W. WAIT.

BENCH FOR GREENHOUSES.

APPLICATION FILED APR. 30, 1909.

948,620.

Patented Feb. 8, 1910.

4 SHEETS—SHEET 1.

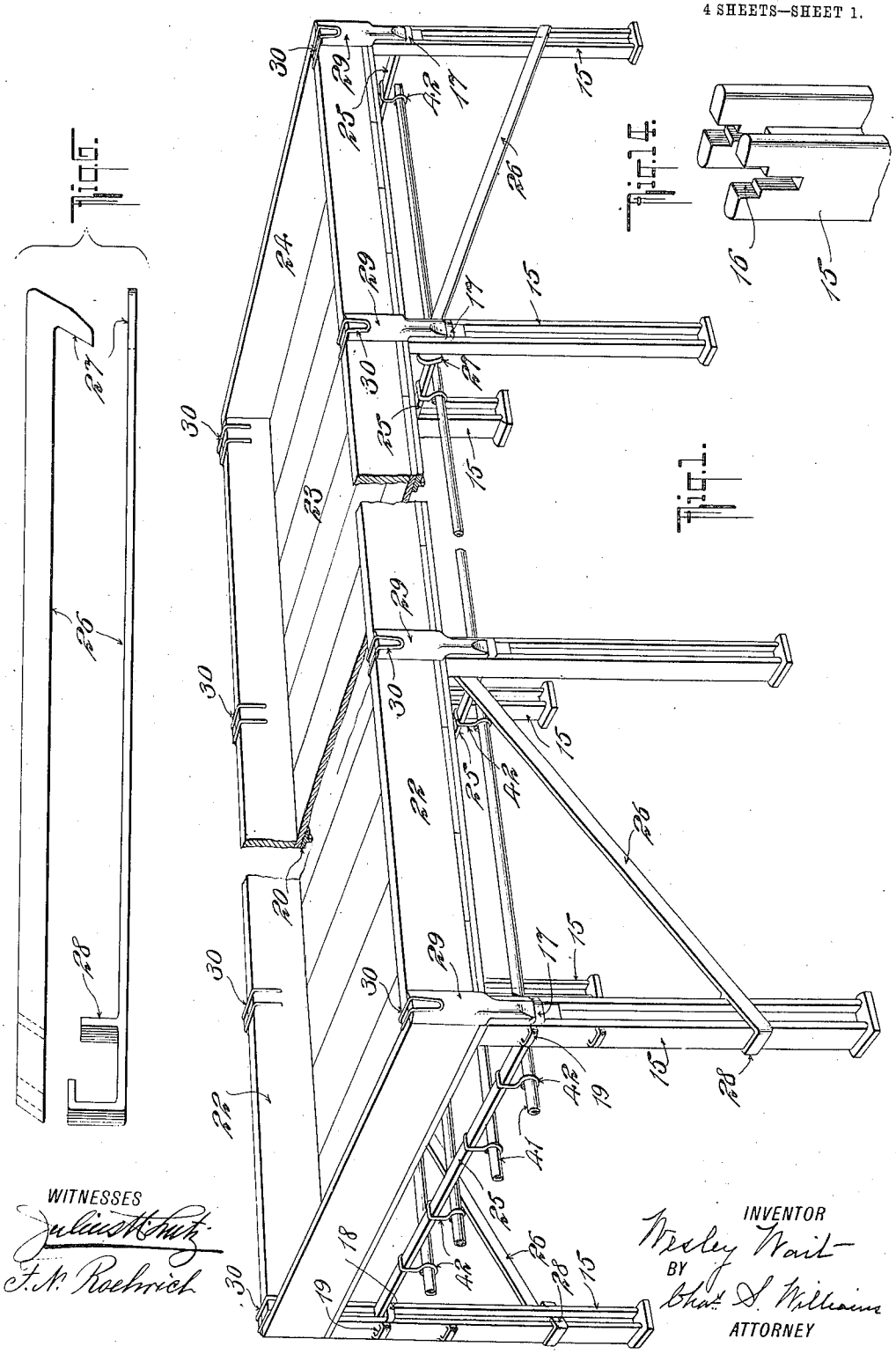

Fig. 1.

