J. K. NIELSEN.

GREENHOUSE BENCH.

APPLICATION FILED AUG. 19, 1919.

1,360,669.

Patented Nov. 30, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

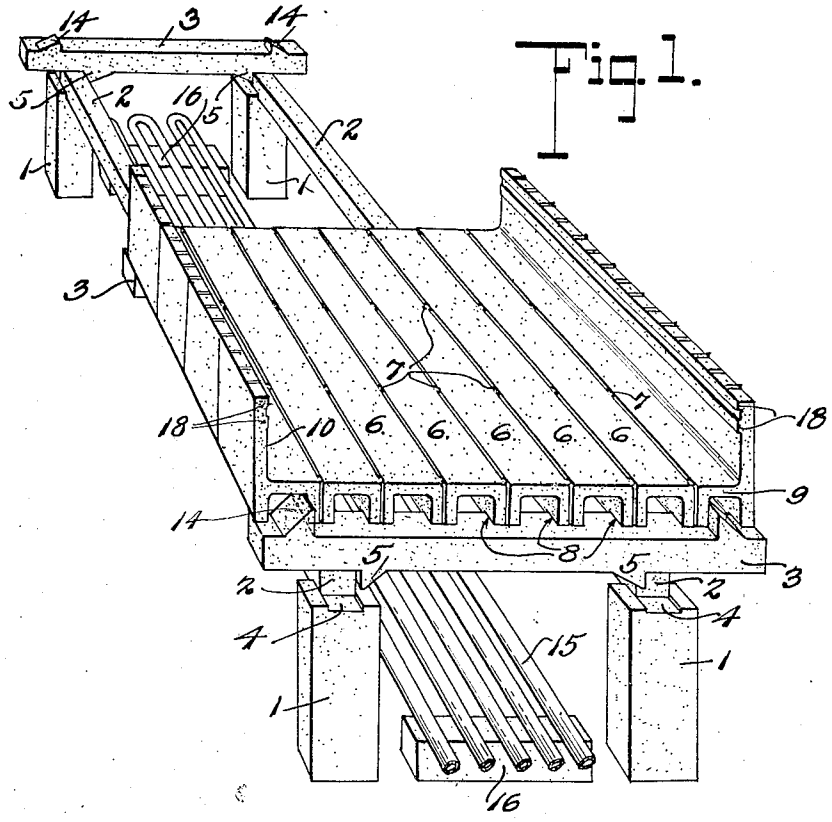


Fig. 2.

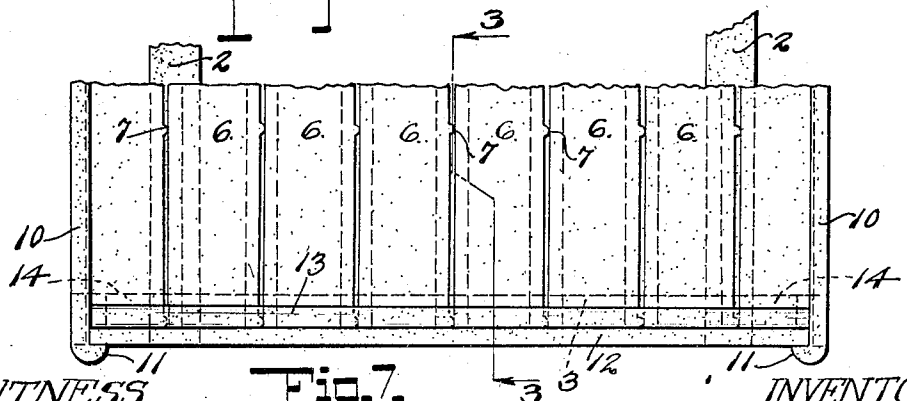
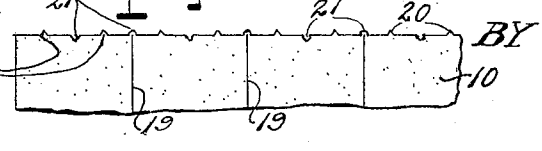


Fig. 7.



