(No Model.) 2 Sheets—Sheet 1.

J. STEVENS.

CIDER PRESS.

No. 255,896. Patented Apr. 4, 1882.

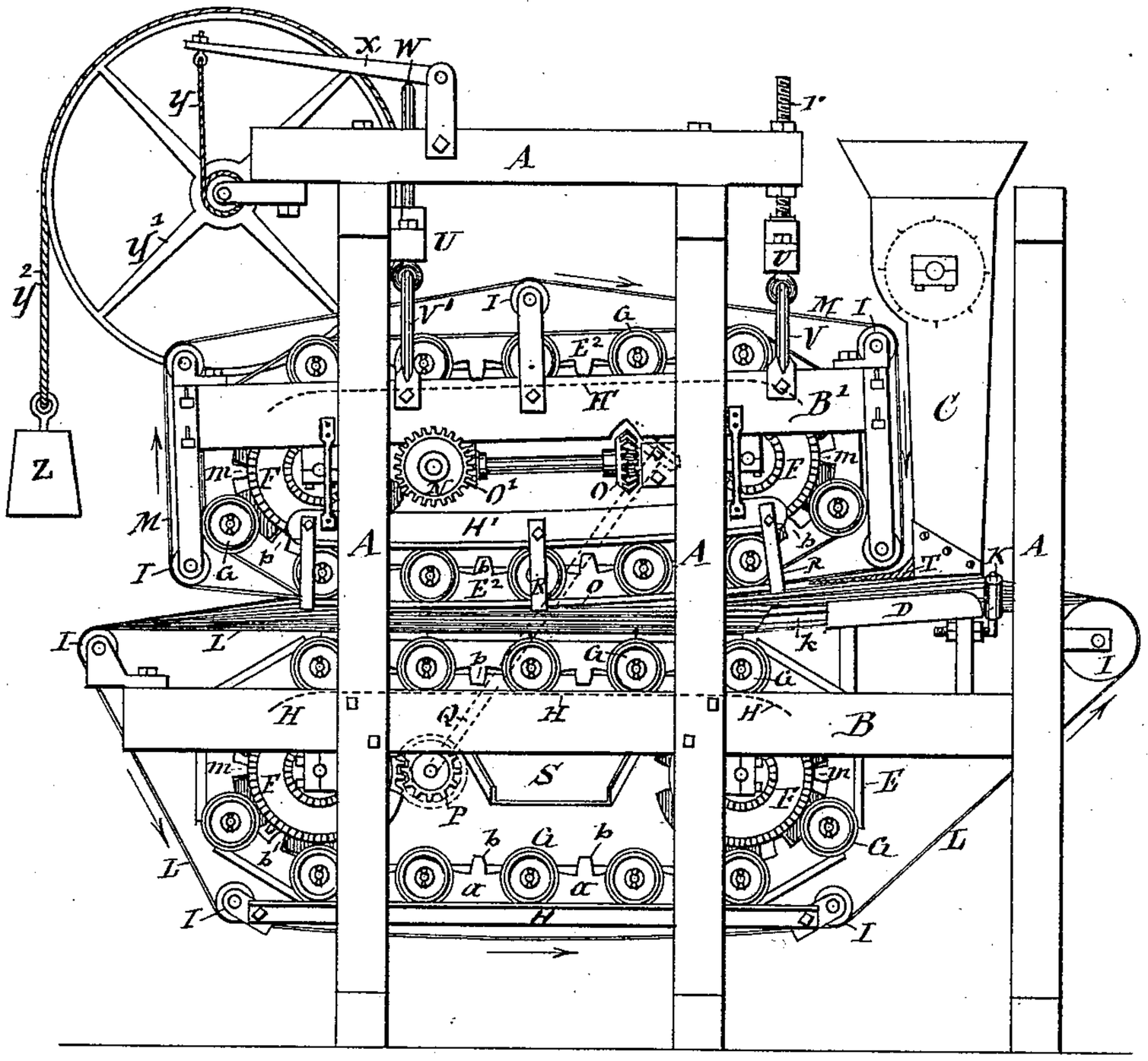

Fig. 1

WITNESSES=

C. Bendixon

C. H. Duell

INVENTOR=

Judd Stevens

per Duell, Lacey & Hey

his attys

(No Model.)