Fig. 1A.

Fig. 2.

WITNESSES

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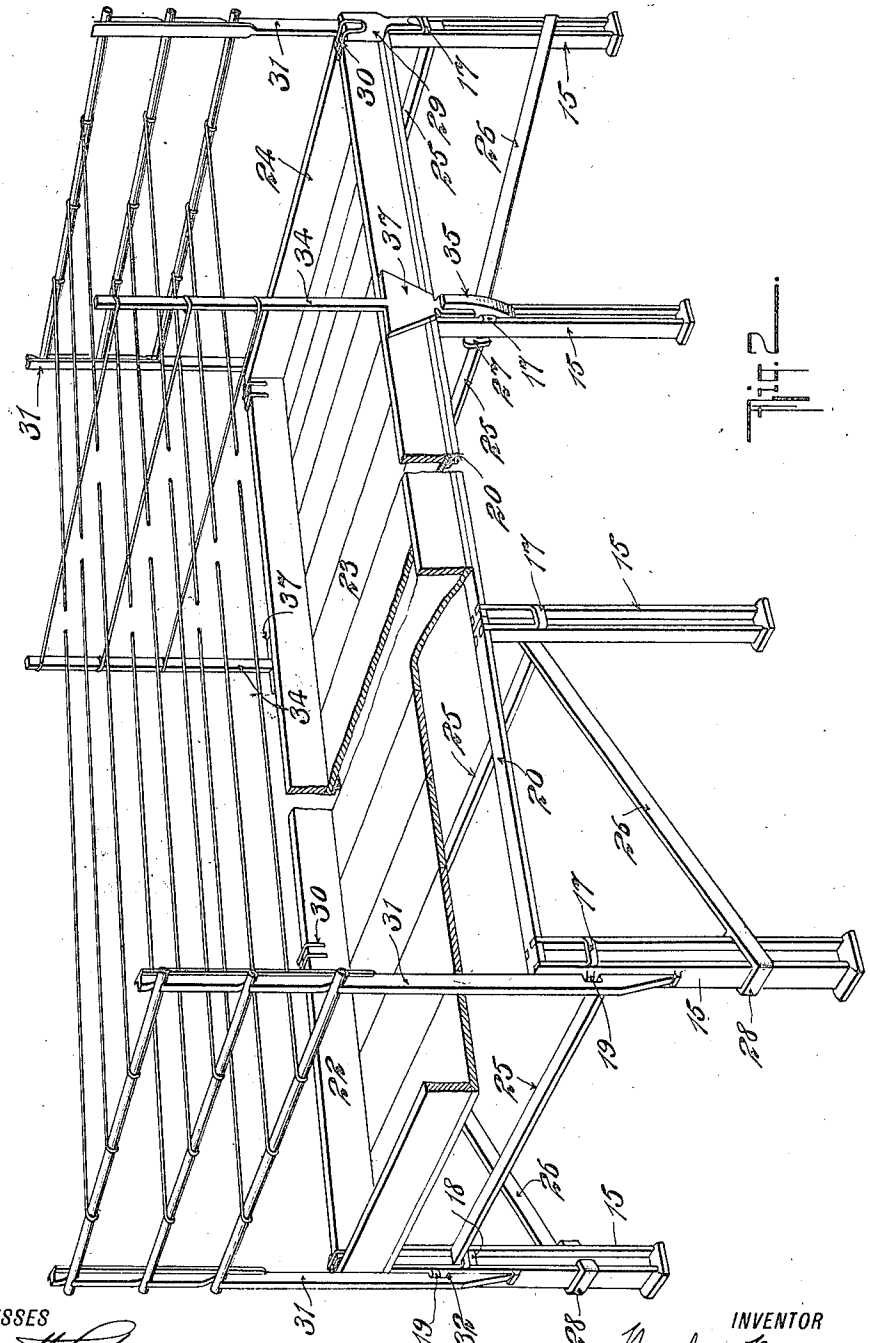

Fig. 2.