WITNESS
E. H. Wagner

INVENTOR
J. K. Nielsen
BY
Robb & Robb
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

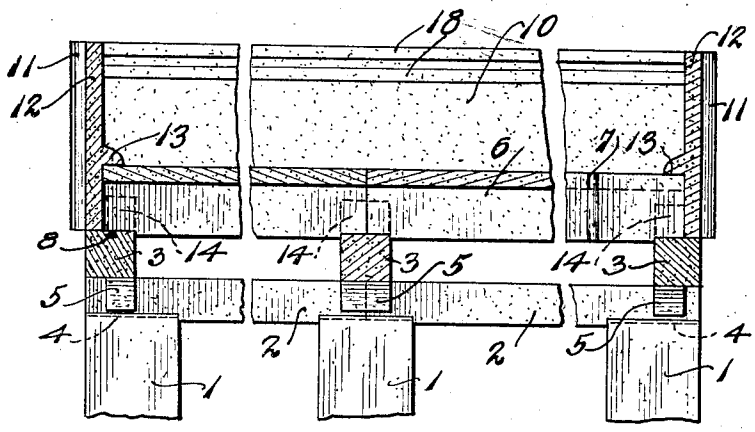


Fig. 4.

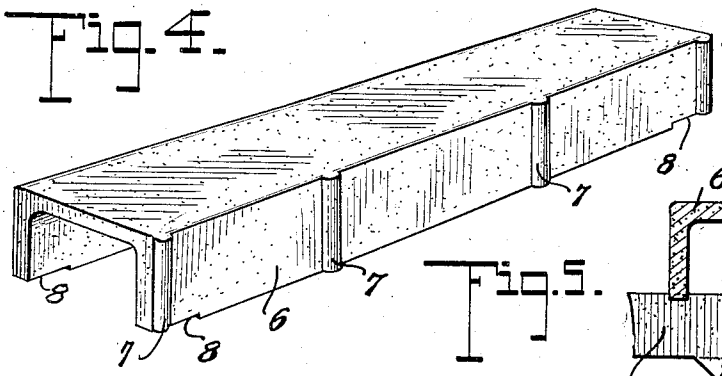


Fig. 5.

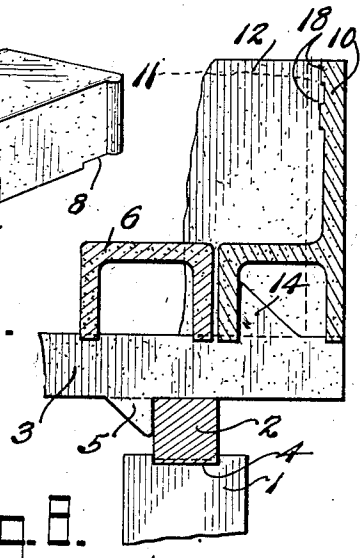


Fig. 6.

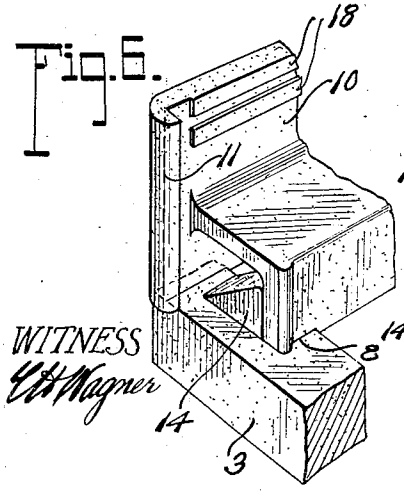
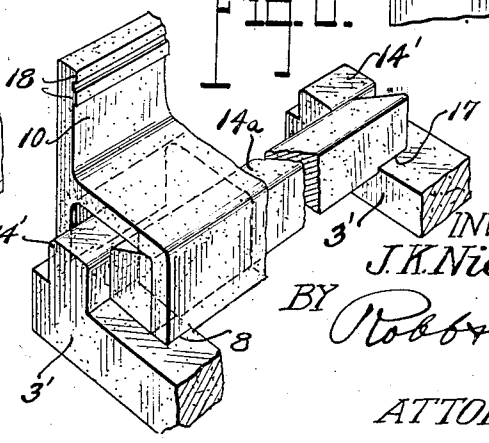


Fig. 8.



WITNESS

H. B. Wagner

INVENTOR

J. K. Nielsen

BY Robert V. Cobb

ATTORNEYS

UNITED STATES PATENT OFFICE.

JACOB KIER NIELSEN, OF OAK PARK, ILLINOIS.

GREENHOUSE-BENCH.

1,360,669. Specification of Letters Patent. Patented Nov. 30, 1920.

Application filed August 19, 1919. Serial No. 318,522.

To all whom it may concern:

Be it known that I, JACOB KIER NIELSEN, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Greenhouse-Benches, of which the following is a specification.

This invention relates to improvements in greenhouse benches and is devised with a view to filling all of the essential requirements of florists in the propagation of plant life.

