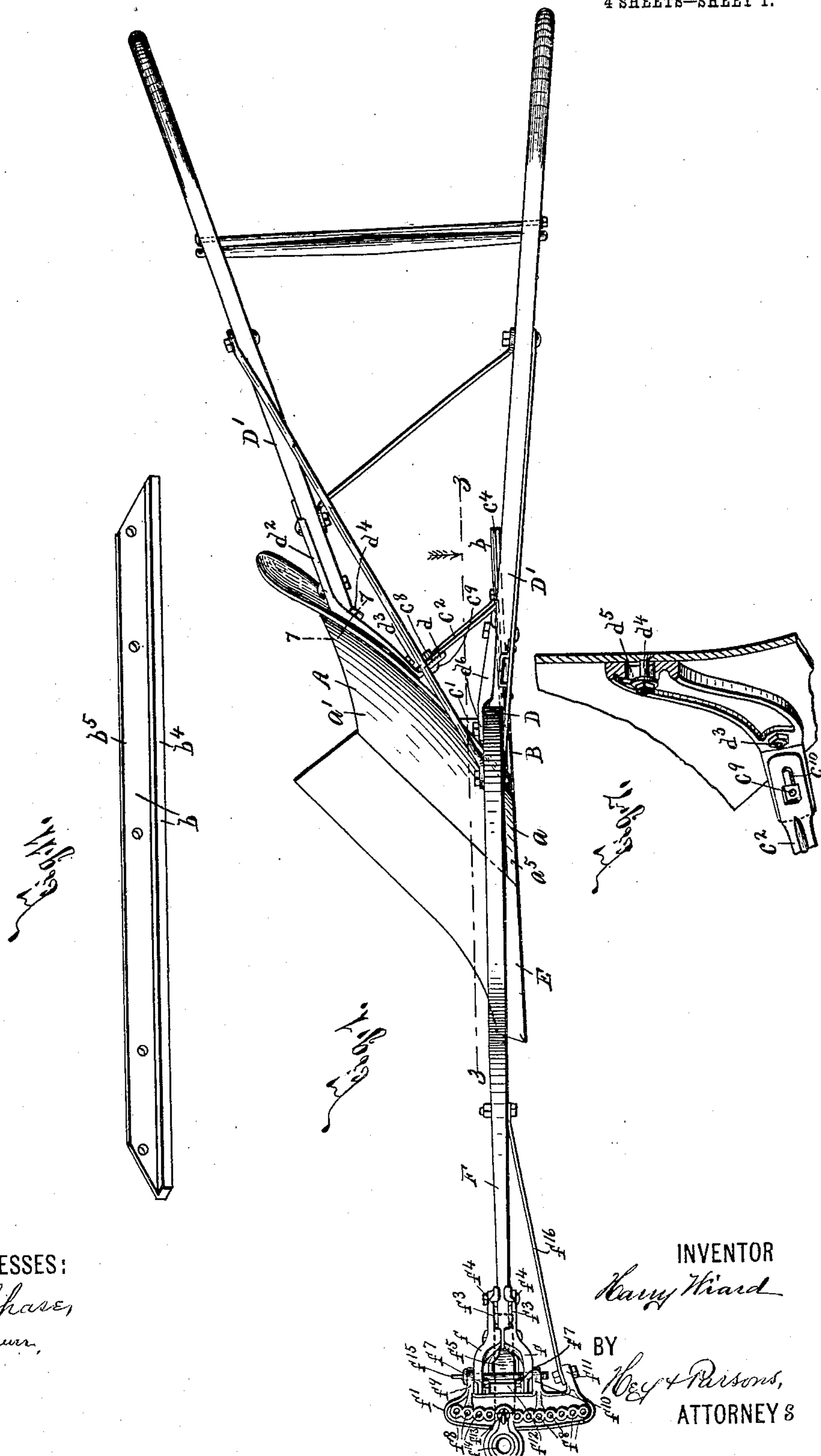


PLOW.

Patented Sept. 15, 1908.

