

(No Model.)

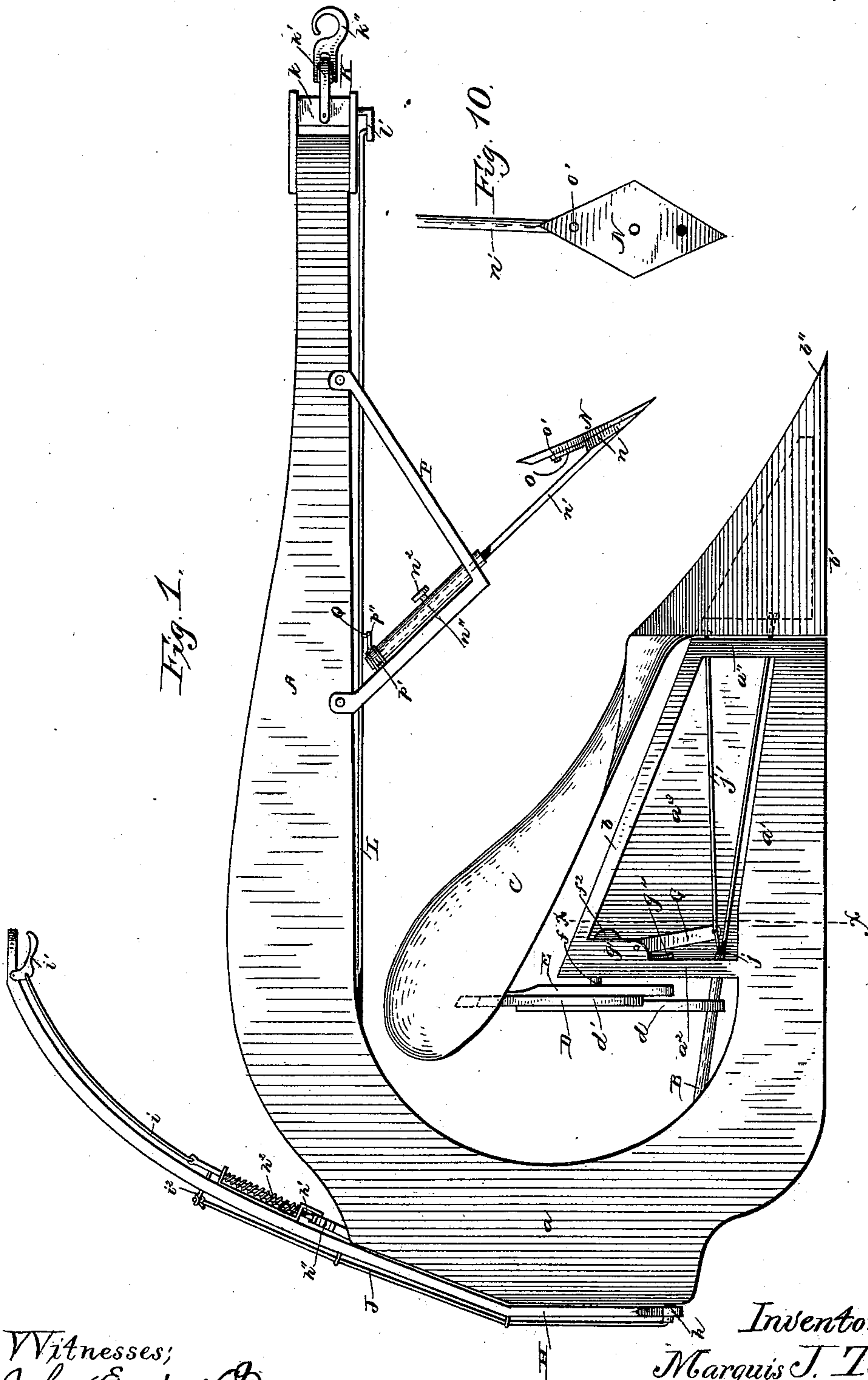
3 Sheets—Sheet 1.

M. J. TODD.

PLOW.

No. 374,565.

Patented Dec. 6, 1887.



Witnesses;
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F. Gilbert

Inventor;
Marquis J. Todd,
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Attorneys:

(No Model.)