The primary object of my improvements is to provide a bench of such heat conducting material as will be conducive to the growth of the plants, the construction being composed of the conventional separable units whereby the benches may be readily assembled, and disassembled. extended or reduced in size, as may be required.

A further object in view is to provide such a construction of unit for the bottom or body of the bench as will best retain the heat supplied thereto, while providing for ample drainage of the soil.

A still further object of my invention is to provide an arrangement of units so constructed as to interlock with each other to form a self sustaining receptacle for holding the soil, not requiring clamping instrumentalities to hold the several members in proper place, thereby dispensing with unnecessary expense and labor in the erection of the device.

A not unimportant feature of my improvements rests in the provision of measuring or marking means serving as a guide to the florist in arranging the plants in rows, or providing for the proper depth of soil, according to the requirements of the particular plants.

These and such other objects as may hereinafter appear are attained by the novel construction, combination and arrangement of parts to be hereinafter specifically described and claimed. Reference will now be had to the accompanying drawings forming a part of this specification, wherein:

Figure 1 is a perspective view of a partly assembled bench showing the interrelation of the several parts or units thereof.

Fig. 2 is a plan view of an end of a bench constructed in accordance with this invention.

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of one of my bench units.

Fig. 5 is an enlarged fragmentary sectional view showing the interlocking arrangement of the transverse stringers with the bottom units and longitudinal supports.

Fig. 6 is a detailed view of the end of one of the side members by which an interlocking of the body of the bench is secured.

Fig. 7 is a detail view of one of the side members showing more clearly the measuring or guide means, and

Fig. 8 is a fragmentary view of a modified arrangement for interlocking the side members against displacement from the supporting stringers.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring to the drawings, 1 indicates suitable leg supports; 2, longitudinal beams or stringers; and 3, the transverse beams or stringers, all of which are preferably made of concrete or some lasting material. In Fig. 1 the legs will be observed to have a shallow groove 4 on the top thereof while the ends of the longitudinal stringers are correspondingly cut out or notched to seat in the grooves thereby preventing accidental displacement one from the other. To prevent such displacement of the transverse stringers 3, each is provided at either end on the under surface with a projection 5 arranged, as shown in Figs. 1 and 5, to fit against the inner face of the longitudinal stringers 2. The foregoing construction provides a very substantial support for the bench and one which possesses the advantage of being "knock down" in form, a valuable feature to the florist.

The body of the bench is likewise composed of suitable units, these, however, being of porous tile material, preferably, because of the heat conducting characteristics of such material and the attending advantages of such properties in plant propagation. The intermediate bottom units, designated 6, most clearly shown in Fig. 4, are substantially U-shaped in cross section, or channeled, so as to provide in each a longitudinal heat retaining chamber. Each tile unit at one side is formed with spaced ribs 7 so that when

arranged in contiguous relation side by side a narrow space between the units is provided for drainage purposes. Through these interstices, moreover, a certain amount of heat will come in direct contact with the soil. Furthermore, each unit is notched at its ends, as shown at 8, to seat against the cross stringers and provide against longitudinal displacement of the respective units.

The side units 9 differ from these intermediate ones by the formation of the upright extension 10 which is of suitable height to retain the proper depth of soil.

It will be apparent that a bench of the type thus far described may be constructed of any desired length, it being understood that the tile units will be of standard lengths in their manufacture. The side units for the ends of the bench differ slightly from the intermediate side units as will be more clearly understood by reference to Fig. 6 of the drawings. Here it will be seen that a tongue 11 projects laterally from the side and is formed in spaced relation to the end of the channel portion, thus virtually forming a groove which corresponds in width to the thickness of the tile. The purpose of this is to provide interlocking of the sides of the body portion of the bench with the ends of the body portion, which are designated 12 in the drawing. These end members slip into position resting upon the end cross stringers and are each provided with a face flange or projecting rib 13 which rests upon the ends of the bottom units. Upon the upper surface of each of the cross stringers adjacent to each end there is provided a projection 14 corresponding to the projection 5 on the under surface. These upper projections extend into the channels of the side members and hold them against lateral displacement, thus providing in conjunction with the interlocking arrangement of the ends just described for a complete interlocking of the body units so that displacement of one from the other will not occur through accident.

In the use of the bench heat is supplied from any suitable source to the radiating pipes 15 which are supported beneath the bench upon blocks 16, or otherwise. The heat from these pipes rises and is received in the channels of the bottom tile members, these channels, of course, being closed at the ends by the end members 12, as shown in Fig. 3. The heat is thus adequately retained. If for any reason this amount of heat should not be sufficient, the florist may readily increase the capacity of the under compartments by boarding up a greater amount of space, supporting the material upon the upper ends of the legs, but for most all purposes the heat retaining capacity of the bench will be sufficient with the construction as above described.