2 Sheets—Sheet 2.

J. STEVENS.

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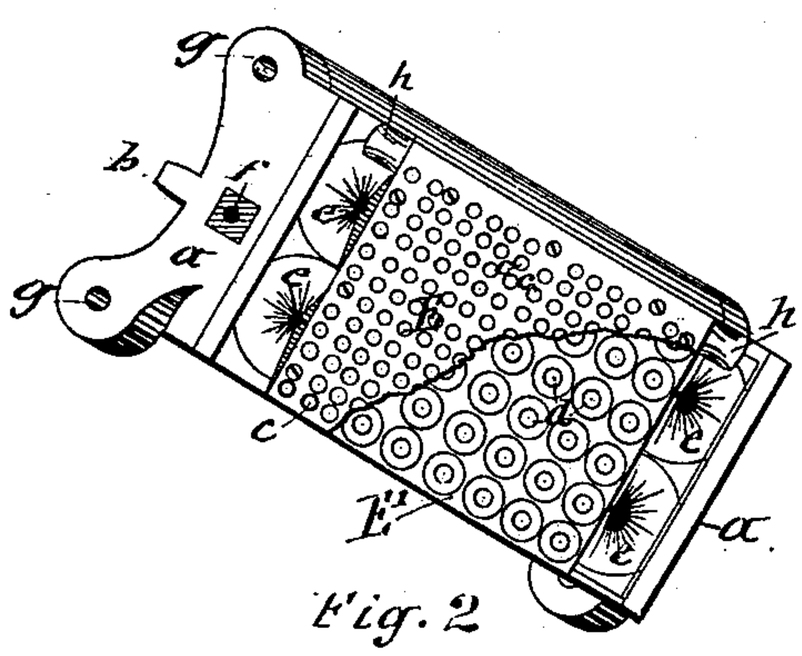