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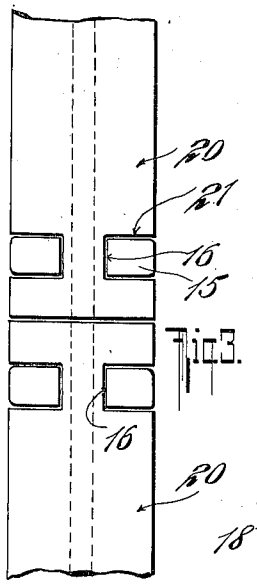


Fig. 3.

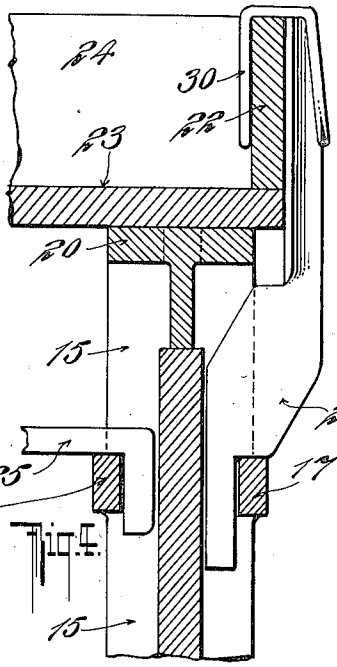


Fig. 4.

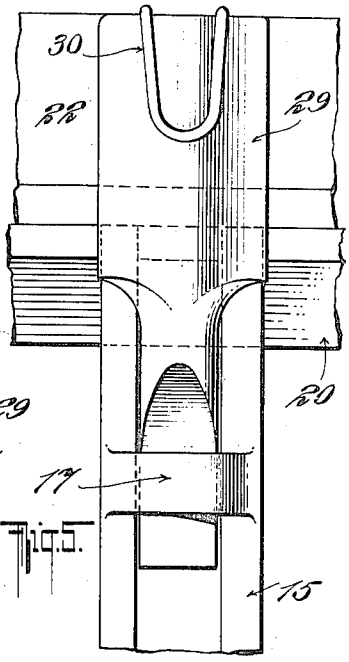
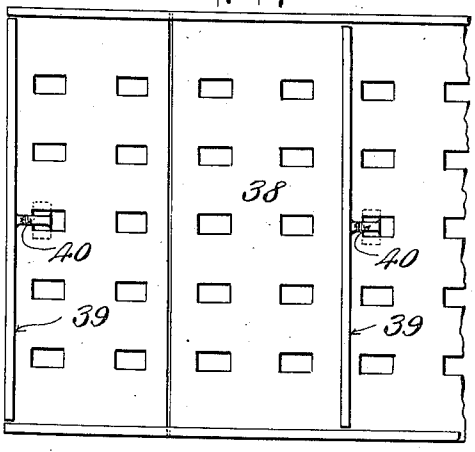


Fig. 5.

Fig. 7.



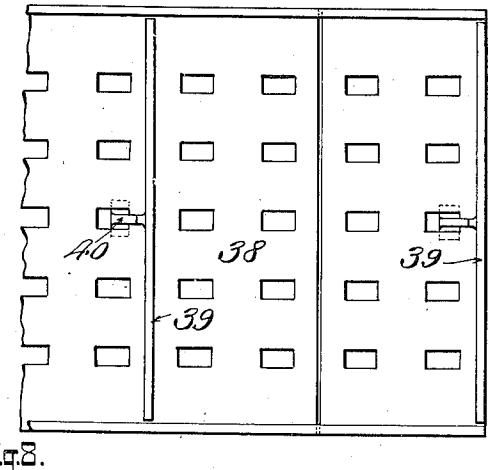
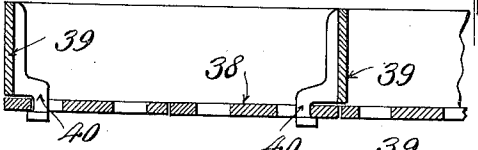
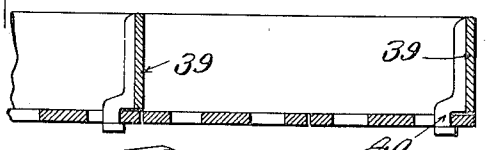


Fig. 8.