M. J. TODD.

3 Sheets—Sheet 2.

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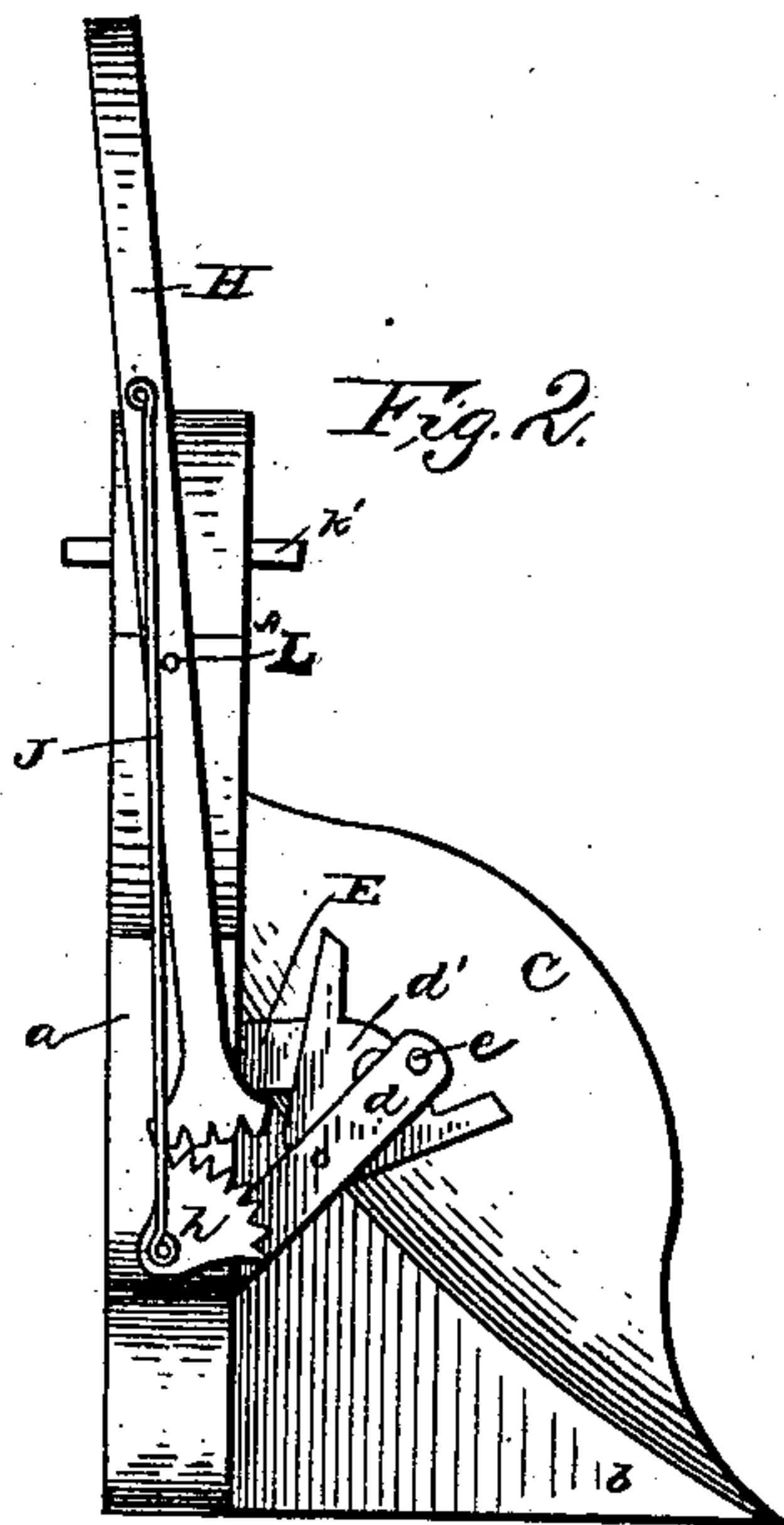


Fig. 2.

