June 22, 1954 L. SANTORO 2,681,780

CHRISTMAS TREE STAND

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Fig. 1.

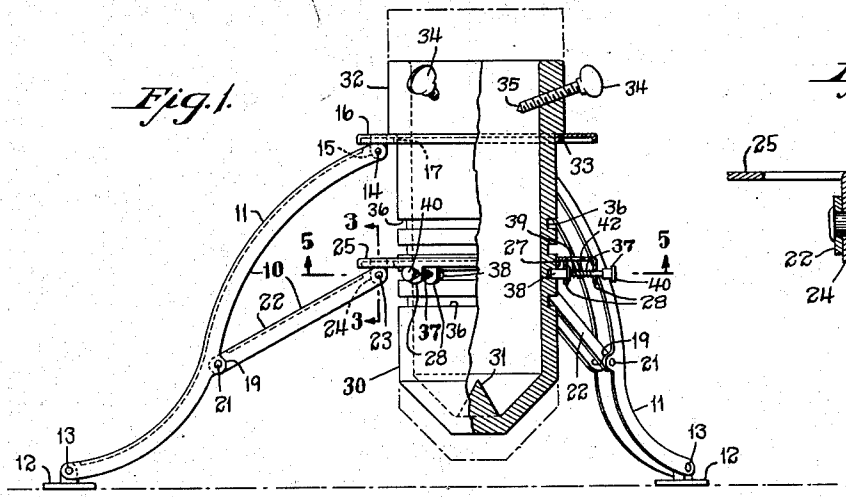
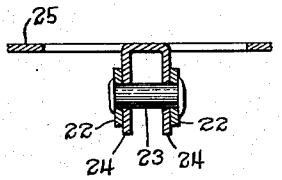


Fig. 3.



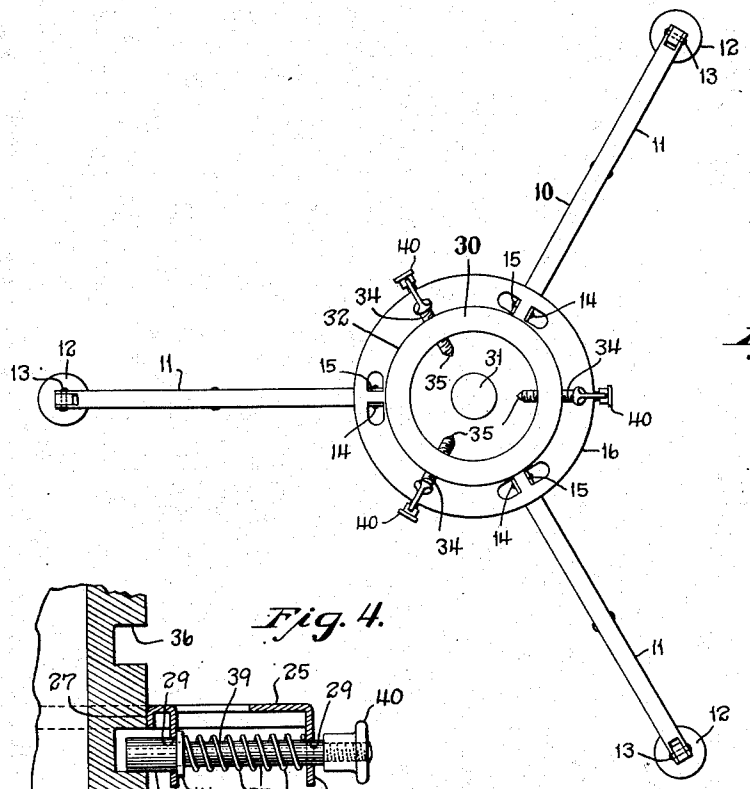


Fig. 2.

Fig. 4.

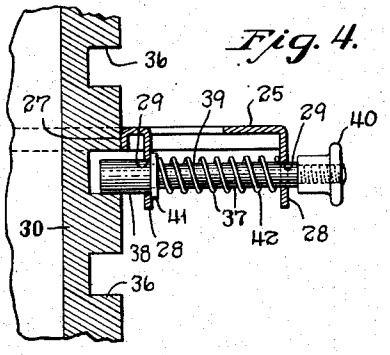


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Fig. 5.