4 SHEETS—SHEET 1.



WITNESSES:

Hobhouse,
J. F. Brewer.

INVENTOR

Harry Ward

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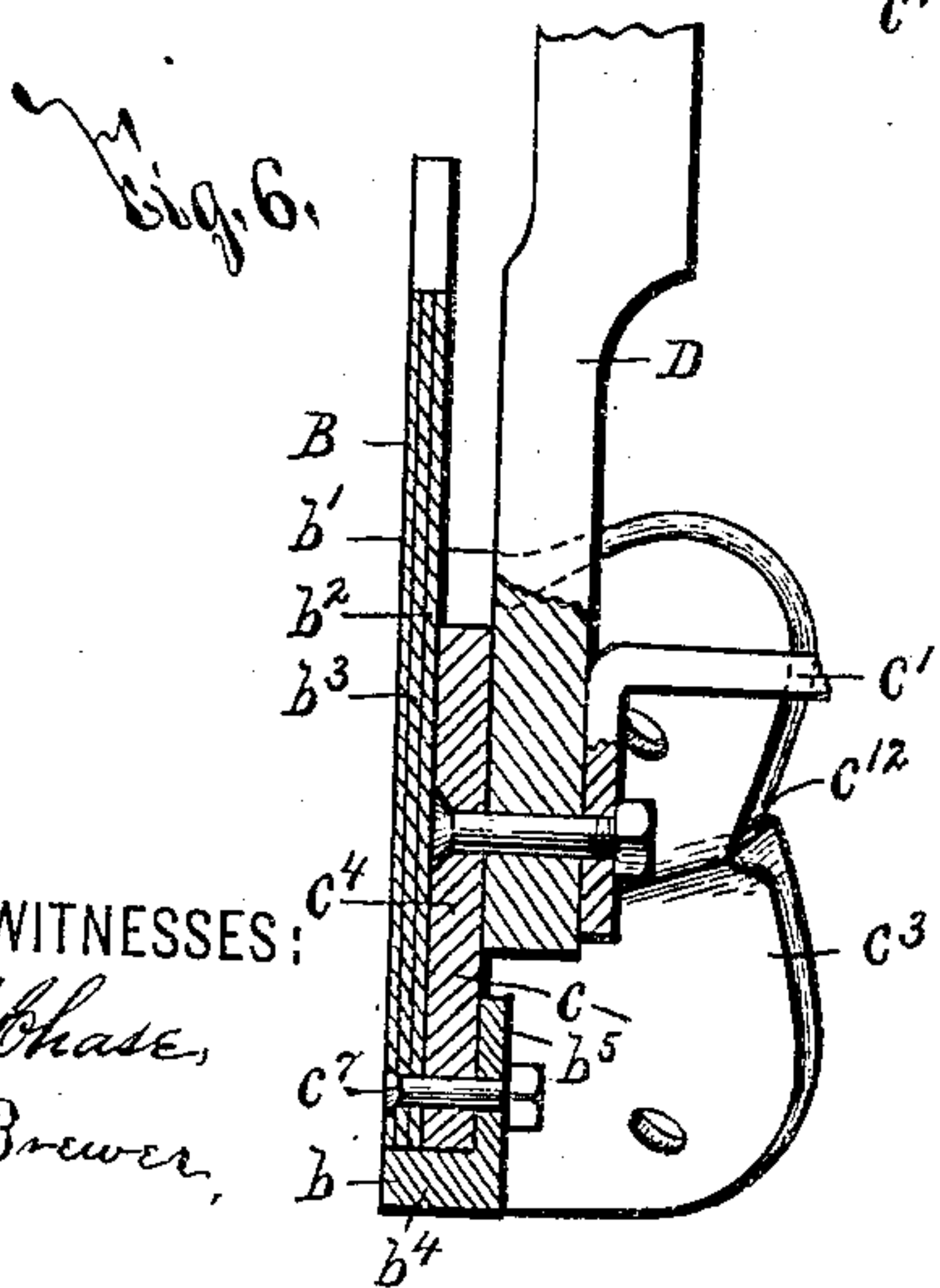
