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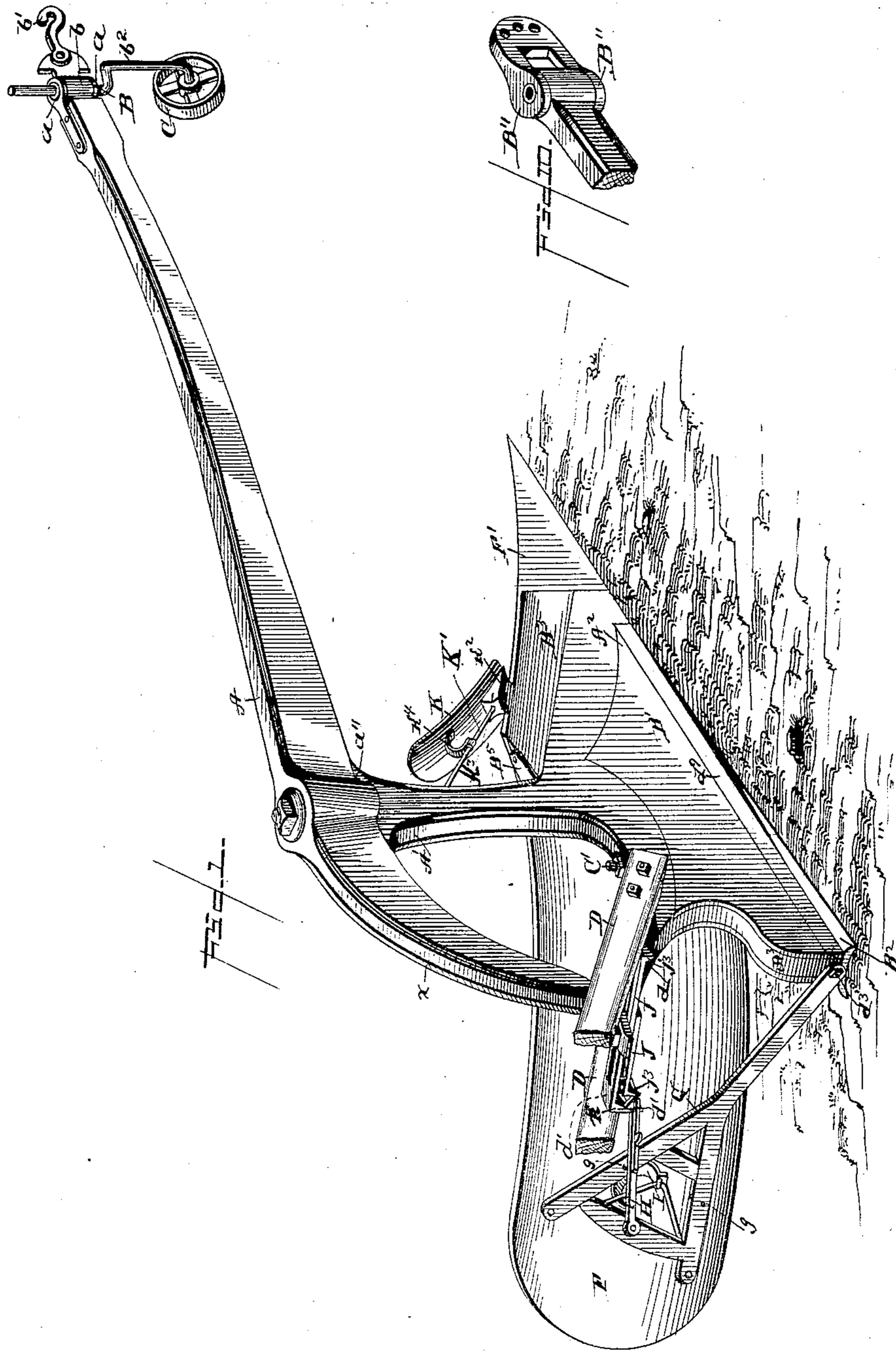
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M. J. TODD.

PLOW.

No. 397,317.

Patented Feb. 5, 1889.



Witnesses.

W. A. Humphrey.
John Montgomery

Inventor
Marquis J. Todd

By *John W. Kill.*
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(No Model.)