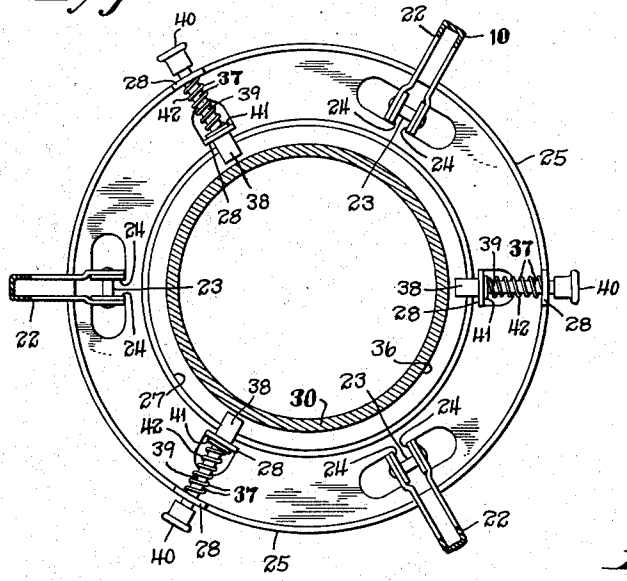


Fig. 6.

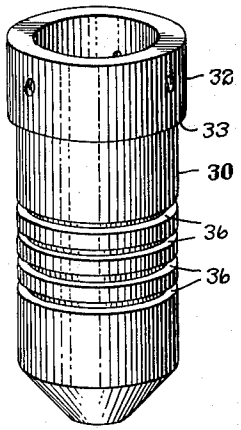


Fig. 7.

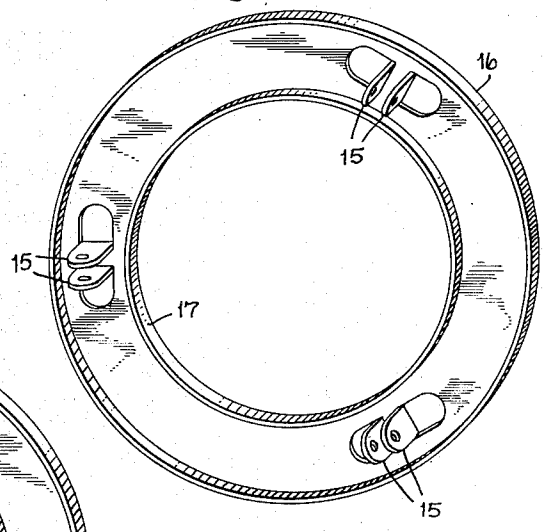
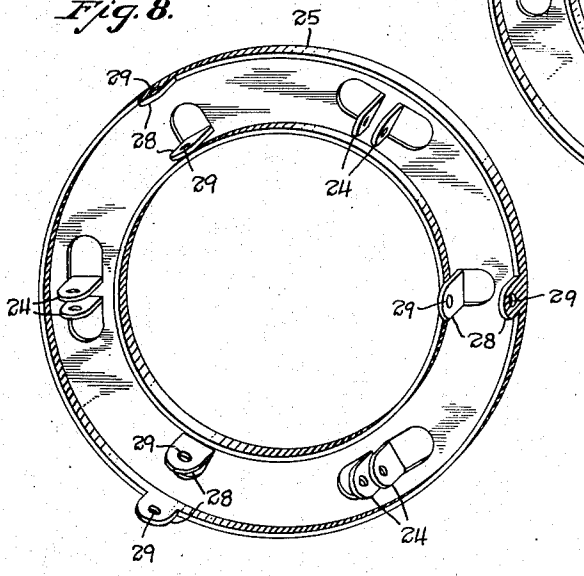


Fig. 8.



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CHRISTMAS TREE STAND

Lawrence Santoro, Waterbury, Conn.

Application November 22, 1950, Serial No. 197,121

1 Claim. (Cl. 248—45)

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The present invention relates in general to a device for supporting an article in a substantially-upright position and in particular to a stand for supporting a Christmas tree so as to facilitate decorating and displaying the latter.

An object of the invention is to provide a superior tree-supporting stand which is of relatively simple and durable construction.

A further object of the invention is to provide a stand which will support a Christmas tree substantially upright for rotation about its longitudinal axis and for adjustment vertically so as to facilitate decorating and displaying the Christmas tree.

A still further object of the invention is to provide a Christmas-tree stand with a rotatable holder for the tree-trunk, the holder being adapted to contain water for the tree and to be raised and lowered so as to permit vertical adjustment of the tree.