Fig. 2

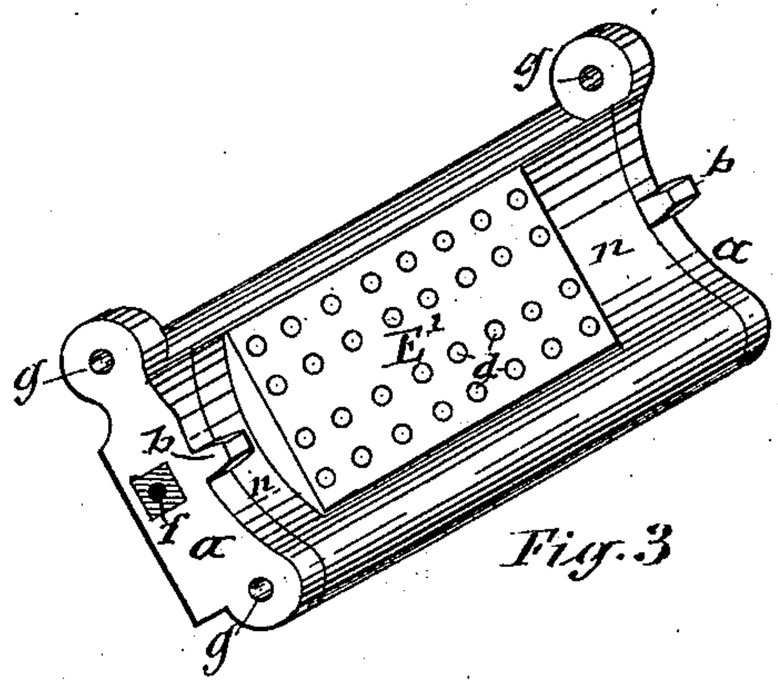

Fig. 3

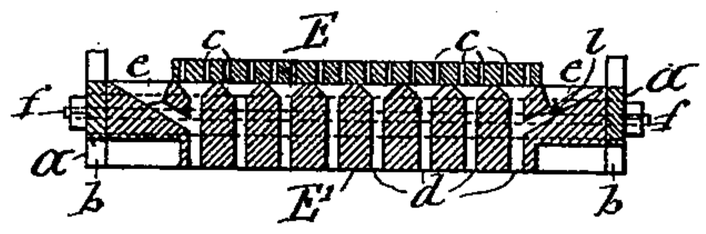

Fig. 4

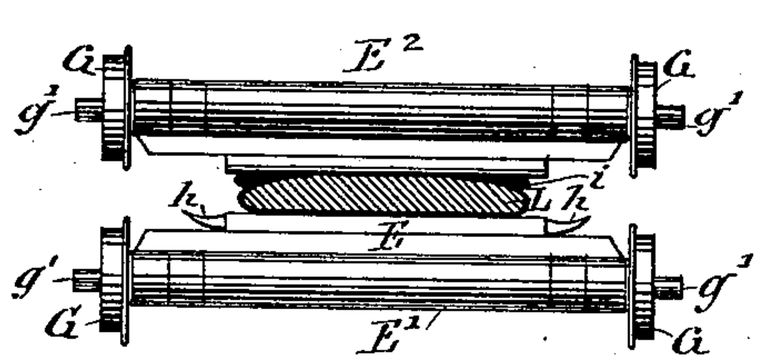

Fig. 5

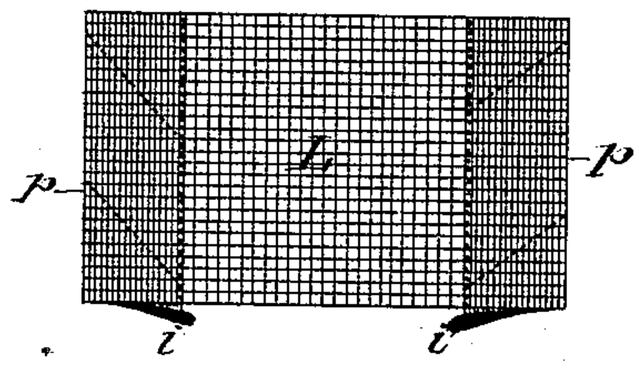

Fig. 6

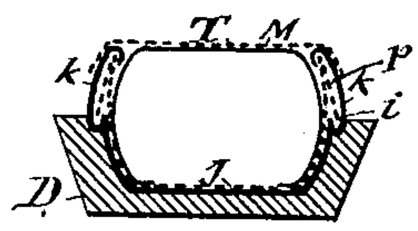

Fig. 8

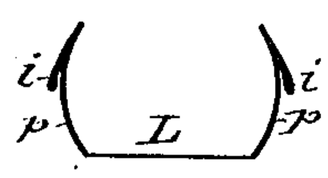

Fig. 7

WITNESSES=

E. Bendixon

C. N. Duell

INVENTOR=

Judd Stevens

per Duell, Lacast & Hay

his attys

UNITED STATES PATENT OFFICE.

JUDD STEVENS, OF MARENGO, NEW YORK.

CIDER-PRESS.

SPECIFICATION forming part of Letters Patent No. 255,896, dated April 4, 1882.

Application filed February 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, JUDD STEVENS, of Marengo, in the county of Wayne, in the State of New York, have invented new and useful Improvements in Cider-Presses, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in that class of cider-presses in which the pomace is carried between two movable endless pressing-surfaces by means of endless belts passing between said pressing-surfaces.

It consists in a novel combination and arrangement of the constituent parts of the press, as hereinafter fully described, and set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of my improved cider-press. Fig. 2 is a perspective top view of one of the sections of the endless press-bed, with a portion of the upper plate broken away to better illustrate the construction of said section. Fig. 3 is a perspective view of the under side of the same. Fig. 4 is a transverse section of the same. Fig. 5 is a transverse section of the two pressing-surfaces with the pomace interposed. Fig. 6 is a detail view of the endless apron which conveys the pomace to the press. Fig. 7 is a transverse section of the endless apron aforesaid folded to encompass the pomace to be pressed, and Fig. 8 is a transverse section of the trough and spout which fold the endless apron as it passes between the pressing-surfaces.

Similar letters of reference indicate corresponding parts.

A A A represent a stout upright frame, formed of posts set at a proper distance apart to receive between them the pressing mechanism, and united at the top by caps and cross-plates, thoroughly bracing said posts. To the lower portion of the posts are secured journal-boxes, in which are mounted the carrying-wheels F of the endless press-bed, said carrying-wheels having interstices *m m*, which are engaged by a tongue on the under side of the sections which compose the endless press-bed, said press-bed section being formed of a wooden block, E′, which is provided with vertical perforations *d*, made flaring at their upper end.

