

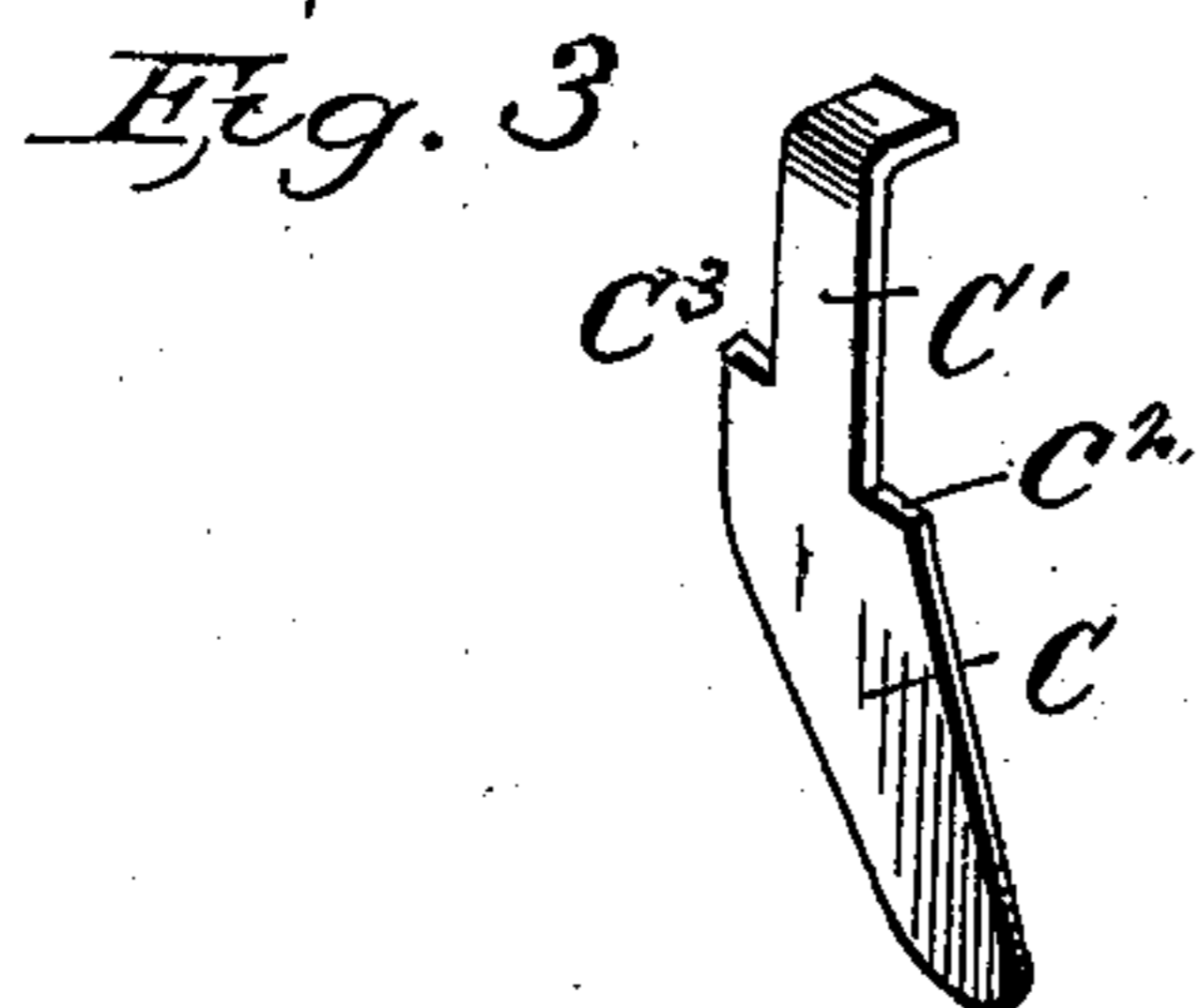
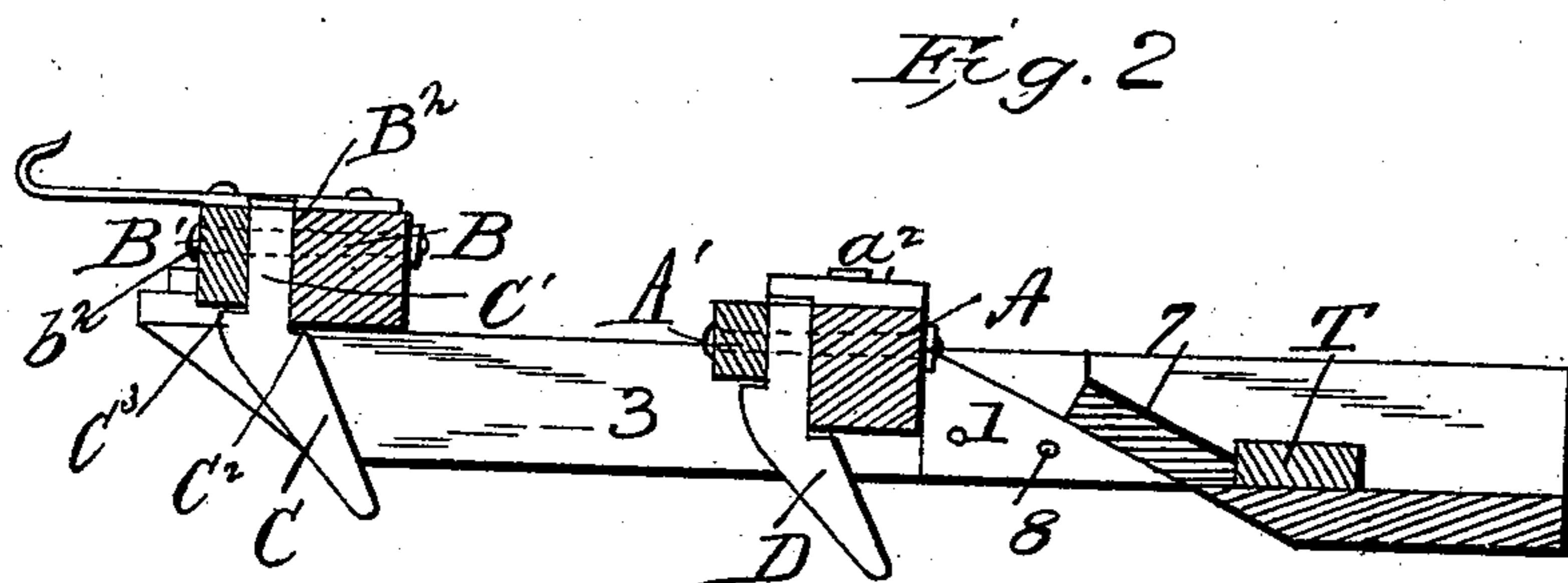