A still further object of the invention is to provide a Christmas-tree stand of the type having a rotatable tree-holder wherein the stand is provided with adjustable-means arranged to be movable relative to the holder for raising and lowering the latter, and to be locked to the holder to secure the latter in any selected position of vertical adjustment.

With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

Fig. 1 is a front elevation partly in section of the improved tree-supporting stand of this invention, indicating by broken lines the vertical displacement of the tree-holder;

Fig. 2 is a top plan elevation of the tree-supporting stand shown in Fig. 1;

Fig. 3 is a side elevation of a fragmentary portion of the adjustable annulus of the stand on section line 3—3 of Fig. 1 showing the upper end of one of the arms of the stand pivotally secured to a pair of supporting-ears depending from the adjustable annulus;

Fig. 4 is an enlarged fragmentary front elevation in section showing details of the locking-means of the adjustable annulus for securing the tree-holder in selected position of vertical adjustment;

Fig. 5 is a horizontal sectional view on line 5—5 of Fig. 1;

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Fig. 6 is a perspective view of the tree-holder of the stand;

Fig. 7 is a perspective view of the apertured supporting-member of the stand showing three pairs of supporting-ears projecting from the bottom of the supporting-member; and

Fig. 8 is a perspective view of the adjustable annulus of the stand showing six pairs of supporting-ears projecting from the underside thereof.

The Christmas-tree supporting-stand of this invention is designed to support a Christmas tree so that it may be rotated and adjusted vertically thereby to facilitate decorating and displaying the tree.

In the exemplary embodiment of the invention shown in the drawings, the stand consists of a vertically-adjustable frame indicated generally at 10, comprising three metal leg-members 11 each substantially channel-shaped in cross section and bent in the form of a reverse curve, the lower end of each leg-member 11 being provided with a foot 12 pivotally secured thereto by pivotal means 13. As shown especially well in Fig. 1, the upper end of each leg-member 11 is adapted to be pivotally secured by pivotal means 14 to a pair of supporting-ears 15 formed integrally with and extending downwardly substantially perpendicularly from the underside of an apertured supporting-member 16 which, as shown in Fig. 7, comprises a metal ring-member having a relatively-large central aperture 17. Three pairs of the aforesaid supporting-ears 15, are blanked from or otherwise formed on the ring-member at substantially equally-spaced points therearound, the ears of each pair of supporting-ears 15 being arranged in substantially spaced-parallel relationship and provided with axially-aligned bearing-apertures extending therethrough, the coextensive axes of which are substantially transverse to a radial line extending between the ears. The pivotal means 14 of the legs 11 are adapted to engage in the bearing-apertures of the pairs of ears 15 to pivotally secure the legs to the ring-member, the legs being adapted thereby to extend outwardly radially therefrom, as shown especially well in Fig. 2.

Formed on the inner edges of the side walls of each leg 11 substantially intermediate its foot 12 and its upper end, are inwardly-projecting ears 19—19 having axially-aligned apertures for accommodating a pivot-pin 21 which is adapted to pivotally connect the lower end of an arm 22, substantially channel-shaped in cross section, to the inside of the leg, there being an arm 22

for each leg 11 of the frame. The opposite or upper end of each arm 22 is adapted to be pivotally connected as at 23 to a pair of supporting-ears 24 depending from the underside of a second ring-member or annulus 25 of the frame 10. Referring especially to Figs. 3 and 8, each of the aforesaid pairs of supporting-ears 24 of the annulus 25 comprises blanked portions of the annulus bent downwardly in substantially spaced-parallel relationship from the underside thereof, each pair of ears having axially-aligned bearing-apertures to receive the pivotal-means 23 of the aforesaid arms 22.

The arms 22 and annulus 25 of the frame constitute leg-adjusting means for spreading and retracting the legs to make vertical adjustments of the frame. Thus, the pivotal connections which the upper ends of the arms 22 make with the annulus 25, and the pivotal connections which the lower ends of the arms make with the pivoted legs 11 of the ring-member 16 permit the annulus to be moved substantially vertically with respect to the ring-member, in the manner hereinafter described, and by its relative vertical movement to displace the pivoted legs of the stand laterally inwardly and outwardly respectively for increasing and decreasing the over-all height of the frame respectively.