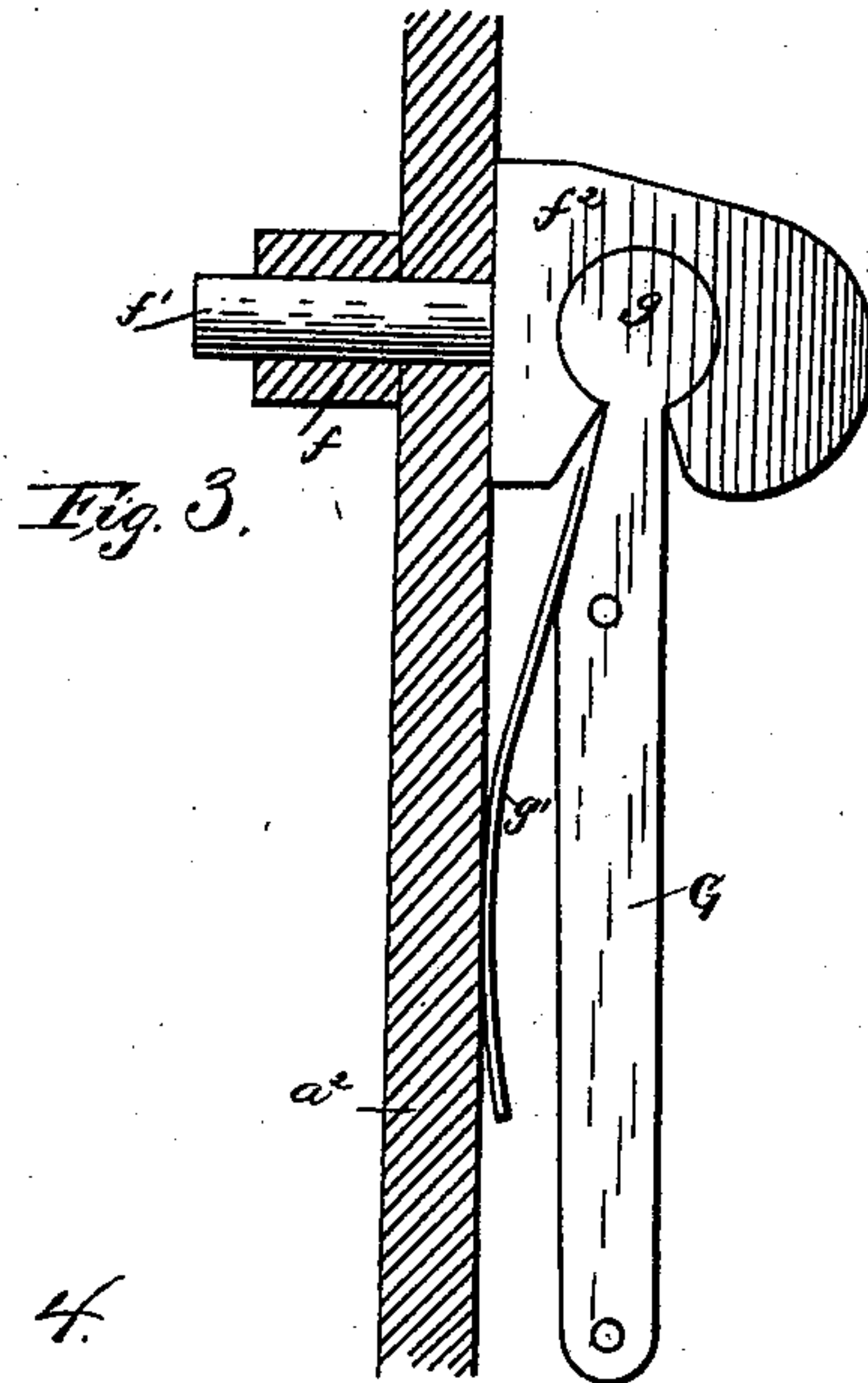


Fig. 3.

Fig. 4.

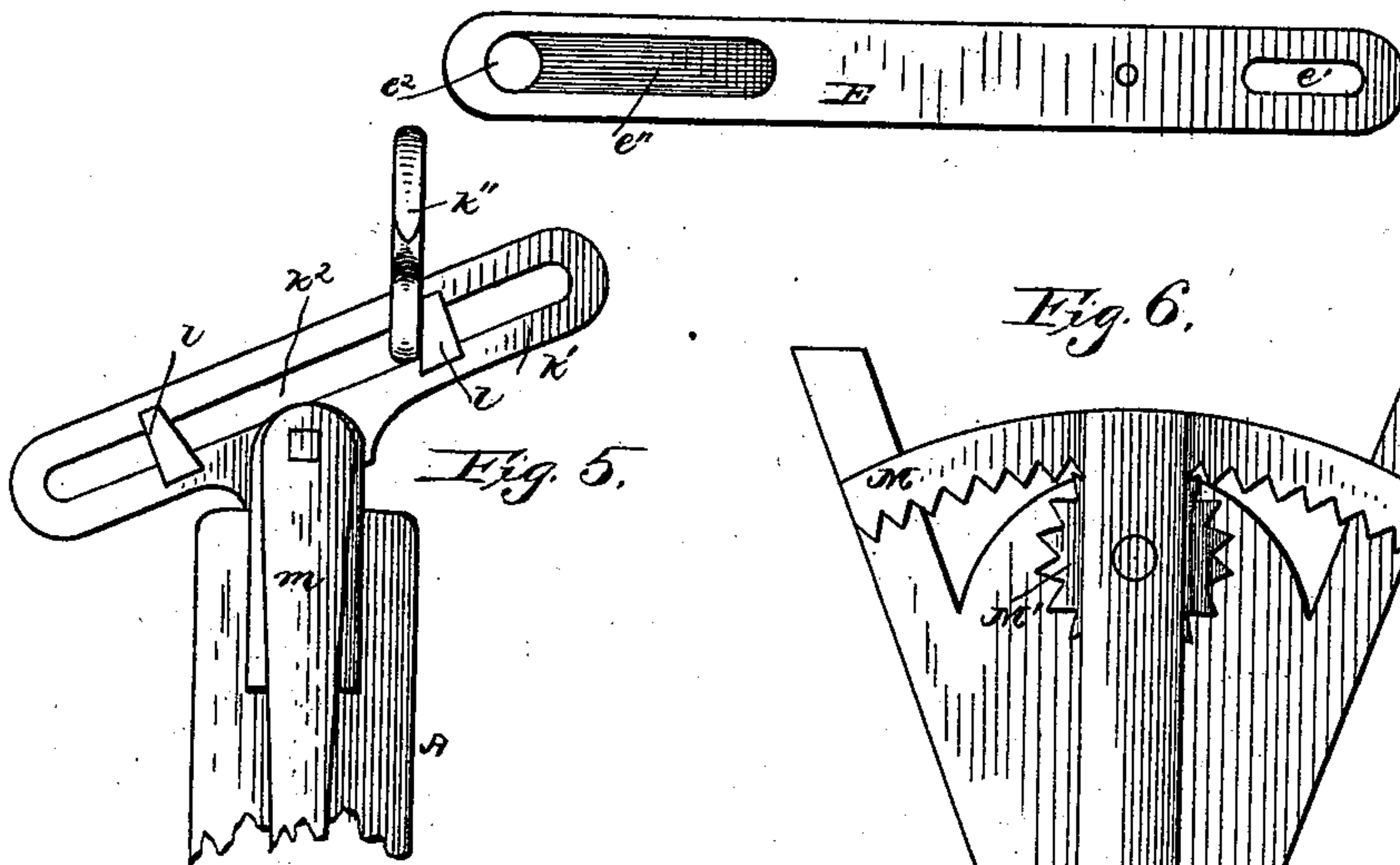


Fig. 5.