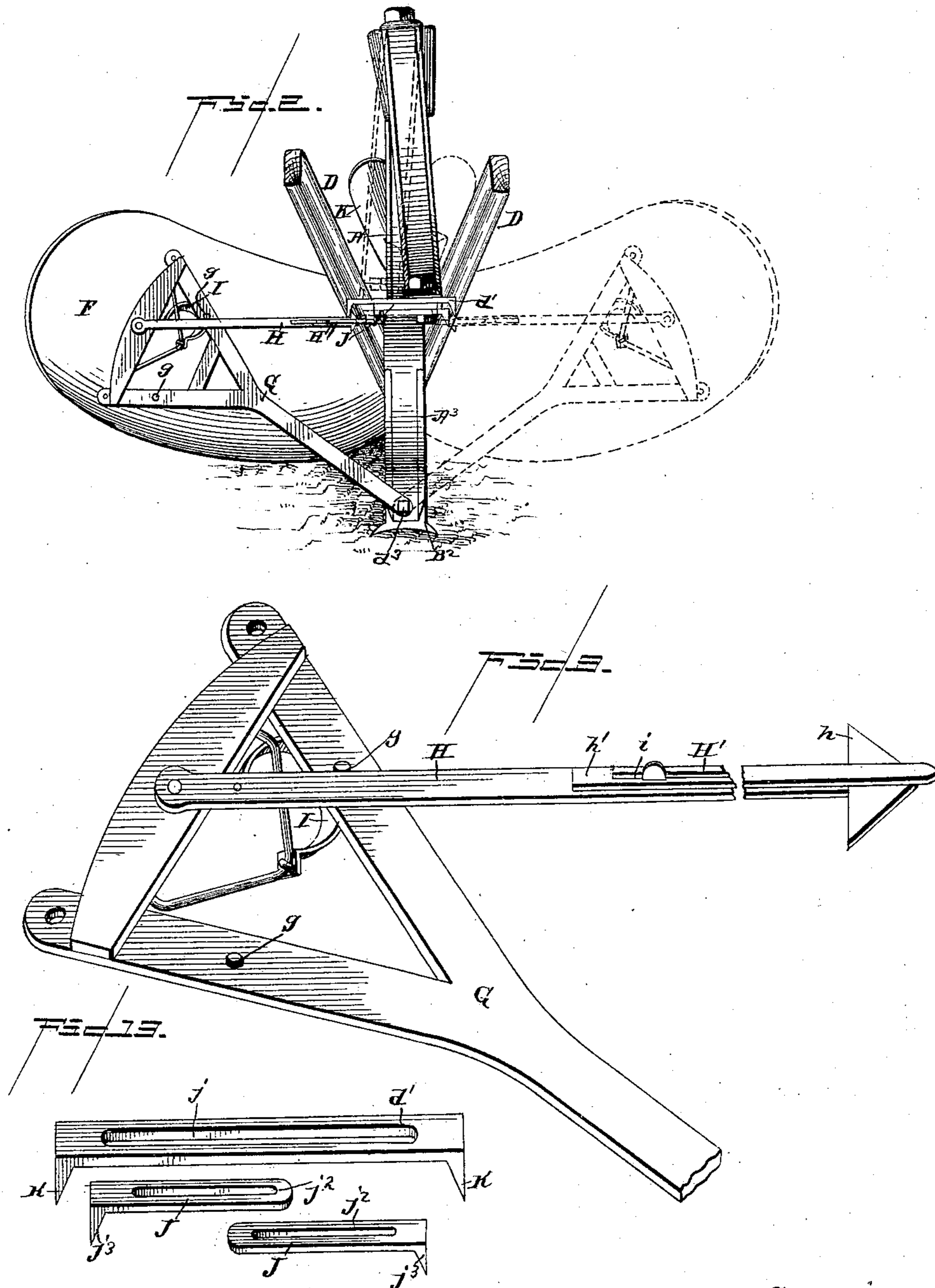
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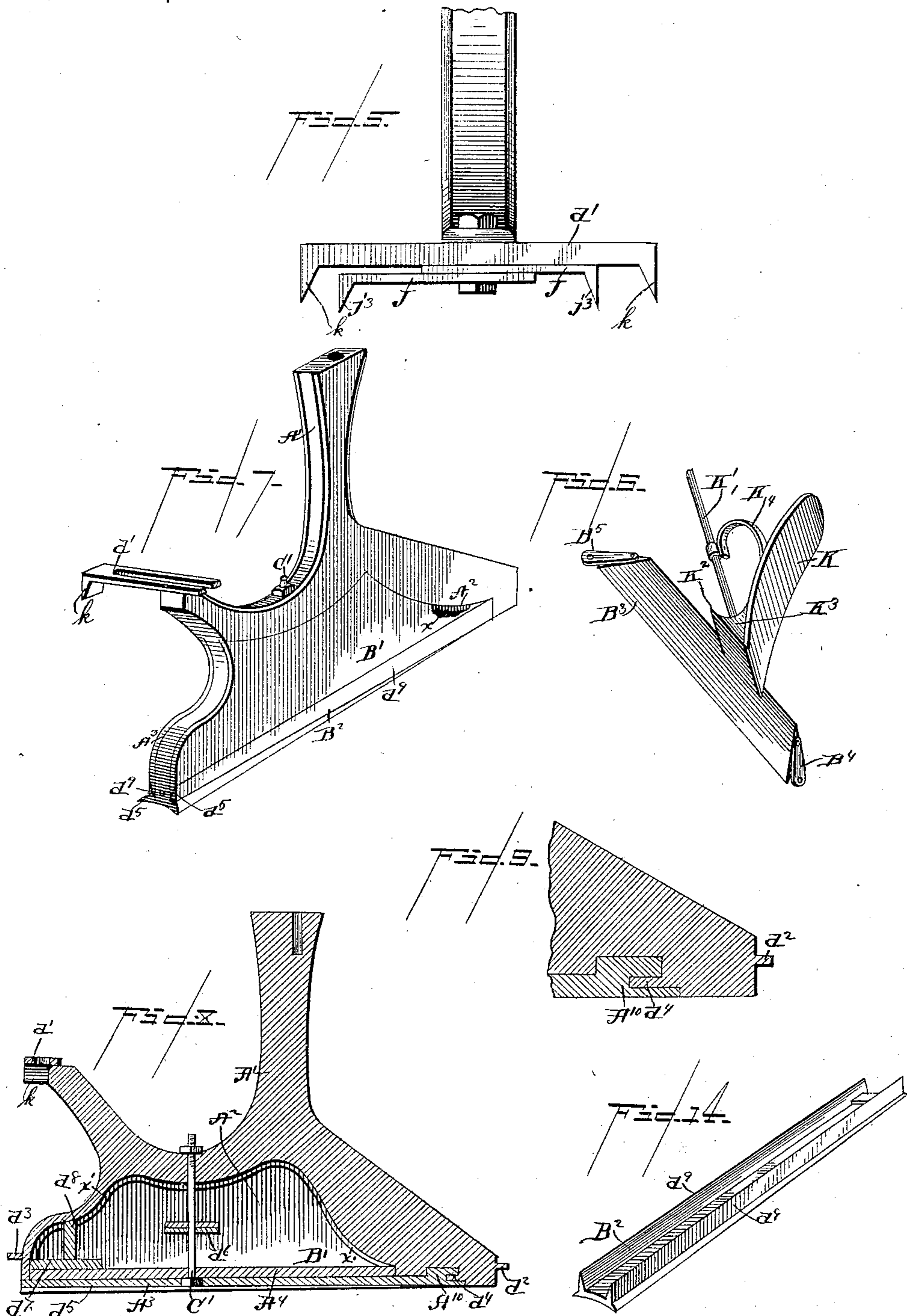
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