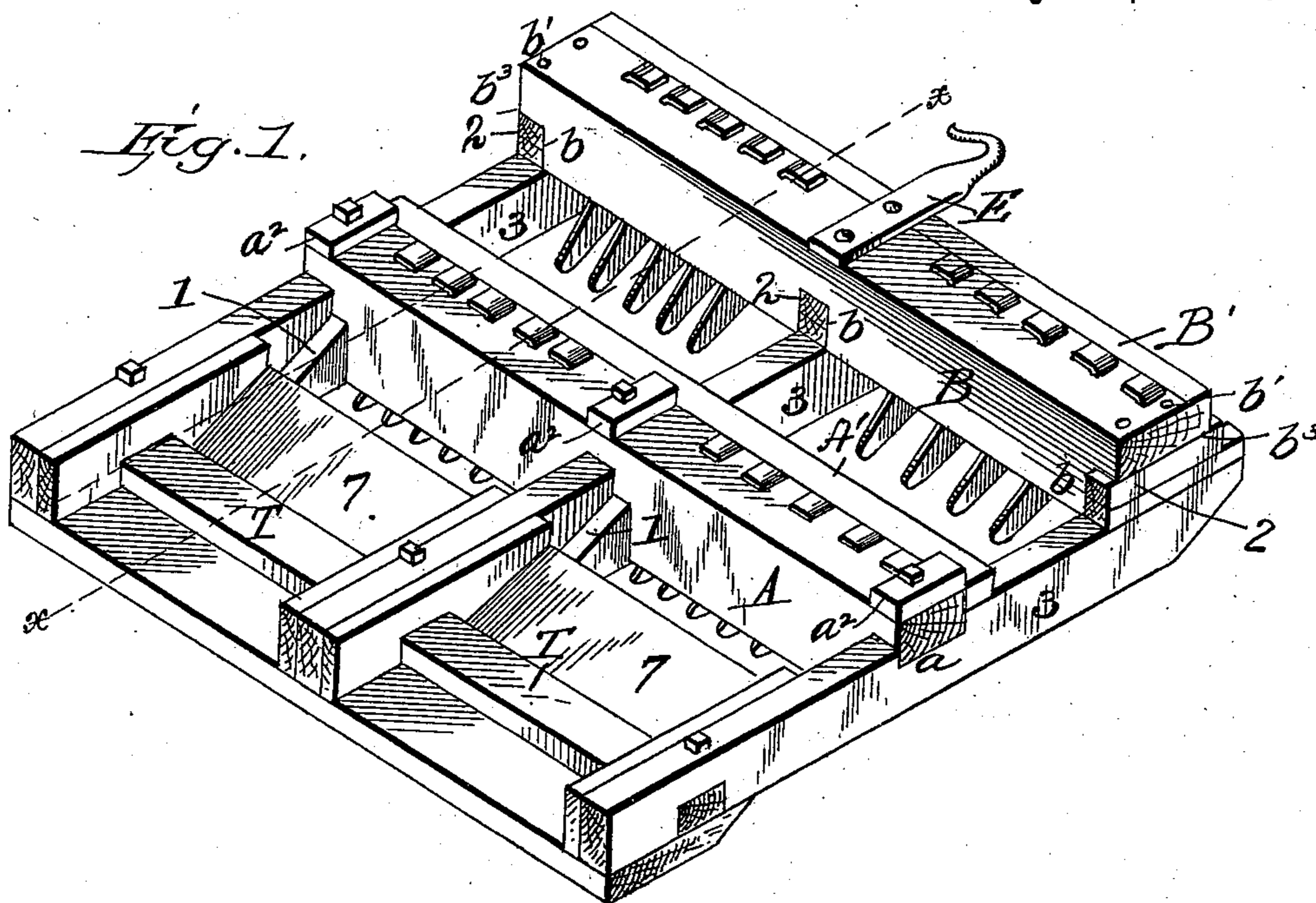
(No Model.)