To the upper surface of the block E′ is detachably secured a thin wooden plate, E, having a series of smaller perforations, *c*, which communicate with the upper flaring end of the perforations *d* of the lower section, E′. The upper section, E, extends part way across the lower section, E′, and between its side edges and the edges of the lower block the latter is provided with recesses or depressions *e e*, which have channels *l* converging toward the center and intersecting the outer of the series of perforations *d* in the lower section. The object of the recesses *e* is to collect the juice or expressed liquid issuing from the sides of the press-bed, and to prevent the contact of said juice with the end plates *a*, attached to the sides of the press-bed section, in the manner hereinafter described, thus protecting said plates from corrosion. The center portion of the block E′ projects below the base of the side plates *a*, and has rabbets *n* at the sides adjacent to said plate *a*, also for the purpose of preventing the liquid from flowing outward and coming in contact with said plates. The plates *a* are secured to the sides of the block E′ by means of bolts *f*, passing transversely through said block and plate, the perforations *d* in the block E being so arranged as to allow the rod *f* to pass through the solid portion of the block, between two rows of perforations thereof, and thus becoming perfectly insulated from the juice issuing through said perforations. By means of nuts on the end of the rod *f* the block E becomes clamped between the plates *a*. The two ends of the block E are respectively concave and convex, to fit into corresponding convex and concave ends of the adjacent press-bed section, which is linked onto said block by rods or shafts *g′*, passing through the convex portion of the body of the block E′, and through ears *g* on the plate *a*, said shafts protruding at the exterior of said ears, and having journaled on their extremities flanged rollers G.

By making the upper surface of the pressing-block removable I am enabled to clean the parts and readily renew or repair the pressing-surface. The upper pressing-surface is composed of a series of blocks, E^2, linked together in a similar manner as those of the lower press-bed, but solid and imperforate. They are

clamped between end plates having a cog, *b*, which engages with interstices in the carrying-wheels F F, respectively, at opposite ends of the machine, said carrying-wheels being journaled in boxes secured to the beam or frame B′, one end of which is suspended by a rod, B, the upper end of which is connected to a cross beam, U, which is adjustably supported by a screw-rod, *r*, passing through the upper beam of the upright frame A, and having adjusting-nuts at opposite sides of said beam. To the opposite end of the frame B′ are connected rods V′, which are suspended from a cross-beam, U, from the top of which projects upward a post, W. Across the top of this post rests a lever, X, pivoted at one end to a standard secured to the top of the frame A, and having connected to its free end a rope, Y, which is wound around the mandrel of the windlass or bull-wheel Y′, around which latter is extended a rope, Y^2, having secured to its end a weight, Z. The latter, in conjunction with the bull-wheel Y′ and its connection with the lever X, imparts to the post W a downward pressure, which is transmitted to the end of the upper press-bed, to which said post is connected. It will thus be observed that by changing the weight applied to the rope Y^2 the pressure on the end of the upper press-bed can be varied as may be desired.

Between the two before-described pressing-surfaces pass two endless aprons, L and M. The lower apron, L, is formed of canvas, having its sides doubled and sewed down, as shown at *p* in Fig. 6 of the drawings, and to the edge of the inturned portion of the apron are secured projections *i*, for the purpose hereinafter explained.

At the feed end of the machine is arranged a wooden trough, D, in which is secured a copper or brass lining, J, the upper portion of which projects above the trough D, and is formed into an outward recess, *k*, which has an upward projection at its junction with the lower portion of said lining. Directly over this trough D is a chute, C, by which the pomace is delivered to the said trough. From the base of the chute C projects toward the press a spout, T, which has pendent sides projecting down into the trough.

Back of the trough D are two vertical rolls, K, respectively at opposite sides of said trough. The apron L in its approach to the press passes between the two rolls K, which are pivoted in a vertical position at opposite edges of the apron, and arranged in such proximity thereto as to turn up the doubled sides E thereof and cause the same to enter the lining J of the trough D. In so doing the doubled portion of the apron enters the recesses *k* of the lining and the projections *i* of the apron engage the upper projecting flange at the base of said recess *k*. The pomace issuing from the spout C enters the apron L in its before-described condition, and is thus carried forward between the pressing-surface. As it passes from under the chute C the spout T encompasses the upper portion of the pomace and retains it and prevents its spreading laterally until the upper apron, M, is brought down over the pomace and over the intervened side of the lower apron, L, when the pomace becomes perfectly inclosed by the two aprons, as illustrated in Fig. 5 of the drawings. In this condition it is carried forward between the endless pressing-surfaces by the medium of the two belts L and M. The requisite pressure for expressing the liquid from the pomace is obtained by applying the proper weight on the end of the rope connected with the bull-wheel Y′, which, by means of the rope Y and lever X, applies the requisite pressure on the end of the rod W, which transmits said pressure to the upper endless press-bed. A spout, S, arranged transversely underneath the upper surface of the lower press-bed, conveys the expressed juice out from the press.

I am aware that rigid guides have been arranged against opposite edges of the pomace-carrying apron at the approach of the same to the press-bed for the purpose of turning up the edges of said apron; but the friction of said rigid guides against the saturated edges of the apron entails such wear and tear of the latter as to require frequent repairs and renewal of the same. This defect is effectually obviated by the arrangement of the vertically-pivoted rollers K, hereinbefore described.