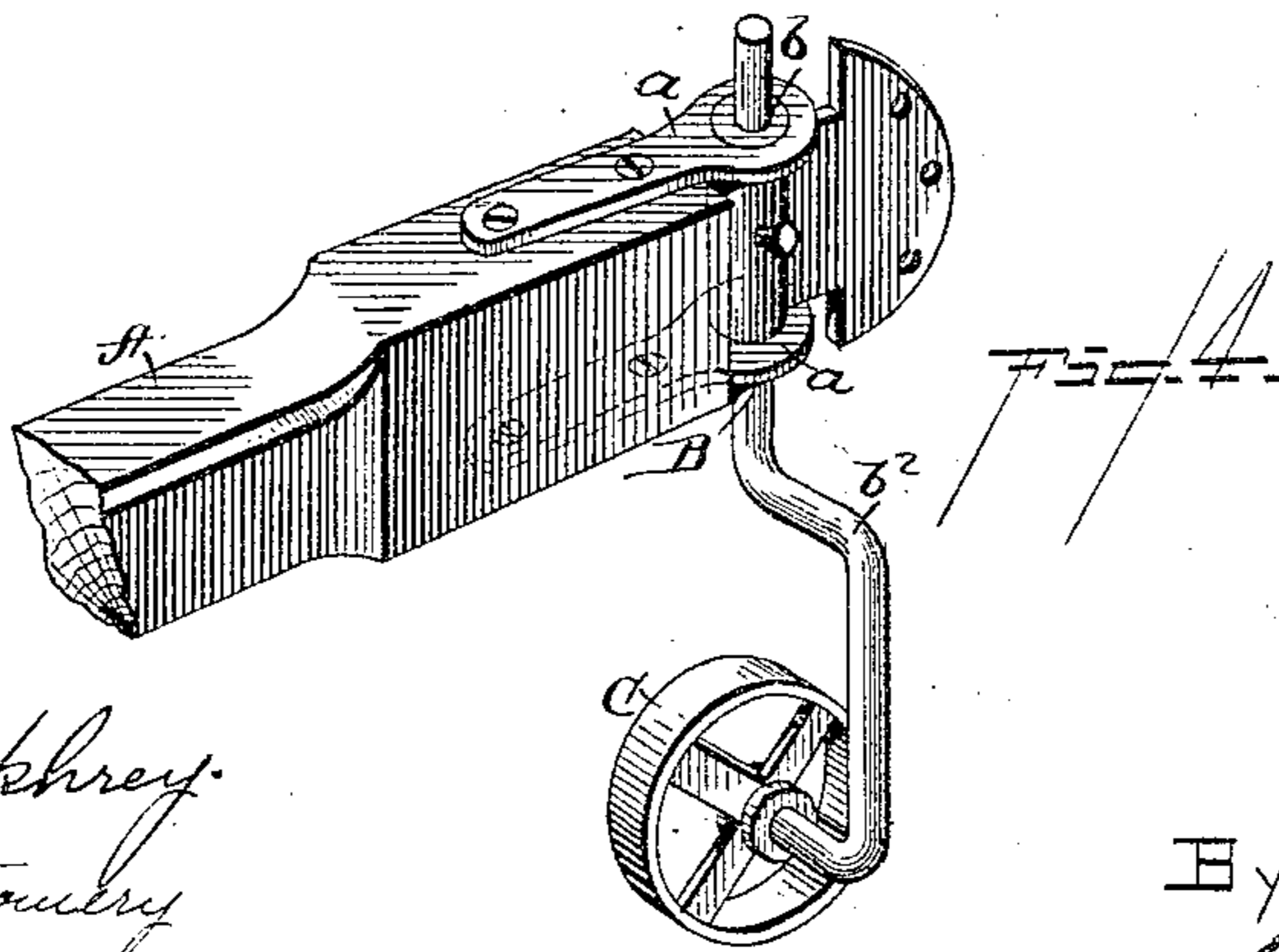
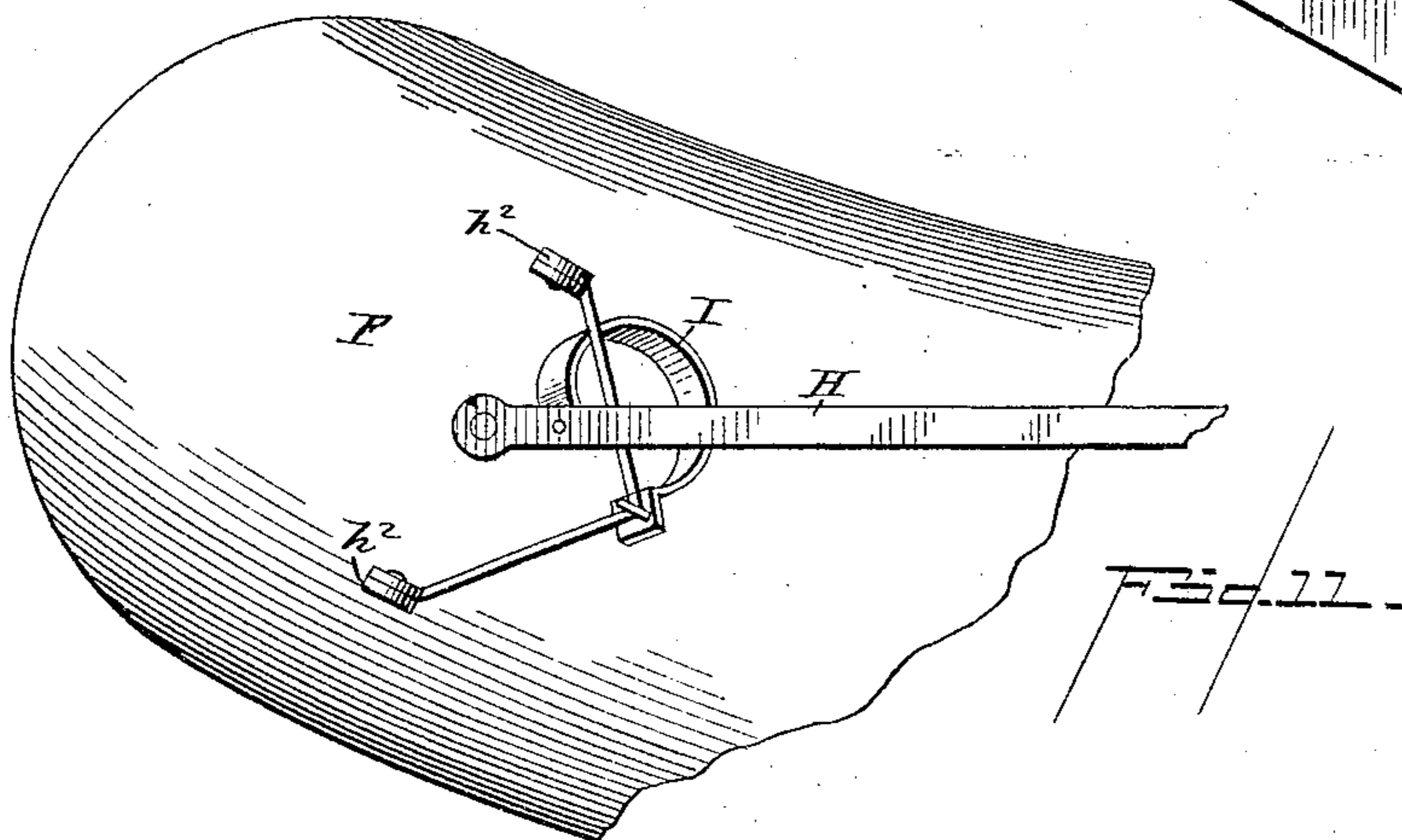
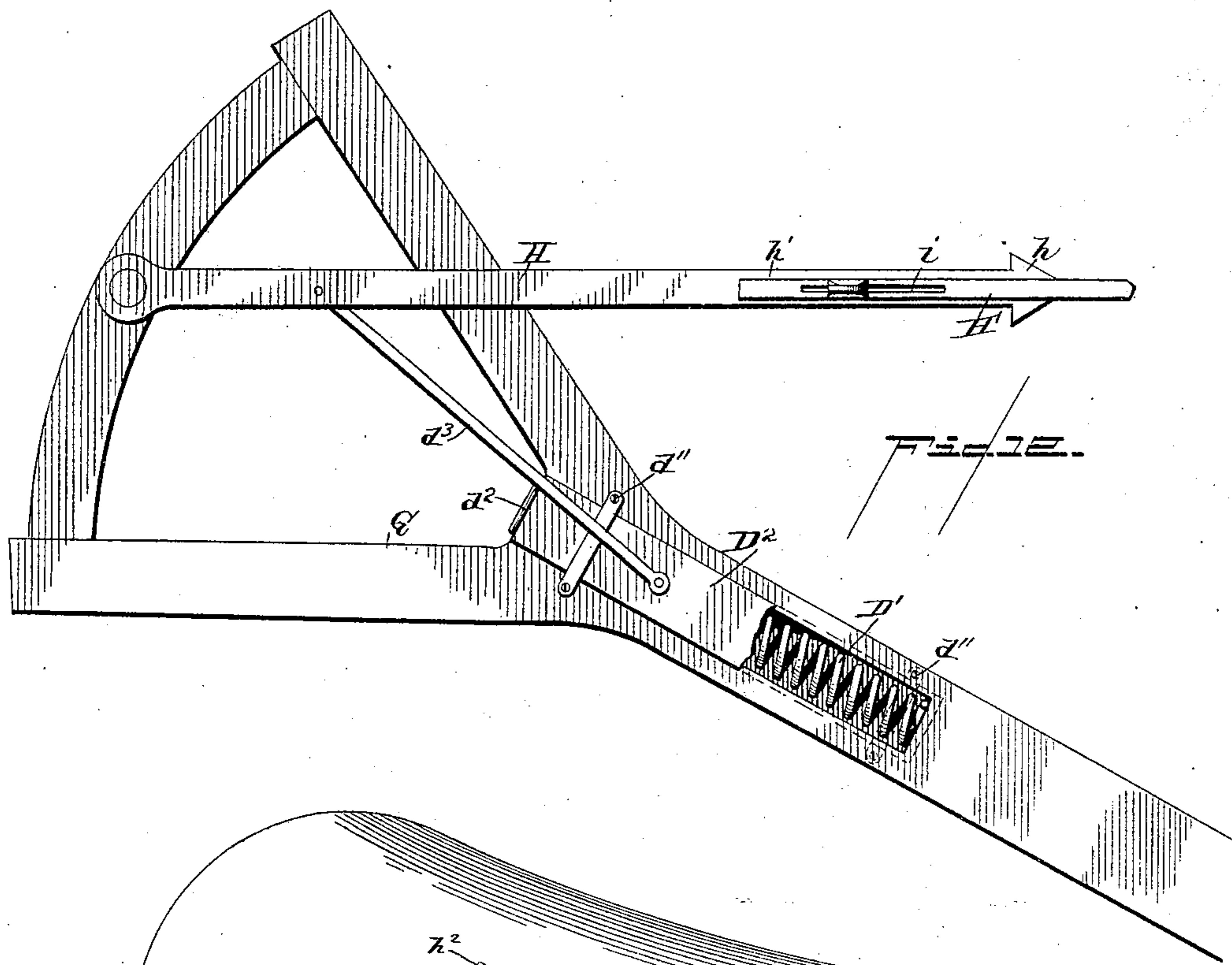
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UNITED STATES PATENT OFFICE.

