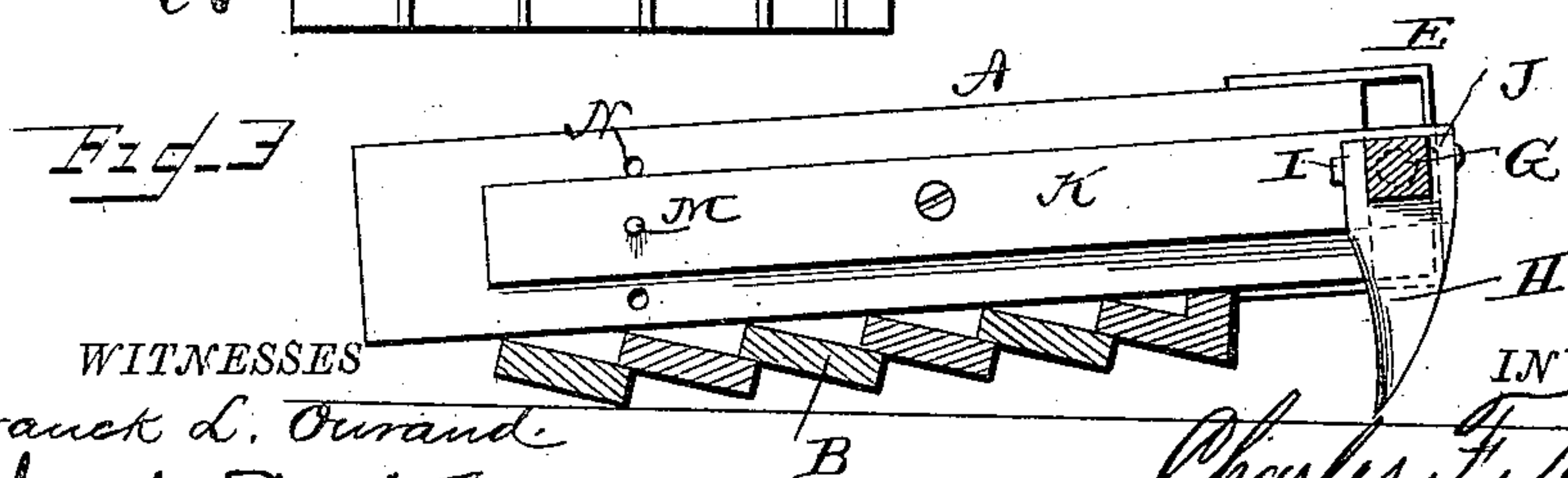
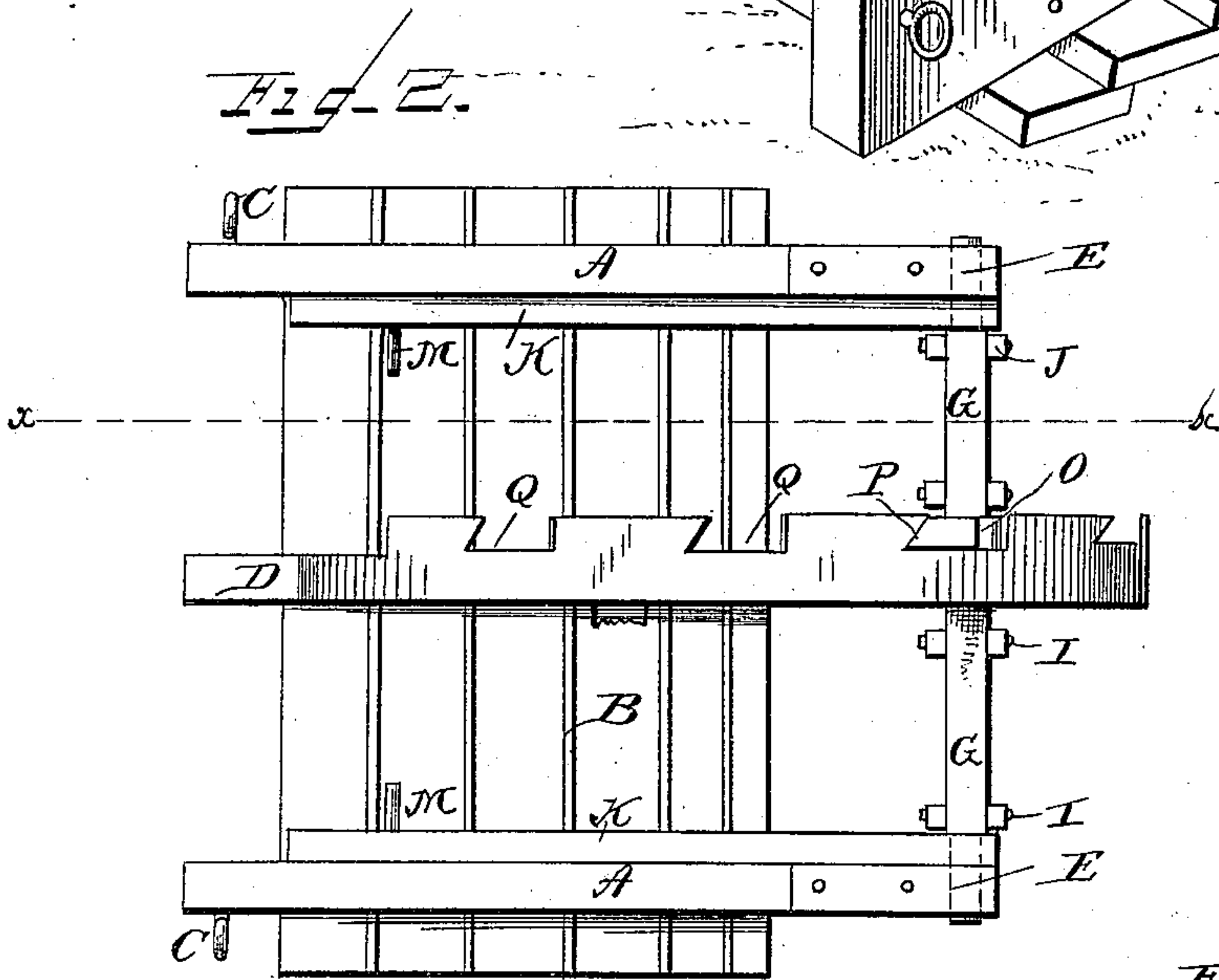