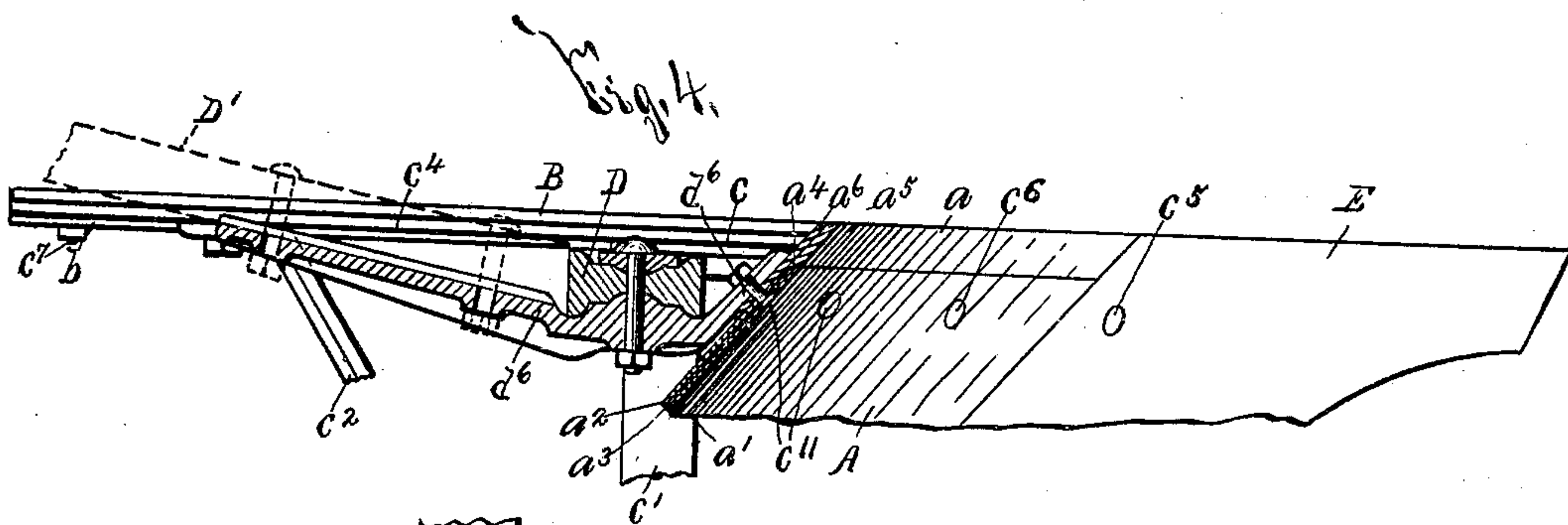
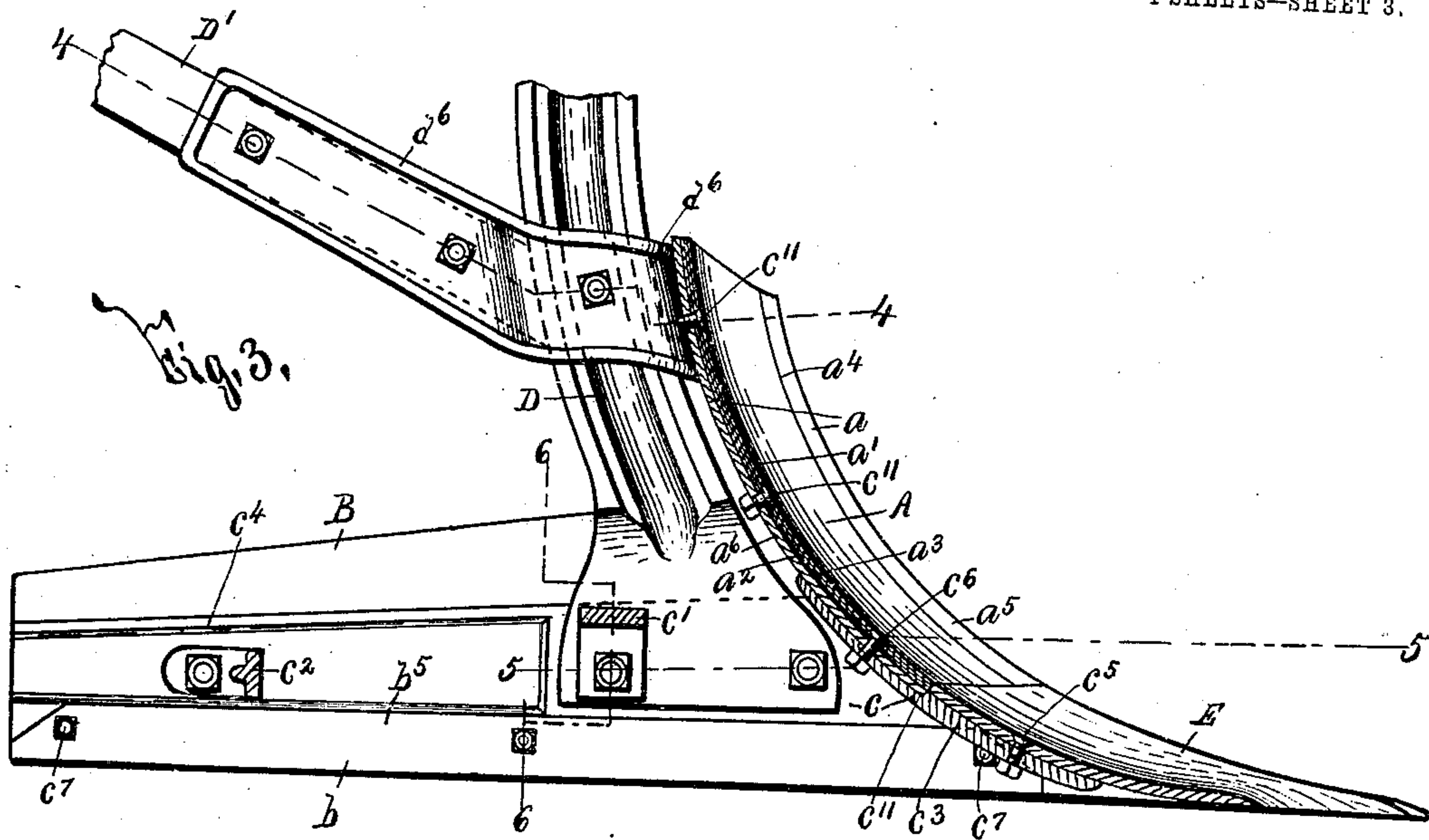
PLOW.