MARQUIS J. TODD, OF CORNING, NEW YORK.

PLOW.

SPECIFICATION forming part of Letters Patent No. 397,317, dated February 5, 1889.

Application filed April 21, 1888. Serial No. 271,429. (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.

This invention pertains to certain new and useful improvements in level-land swivel-plows having a straight landside and point and a beam capable of being shifted from side to side to any desired extent, thus retaining a perfect balance to aid in plowing by throwing said beam far enough to either side to offset suction of the wing of the share and mold-board, and to give width to furrow without liability of twisting the plow-point out of the line of the landside, which causes the plow to pull toward the land, as occurs in plows wherein a center draft or fixed beam is employed, resulting in a suction of the wing downward and suction of point to one side, whereas in my invention the beam is shifted toward the mold-board, so that the lift of the beam stops the rock caused by downward suction, thus securing a perfect balance and the desired amount of land, as in the level-land plows now in use, and by means of an improved form of standard, landside, and shoe this result is more readily accomplished.

The invention has reference more particularly to side-hill plows, wherein a single mold-board with its attached share or point is made to swing from one side of the beam to the other to permit a return furrow to be made by the plow, the primary object of my invention being to provide a reversible mold-board with a pivotally-secured arm having a double-hooked or arrow-head-like end for engagement with the plow standard or handles for holding said mold-board on either side of the plow-beam, said arm being forced in its movement on either side of the center of its pivotal bearing by means of any suitable spring-pressure, the center of which corresponds to the pivotal center of said arm, whereby upon movement thereof upon either side of its pivotal center said spring will likewise pass its center, and its recoil action consequent upon its depression will force said arm in its movement.