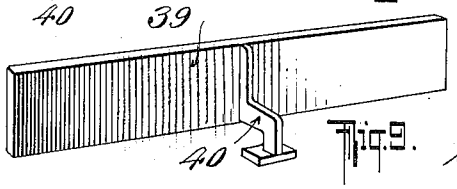


Fig. 9.

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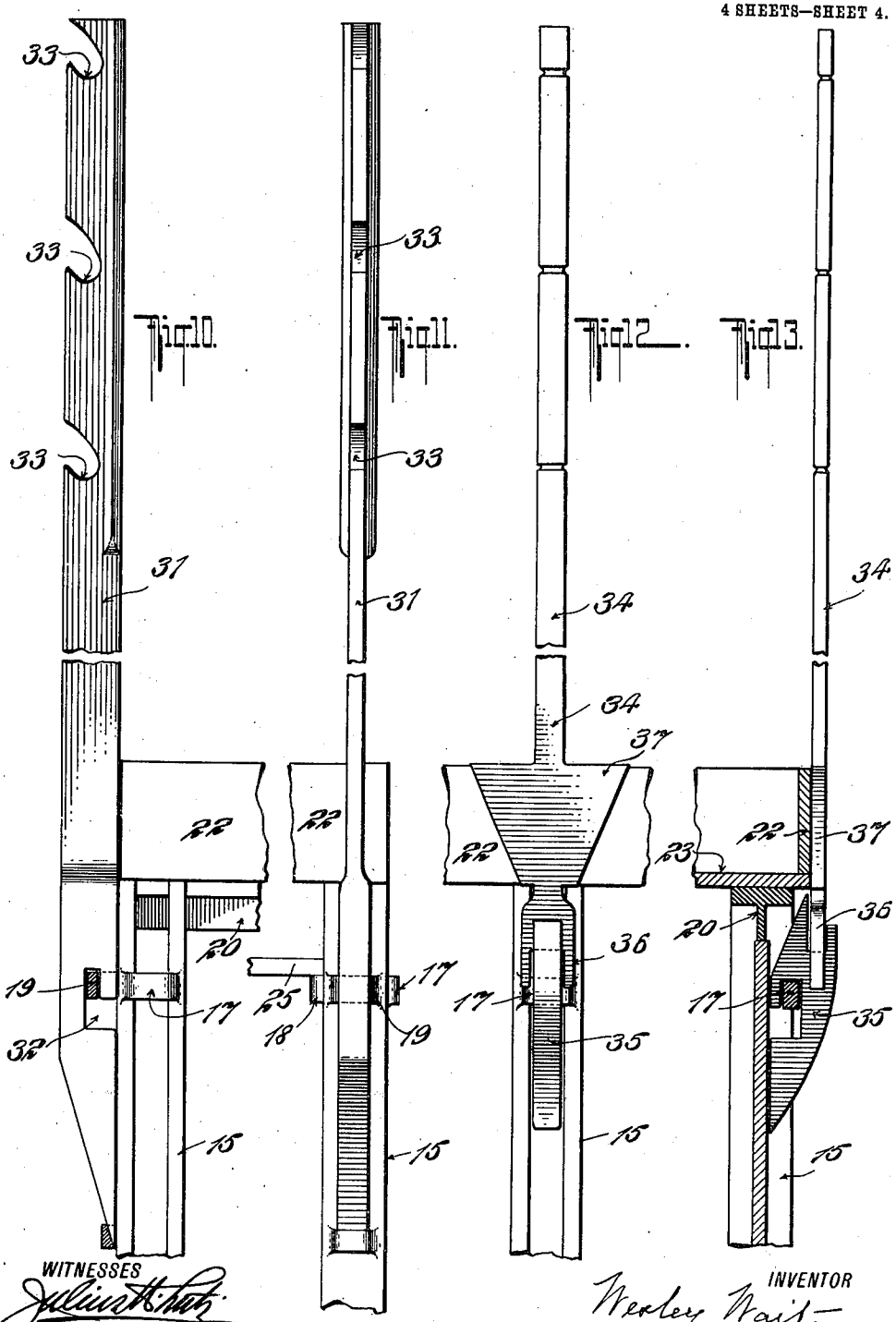
4 SHEETS—SHEET 4.