APPLICATION FILED MAY 28, 1897. RENEWED FEB. 6, 1907.

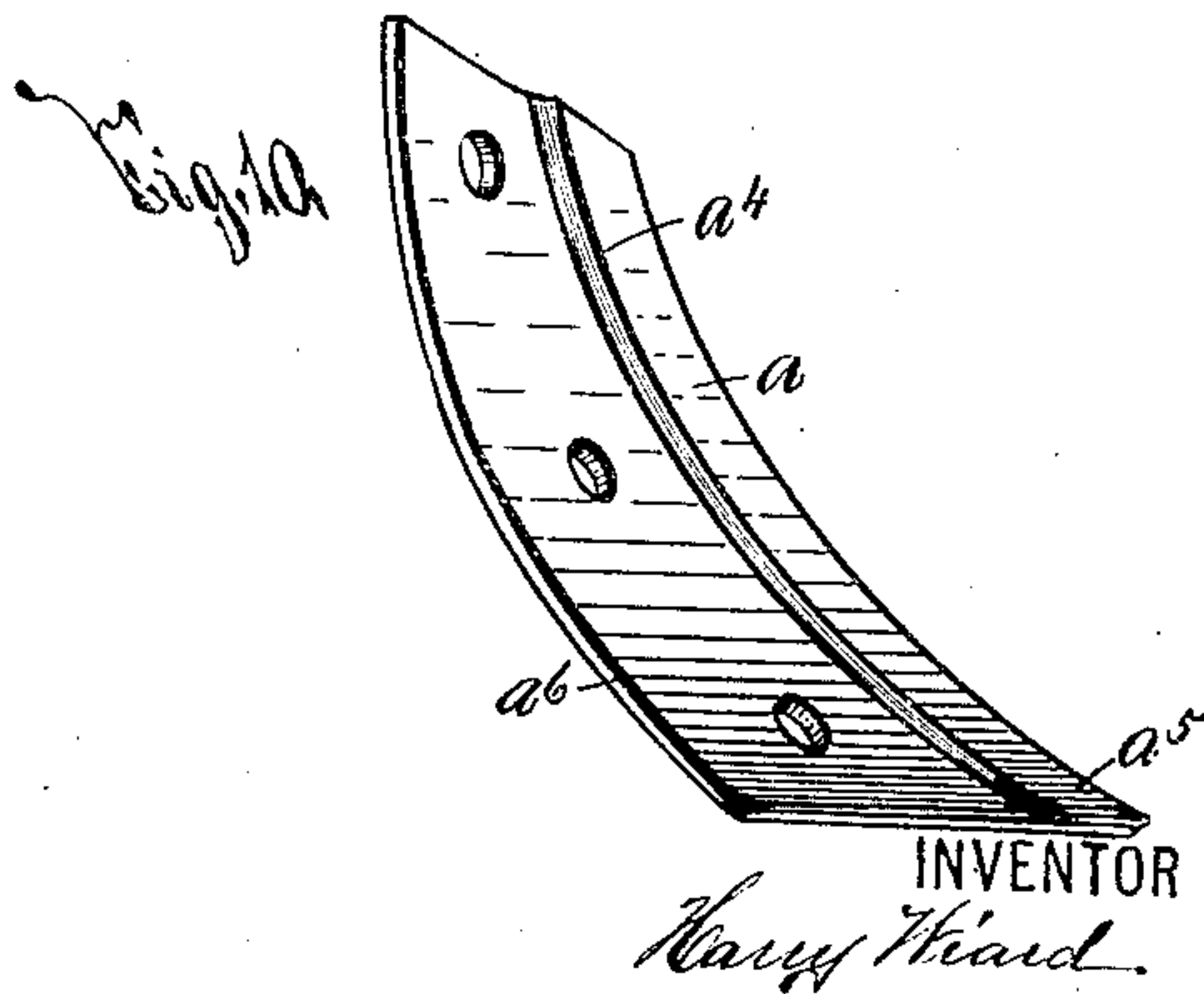
898,711.

Patented Sept. 15, 1908.