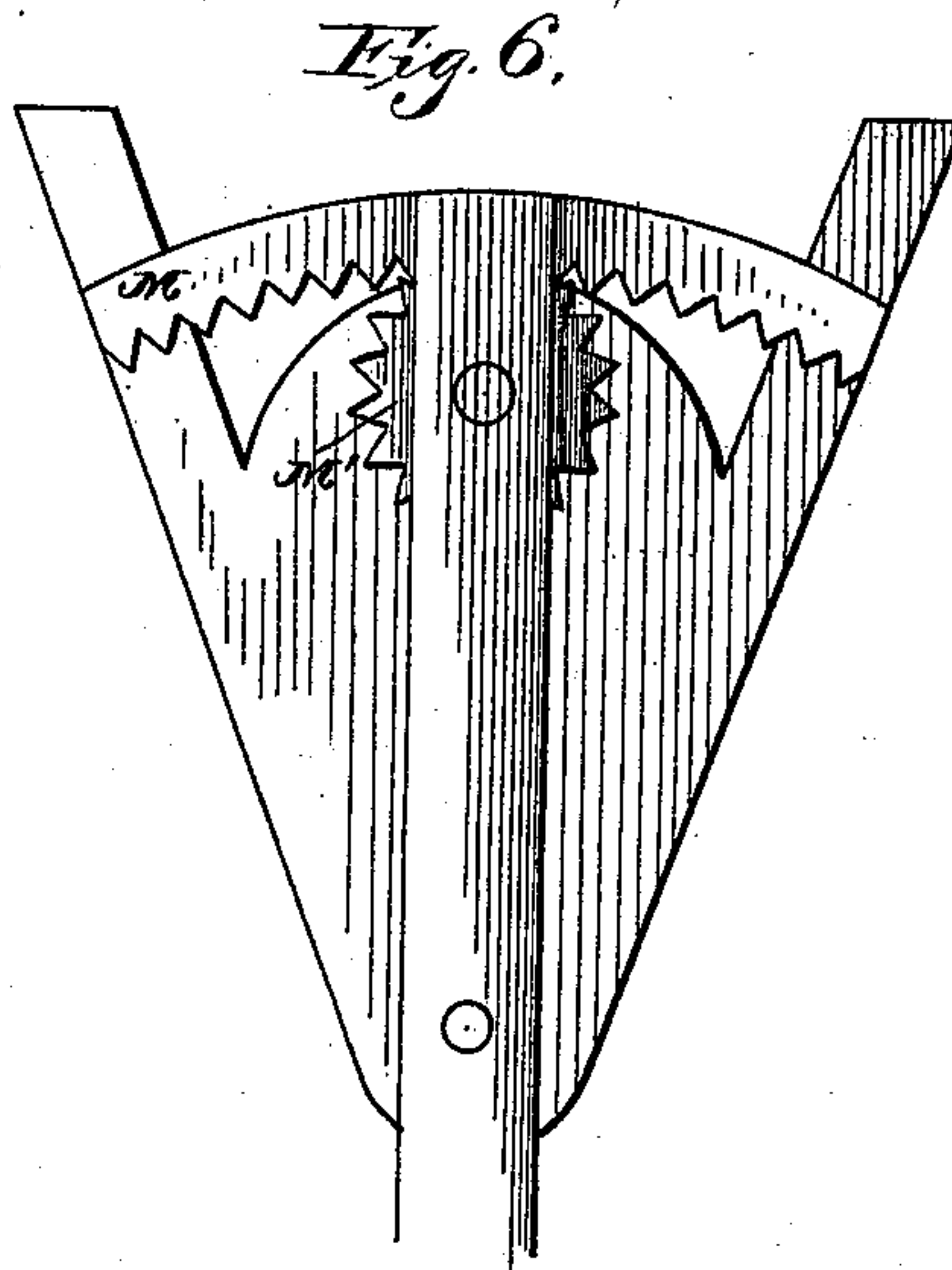


Fig. 6.