2 Sheets—Sheet 1.

B. A. THOMAS.
LAND PULVERIZER.

No. 539,153.

Patented May 14, 1895.



WITNESSES
H. L. Ourand,
J. S. Gregory

INVENTOR,
Benjamin A. Thomas
by J. Fred Reilly,
his Attorney.

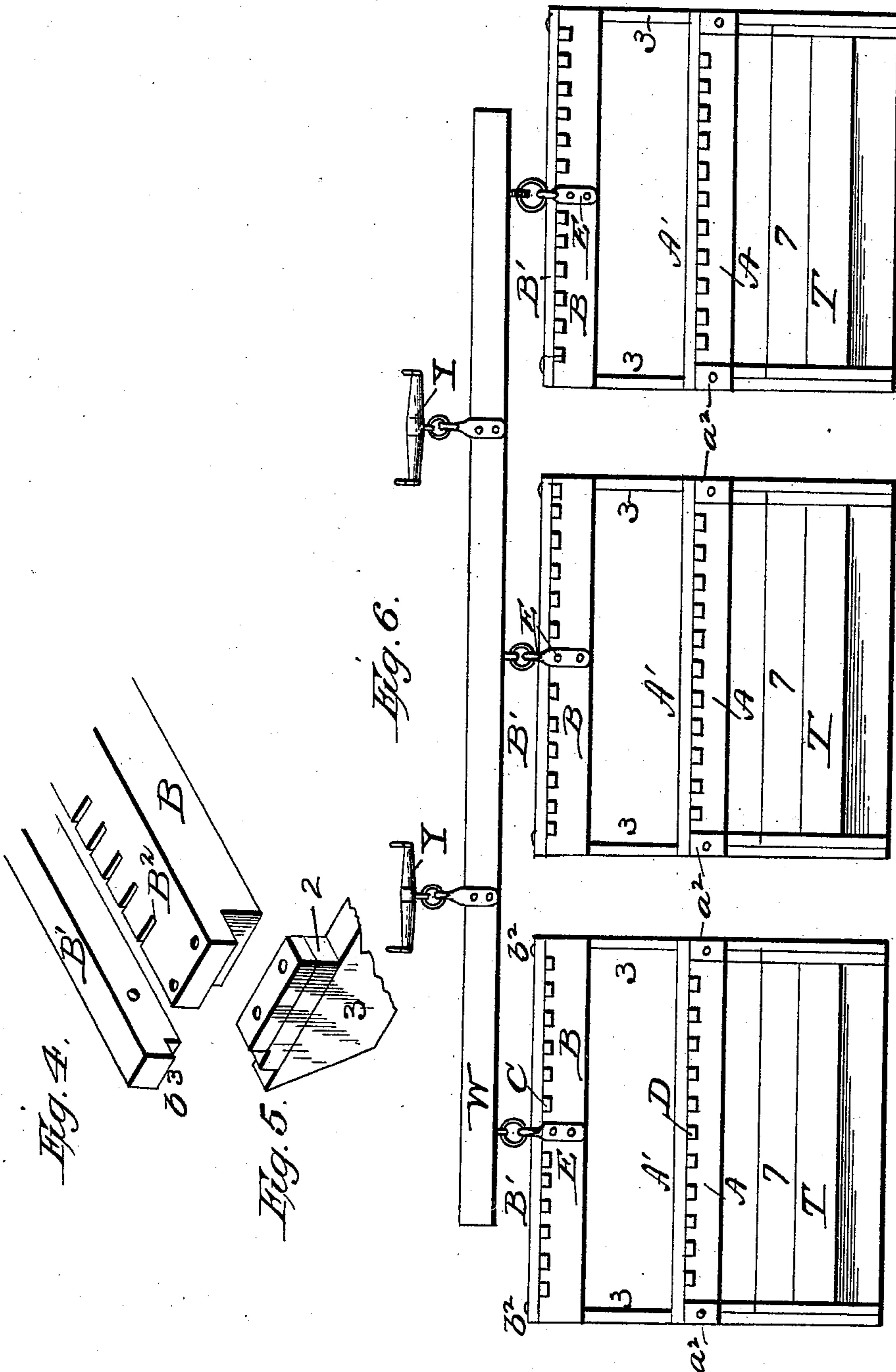
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F. L. Ouraud.
J. Gregory