4 SHEETS—SHEET 3.



WITNESSES:
H. Chase,
J. J. Brewer,



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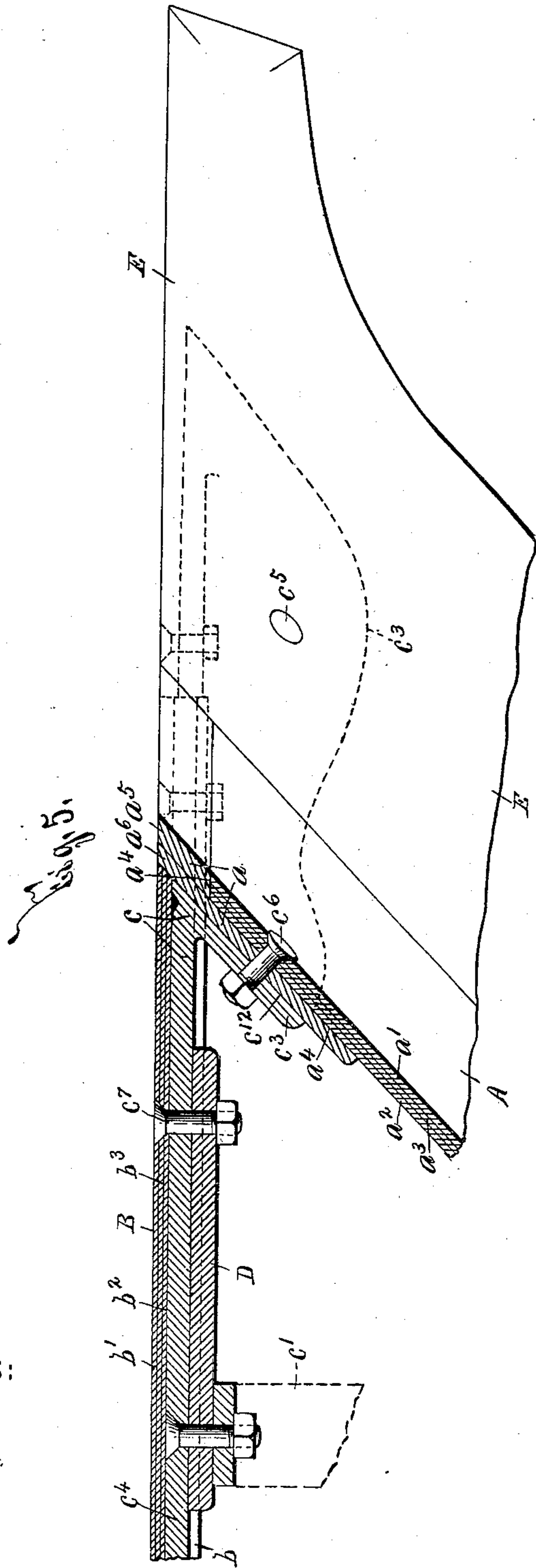
PLOW.

APPLICATION FILED MAY 28, 1897. RENEWED FEB. 6, 1907.

898,711.

Patented Sept. 15, 1908.

4 SHEETS—SHEET 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HARRY WIARD, OF SYRACUSE, NEW YORK.

PLOW.

No. 898,711.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed May 28, 1897, Serial No. 638,545. Renewed February 6, 1907. Serial No. 356,097.

To all whom it may concern:

Be it known that I, HARRY WIARD, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Plows, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

My invention relates to plows, and has for its object the production of a high grade steel plow, which is particularly efficient in use, and is of such construction that the cutting edge of its mold-board and the lower edge of its land-side may be readily renewed; and, to this end, the invention consists essentially in the combination, construction and arrangement of the component parts of a plow, all as hereinafter fully described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawing, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figures 1 and 2 are, respectively, top plan and side elevation of my plow. Figs. 3, 4, 5, 6 and 7 are sectional views, partly in elevation, taken, respectively, on lines 3—3 and 7—7, Fig. 1, and 4—4, 5—5 and 6—6, Fig. 3. Figs. 8 and 9 are isometric views of the detached rear brace or spreader-bar and one of the handle-brackets of my plow. Fig. 10 is an isometric view of the detached shin-piece for the mold-board of my plow. Fig. 11 is an isometric view of the detached shoe for the land-side of said plow.

The mold-boards and land-sides of high grade steel plows are each generally formed of front, middle or inner, and rear layers of steel, the front and rear layers being composed of hard steel, and the middle or inner layer of soft steel. The hard steel facilitates the scouring of the mold-boards and land-sides, and their easy passage through the soil, and the soft steel affords the necessary strength. In the practical use of these plows, as heretofore constructed, the cutting edges of the mold-boards and the lower edges of the land-sides wear with undue rapidity, and, when worn, detract materially from the efficiency of the plow and can be repaired only with the utmost difficulty, and then not without deterioration of the mold-boards and land-sides. In order to prevent undue wear of the cutting edges of the mold-boards of plows of this character, many manufacturers weld wearing pieces upon the front

faces of the mold-boards at their cutting edges, thus forming what are known to the trade, as mold-boards with double shins. The welding of these wearing pieces to the mold-boards, necessitates considerable heating of the mold-boards which injures their wearing surfaces, and also reduces the strength of the soft steel forming the middle or inner layers of said mold-boards. Moreover, when the double or reinforced shin-pieces of mold-boards of this construction become worn, it is again necessary to weld additional wearing pieces to the cutting edges of the mold-boards and thus further impair their strength and the condition of their wearing surfaces. These additional wearing pieces are generally welded to the plows either at the factory of the manufacturer, or at country blacksmith-shops. If welded at the manufacturer's factory, the transportation of the plow usually requires considerable time and necessitates more or less expense. If welded at a country blacksmithshop, an inferior grade of steel is generally used for the shin-piece and the plow is returned to its user without re-hardening its mold-board, since shops of this character are usually unprovided with suitable means for re-hardening the mold-boards of steel plows.