The aperture 27 of the adjustable annulus 25 corresponds substantially in diameter to the diameter of the aperture 17 of the ring-member 16, and when the adjustable annulus 25 is supported by the pivoted arms 22 on the pivoted legs 11 of the frame in the manner hereinabove described, the aperture 27 of the adjustable annulus is adapted to be in substantially-vertical alignment with the aperture 17 of the supporting ring-member, the adjustable annulus being held by its three pivoted arms 22 in a substantially-horizontal plane intermediate the supporting ring-member and the feet 12 of the frame.

Referring again to Fig. 8, the adjustable annulus 25 is also provided with three additional pairs of supporting-ears indicated at 28, the three pairs of ears 28 being similarly formed by blanking and bending down portions of the annulus from the underside thereof, each pair of supporting-ears 28 being located substantially intermediate two of the aforesaid pairs of supporting-ears 24 of the annulus and provided with axially-aligned bearing-apertures 29—29. The supporting-ears 28 of the annulus are adapted to slidably support detent-members of the adjustable annulus of the frame as and for the purpose hereinafter described.

Rotatably supported in the stand by the ring-member 16 of the frame, is a tree-holder indicated generally at 30 and comprising an elongated substantially-cylindrical cup-shaped member open at its upper end and provided at its closed lower end with a centering-prong 31 projecting upwardly from the bottom of the holder. Formed or otherwise secured to the upper end of the holder is an annular external enlargement 32, the bottom edge 33 of which constitutes a circumferential external shoulder adapted to engage on the ring-member 16 of the frame to rotatably support the tree-holder thereon, the over-all diameter of the tree-holder being such as to enable the latter to extend down freely through both the aperture 17 of the ring-member 16 and the aperture 27 of the adjustable annulus 25. Threadedly mounted in apertures in the wall of the enlargement 32 of the holder, so as to project inwardly substantially

radially thereof, is a plurality of thumbscrews 34, the inner ends 35 of which may be substantially conical and adapted to be moved into engagement with a tree-trunk in the holder, both to prevent the trunk from rotating in the holder and to provide supporting-means for the tree-trunk in the upper end thereof, the trunk of the tree being held upright substantially concentrically within the holder by engagement of the centering-prong 31 of the holder with the bottom end of the trunk and by proper adjustment of the thumbscrews 34.

Formed in the outer wall of the holder intermediate its upper and lower ends, are a plurality of circumferential grooves 36 which are substantially rectangular in cross section and lie in vertically-spaced substantially-parallel planes. The number of grooves may vary from the number shown in the drawings, but it has been found that for most purposes four grooves will suffice to provide adequate vertical adjustment of the tree-holder. These circumferential grooves 36 in the wall of the holder constitute elements of the detent-means for securing the holder in a selected vertically-adjusted position with respect to the feet of the frame, and to this end are adapted to be selectively engaged by complementary detent-members of the adjustable annulus 25.

In the embodiment of the invention shown herein, the adjustable annulus 25 is provided with three complementary detent-plungers indicated generally at 37, each comprising a substantially-cylindrical lug 38 dimensioned to slidingly engage in any one of the circumferential detent-grooves 36 of the holder, and joined integrally or otherwise secured at its rear end to the inner end of an operating-rod 39, the outer end of which is threaded to receive a finger-gripping knob 40 for manually operating the rod 39. Each detent-plunger 37 is adapted to be supported on the adjustable annulus 25 for movement manually substantially radially to and from the circumferential detent-grooves 36 of the holder, and to this end, the outer end of each operating-rod 39 is adapted to be slidingly engaged in the bearing-aperture 29 of the outer ear of one of the pairs of supporting-ears 28 of the adjustable annulus, the bearing-aperture 29 of the inner ear of the correspoding pair of ears 28 being adapted to slidingly support the cylindrical lug 38 at the inner end of the operating-rod. As shown especially well in Fig. 4, an annular washer 41 is mounted on the inner end of each operating-rod at its junction with its respective cylindrical lug 38 for engaging the outer face of the inner supporting-ear of the corresponding pair of radial supporting-ears 28 to effectively limit the movement of the cylindrical lug 38 inwardly into an annular detent-groove of the holder, each cylindrical lug of an operating-rod 39 being urged normally inwardly radially into engagement with a selected circumferential detent-groove 36 of the container by means of a coil spring 42 mounted on the rod, each coil spring engaging at its outer end against the inner face of an outer supporting-ear and at its opposite end with the washer 41. It will be clear that to retract the cylindrical locking-lugs 38 from any one of the circumferential detent-grooves 36 of the holder, the finger-gripping knobs 40 of the operating-rods 39 may be grasped and pulled outwardly against the tension of the springs 42. On releasing the knobs 40, the cylindrical lugs 38 will be urged inwardly radially by

the compressed springs **42** of the respective operating-rods for re-engagement in a circumferential detent-groove of the holder.