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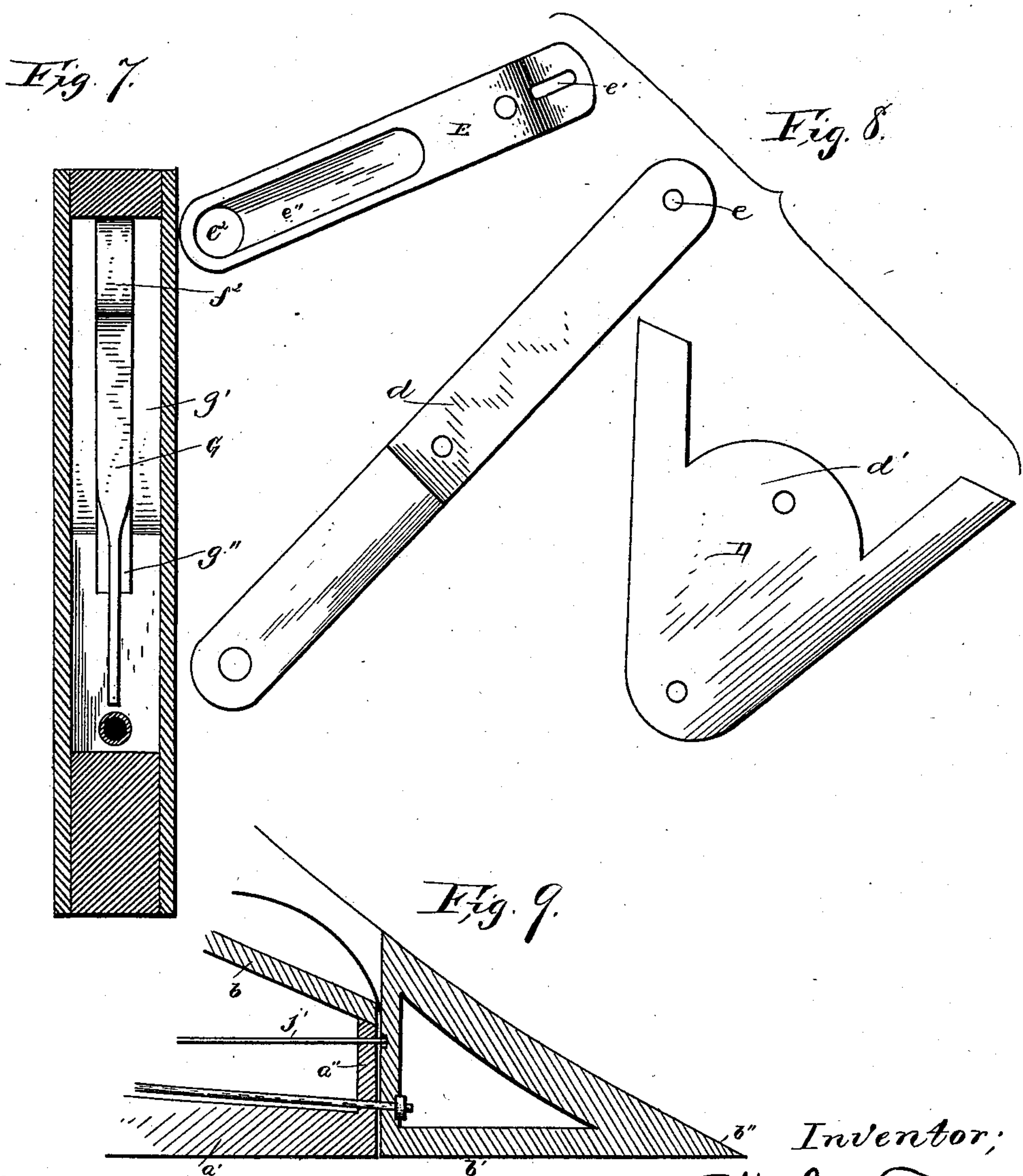
3 Sheets—Sheet 3.

M. J. TODD.

PLOW.

No. 374,565.

Patented Dec. 6, 1887.



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UNITED STATES PATENT OFFICE.

MARQUIS J. TODD, OF CORNING, NEW YORK.

PLOW.

SPECIFICATION forming part of Letters Patent No. 374,565, dated December 6, 1887.

Application filed April 25, 1887. Serial No. 236,248. (No model.)

To all whom it may concern:

Be it known that I, MARQUIS J. TODD, a citizen of the United States of America, residing at Corning, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Plows, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to certain new and useful improvements in plows; and it consists in the detailed construction, combination, and arrangement of the parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

15 In the accompanying drawings, Figure 1 is a view in side elevation of my invention, with one of the side plates of the landside removed. Fig. 2 is a rear view thereof. Figs. 3 and 4 are enlarged detail views of the two-part crotch and retaining mechanism. Fig. 5 is an enlarged detail plan view of the clevis, embodying a modification thereof. Fig. 6 is a view of a modification of my crotch. Fig. 7 is a cross sectional view on the line $x x$, Fig. 1. Fig. 8 is another enlarged view of the crotch. Fig. 9 is a detail view showing the pivotal bearing for the plow-point, and Fig. 10 is a detail view of the jointer-plate.

30 The object of this invention is to provide a plow whereby the mold-board and the plow-point, together with the jointer, may be used for either a right or left hand plow, according to the side of the landside and the shoe on which the mold-board is placed, and to provide a crotch of peculiar formation which can be pivotally secured on the same rod as the plow-point head, and by means of which the mold-board can be held at the same relative position on either side of the landside, notwithstanding the fact that the pivotal bearing of the crotch is not on the same horizontal plane with the plow-point or head.