WITNESSES

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BENCH FOR GREENHOUSES.

948,620. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed April 30, 1909. Serial No. 493,234.

To all whom it may concern:

Be it known that I, WESLEY WAIT, a citizen of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented a new and useful Bench for Greenhouses, of which the following is a specification.

My invention relates to a bench for greenhouses having a framework supporting the earth-box containing the plants, the several parts of the supporting framework being adapted to interlock or engage with each other.

The objects of my improvement are: (1) to provide a bench for greenhouses which may be readily and quickly placed in position; (2) which shall not be cumbersome; (3) in which neither nails, screws, adjusting screws, or screw-threaded parts are used; (4) which shall be lasting, obviating frequent and costly renewal because of rotting of the parts by moisture as in the case of wooden construction; (5) which, if the metal parts become rusted by the moisture incident to greenhouses, may be readily disconnected; (6) which shall be cheap to manufacture. I accomplish these objects by the device illustrated in the accompanying drawings in which—

Figure 1, is a perspective view of my bench for greenhouses. Fig. 2, is a perspective view of my bench for greenhouses with plant training attachments, the bench being broken away at one end to show the stringers. Fig. 3, is a plan view of a leg or support and a portion of a stringer. Fig. 4, is a cross section of a side-brace, leg and stringer. Fig. 5, is a side view of the same. Fig. 6, shows two detail views of diagonal braces. Fig. 7, is a plan view of metal bottom boards and division plates. Fig. 8, is a cross section of the same. Fig. 9, is a perspective view of one of the division plates. Fig. 10, is an end view of a wire-carrying end brace. Fig. 11, is a side view of the same. Fig. 12, is a side view of a wire-supporting side brace. Fig. 13, is a sectional view of the same. Fig. 14, is a detail perspective of the top of a leg.

Similar numerals refer to similar parts throughout the several views.

My bench for greenhouses is constructed of any suitable material, preferably of iron, except the side pieces, transverse bottom boards and end pieces, which are of wood usually but may be of metal, if desired, as hereinafter explained.

My bench for greenhouses comprises the legs or supports, 15, longitudinal stringers, 20, side pieces, 22, transverse bottom boards, 23, end pieces, 24, transverse braces, 25, diagonal end braces, 26, side-braces, 29, wire-carrying end braces, 31, and wire-supporting side braces, 34. The bottom, 23, sides, 22, and ends, 24, may be of metal and integral with each other if desired, as hereinafter explained. The legs, 15, are preferably of double channel iron form and are provided at their upper ends with the cuttings, 16, and at their bottoms with suitable bases or platforms. The legs, 15, have on their front and rear sides straps, 17 and 18, these straps being narrow strips of metal connecting the rabbet edges of the legs. A raised strap or socket, 19, placed on the third or end side of the legs when the legs are used as the end legs of the framework. The longitudinal stringers, 20, are T shaped, when viewed from the ends, and are arranged to interlock by means of the cuttings, 21, with the cuttings, 16, in the tops of the legs, 15. The cuttings, 16, in the upper end of the legs are at right angles to each other, one cutting extending longitudinally of the bench and the other transversely thereof, whereby upward projections are formed at the corners of the upper end of the legs, as shown in Fig. 14. The longitudinal stringers are in sections and adjacent to the ends of these sections the horizontal flanges thereof are recessed by the cuttings, 21, to pass on and interlock with the corner projections on the upper ends of the legs, as shown in Fig. 3, while the end portions of the vertical webs or flanges of said sections enter the longitudinal recesses or cutting, 16, in said ends of said legs, with the result that said sections become detachably secured on the upper ends of said legs and cannot shift either laterally or longitudinally.

