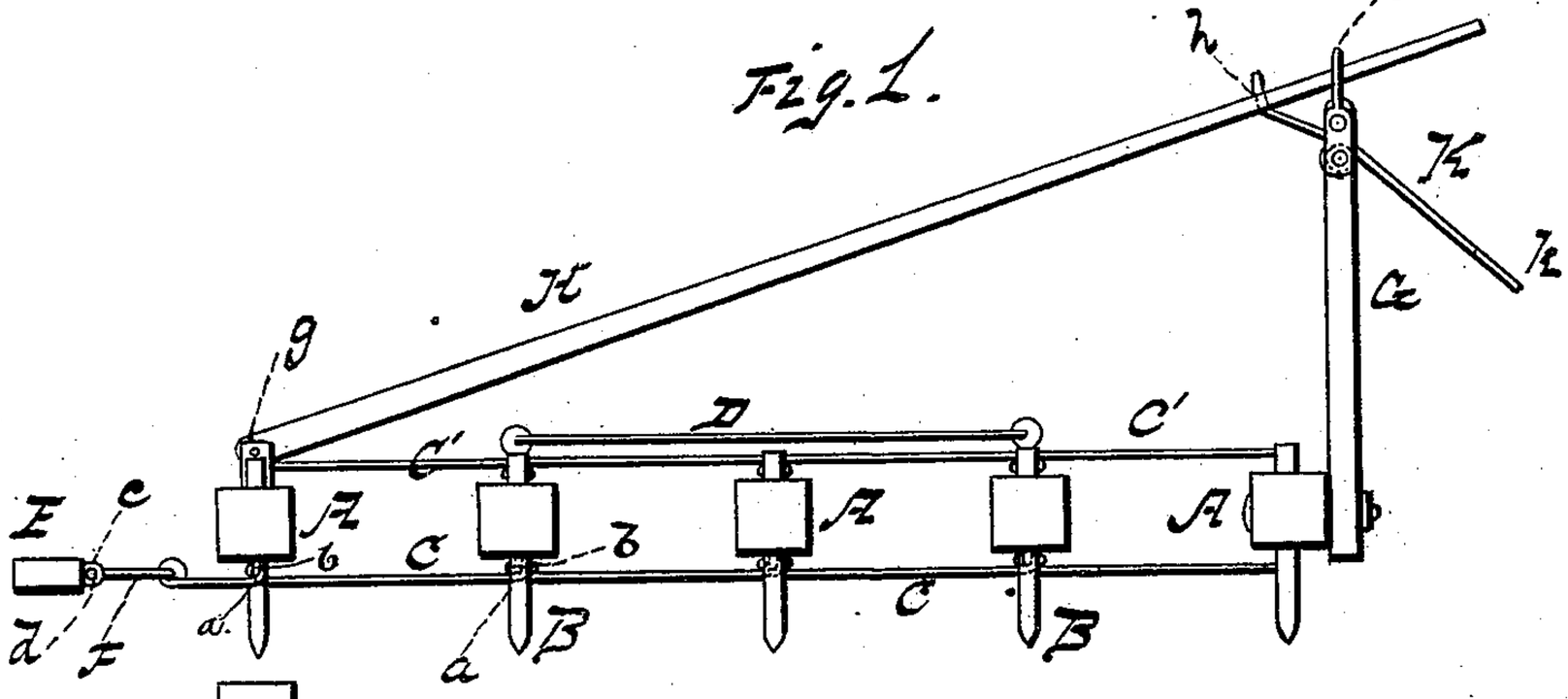


Fig. 2.