My invention therefore has for its object the production of a high grade steel plow of such construction that the cutting edge of its mold-board and the lower edge of its land-side may be readily renewed at will for maintaining the desired efficiency of the plow.

The mold-board of a plow embodying my invention consists of a main body A and a detachable shin-piece *a*, and the land-side of said plow consists of a main body B and a detachable shoe *b*. The main bodies A B of the mold-board and land-side of my plow are composed of front and rear layers *a'* *a*², *b'* *b*² of hard steel, and middle or inner layers *a*³ *b*³ of soft steel. The middle or inner layer *b*³ of the main body B of the land-side extends to the lower edge of said main body, and, consequently, the central portion of said lower edge is formed of less hardness than the outer face of the land-side. The mold-board and land-side of my plow are secured to suitable supports, here illustrated as a frog *c*, front and rear braces or spreader-bars *c'* *c*², and a plow-standard D. The frog *c* is usually provided with a front arm *c*³ and a supporting bar or arm *c*⁴ extending from front to rear of

the plow. The front arm c^3 , Figs. 3 and 5, is secured by suitable fastening means as bolts c^5 c^6 , to the plow-point E and the main body A of the mold-board, and the supporting arm c^4 is secured by suitable fastening means, as bolts c^7 , to the main body B of the land-side and is arranged with its lower edge in a plane substantially coincident with the plane of the lower edge of said body B.

The front brace or spreader-bar c' is of any desirable form, size and construction and is suitably secured to the mold-board and the land-side of my improved plow. The rear brace or spreader-bar c^2 preferably consists of a rod or bar having one end fixed to the main body B of the land-side and its opposite end provided with an engaging face c^8 which is usually serrated and is adjustable lengthwise of a serrated engaging face provided upon an ear d , projecting laterally from the inner face of the main body A of the mold-board. The end of the brace or spreader-bar c^2 provided with the engaging face c^8 is generally held in its adjusted position by a suitable bolt or other fastening means c^9 passed through lengthwise slots c^{10} d' formed in said end of the brace or spreader-bar c^2 and in the ear d .

The brace or spreader-bar c^2 , when constructed and connected as described, is readily secured in position and does not require careful and expensive fitting. The ear d is usually provided upon a handle-bracket d^2 which is generally secured to the main body A of the mold-board by a pivot d^3 arranged in close proximity to said ear. The bracket d^2 is additionally secured to the main body A by a bolt or fastening member d^4 which is fixed to said main body and is passed through a substantially transverse slot d^5 in the handle-bracket d^2 . By securing the handle-bracket d^2 , as shown and described, the outer end of the handle D' supported by said bracket may be suitably adjusted vertically.

The shin-piece a is usually arranged with the front face or wearing surface of its outer side portion alined with the front face of the adjacent part of the main body A, of the mold-board. The inner side portion of said shin-piece is lapped upon the rear face of said adjacent part of the main body A of the mold-board, and is preferably formed with a lengthwise groove or cutout a^4 in its front face, which is arranged at one side of the wearing surface of the shin-piece and receives said adjacent part of the main body A. The fastening means for securing the shin-piece a in position, usually consists of the bolt c^6 previously mentioned, and a number of additional bolts c^{11} passed through the inner side portion of said shin-piece and the adjacent part of the main body A of the mold-board. One of the bolts c^{11} is engaged with a handle-bracket d^6 secured to the standard D

and to one of the handles D' of my plow. As a portion of the shin-piece a is lapped upon the main body A of the mold-board, the front arm c^3 of the frog c arranged at the rear of said portion of the main body A, is formed with a groove or cutout c^{12} in its front face for receiving the adjacent portion of the shin-piece. The described means for securing the shin-piece a in position is particularly practical and effective, but it will be understood that said shin-piece may be otherwise secured in position, if desired.