The side pieces or side boards, 22, the transverse bottom boards, 23, and the end pieces, 24, are of wood for lightness and convenience, and are of the ordinary form used in benches for greenhouses, these parts

composing the earth-box for the plants. I, however, also use metal transverse bottom boards hereinafter more fully described. The transverse braces, 25, are rods having their ends bent at right angles forming hooks adapted to lock or engage with the straps, 18, on the rear or inner sides of the legs, 15, the intention being that the transverse braces, 25, should hold the legs, 15, in opposite relation to each other and also afford rigidity to the framework. These braces also serve to support the carriers of the heating pipes hereinafter more fully described. The straps, 18, form sockets to detachably receive the downwardly turned ends of the transverse braces, 25. The diagonal braces, 26, are rods having at one of their ends a downward extending hook, 27, and at their other end a clasp or grip hook, 28, the intention being that the grip hooks, 28, may clasp or interlock with the end legs, 15, and the downward extending hooks, 27, interlock with the transverse brace, 25, of the next adjacent legs to prevent the spreading of the legs and also to give additional rigidity to the framework. While the diagonal braces, 26, are ordinarily used by me to connect the end legs of the framework with the next adjacent legs, it is obvious that where my bench for greenhouses is of great length the diagonal braces, 26, may be used to connect side legs with their next adjacent legs. The side braces, 29, have their lower portions adapted to interlock with the straps, 17, of the legs, 15, and their upper portions are broadened out to form a supporting surface for the side pieces, 22, holding the side pieces in position on edge. The straps, 17, form sockets to detachably receive the lower ends of the securing braces, 29, and enable the mounting of said braces on the legs, 15. A metal clamp or clip, 30, may be used with each of the side braces, 29, to hold the side braces and the side pieces more closely in connection. Where the wooden end pieces, 24, are used without the wire-carrying end braces, 31, the side braces, 29, may also serve as end braces, interlocking with the straps, 19, on the end sides of the end legs, holding the end pieces in position on edge. The wire-carrying end braces, 31, are adapted at their lower ends, 32, to interlock with the straps, 19, on the end sides of the end legs. For additional security they may be further held at their extremities by straps on the end sides of the end legs placed below the straps, 19. The upper portions of the wire-carrying braces, 31, are arranged as standards having means, 33, to bear rods or pipes running transversely of my bench for greenhouses to the standards of the opposite wire-carrying braces, 31, these rods or pipes allowing of the stringing from them of plant training wires over the length of the bench. The tendency of the plant training wires to sag is overcome by the use of the wire-supporting side braces, 34.

The wire-supporting side braces, 34, are made in two parts: interlocking portions, 35, and standard portions, 36. The interlocking portions, 35, are arranged at their lower extremities to interlock with the straps, 17, of the legs, 15, and at their upper extremities to interlock with the lower ends of the standard portions, 36. The standard portions, 36, are provided at their lower ends with locking forks to engage with the interlocking portions, 35. Above the locking forks keystone shaped bearing surfaces, 37, are placed to form side braces for the side pieces, 22, and the balance of the standard affords means for stringing the transverse supporting wires. The object in making the wire-supporting side braces, 34, in two parts is to allow of convenient working at the plants before they have reached sufficient growth for training and before the wire-supporting standards are necessary.

Instead of side pieces, 22, transverse bottom boards, 23, and end pieces, 24, of wood, metal bottom boards, 38, may be used. These metal bottom boards, 38, are flanged or bent up at right angles at their ends so that these ends may take the place of the wooden side pieces, 22. The metal bottom boards have rectangular cuttings or perforations through their surfaces and may be used in connection with movable plates, 39, serving as division or partition plates, or as end pieces in place of the wooden end pieces, 24. These plates are provided with downward extending catches, 40, to lock through the cuttings or perforations in the metal bottom boards. The cuttings or perforations also afford means of drainage for the water used in moistening the plants.

To provide for the heating of the plants heating pipes, 41, are hung from the transverse braces, 25, by means of hooks or carriers, 42, the heating pipes thus extending longitudinally beneath the bottom boards of my bench for greenhouses.