Referring to Fig. 8, I here illustrate a slightly modified method of interlocking the body units. In this construction the cross supports 3′ are provided with the projections 14′ which extend into the side channels of the side units as do the projections 14 of the preferred form. The projections 14′, however, are disposed so as to leave sufficient room to receive the longitudinally arranged bars, 14^a which engage at one side with the projections 14′ and at the other side with the side wall of the side unit. The ends of these bars are notched as indicated at 17 to seat against or interlock with the cross beams 3′ to prevent their accidental displacement.

Passing now to that feature of my bench which has to do with the arrangement of the plants in the soil which is disposed within the body, I preferably provide longitudinally extending ribs 18 upon each side unit, these ribs being of a certain predetermined width and spaced apart a corresponding width to serve as a guide to the florist as regards the depth of the soil. Any number of these ribs may be provided for this purpose.

It is customary where benches are constructed of wood, as in the majority of cases at present, to drive tacks along the upper edges of the sides of the bench to receive strings serving as a guide to the florist in keeping the rows of flowers in line and a proper distance apart. To eliminate such inconvenience while obtaining the same result I preferably form these side elements or units with a marking arrangement most clearly disclosed in Fig. 7. The outer face of the tile is formed with vertical line markings indicated at 19 usually one foot apart, for example, while the upper edge is provided with sharp projections 20 at the 3 and 9 inch measurements and round grooves and projections 21 at the 6 and 12 inch measurements. This spacing of the markings is merely arbitrary and subject to modification as desired.

The foregoing description of my invention discloses a bench construction which is easily taken down and moved from place to place for reërection or for shipment and at the same time it provides a bench which contains no places for insects to breed, while the soil is effectively provided with moderated heat and ample drainage is afforded. The material is such that a permanent construction not subject to rotting, corrosion or decay is obtained. Other advantages readily apparent to florists need not be specifically referred to in this specification.

Having thus described my invention, what I claim as new is:

1. A greenhouse bench composed of a plurality of separate channeled bottom units arranged in inverted position, side and end

units having interlocking connection with each other, and supporting means for said units having means interengaging with certain of the units to prevent accidental displacement of the bottom units.

2. A greenhouse bench of knock-down construction composed of units, the bottom units being of channel form to provide longitudinal heat retaining chambers, the side units having end flanges with which the end units interlock to provide against accidental displacement, and supporting beams for said units having projections interengaging with certain of the units aforesaid to hold them in contiguous relation to each other.

3. A greenhouse bench of knock-down construction consisting of a plurality of separable channeled bottom members, side members extending above said bottom members, end members interlocking with the side members and closing the channels of the bottom members aforesaid, said end members having means sustaining the same upon the bottom members, leg supports, and cross beams mounted upon the leg supports and interlocking with the bottom members to hold them in position with relation to each other.

4. A greenhouse bench of the class described comprising a knock-down body portion composed of a plurality of separable units, leg supports, longitudinal beams disposed upon said leg supports, and transverse supporting means having means engageable with the longitudinal beams and other means interlocking with the body units whereby to hold the latter against accidental displacement.

5. A greenhouse bench of the class described comprising a body receptacle composed of porous tile or similar units, said units including side and end members having interlocking connection with each other, leg supports, longitudinal beams interlocking therewith, and cross beams disposed upon the longitudinal beams and having spaced projections upon their under surfaces engaging with the longitudinal beams, and other projections upon their upper surfaces interlocking with the body units.

6. A greenhouse bench of the class described composed of a plurality of channeled tile members, including side and end members, the former having formed thereon locking tongues for holding the end members in position, leg supports for said members having seats or grooves therein, longitudinal beams having their ends notched to seat in the grooves of the legs, and cross beams provided with depending projections engaging with the sides of the longitudinal beams, and upright extensions engaging in the channels of the body members.

7. A greenhouse bench of the class described comprising a plurality of separable units the side units thereof being provided with corresponding measuring or marking guide means, serving to determine the depth of the soil and the spacing of the rows of plants to be disposed therein.

8. A greenhouse bench of the class described comprising a soil retaining receptacle having side members provided with longitudinal spaced ribs upon their inner surfaces serving as a guide for determining the depth of soil, and distinguishing markings along the upper edges of the opposite side members, the markings of one edge corresponding in character with the markings of the other edge whereby to assist in keeping the rows of plants straight.

In testimony whereof I affix my signature.

JACOB KIER NIELSEN.