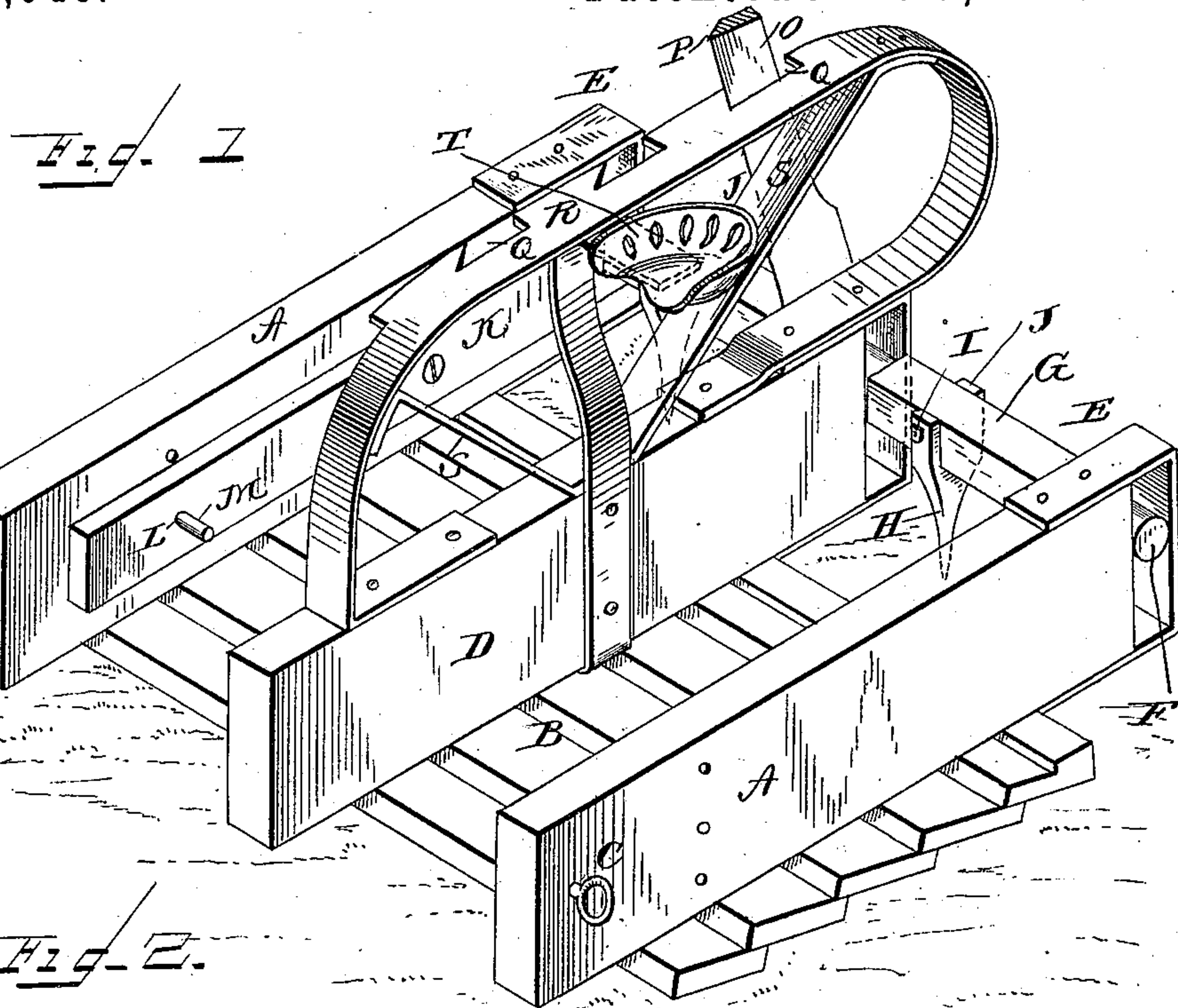