The setting up or placing in position of my bench for greenhouses is as follows:— The legs, 15, are placed in opposite relation to each other—about four feet apart—and connected by the transverse braces, 25; the longitudinal stringers, 20, are laid upon the legs interlocking with the cuttings, 21, of the legs. Where my bench is of more than one stringer in length, or more than about sixteen feet in length, the points of joining of the stringers are brought over the centers of the legs, 15, so that one end of each stringer engages or interlocks with one half of the cuttings, 16, of the legs, the cuttings, 21, of the stringers being arranged accordingly,

thus affording support for the stringers at the points of joining. The transverse bottom boards, 23, are laid upon the stringers and the side pieces, 22, set on edge upon them, held in position by the side braces, 29. The end pieces, 24, are then set up being held by side braces, 29, acting as end braces. When plant training wires are desired the wire-carrying end braces, 31, are used, interlocking with the end legs, the longitudinal training wires being prevented from sagging by the wire-supporting side braces, 34. For convenience in the drawing the wire-supporting side braces, 34, are shown as placed next to the wire-carrying end braces, 31, but in use the wire-supporting side braces, 34, are set intermediately, that is, at such convenient intervals as may prevent the longitudinal training wires from sagging, the shorter side braces, 29, interlocking with the intervening legs, 15, to hold the side pieces, 22, in place where necessary. When the metal bottom boards, 38, are used the flanged ends thereof take the place of the side pieces, 22, and obviate the use of the side braces, 29, the movable locking plates, 39, serving as end pieces and as movable division or partition plates when desired.

In constructing my bench for greenhouses of interlocking parts as herein described I am enabled to overcome the disadvantages attending the use of screwed or screw-threaded parts or connections, which when rusted due to moisture become so tightly joined that they cannot be separated. By my construction even if the parts become fixed by rust they may be readily disconnected by a few taps of a hammer.

Having fully described my invention what I claim and desire to protect by Letters Patent is:

1. A bench for greenhouses comprising a series of legs at each side of the bench, longitudinal stringers in sections mounted upon the upper ends of said legs, an earth box seated on said stringers, and securing braces detachably mounted on said legs and extending upwardly therefrom along the sides of said box, said legs being provided with sockets to detachably receive the lower ends of said braces, and the upper ends of said legs and the ends of the sections of said stringers engaging the same being respectively formed with interlocking projections and recesses, whereby said sections become detachably secured on the upper ends of said legs and against lateral and longitudinal movement, substantially as described and set forth.

2. A bench for greenhouses comprising a series of legs of double channel form at each side of the bench, longitudinal stringers of T-shape in sections mounted upon the upper ends of said legs, an earth box seated on said stringers, and securing braces detachably mounted on said legs and extending upwardly therefrom along the sides of said box, said legs being provided with sockets to detachably receive the lower ends of said braces and having their upper ends longitudinally recessed to receive the vertical flanges of adjacent ends of the stringer-sections and transversely recessed to create projections at the corners of the upper ends of the legs, and the ends of said stringer-sections being formed in their horizontal flanges, at opposite sides, with recesses to interlock with said projections, substantially as described and set forth.

3. A bench for greenhouses comprising a series of legs at each side of the bench, longitudinal stringers in sections mounted upon the upper ends of said legs, an earth box seated on said stringers, transverse braces, connecting said legs and holding them in due relation to each other, and vertical securing braces detachably mounted on said legs and extending upwardly therefrom along the sides of said box, said legs having on their outer sides sockets to detachably receive the lower ends of said vertical braces and on their inner sides sockets to detachably receive the downwardly turned ends of said transverse braces, and the upper ends of said legs and the ends of the sections of said stringers engaging the same being respectively formed with interlocking projections and recesses, whereby said sections become detachably secured on the upper ends of said legs and against lateral and longitudinal movement, substantially as described and set forth.

4. A bench for greenhouses comprising the legs, the longitudinal stringers interlocking with the legs, an earth box supported by the stringers, securing braces for the sides of the box interlocking with said legs, the transverse braces interlocking with the legs holding the legs in opposite relation to each other, and the diagonal braces interlocking with the end legs and with the transverse brace of the next adjacent legs, substantially as described and set forth.

5. A bench for greenhouses comprising the legs, the longitudinal stringers interlocking with the legs, an earth box supported by the stringers, securing braces for the sides of the box interlocking with said legs, securing braces for the ends of the box interlocking with said legs, the transverse braces interlocking with the legs holding the legs in opposite relation to each other, and the diagonal braces interlocking with the end legs and with the transverse brace of the next adjacent legs, substantially as described and set forth.