From the foregoing description of the relationship between the adjustable annulus **25**, the tree-holder **30** and the pivoted arms and legs of the vertically-adjustable frame, it will be clear that whenever the detent-lugs **38** of the annulus are retracted out of engagement with a detent-groove of the holder, the annulus will be free to move vertically on the lower end of the holder and that by moving the adjustable annulus upwardly relative thereto, the arms connected to the annulus will be moved upwardly thereby drawing the pivoted legs **11** of the frame together, as a consequence of which the vertical height of the frame is increased which, in effect, raises the holder. On lowering the adjustable annulus with respect to the holder, the legs will be moved outwardly or spread apart thereby decreasing the over-all height of the frame which, in effect, lowers the holder.

The operation of the tree-supporting stand may be described briefly as follows. Assuming the stand to be set up with the detent-lugs **38** of its adjustable annulus engaged in one of the circumferential detent-grooves **36** of the holder so as to hold the latter securely in a pre-selected vertically-adjusted position, then the tree-trunk of a Christmas tree, properly sized to fit within the holder, is lowered into the holder, the bottom of the trunk being forced down onto the upwardly-projecting centering-prong **31**, which indents the bottom end of the trunk and serves to hold the latter securely in the bottom of the holder against lateral displacement. The adjustable thumbscrews **34** at the upper end of the holder are then screwed inwardly so as to engage their conical ends in the trunk of the tree thereby both to align the axis of the tree-trunk with the vertical axis of the holder and to secure the tree-trunk from rotational movement relative thereto. With the detent-lugs of the adjustable annulus engaged in one of the detent-grooves of the holder, the upper ends of the pivoted arms **22** of the frame will be held from moving either upwardly or downwardly, and hence will hold the legs of the frame from spreading apart or from moving together. Thus, the holder will be rotatably supported in the frame in a selected vertically-adjusted position. However, since the detent-lugs are slidable freely in the detent-grooves, the holder may be easily rotated in the frame to facilitate attaching ornaments to the tree and for orienting the most favorable side of the tree to view. Should it be desired to raise or lower the tree, the spring-biased detent-lugs **38** of the adjustable annulus are disengaged from the circumferential detent-groove of the holder in which they are engaged and the annulus adjusted upwardly or downwardly with respect to the holder as the case may be, whereupon the detent-lugs are released for re-engagement in a selected detent-groove of the holder thereby locking the annulus to the holder to secure the latter in its newly-adjusted vertical position.

The improved tree-supporting stand of this invention will be seen to be of simple and durable construction and to be characterized by a tree-holder which is adapted to contain water for the tree and to be supported for current rotational and vertical adjustment.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claim are intended to be embraced therein.

I claim:

In a Christmas-tree stand, the combination including: a rotatable substantially cup-shaped tree-holder having an annular shoulder adjacent its upper end and a plurality of external circumferential grooves adjacent its lower end, the said grooves being arranged in vertically-spaced substantially parallel planes; a frame comprising a ring-member having a central aperture adapted to accommodate said tree-holder, the diameter of said central aperture being less than the diameter of the said annular shoulder of said tree-holder whereby the said annular shoulder serves to rotatably support said tree-holder on said ring-member; adjustable legs pivotally secured at their upper ends to said ring-member; and leg adjusting-means adapted to spread and retract said legs for adjusting said tree-holder vertically, said leg adjusting-means comprising an annulus to slidably engage over the lower end of said tree-holder substantially opposite said circumferential grooves, arms pivotally secured to the lower ends of said legs respectively and pivotally connected at their upper ends to said annulus, and detent-means carried by said annulus, said detent-means comprising spring-loaded plungers arranged to move radially of said annulus and selectively engage in the external circumferential grooves of said rotatable tree-holder to lock said tree-holder and said ring-member against vertical movement relative thereto thereby to positively hold the said leg adjusting-arms against movement for spreading and retracting said legs, said spring-loaded plungers being also slidable in the external circumferential grooves of said rotatable tree-supporting member to permit concurrent rotation thereof.

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