(No Model.)

C. F. MARCHAND.
CLOD CRUSHER AND PULVERIZER.

No. 343,046.

Patented June 1, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHARLES F. MARCHAND, OF LARWILL, INDIANA.

CLOD CRUSHER AND PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 343,046, dated June 1, 1886.

Application filed April 6, 1886. Serial No. 197,993. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. MARCHAND, a citizen of the United States, and a resident of Larwill, in the county of Whitley and State of Indiana, have invented certain new and useful Improvements in Clod Crushers and Pulverizers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved clod crusher and pulverizer. Fig. 2 is a top view of the same; and Fig. 3 is a longitudinal vertical sectional view of the implement on line $x\ x$, Fig. 2, looking toward the side piece.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to that class of clod crushers and pulverizers in which a number of boards or planks are fastened to a frame in a transverse position and overlapping each other with their rear edges; and it consists in the improved construction and combination of parts of such a clod crusher and pulverizer, in which a transverse shaft is secured at one end of the implement, provided with teeth for the purpose of stirring up the soil and breaking it, while the oblique overlapping boards crush the clods, as hereinafter more fully described and claimed.

In the accompanying drawings, the letters A A indicate two side pieces, to the lower edges of which the ends of the transverse boards or planks B are secured, with their rear edges overlapping, and the forward ends of these side pieces are preferably provided with suitable eyes, C, or similar means for attaching the draft-animals to the implement.

A longitudinal frame-piece, D, is secured with its lower edge to the overlapping planks, being secured at the middle of the frame parallel to the side pieces. The rear ends of the side pieces and of the central frame-piece are formed with vertical ways formed by straps E, secured at their ends to the upper and lower edges of the rear portions of the side and frame pieces and running parallel with