A further object of my invention is the provision of an improved standard of skeleton formation and an improved landside and shoe secured to said standard by suitable and highly-efficient means.

A further object of my invention is to provide a shifting beam pivotally connected to the plow-standard and operated at its extreme rear end by the hooked arm pivotally secured to the mold-board or to the crotch thereof.

A further object of my invention is the provision of means for filling or closing the space usually between the mold-board and the front edge of the standard, and at the same time provide a smooth and level landside on the entire side of the standard and not interfere with the position of said mold-board; and a still further object is the production of a turf slicer and turner for cutting a thin selvage or slice from the upper portion of the rising furrow and completely turning the same, said slicer or turner having a relative position to the mold-board and plow-point which effects the shifting thereof from side to side.

With these and other objects in view my invention consists in certain features of construction and arrangement of parts, that will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved plow, looking from the rear. Fig. 2 is a rear view thereof, showing in dotted lines the arc of a circle described by the mold-board in its movement. Fig. 3 is an enlarged perspective view of the hooked arm and its spring, together with a portion of the crotch. Fig. 4 is an enlarged detail view of the caster-wheel and clevis. Figs. 5 and 6 are respectively similar views of the rear end of the plow-beam and its sliding plates and the turf slicer and turner. Fig. 7 is a view in perspective of my improved plow-standard and landsides. Fig. 8 is a sectional view thereof. Fig. 9 is a detail. Fig. 10 is a modification of clevis. Fig. 11 is a modification of attachment of arm to mold-board. Fig. 12 is a modified form of spring-pressure. Fig. 13 is a detached perspective view of the sliding plates and rear cross-bar of standard, and Fig. 14 is a detail perspective view of the shoe of the standard.

Referring to the drawings, A represents the plow-beam, preferably of metal, and said beam is given an approved form to insure strength and lightness of its body. This plow-beam is fulcrumed at a'' to the upper forward arm of the plow-standard A' , the rear end or arm of said beam being downwardly curved, as shown. A circular enlargement or boss is made in the body of the plow-beam to allow a round orifice to be formed therein, and through this orifice is passed the pivotal bolt, as shown, the lower end of which extends into the standard A' .

To the forward end of the beam A is secured, preferably between two apertured lugs, a a , a clevis, B, the rear portion of which has a hollow tubular extension, b , provided with extended ends working in the corresponding holes or apertures of the lugs a , and is free to rotate thereinbetween. To the front portion of this clevis B is secured the ordinary hook, b' , to which the singletree of a horse's harness is attached.

C is a caster-wheel employed as a depth-wheel, said wheel being secured upon one end of a preferably bent or curved arm or bar, b^2 , the upper flattened vertical portion of which is extended through the hollow tubular portion of the clevis B, and is held therein at any desired point by means of a set-screw working in an aperture of the clevis and bearing against one of the flattened sides of said vertical portion of the arm b^2 . By means of this set-screw the arm b' , and consequently the caster-wheel, can be held at the desired point. By this arrangement the caster-wheel will be continually on the same line with the clevis, both always being in the line of draft.

The form of clevis above described is observed when the same is of wood; but when constructed of metal it is made after the form shown in Fig. 10—*i. e.*, it is provided with apertured projecting ears B'' above and below the beam, the same being held by a hollow rod or tube projected through an aperture in said beam and the coincident apertures of said ears, the ends of said rod or tube being clinched to hold it in position. There is a decided advantage in this form of clevis, in that when the wheel and its carrying arm or rod are dispensed with a separate or additional pivoting-post for said clevis is not necessary, since the ends of the tubular portion thereof or a rod or tube serve as its pivotal bearing. By this means the use of the wheel can be readily dispensed with when desired.

The wheel will always follow the line of draft on the clevis, independent of the direction in which the plow-beam is shifted, while as heretofore constructed, with the wheel-post secured directly to the plow-beam, when the beam or clevis would be shifted, carrying the wheel therewith, said wheel would pull against the line of draft by being thrown off of the line of the landside and against draft.

The plow-standard A' is constructed after an improved form, and is of approximately

skeleton formation, the central body portion thereof being removed, as at A^2 , whereby the weight and cost of material employed are reduced to a minimum, and at the same time the necessary thickness of the frame-work of my standard is observed, so as not to impair the strength thereof.

The standard A' is provided with two arms, upon the upper forward one of which is fulcrumed the plow-beam, as before stated, while to the upper end of the rear arm, d , is rigidly secured or cast therewith a cross-bar, d' , having a longitudinal slot or aperture and depending end lugs, k k , and to this connecting-bar are secured the forward convergent ends of the ordinary handles, D D. The lower end of the rearwardly-curved heel A^3 of the standard is preferably connected to the front inclined toe portion by a connecting-bar, A^4 , as shown. If desired, said connecting-bar can be dispensed with; but I prefer, however, to use the same. The sides of this standard are grooved or have a portion of their surfaces removed, as at x , Fig. 7, the same formation being observed on both sides. The toe end of this standard has a flat vertical portion, from which projects a short stud, d^2 , a corresponding stud, d^3 , being projected from the heel end of the standard.

In the under side of the standard, near the toe end thereof, is formed a slightly-curved hook, d^4 , the lower portion of which is beneath the under surface of the connecting-bar A^4 , and yet a little above the lower surface of the toe of the standard.

B' B' are the landsides, composed each of two similarly-constructed plates having the general outline of and designed to fit flush within the curved sides of the standard. The lower ends of the landside-plates have tapering bevels d^5 running from end to end, the widest parts of said bevels being at the rear ends of the plates. Each landside-plate has on its inner surface a continuous bead or flange, x' , fitting against the inner surface of the standard, and said plates are also provided with inwardly-projecting apertured ears or lugs d^6 , designed to overlap each other when said landsides are in place. To the inner side of each landside-plate is also secured a short horizontal lug or bar, d^7 , and a similar vertical lug or bar, d^8 , the former being designed to rest upon the connecting-bar A^4 and against the lower portion of the heel A^3 , while the latter lug or bar, d^8 , bears against the under side of the upper curved portion of said heel.