INVENTOR:

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UNITED STATES PATENT OFFICE.

BENJAMIN A. THOMAS, OF BARDWELL, KENTUCKY, ASSIGNOR OF THREE-FOURTHS TO JOHN W. TURK, WM. C. RAY, AND JOHN T. UTTERBACK, OF SAME PLACE.

LAND-PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 539,153, dated May 14, 1895.

Application filed August 15, 1894. Serial No. 520,406. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. THOMAS, a citizen of the United States, residing at Bardwell, in the county of Carlisle and State of Kentucky, have invented certain new and useful Improvements in Land-Pulverizers; and I do declare the following to be 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, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention consists in a land pulverizer or combined harrow and clod crusher, in which are combined many novel and valuable features; in which the teeth or blades can be adjusted to enter the earth at the desired depth, to suit the team, and in which when the pulverizer is loaded with a heavy weight to adapt it to crush hard clods it will not sink the teeth in the earth deeper than they have been gaged to enter, nor greatly increase the draft on the team.

My invention possesses other advantages, and will be hereinafter fully described and claimed.

In the accompanying drawings, in which the same letters and numerals of reference indicate corresponding parts in the several views, Figure 1 is a perspective view of my invention. Fig. 2 is a vertical sectional view taken on line *xx*, Fig. 1. Figs. 3, 4, and 5 are detail views on an enlarged scale. Fig. 6 is a top plan view hereinafter described.

Referring to the several parts by letters and numerals of reference, the pulverizer is formed, when of the size here shown, with two side and one central runner, 3, 3, 3, which are usually two inches thick by four inches in width or depth; and to these runners are bolted the cross pieces B, A, and T, as hereinafter described in detail. The front transverse beam or knife bar, B, which is four by four inches, is recessed at *b* at the under side of its ends and center, above the three runners, to receive the adjusting blocks 2, which are arranged one upon the other as shown, under said recessed points of the knife

bar, which is adjustably secured in position by screw bolts *b'* running down through it and the adjusting blocks into the runners. In the front of the knife bar B are formed the vertical slots *B²*, in which fit the shanks *C'* of the series of front blades or teeth, *c*. These blades, one of which is shown in detail on an enlarged scale in Fig. 5, are formed each with a straight or vertical shank, *C'*, and with the rear shoulder *C²*, and upper front locking shoulder *C³*, the blade then curving back as it extends downward, with its front edge beveled and sharpened. The upper end, *C⁴*, of the stem of the blade is bent over and stands at right angles to said stem. The blades are placed in position by inserting their stems in the slots *B²* of the knife bar, with the rear shoulder *C²* bearing against the under side of said bar while the right angled upper end *C⁴* of the stem fits closely against the upper side of the knife bar, when the retaining bar *B'* is placed in its position against the front of the knife bar and there secured by horizontal screw bolts, *b²*, running into the knife bar. The front shoulders *C³* of the blades bear against the under side of the retaining bar, which closes the front of the slots *B²*; and it will be seen that by this construction my novel blades are securely locked and firmly held in position without requiring any bolts or other separate retainers for the several blades, which is a valuable feature of my invention. The retaining bar is recessed on its under side at *b³*, to receive the adjusting blocks 2.