45 In the organization of my invention I provide a forwardly-projecting plow-beam, A, which at its rear end is curved into a vertical portion, a , the lower end of which is again curved and projected forwardly in under the beam A, forming a shoe, a' . To the forward end of this shoe is secured (or it may be integral therewith) the lower end of a vertical

bar, a'' , of an inclined frame, b , the rear vertical bar, a^2 , thereof being secured on the upper portion of the shoe near its rear end.

B is a hollow tube or rod passed on an incline through an aperture in the lower end of the vertical portion a of the beam and extending through a similar aperture in the bar a^2 of the frame b , from which point it is narrowed, and is extended over the upper surface of the shoe and through the forward vertical bar, a'' , of said framing. The projecting end of said rod has a small collar fitted thereon, the purpose of which will appear farther on.

65 C is the reversible mold-board, to the forward end of which is connected by suitable means the rear vertical wall of a hollow head, b' , over which and the end of the mold-board is fitted a plow-point, b'' . The under or outer side of this plow-point head b' is so formed that when the under side thereof is, together with the plow-point, penetrating the earth, the other correspondingly-shaped side is in a vertical position, which serves as a landside, in connection with the shoe a' and the landside proper, which consists of a metallic plate, a^3 , secured on either side of the frame b , one of which plates being shown in Fig. 1. If desired, the frame and landside-plates can be made integral, and also the shoe of the beam. The projecting end of the tube or rod B, above referred to, is passed through an aperture formed in the rear wall of the plow-point head b' , after which the collar is secured on said end of rod, so as to retain the same in position. This tube or rod forms the pivotal bearing for the plow-point head, the point proper, and the mold-board, all of said parts being rigidly secured to each other.

90 As heretofore constructed, reversible plows usually have the crotch to which the mold-board is attached pivotally secured at the lower heel end of the plow-beam, which must of necessity be on the same horizontal plane with the bearing of the plow-point, and to overcome this difficulty experienced in a plow having the mold-board and plow-point turned over the shoe and under the beam is one of the main objects of my invention. To this end I provide a two-part crotch, D, the long arm or member, d , of which is rigidly secured at its lower end on the rod B, and has a portion of

its inner surface removed for fitting a two-armed V-shaped part or member, d' , which is pivoted at its lower convergent end to the long arm or member d , and its projecting arms are rigidly secured to the under side of the mold-board. The part or member d' is of approximately V shape, having its ends slightly extended and its upper central portion curved, as shown. The upper end of the long arm or member projects slightly above this curved portion, and has a finger or pivot, e , rigidly secured to said end and projecting over said curved portion, and entering or working in a slot, e' , formed in one end of a sliding arm or bar, E , which is pivoted near said end to the center of the V-shaped part or member d' , near the upper curved portion thereof. This sliding arm or bar E has a groove, e'' , formed in its front face, terminating in a small aperture or recess, e^2 , at its other end. In this groove e'' of the sliding arm projects a stationary finger, f , through the center of which is passed a sliding or movable finger, f' , the forward end of which is widened, as at f^2 , and has a groove or socket formed in its under surface for reception of a curved or ball-like end, g , of a lever, G . This lever is fulcrumed on a small rod bearing at its ends in apertures formed in corresponding projecting cheeks or plates g' of the frame b , as shown in Fig. 1, and to the upper shorter arm of this lever is secured one end of a spring, g'' , which bears against the rear bar of said frame, as shown in Fig. 3.

To the rear end of the tube or rod B is rigidly secured a toothed cam, h , with which engages the lower widened toothed end of a lever, H , fulcrumed on the rear side of the vertical portion a of the plow-beam on a horizontally-disposed rod, L . This lever is provided with a retaining-pawl, h' , which engages with a segmental rack, h'' , bolted to the upper rear end of the plow-beam, and said pawl is fitted to slide in apertured lugs projecting from one side of the lever H , and to said pawl is applied a spring, h^2 , arranged between said lugs to automatically hold it in engagement with said rack h'' . In order to effect the disengagement of the pawl from its said rack as the lever H is grasped for manipulation it is connected by a rod, i , to a supplementary lever, i' , pivoted to the lever H , and to this rod or wire is rigidly secured a small rod or finger, i^2 , passed through and working in a slot in the lever H . To the outer end of this rod or finger is connected one end of a rod, J , passed through eyes on the rear side of the lever H and down to and through the central aperture in the tube or rod B , from which it passes at j , and is connected to the lower end of the lever G , to which end is also connected a small thin rod, j' , projecting at its thickened forward dog-like end through an aperture in the front vertical bar of the frame b , where it is designed to enter slots or apertures formed in the rear of the plow-point head for securing the same together with the plow-point and mold-board on either side of the shoe or landside.