B^2 is the shoe, preferably of the form shown, the same having two upwardly-projecting beveled side walls, d^9 d^9 , designed to hug the lower beveled sides of the landside-plates, and also the lower end of the standard, which fits snugly between said walls upon the upper surface of their connecting-bar. This shoe is slightly curved or hollowed out on its under side, as shown, so that in practice it will rest on its two outer longitudinal edges

or flanges, whereby friction is prevented and a perfect suction is secured. The shoe is held in position at its forward end by means of a groove or recess, d^{10} , formed therein, and into which projects the slightly-curved hook d^4 , whereby the lower surface of said shoe is held on a line with the lower surface of the toe of the standard.

The shoe and landsides are firmly held or clamped in position by means of a nutted rod, C' , projected up through an aperture in said shoe, a coincident aperture in the connecting-bar A^4 , through the apertured overlapping ears or lugs, and up through the upper portion of the standard, the upper end of said rod being fitted with a nut, as shown. The bolt can be passed down through the standard, if desired, and for this purpose a groove is cut in the bottom of the shoe for the nut to rest therein.

In swivel or hillside plows as heretofore constructed the mold-board has to be notched for the standard to project in, so as to secure proper setting for the mold-board, or the front edge of the standard has to be beveled to a narrow edge to permit the same to be cleared by the plow share or point. It is obvious that the cutting-edge of the share or point must be in alignment with end of standard, so as to form a smooth landside, and by beveling this standard a cavity is formed wherein dirt will collect and adhere to the parts, and the notch in the mold-board above referred to increases friction and tends to make the plow unsteady.

My invention is designed to avoid these objections, and therefore the first object of this feature of my invention is to place the plow-standard in proper relation to the mold-board. To this end I place the standard in the position shown with relation to the mold-board, said standard being far enough back to be cleared by the mold-board. The next object of this feature is to overcome or avoid the space or cavity between the rear end of plow-point, the under side of mold-board, and the outer front edge of the standard. To attain this I secure to the front inclined edge of the plow-standard a pivoted section or block, B^3 , beveled on its sides to an upper outer edge, as shown, the lower inner edge of said section or block being also beveled to conform to the bevel of the standard when moved on either side of its pivotal center. This rocking section or block can be secured in position by any suitable means, that adopted in the present instance being two arms, $B^4 B^5$, pivotally secured to said section or block. The vertical arm B^4 is secured to the toe of the standard, and the horizontal arm B^5 is held in a groove in the front edge thereof, as shown.

The mold-board F and the share or point F' are attached together in secure manner and are of approved form of construction. The share or plow-point is provided in the vertex of its lower approximately V-shaped portion with a hole or aperture wherein pro-

jects the stud d^2 of the standard, forming a front pivotal bearing for said share and mold-board. The rear flattened portion of said share or point is fitted snugly against the opposed end of the standard, and when held on either side of said standard the upper edge of the mold-board is in contact, with the adjoining beveled side of the rocking section or block B^3 , which, when the mold-board is brought in contact therewith, is moved past its pivotal center, and its outer face is brought in perfect alignment with the landside and the vertical portion of the plow point or share. By this means a perfectly-smooth landside is secured on the entire side of the standard, same as in a level-land plow.

G is a crotch of ordinary construction, the lower end of which is pivotally connected to the stud d^3 on the heel end of the standard A' , while the upper forked ends are rigidly secured to the under side of the mold-board. To the prongs or divergent arms of this crotch are secured bent studs or stop-pins $g g$. To the upper connecting-bar of the crotch G , I pivotally secure one end of an arm, H , provided with an outer double-hooked or arrow-head-like end, h , having opposite shoulders, as shown, and on the rear surface of this arm is formed or secured a toe plate or projection, h' .

In Fig. 11 I have shown the pivoted arm as attached to the mold-board by means of small lugs h^2 , secured thereto or cast integral therewith, the same being employed when the crotch is placed rather far forward under the mold-board and in lieu of lengthening or extending the pivoted end of the arm forward to said crotch.

I is a spring, preferably of the form shown, the same being composed of a bent metallic plate pivotally secured at one end to the arm H at a point near the upper pivoted end thereof, the other end of said spring being likewise pivotally secured in any desired manner or in any suitable form on a line with the pivot of said arm, the form adopted in the present instance being a V-shaped bracket with its vertex on a direct line with said pivot and its ends secured either to the connecting-bar of the crotch G or to the under side of the mold-board in any suitable manner. Upon the outer side of this arm H , I preferably dispose a movable finger, H' , provided with a longitudinal groove or recess, i , through which the shank of the toe-plate h' is passed, whereby said finger can be held at the desired point, the outer end of said finger being designed to extend over the hooked end of the arm H , as shown.

The extreme rear end of the curved and pivoted plow-beam A projects down to the cross-bar d' , and is designed to slide or move over the upper surface thereof, said bar being provided with a transverse slot, j , through which projects a set-screw, j' , extending through a corresponding aperture in the end of the plow-beam.

$J J$ are two corresponding sliding plates,

provided each with transverse slots $j^2 j^2$ and with depending lugs $j^3 j^3$ on their outer ends. The opposite horizontal portions of these sliding plates bear against each other, and are secured against the under side of the cross-bar d' by means of the set-screw j' , passed through the slots thereof, and by means of said set-screw said plates can be held at the desired point, according to the extent it is desired to shift the beam by the arm II.

With the depending lugs $k k$ of the cross-bar d' is designed to engage the hooked or shouldered end of the arm II, for holding the mold-board and point on either side of the standard.

Supposing the mold-board to be on the right-hand side of the plow-beam and the hook of the arm II in engagement with one of the lugs k of the plow-standard, and it is desired to reverse the position of the parts, by the operator pressing his toe on the toe-plate h' said hooked end of the arm will be disengaged, and will, together with its spring, be forced past the line of center of said spring, immediately upon which the recoil action of the spring in passing to the side opposite to that it previously occupied will force said arm with it against the opposite stop g , whereby upon elevating the rear end of the plow and reversing the mold-board and plow-point, and by a slight lateral movement of the handles and standard toward the left, the hooked end of the arm II will engage with the lug k on that side of the plow, said arm being held to its place by its spring, which, as stated, passed its center simultaneous therewith.