the straight rear ends of the said pieces, and the rounded portions F of a transverse shaft, G, slide and turn in said ways. This shaft is provided with teeth H, secured to the shaft by means of bolts I, passing through the bifurcated ends J J of the teeth, which ends straddle the shaft, and the shaft is journaled in the rear ends of two levers, K K, pivoted at their middles upon the inner sides of the side pieces. The forward ends of these levers are provided with perforations L, through which pass pins or bolts M, and the side pieces are formed each with a vertical series of perforations, N, into which perforations the ends of the pins or bolts may pass, adjusting the levers at any desired inclination, and consequently raising or depressing the shaft in any desired elevation. The shaft is provided with a lever, O, projecting from the middle of the shaft, and the forward edge of this lever is beveled, as shown at P, and may engage the oblique forward ends of notches Q in a curved upright bar, R, or frame secured at its forward and rear ends to the forward and rear ends of the central frame-piece, and supported by means of suitable braces, S. The notches in the edge of this curved bar have the rear ends straight and have their mouths of a sufficient length to admit the lever, and the forward ends of the notches are cut inwardly and forwardly oblique, so that the beveled edge may be caught by them and held by them, the oblique ends forming lips, retaining the lever in position. The seat T for the driver is suitably supported on an upright, U, at the side of the notched bar.

It will be seen that by means of the lever and the notched bar the teeth upon the shaft may be inclined in any desired direction, causing them to either enter the ground with their points and to cut or dig up the soil, or they may be inclined with their points rearward, when they will drag over the ground and only leave slight impressions in the soil.

The degree to which the teeth may penetrate is regulated by tilting the levers having the shaft journaled in its bifurcated ends, and thereupon adjusting them at the desired inclination, the levers sliding the shaft in the vertical ways formed by the straps and holding it at any desired height.

The toothed shaft may be secured at the forward or at the rear end of the implement, according to the desired function of the teeth, if they are desired to break up the ground before the crushing of the clods or if they are desired to stir and smooth the soil after the clods have been crushed and the soil is level.

The overlapping planks will drag over the ground, and on account of their oblique position the clods will be forced under them and will be crushed, leaving the surface of the soil smooth and level.

When the implement is to be used on uneven ground, it is desirable to have it composed of a number of frames having transverse planks in place of one wide frame, the frames being secured at the side of each other; and this construction will allow the implement to touch all portions of the surface of the soil, while the one wide frame is liable in uneven ground to be raised at one place, so that the portions of the frame between the points of support will not touch the ground.

The entire implement will be simple of construction and will not be liable to be damaged or to get out of order, but may readily be repaired if damaged without requiring any great mechanical skill.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a clod crusher and pulverizer, the combination of longitudinal side pieces having transverse planks secured to their lower edges with the rear edges overlapping, and having vertical series of perforations near the forward ends, vertical ways formed by straps at the rear ends of the side pieces, a shaft having teeth and provided with means for adjusting the pitch of the teeth and sliding in the vertical ways, and levers pivoted upon the inner sides of the side pieces and having the shaft journaled in their rear ends, and provided with perforations in their front ends provided with pins or bolts and registering with the vertical series of perforations in the side pieces, being adjustable in the same, as and for the purpose shown and set forth.

2. In a clod crusher and pulverizer, the combination of longitudinal side pieces and frame-pieces having transverse planks secured to their lower edges with the rear edges overlapping, and having vertical ways at their rear ends, a shaft sliding in the ways and having projecting teeth and means for adjusting it in the ways, and provided with an upwardly-extending lever having its forward edge beveled and a curved bar secured at its ends upon the central frame-piece of the crusher, and having notches in one edge formed with mouths of the same width as the lever and with oblique forward ends forming lips for retaining the lever, as and for the purpose shown and set forth.

3. In a clod crusher and pulverizer, the combination of longitudinal side pieces having each a vertical series of perforations near the forward ends, and having vertical ways formed at their rear ends by straps secured to the edges of the side pieces, a longitudinal frame-piece having a vertical way at its rear end, transverse planks secured to the lower edges of the side pieces and of the frame-piece with their rear edges overlapping, a shaft having projecting teeth and turning and sliding in the vertical ways, levers pivoted upon the inner sides of the side pieces and having the shaft journaled in their ends, and having perforations with pins at their forward ends registering with the vertical series of perforations in the side pieces, a lever projecting from the shaft and having a beveled forward edge, and a flat curved bar secured upon the upper edge of the frame-piece and formed with notches in one edge of the same width as the lever, and having forward ends provided with obliquely-edged lips, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

CHARLES F. MARCHAND.

Witnesses:

WM. F. McNAGUY,
P. H. CLUGSTON.