To the forward end of the plow-beam is connected the self-adjusting clevis K , which consists of a pivoted post, k , secured between apertured horizontal plates on the forward end of the plow-beam and an approximately oblong bar or plate, k' , having projecting apertured ears, through which and a corresponding aperture in the post k is passed an ordinary securing-pin. The bar or plate k' has an aperture, k^2 , extending its full length, and in this aperture works the rear frame-like end of a hook, k'' , having a vertically-disposed frictional roll bearing against the inner surface of the bar, and to this hook is connected, in practice, the whiffletree of the horse's harness. Suitable stops, ll , are disposed in the aperture k^2 , for regulating the extent of the lateral movement of the hook, said stops being retained at the desired point by means of set-screws.

To the lower end of the pivoted post is secured a preferably looped crank or cam, l' , projecting rearward, and into said loop projects the forward downwardly-bent end of the horizontally-disposed wire rod L , which is passed through eyelets on the under side of the plow-beam, and after being passed through an aperture in the rear portion of said plow-beam is rigidly secured to and forms the fulcrum for the lever H .

The object of providing the bar or plate of the clevis with an aperture wherein the hook slides is to permit the clevis to automatically adjust itself to the right and left of the center of the beam, thus throwing the line of draft to either side of said beam, whereby the desired amount of draft to or from the land is obtained, so that when the mold-board and plow-point are reversed the clevis will be automatically adjusted through the agency of the pivoted post, causing the hook to slide to and abut against the opposite stop to that against which it was formerly bearing, said stops having inclined sides to correspond with the sides of the frame of the hook, as shown.

It will be seen in Fig. 5 that I have connected a small hand-lever, m , to the upper projecting end of the apertured post k , so as to permit the clevis to be used on a hand-plow, the construction herein described being intended, preferably, for a sulky-plow.

N is the reversible diamond-shaped jointer, symmetrical on both sides of its center line, and is secured at its center by an ordinary bolt to a thickened plate, n , fast to the lower forward end of a shaft or rod, n' , which is passed into a slightly larger tube or cylinder, n'' , wherein it is retained by means of a set-screw, n^2 , as will appear farther on. The thickened plate n has an upwardly-projecting apertured arm, o , through which is passed a bolt, o' , also passed through an aperture in the corresponding part of the jointer for the more secure retention thereof.

The object of making the jointer diamond-shaped is, that when one point has become useless by reason of wear, by removing the bolt o' ,

the jointer-points can be reversed by turning the same on its central pivotal bolt, after which the rear point is also secured by means of the bolt *o'*.

5 The tube or cylinder *n''*, above referred to, is passed through an aperture in or adjoining the vertex of an approximately V-shaped frame, P, secured at its ends to the plow-beam, but in such manner as not to interfere with the rod
10 L. Immediately adjoining an overlapping lug, *p*, of one of the sides of the V-shaped frame is secured on the tube or cylinder *n''* a collar, *p'*, having a forwardly-projecting crank-like bar or finger, *p''*, in a short aperture of which
15 works the lower ball-like end of a projecting arm, Q, of the rod L. It will be seen that by means of the set-screw *n²* working in the outer tube or cylinder the inner shaft or rod can be adjusted at any point, as may be necessary for
20 the relative position of the jointer and plow-point.

By reason of formation of my jointer of diamond shape, the same is capable of not only cutting on the right or left hand side, according to the position given the plow-point and
25 the mold-board, but when these lower opposite edges become worn, as they do in the course of time, the jointer can be turned, as stated, on its central securing bolt by removing the upper bolt, which is replaced when
30 the lower worn portion takes the place of the sharpened edges, which continue the cutting operation on the right or left hand, as before. Thus it will be seen that my jointer has four
35 cutting-edges, two of which are always capable of use on the right or left hand side, as may be desired, the other two being similarly used when the former become worn.

In Fig. 6 I have shown a modified form of
40 my crotch, which consists in providing a curved toothed bar, M, secured to the V-shaped part or member, and with which engages a small pinion or toothed wheel, M', on the long arm or member, as shown, and when this form of
45 construction is employed the sliding arm or bar is dispensed with.

From what has gone before it will be seen that when it is desired to reverse the plow-point and mold-board, together with the jointer,
50 the same is effected by grasping the upper handled end of the lever H and the supplementary lever *i'*, which will free the pawl from the rack; and by moving the lever H toward either side the same will turn the toothed cam, which will
55 cause the tube or rod B to revolve, prior to which, however, the grasping of the supplementary lever will pull on the rod J, pulling rearwardly on the lower end of the lever G, causing the sliding finger to be removed from
60 the aperture in the sliding bar or arm, and at the same time the withdrawal of the dog-like end of the rod *j'* from the recess in the rear side of the plow-point head. After this, by moving said lever H, as above intimated, the
65 tube or rod B, on which the plow-point head is pivoted, together with the plow-point and mold-board, will be reversed; and this

being accomplished, upon freeing the hold on the levers, the pawl will engage with the teeth of the rack, the lower end of the lever
70 G will move forward by reason of its spring, and the sliding finger will enter the recess of the sliding arm or bar, and the dog-like end of the rod *j'* will pass into the corresponding slot or recess of the plow-point head, thus se-
75 curely retaining the same in position.