The plow-beam A is shifted to the same side with the mold-board by the movement just described by reason of the adjoining lug of one of the sliding plates J being struck by the outwardly-projecting finger H' of the arm II as the end of the latter is about to come into engagement with the adjacent depending lug k , forcing said plates, together with the rear end of the beam A, toward the side opposite to that they previously occupied, and consequently causing the beam to be securely held between the end of the finger H' and the opposite lug k by reason of contact of the ends of the sliding plates therewith. By this arrangement all pivoting of the handles and employment of tripping-plates, &c., for shifting the beam are dispensed with, said shifting being readily effected in the reversal of the mold-board and plowshare, whereby the forward portion of the beam is shifted to the same side with said mold-board and plowshare. The extent to which it is desired to shift the beam can be regulated by means of the sliding finger H' and the plates J, as is obvious, it being desirable oftentimes to limit or increase the extent to which the beam is shifted.

It will be seen that the rear end of the plow-beam will be rigidly held in position by means of one of the lugs of one plate J bearing against one of the lugs k , and the movable

finger of the arm II bearing tightly against the lug of the other plate J.

The jointers or colters heretofore used in connection with hillside-plows are designed to open the soil or make a slight furrow ahead of that made by the plow-point, and in practice it has been found that if there is a great quantity of cornstalks or manure on the ground the jointer or colter is liable to clog and impede the movement of the plow; and likewise the same cannot be used in stony ground, because when the point of jointer or colter comes in contact with a stone it will throw the plow-point out of the ground, and in many cases, if this evil is successfully avoided, the point of plow when catching under large stones will force the same against the jointer or colter, thus rendering the use thereof in stony ground very undesirable. To avoid these objections and dispense with the use of a jointer or colter, and at the same time provide means for effecting the turning over of rubbish, &c., I employ a slicer and turner, K, pivotally secured upon a preferably stationary rod, K' , adjustably held in an oblique aperture in the plow-standard by means of a suitable set-screw bearing against its flattened side. The lower forward end of this rod is bent at a slight angle, whereon the head-block rests, to give the desired setting to the slicer or turner. The rod K' is rendered adjustable, so that the cutter or slicer can be extended forward to correspond with the depth of the furrow of the plow. This turf cutter or turner consists, preferably, of a curved wing or plate having a concave outer surface, and to its under side is secured (or it may be cast therewith) a head-block, K^2 , through an aperture in which is passed the rod K' , upon which said head-block is loosely secured. The sides of this head-block are grooved, as shown at K^3 . To the rod K' is connected by means of a collar one end of a spring, K^4 , the other end of which is secured to the rear side of the wing or plate, so as to normally hold the latter in an approximately vertical position. The normal position of this slicer and turner is shown in Fig. 6 with the wing or plate projecting out over the mold-board and the head-block turned on side, so that the edge of mold-board will fit in groove thereof.

When the mold-board and plow-point start in their revolution, when they are to be reversed, the slicer and turner will be brought into an approximately vertical position by the action of the spring K^4 , and when the formerly horizontal edge of the mold-board strikes against the opposite grooved side of the head-block K^2 the wing or plate will be thrown into an outwardly-projecting position, opposite to that previously occupied. By means of this slicer and turner, which is located in rear of the plow-point, upon the upwardly-moving furrow made by the plow-point coming in contact with the wing or

plate which is at an angle to the mold-board, a selvage or slice is scraped or cut from the outer portion of the upwardly-moving furrow, and by reason of the curvature of the wing or blade it is forced or turned over the edge of the now-turning furrow and is more completely covered than is accomplished by a jointer or colter located ahead of the plow-point. This slicer and turner, it is obvious, is so disposed that it will never come in contact with any post or solid obstruction, as the plow proper has opened its own furrow before the slicer and turner comes into operation.

I do not confine myself to making the slicer and turner loose on the rod and the latter stationary, for it is obvious that, if desired, the slicer and turner can be rigidly secured on the rod and the latter permitted to revolve, it being held as against slipping by a suitable collar.

From what has been said it will be seen that in operating the mold-board and plowshare, together with the hooked arm, from side to side the end of the finger-bar on said arm will effect the shifting of the plow-beam A, and that when the mold-board and plowshare are so reversed (when a return furrow is to be made) the slicer and turner is made to project on the same side, the rocking section or block is put into perfect alignment with the landside, and the caster-wheel and clevis will at once assume a relative position to the line of draft, thus providing a perfect balance for the plow by throwing the parts to the right or left the desired extent far enough to offset the suction of the wing of the plowshare and to give proper width to the furrow without twisting the plow-point out of the line of landside.

Changes can be made in the form of construction in several parts of my improved plow without departing from the spirit or the scope of my invention, and hence I do not restrict myself to the exact form shown.

It is obvious that the shifting of the arm H can be obtained by a spring of any other construction or disposition than that hereinbefore described, the principle of the pivotal bearing of the spring and arm being always observed.

In Fig. 12 I have shown a different arrangement of the spring, which, however, embodies the same principle as the form before described. This form of spring-pressure shown in said figure comprises a suitable coil-spring, D', located in an oblong groove or recess in the crotch on a direct line with the pivot of the arm H, one end of said spring bearing against the lower end wall of said groove or recess and the other end against a right-angular arm or finger, D'', secured to the under side of a sliding plate, D². This sliding plate D² slides on the outer surface of said crotch over the groove or recess, and is retained in position by means of keeper-plates or staples d'', and is limited in its upward movement by

a stop, d², as shown. To this sliding plate is pivotally connected one end of a pitman or rod, d³, pivotally secured at its upper end to the arm H at a point on a line with but a short distance from the pivot of said arm. By this means the spring-pressure on the hooked arm is exactly the same as that before described, the center of the pivotal bearing of each spring being on a line with the pivotal bearing of said arm, as stated. It will be seen that this feature of my invention is extremely simple, comprising as it does but few parts, and that in the employment of my form of hooked arm which is attached to the mold-board, either directly or indirectly, the latter can be readily and rigidly secured on either side of the plow-beam, as may be desired, and that the employment of a spring having a pivotal connection on a line with that of the arm forces the outer hooked end of said arm to the right or left, as may be desired, immediately upon passing its pivotal center.

It is obvious that the spirit of my invention is carried out in the employment of spring-pressure on the pivot of the hook, so that said hook will be forced to either side after passing a given point of said spring-pressure.