To the inner side of the frame or beam B′ are secured guides or ways H′, arranged in such a relative position as to cause the rollers G of the endless pressing-surface to travel upon and support the intermediate and suspended portion of said press-bed. The central and suspended lower portion of the upper pressing-surface receives its downward pressure by means of ways H′, secured to the frame B′. The rollers G, passing under said way, hold the pressing-blocks E^2 connected with said rollers firmly down upon the substance in process of being pressed. *o* is a strip held under the tread of the rollers G by means of arms R, suspended from the way H′, said strip *o* supporting the intermediate suspended portion of the pressing-surface when the belt L is empty. The upper and lower central and suspended portion of the lower press-bed is supported by ears H H, upon which the rollers G of said press-bed travel. The two pressing-surfaces are moved in unison with each other by means of suitable gearing, O O′ P, and gears on the respective carrying-wheels F F, a counter-shaft, Q, transmitting the motion from the actuating gears of the upper press-bed to those of the lower press-bed. Each section of the lower press-bed is provided at its ends adjacent to its companion section with concavo-convex projections *h h*, at opposite sides of the perforated plate E, as best seen in Figs. 2 and 5 of the drawings, said projection serving to prevent the expressed juice from entering the joint between the press-bed sections.

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

1. The within-described movable endless press-bed, consisting of a series of wooden blocks flexibly connected to each other, and having a vertically-perforated center portion, and recesses *e e* at the sides of their upper face, with channels *l* divergent from the edges of the block, substantially as shown.

2. The press-bed section composed of the block E′, provided with perforations *d*, made flaring at the upper end, and the plate E, removably secured to the top of the block E′, and having the perforations *c c* over the flared perforations of the said block, substantially as described and shown.

3. The combination of the block E′, having the flared perforations *d d* and recesses *e e*, with channels *l*, convergent toward the center, and the plate E, having perforations *c c*, over the flared ends of the perforations of the block E′, substantially as described and shown.

4. The within-described press-bed section, formed of the wooden block E′, made convex and concave respectively at opposite ends, and having flared perforations *d d* and recesses *e e*, with convergent channels *l*, the plate E, secured to the top of the block E′ and provided with the perforations *c c*, the clamps *a*, provided with ears *g*, and the rod *f*, passing horizontally through the solid portion of the block E′, between two rows of the perforations thereof, substantially as and for the purpose specified.

5. In combination with the clamps *a*, the wooden block E′, having the side rabbets, *n*, and its central portion projecting below the base of the clamps, substantially as and for the purpose set forth.

6. In combination with the perforated block E′ and its clamps *a*, the perforated plate E, provided with concavo-convex projections *h h* at the sides of its edge adjacent to the companion press-bed section, substantially as described and shown, for the purpose set forth.

7. The perforated block E′, the clamps *a*, provided with ears *g g* and with cog *b*, the shafts *g′ g′*, and rollers G G, in combination with the carrying-wheels F, provided with interstices *m*, substantially as shown and set forth.

8. In combination with the movable endless pressing-surfaces and upper endless apron, M, the lower apron, L, having doubled side portions, *p*, and the rollers K, pivoted in a vertical position at opposite edges of the apron L, substantially in the manner described and shown, for the purpose set forth.

9. In combination with the movable endless pressing-surfaces and upper endless apron, M, the lower apron, L, having doubled side portions, *p*, the rollers K, pivoted in a vertical position at opposite sides of the apron L, and the trough D and spout T, all combined and operating substantially in the manner shown and set forth.

10. The apron L, provided with the projection *i*, in combination with the trough-lining provided with the guide *k*, as and for the purpose set forth.

11. In combination with the movable endless pressing-surfaces and the chute C, the endless apron L, having the doubled side portions, *p*, and projections *i*, the vertical rollers K, trough D, its lining J, provided with guide *k*, the spout T, and endless apron M, all as shown and set forth.

12. In combination with the upper endless pressing-surface, composed of a series of blocks hinged together and carried by wheels F, as described, the frame B′, having journaled thereon the wheels F F, the suspension-rod V, connected to one end of said frame and supported adjustably by the screw-rod *r*, the rods V′, connected to the opposite end of the frame B′, and to a cross-bar, U, the post W, lever X, windlass Y, ropes *y* y^2, and weight Z, all combined and arranged to operate substantially in the manner described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Marengo, in the county of Wayne, in the State of New York, this 16th day of January, 1882.

JUDD STEVENS. [L. S.]

Witnesses:

C. C. CHASE,

THOMAS WOOD.