A draft hook, E, is bolted upon the center of the knife beam B, to which the team is attached. The adjusting blocks 2, under the knife bar B, are preferably each one inch in thickness, and one or both of them can be taken out and placed on top of the bar, thus lowering the teeth or blades C one or two inches deeper into the earth when desired.

The rear knife bar A, its removable knives or blades D, and front retaining bar *A'*, are the same in construction as the corresponding parts of the front knife-bar, blades, and retaining bar, and therefore need not be described in detail, except that the teeth are somewhat smaller and shorter. The runners 3 are also recessed at *a*, to receive the bar A;

and the adjusting blocks 2^a which are shown secured upon the top of the bar by the screw bolts can be placed under the knife bar to raise its teeth out of the ground one inch when
 5 the clods are very dry and hard and it is necessary to load the pulverizer very heavily to crush them.

The rocks or weights with which the pulverizer is loaded are placed upon the inclined
 10 boards 7, and rest against the front of the cross bar T of the crusher at the rear of the pulverizer, which part is constructed as follows:—T indicates a cross beam, two by four inches, which is bolted in recesses *t* in the un-
 15 der side of the runners at the point shown, lying flush in said recesses. The smoothing board 4 is bolted to the under side of the runners and beam T, and the inclined boards, 7, 7, are held and braced in position in front of
 20 the beam T by the cleats 1, between which their ends fit so that they can be readily removed by withdrawing the bolts 8, to replace them with new ones when they have become worn out through long use.

25 It will now be seen that in operation, as the pulverizer is drawn forward, the series of front blades C will first cut into the ground; the lower and rear series, D, of blades will penetrate still deeper; the inclined crushing boards
 30 7, 7, will reduce the size of the clods, as the lower inclined surface of said boards ride over them; while the rear smoothing board 4 will mash the small clods and smooth the land.

In Fig. 6 I have shown three of the harrows shown in Fig. 1 arranged side by side, but made of one-half the width of the single pulverizer, and therefore requiring only two of the runners 3; these three narrow harrows being hooked to a long cross-bar W, which is
 40 provided with two single-trees Y, Y; the whole being so arranged that it is especially adapted for preparing the beds of cotton lands, or covering three rows of cotton at a time, the two horses walking between the rows, on each side
 45 of the middle row, while the three narrow pulverizers run over the three beds or rows as shown in said view.

From the foregoing description, taken in connection with the accompanying drawings,
 50 the construction, operation, and great practical advantages of my land pulverizer will be readily understood. It will be seen that it is exceedingly effective in its operation; that it is devoid of all complicated parts; that the

teeth or blades can be adjusted to regulate the
 55 depth to which they will enter the earth, simultaneously, by raising or lowering the knife bars; that by raising the knife bars when it is necessary to weight the pulverizer heavily to crush very dry and hard clods, that the
 60 knives will not enter the earth too deeply when the pulverizer is so weighted, and the draft on the team will consequently not be unduly increased. The arrangement shown in Fig. 6 will prepare the beds or cover the rows very
 65 rapidly and effectively. The blades, with the aid of the retaining bars B' and A' practically lock themselves in position, and can be readily removed when broken or worn out, or to sharpen them.

70 The pulverizer can be made of any width or length desired, and with any number of teeth.

My new and improved pulverizer will effectually pulverize the soil, does not choke on
 75 trashy land, and where trash or straw has been plowed under it will not pull it out nor brush it on top in the way.

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

1. In a land pulverizer, the combination of a transverse beam formed with the series of vertical edge slots, the cutting blades formed each with the stem having the right-angled
 85 upper end, the front locking shoulder, the rear shoulder, and the inclined blade formed with the beveled front edge, and the removable retaining bar; substantially as set forth.

2. A land pulverizer comprising the runners, separately adjustable transverse knife
 90 bars carrying series of cutting blades the inclined crushing boards, and the horizontal smoothing board; substantially as set forth.

3. A land pulverizer comprising the runners, the transverse knife bars carrying the series of cutting blades, the adjusting blocks removably secured upon the runners beneath the knife bars, the inclined crushing boards, and the horizontal smoothing board; substan-
 100 tially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN A. THOMAS.

Witnesses:

A. J. WARDEN,
 I. E. PRICE.