6. A bench for greenhouses comprising the legs, the longitudinal stringers interlocking

with the legs, an earth box supported by the stringers, the wire-carrying end braces interlocking with the end legs, the wire supporting side braces interlocking with side legs, and the transverse braces interlocking with the legs holding the legs in opposite relation to each other, substantially as described and set forth.

7. A bench for greenhouses comprising the legs, the longitudinal stringers interlocking with the legs, an earth box supported by the stringers, the wire-carrying end braces interlocking with the end legs, the wire supporting side braces interlocking with side legs, the transverse braces interlocking with the legs holding the legs in opposite relation to each other, and the diagonal braces interlocking with the end legs and with the transverse brace of the next adjacent legs, substantially as described and set forth.

8. In a bench for greenhouses the combination of the legs, the transverse braces interlocking with the legs holding them in opposite relation to each other, and the diagonal braces interlocking with the legs and with the transverse brace of the next adjacent legs, substantially as described and set forth.

9. In a bench for greenhouses having the legs and the transverse braces interlocking with the legs holding them in opposite relation to each other, the diagonal brace adapted to interlock with the end legs and with the transverse brace of the next adjacent legs, substantially as described and for the purpose set forth.

10. In a bench for greenhouses having the legs and transverse braces interlocking with the legs holding them in opposite relation to each other, the diagonal brace having at one of its ends the grip hook interlocking with an end leg and at its other end the downwardly extending hook interlocking with the transverse brace of the next adjacent leg, substantially as described and for the purpose set forth.

11. In a bench for greenhouses having the legs, the longitudinal stringers interlocking with the legs and the transverse braces holding the legs in opposite relation to each other, the combination of the end legs and the wire-carrying end braces interlocking with the end legs, substantially as described and set forth.

12. In a bench for greenhouses having the legs, the longitudinal stringers interlocking with the legs and the transverse braces holding the legs in opposite relation to each other, the combination of the side legs and the wire-supporting side braces interlocking with the side legs, substantially as described and set forth.

13. In a bench for greenhouses having the legs, the transverse braces interlocking with the legs holding them in opposite relation to each other and the diagonal braces interlocking with the end legs and with the transverse brace of the next adjacent legs, the combination of the end legs and the wire-carrying end braces interlocking with the end legs, substantially as described and set forth.

14. In a bench for greenhouses having the legs, the transverse braces interlocking with the legs holding them in opposite relation to each other and the diagonal braces interlocking with the legs and with the transverse brace of the next adjacent legs, the combination of the side legs and the wire-supporting side braces interlocking with the side legs, substantially as described and set forth.

15. In a bench for greenhouses having the legs, the longitudinal stringers interlocking with the legs and the transverse braces interlocking with the legs holding them in opposite relation to each other, the combination of the end legs, the wire-carrying end braces interlocking with the end legs and the wire-supporting side braces interlocking with the side legs, substantially as described and set forth.

16. In a bench for greenhouses having the interlocking supporting framework, the wire-carrying end braces adapted at their lower ends to interlock with the end legs of the framework and having the standards adapted to sustain the transverse rods for the longitudinal plant training wires, substantially as described and for the purpose set forth.

17. In a bench for greenhouses having the interlocking supporting framework, the combination of the wire-carrying end braces having the standards and adapted at their lower ends to interlock with the end legs of the framework, and the transverse rods supported by the standards, substantially as described and set forth.

18. In a bench for greenhouses having the interlocking supporting framework, the wire-supporting side braces adapted at their lower ends to interlock with the side legs of the framework and provided with the bearing surfaces and wire-supporting standards, substantially as described and for the purpose set forth.

19. A bench for greenhouses comprising legs, longitudinal stringers interlocking at their ends therewith, an earth box supported on said stringers and comprising a bottom, sides and ends, and securing braces interlocking with the legs for holding the box in position; said bottom having perforations and a movable division plate provided with a downwardly extending catch to engage in one of said perforations, substantially as described and set forth.

20. In a bench for greenhouses having the legs, the transverse braces interlocking with the legs holding them in opposite relation to each other and the diagonal braces interlocking with the legs and with the transverse brace of the next adjacent legs, the combination of the transverse braces and the heating pipes dependent from the transverse braces, substantially as described and set forth.

WESLEY WAIT.

Witnesses:
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E. E. ROSCOE.