The advantages of my improved standard, landside, and shoe, hereinbefore described, will be apparent to those skilled in the art to which it appertains, and it will be readily seen that I have produced a landside that is capable of being readily and easily constructed, one by which the parts can be firmly united and held together, and that by reason of the peculiar skeleton formation given the standard the weight and cost of material necessary in the production thereof are greatly reduced, which is a desideratum in this class of inventions. It will also be seen that by reason of the described curvature given the under side of the shoe the same will rest on its two tapering edges or flanges, thus securing a perfect suction, and at the same time avoiding friction, which is a decided advantage in plowing, and that by reason of the rocking section or block secured to the standard the objectionable space or opening usually left at this point is avoided and a perfect and complete landside is formed.

I claim as my invention—

1. As an improvement in plows of the class herein described, the arm pivotally secured to the reversible mold-board, and having a double-hooked or arrow-head-like end formed therewith for latching said mold-board on either side of the plow-standard, substantially as shown and described, said arm being secured to the mold-board or to its crotch, as set forth.

2. As an improvement in plows of the class herein described, the combination, with the mold-board and reversing-arm, of the spring having a pivotal bearing on a direct line with the axis of the pivoted arm and that of the revolving mold-board of the plow, substantially as shown, and for the purpose stated.

3. As an improvement in plows of the class herein described, the hooked arm pivotally secured to the reversible mold-board and the spring having a pivotal bearing at one end on a direct line with the rear pivotal stud of the mold-board and the axis of said arm, to which it is pivotally secured at its other end, substantially as shown and described.

4. As an improvement in plows of the class herein described, the arm pivotally secured to the reversible mold-board, and having a double-hooked or arrow-head-like end, and the spring pivotally secured to said arm at one end, and having a pivotal bearing on a line with the pivoted connection of said arm and of the mold-board pivot, substantially as shown and described.

5. As an improvement in plows of the class herein described, an arm pivotally secured at one end to the reversible mold-board and having a spring-pressure applied thereto, the pivotal center of which spring-pressure is on a line with the axis of said arm and that of the mold-board, whereby upon passage of said arm beyond its center to the right or left said spring-pressure will force the same in its movement, as shown and described.

6. As an improvement in plows of the class herein described, the arm pivotally secured to the mold-board for locking the same on either side of the plow-standard, and having a spring-pressure applied thereto capable of having a central point of greatest pressure over which said arm passes in describing its circle in reversing said mold-board, thus throwing said spring on either side of the pivot of the arm and forcing the same into position, as set forth.

7. The combination, with the reversible mold-board, of the arm having the double-hooked or arrow-head-like end and the toe-plate secured to the rear side of said arm, substantially as shown and described.

8. As an improvement in plows of the class herein described, the pivoted beam having sliding plates secured to its rear end and operated by means of an arm secured to the mold-board or crotch, said beam being held at its rear ends by means of the depending lugs of said sliding plates bearing one against a lug of the plow-standard and the other held by the end of the hooked arm or sliding finger, substantially as shown and described.

9. The shifting beam having the slotted plates secured to its rear end by means of a set-screw, said plates being held against the under side of a cross-bar of the standard and operated by the securing-arm of the reversible mold-board, substantially as shown and described.

10. As an improvement in plows of the class herein described, the pivoted beam having the sliding plates provided with depending lugs, and the arm having a sliding finger secured thereto, substantially as shown and described.

11. As an improvement in plows, the herein-

described pivotally-secured slicer and turner, having a wing or plate at an angle to and operated by the mold-board, with which it comes in contact, substantially as shown and described.

12. The slicer and turner comprising the concaved outwardly-projecting wing or plate, the head-block, and the pivotal rod, in combination with the reversible mold-board, by which said slicer and turner is operated, substantially as shown and described.

13. The rod adjustably secured at one end in the plow-standard, and having the slicer and turner at its outer forward end, and capable of being operated by the reversible mold-board, substantially as shown and described.

14. The combination, with the standard and mold-board, of the rod, the slicer and turner, and the spring connected thereto and to said rod, substantially as shown and described.

15. The combination, with the reversible mold-board, of the pivotally-secured slicer and turner operated by said mold-board and having a relative position thereto, substantially as shown and described.

16. The combination, with the reversible mold-board, of the slicer and turner, the head-block having the grooved sides, and the rod, substantially as shown and described.

17. The combination, with the shifting beam having the adjustable sliding plates, of the arm secured to the reversible mold-board and the finger attached thereto for forcing said beam from side to side to the extent to which the sliding plates are secured with relation to the beam, substantially as shown and described, whereby more or less movement is given to the beam by the end of the finger being lengthened or shortened to correspond with the joint length of the sliding plates, substantially as shown and described.

18. As an improvement in plows, the herein-described standard of skeleton formation having grooved sides, the landside-plates fitting flush in said grooved sides, and a shoe having its projecting walls bearing against the lower edges of said landside-plates, substantially as shown and described.

19. As an improvement in plows, the standard having landside-plates secured to the sides thereof and independent of the shoe, substantially as shown and described.

20. The standard having landside-plates disposed on the sides thereof and secured to each other by a bolt passing through apertured ears or lugs, substantially as shown and described.

21. As an improvement in plows, the standard having the hooks formed in its under side near the toe end thereof, the shoe provided with a groove or recess wherein said hook projects, and having its under side curved or hollowed, and the nutted bolt passed through said shoe and standard, substantially as shown and described.

22. As an improvement in plows, the stand-

ard having the grooved sides, the landside-plates fitting said grooved sides and provided with lower beveled ends, and the tapering shoe having upwardly-projecting beveled side walls, substantially as shown and described.

23. As an improvement in plows, the standard of skeleton formation having grooved sides, the landside-plates having right-angular lugs or bars secured to their inner sides, the overlapping apertured ears or lugs, the shoe, and the securing-bolt, substantially as shown and described.

24. The combination, with the standard having grooved sides and the hook near its forward end, of the landside-plates fitting said grooved sides and provided with lower beveled edges, the inwardly-projecting apertured ears or lugs, the short right-angular plates, the shoe having the outwardly beveled or inclined side walls and curved or hollowed on

its under side, and the securing-bolt, substantially as shown and described.

25. As an improvement in plows of the class herein described, the rocking section or block secured to the front edge of the plow-standard, in combination with the mold-board, substantially as shown and described.

26. As an improvement in plows having the standard and a reversible mold-board, the rocking section or block having beveled sides and secured to said plow-standard so as to be in alignment with one side thereof when moved by the said mold-board, substantially as shown and described.

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

MARQUIS J. TODD.

Witnesses:

W. E. VANDERHELFF,
E. C. ENGLISH.