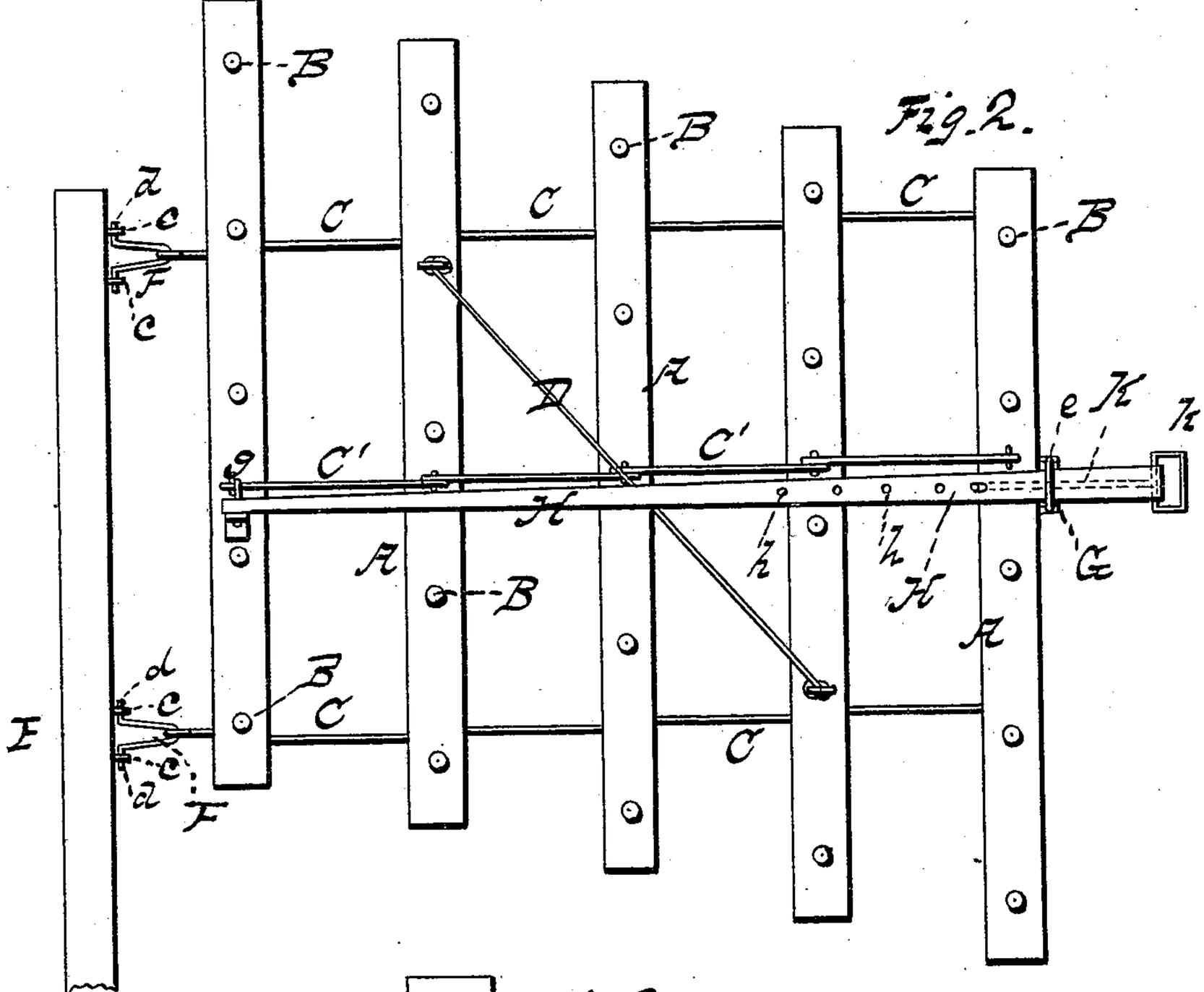
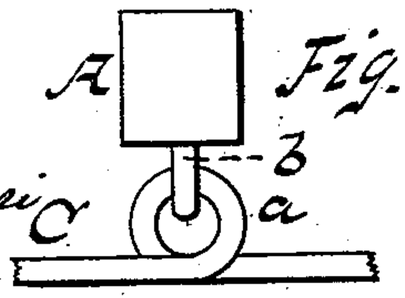


Fig. 3.



WITNESSES

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HARROW.

SPECIFICATION forming part of Letters Patent No. 251,418, dated December 27, 1881.

Application filed June 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL DALEY, a citizen of the United States, resident of Waterman, in the county of De Kalb and State of Illinois, have invented a new and valuable Improvement in Harrows; 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 annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my invention, and Fig. 2 is a plan view.

This invention has relation to harrows; and it consists, mainly, in the construction and novel arrangement of devices, whereby the angular position of the teeth may be changed while the team is in motion; also, in the spring-coupling for the draft, all as hereinafter more fully set forth, and particularly pointed out in the claim appended.

In the annexed drawings, the letters A A designate the transverse harrow-beams, which carry the teeth B.

C C designate flexible rods or bars, having holes or loops *a*, which are made in the rods or bars by bending the latter, and to which the harrow-beams are hinged by means of staples *b*. This connection of the beams with the rods permits of a side rocking or end movement of the former, allowing for any transverse irregularity of the surface over which the harrow is drawn. These connecting-rods are placed under the beams, near the ends of the latter, at the sides of the harrow, and serve for the attachment for the draft. The beams are connected by a similar rod or bar, C′, above, and an oblique brace, D, should be used to preserve the relative position of the beams, as indicated in the drawings. The arrangement of the three bars, C C C′, thoroughly braces the harrow-frame, and yet permits a free movement.

E represents the draft-beam, having eye-bolts *c* or perforated lugs, to which the spring-couplings F are connected. These couplings consist of elongated bent rods having transverse outwardly-turned ends *d*, which are sprung into engagement with the staples, lugs, or eyebolts of the draft-beam. These couplings, being attached by their ends to the draft-beam, act as braces, preventing side-thrust of the harrow-frame, while permitting a free rocking motion.

G indicates an upright arm or lever, which is attached to one of the harrow-beams, and provided at or near its upper end with a loop or guide, *e*, through which passes the stay-rod H, the forward end of which is hinged to the front harrow-beam at *g*. The stay-rod is provided with a series of notches or holes, *h*, for engagement with the end of the lever-lock K, which is pivoted to the arm G, and extends to the rear in the form of a handle, *k*, this handle portion being usually sufficiently weighted to insure the engagement of the lever-lock with the stay-rod after the adjustment of the latter with reference to the beam lever or arm G. The lever-lock K also serves to manipulate the beam-lever G, to which it is pivoted, so that the adjustment of said beam-lever and the entire set of harrow-beams can be effected to change the angle of the harrow-teeth while the team is in motion. In this manner the operator is enabled at any time to reverse the inclination of the teeth to clear them from rubbish, or to set them at any angle required in pulverizing by the condition of the soil.

I am aware that harrows have been constructed with flexible bars, also with rods and links connecting the transverse beams, and do not claim such broadly.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

In a harrow, the combination of the flexible rods C, having loops *a*, hinged to the under side of the harrow-frame, the flexible rod C′, connected to the top or face of the transverse beams by loops, and the oblique brace D, all arranged as described, to allow a limited flexible movement of the harrow-frame, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MICHAEL DALEY.

Witnesses:
HENRY AVERILL,
HARRY BRADBURY.