Upon moving the lever H, as above detailed, the rod L, upon which said lever is fulcrumed, effected the movement of the arm Q, which, through the agency of its ball-like end
80 and the crank bar or finger *p''* of the collar *p'*, caused the reversal of the jointer N, and the outer end of the said rod L moved within the crank or cam of the pivoted post *k*, which affected the turning of the latter and the auto-
85 matic shifting of the elevis to correspond with the position occupied by the plow-point and mold-board, which is a desideratum in this class of inventions.

I will now proceed to more minutely de-
90 scribe the operation of the crotch.

When the lever H was moved as above detailed, causing the tube or rod B to revolve, the long arm or member *d* of the crotch, being
95 fast on said rod, turned therewith, and by reason of its pivoted bearing being above that of the plow-point and mold-board the same acquired a movement slightly in advance of the V-shaped part or member *d'* of said crotch, which being connected to the mold-board gave
100 to the latter the same relative position to the shoe and landside as it bore before being moved. When the crotch is moved, the outer end of the sliding arm or bar moves slightly
105 outward, thence downward, and makes about a quarter-revolution, and is then drawn upward and forward with the V-shaped part until the sliding finger is permitted to enter the aperture in its free end, whereupon the arm or
110 bar is rigidly held in position.

I claim as my invention—

1. As an improvement in plows of the class herein described, the plow-beam comprising the upper forwardly-projecting portion, the vertical connecting portion, the shoe pro-
115 jecting forwardly in under the said upper projecting portion, the inclined frame, and the landside, all made or cast integral, in combination with the reversible mold-board and plow-point and the pivotal rod operated by a
120 lever and passed over said shoe and secured to said plow-point, substantially as shown and described.

2. In a plow, the plow-beam having a vertical portion and a forwardly-projecting shoe,
125 the pivotal tube or rod passed through said vertical beam and over said shoe and operated by a lever, the plow-point having its head connected to said rod, the mold-board, and the operating mechanism, substantially as shown
130 and described, whereby said plow-point and mold-board can be reversed in under the plow-beam and over its shoe, as set forth.

3. The combination, with the plow-beam,

the pivotal tube or rod, and the reversible plow-point and mold-board, of the two-part crotch consisting of the long arm or member, the V-shaped part or member pivoted at its lower end to said long arm or member, and the sliding arm or bar pivoted near its upper end to said V-shaped part or member and connected by a projecting finger with said long arm, substantially as shown and described, whereby the mold-board and the plow-point can be reversed and caused to occupy the same relative position on either side of the shoe and landside, as set forth.

4. The combination, with the beam, the reversible mold-board and plow-point, and the frame to which the landside is connected, of the two-part crotch, the sliding arm or bar, the spring-pressed lever, carrying a sliding finger, and the operating levers and wires, all arranged substantially as shown and described.

5. The combination, with the beam, the reversible mold-board and plow-point, and the frame, of the two-part crotch, the sliding arm or bar E, the lever G, carrying the sliding finger at its upper end, the rod *j'*, having a dog-like projecting end, the lever H, and the tube or rod B, substantially as shown and described.

6. The combination, with the beam and the reversible mold-board and plow-point, of the pivotal tube or rod having a collared end projecting through the rear wall of the plow-point head, the operating-lever engaging with a toothed cam on said tube or rod, the supplementary lever *i*, the wire connected thereto, the spring-pressed lever G, having a sliding finger, the two-part crotch having a sliding arm or bar, E, and the rod *j*, having a dog-like end, all arranged to operate substantially as shown and described.

7. The herein-described jointer, comprising the diamond-shaped reversible plate, the shaft or rod having a thickened plate, to which said reversible plate is secured, the outer tube or cylinder having a set-screw working therein, the collar having a crank arm or finger, and

the V-shaped supporting-frame secured to the under side of said beam at about its center, substantially as shown, and for the purpose set forth.

8. The combination, with the plow-beam, the V-shaped frame, and the operating-lever, of the tube or cylinder carrying a collar having an apertured crank arm or finger, the jointer and its shaft, and the horizontally-disposed wire rod having an arm provided with a ball-like end working in the aperture in said crank-arm, substantially as shown and described.

9. The combination, with the beam, of the reversible plow-point and mold-board, the operating-lever, the horizontally-disposed rod on which said lever is fulcrumed, the reversible jointer operated through the agency of an arm of said rod, and the shifting-clevis, all arranged to operate as and for the purpose set forth, and constructed substantially as shown and described.

10. The herein-described clevis, consisting of the pivoted apertured post, the oblong bar or plate having projecting apertured ears, the sliding hook having a frictional roll, and the stops provided with opposite inclined sides, all arranged substantially as shown and described.

11. In a reversible plow, the combination, with the beam, the pivoted mold-board and plow-point, and the operating-lever, of the clevis having a pivoted post provided with a crank or cam at its lower end, the sliding hook carrying a frictional roll, the inclined stops, and the rod connected to said lever and having its forward bent end operating said crank or cam, substantially as shown, and for the purpose specified.

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

MARQUIS J. TODD.

Witnesses:

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H. A. ARGUE.