I preferably form the shin-piece a of front and rear layers or pieces a^5 a^6 of metal fixed together in any desirable manner, as by welding. The front layer or piece a^5 is of less width than the rear layer or piece a^6 , is alined with the front layer a' of the main body of the mold-board, and is of substantially the same hardness as said front layer a' . The rear layer or piece a^6 of the shin-piece a is formed of comparatively soft metal, in order that said shin-piece may be firmly and positively clamped in position without liability of breakage.

A mold-board of the construction illustrated and described is particularly desirable, since its shin-piece is firmly held in position and is readily removed and replaced by a new shin-piece without any liability of deterioration of the mold-board.

The shoe b for the land-side of my plow preferably consists of angularly arranged continuous ribs b^4 b^5 disposed respectively in substantially horizontal and upright planes. The horizontal rib b^4 is arranged beneath the lower edges of the main body B of the land-side and the supporting bar or arm c^4 of the frog c , and is formed of substantially uniform width from front to rear, in order that the shoes of right and left-hand plows and of different sizes of my plows may be interchangeable with each other without variation in the pitch of the lower edge of the land-side. The rib b^5 is engaged with the inner side of the supporting bar or arm c^4 of the frog c and is held in position by the fastening means c^7 for securing said bar or arm to the main body B of the land-side. The shoes b are preferably formed of rolled wrought metal, since they may be thus manufactured economically and with great uniformity in the thickness of their lower ribs b^4 .

The construction and operation of my plow will now be readily understood upon reference to the foregoing description and the accompanying drawing, and it will be particularly noted that the detail construction and arrangement of its component parts may be more or less varied without departing from the spirit of my invention.

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

1. In a plow, the combination of a point, 130

the main body of a mold-board, a shin-piece for the mold-board, said shin-piece being lapped upon the adjacent part of the main body of the mold-board, and a frog secured to the point, the main body of the mold-board and to the shin-piece and having a groove or cutout in its front face for receiving the adjacent part of the shin-piece, substantially as and for the purpose specified.

2. The combination with the standard and frog of a plow; of the main body of a mold-board, a detachable shin-piece for the mold-board, and means for securing the main body of the mold-board and the detachable shin-piece to said standard and frog, substantially as and for the purpose set forth.

3. In a plow, the combination of a point, the main body of a mold-board, a shin-piece for the mold-board, said shin-piece having a part lapped under the rear face of the main body of the mold-board, and the exposed face of the shin-piece being flush with the outer face of said main body of the mold-board, a frog engaging the inner or rear faces of the point, main body of the mold-board and the shin-piece, and bolts passed through the point and frog, and through the main body of the mold-board, the underlapping part of the shin-piece and the frog, for detachably securing said parts together, substantially as and for the purpose described.

4. In a plow, the combination of a point,

the main body of a mold-board, a shin-piece for the mold-board, a frog engaging the inner or rear faces of the point, main body of the mold-board and the shin-piece, a standard having its lower end secured to the frog, and bolts passed through the point and frog and through the main body of the mold-board, the shin-piece and the frog, for detachably holding said parts together, substantially as and for the purpose specified.

5. In a plow, the combination of a point, the main body of a mold-board, a shin-piece for the mold-board, a frog engaging the inner or rear faces of the point, main body of the mold-board and the shin-piece, a landside engaging the outer face of a branch of the frog, a standard engaging the inner face of said branch, bolts passed through the landside, standard and said one branch of the frog, and other bolts passed through the point main body of the mold-board and shin-piece and the other branch of the frog, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse in the county of Onondaga in the State of New York this 1st day of May 1897.

HARRY WIARD.

Witnesses:

E. A. WEISBURG,
K. H. THEOBALD.