Aug. 26, 1941. J. M. LANCASTER 2,253,713

FURNITURE CLAMP FOR DUNCAN PHYFE TABLES

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Fig. 1.

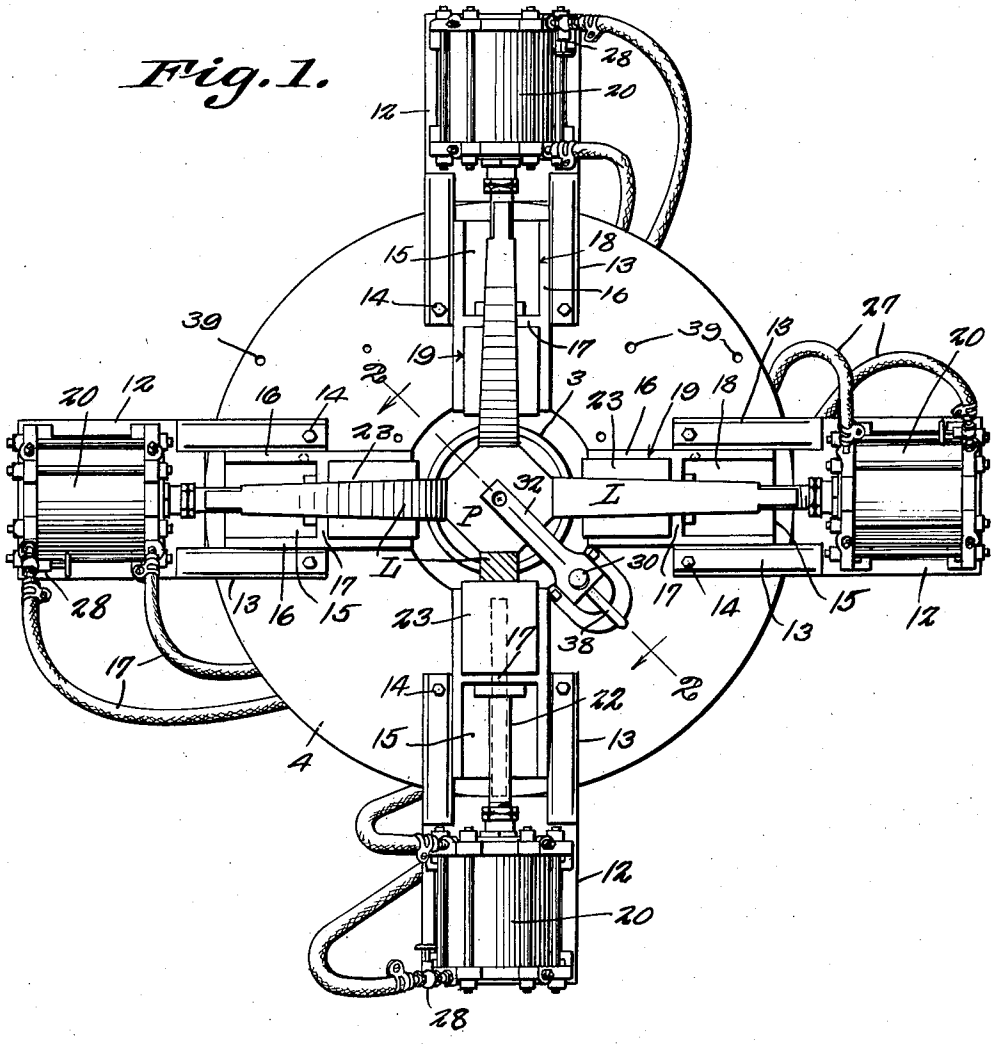
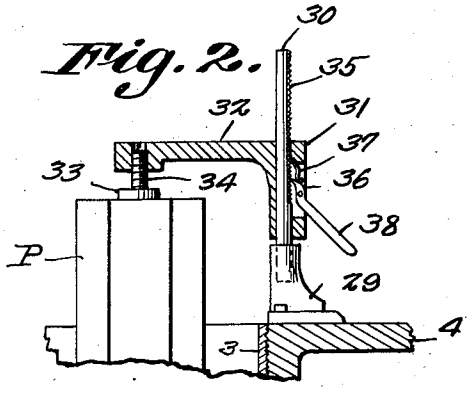


Fig. 2.



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Fig. 3.

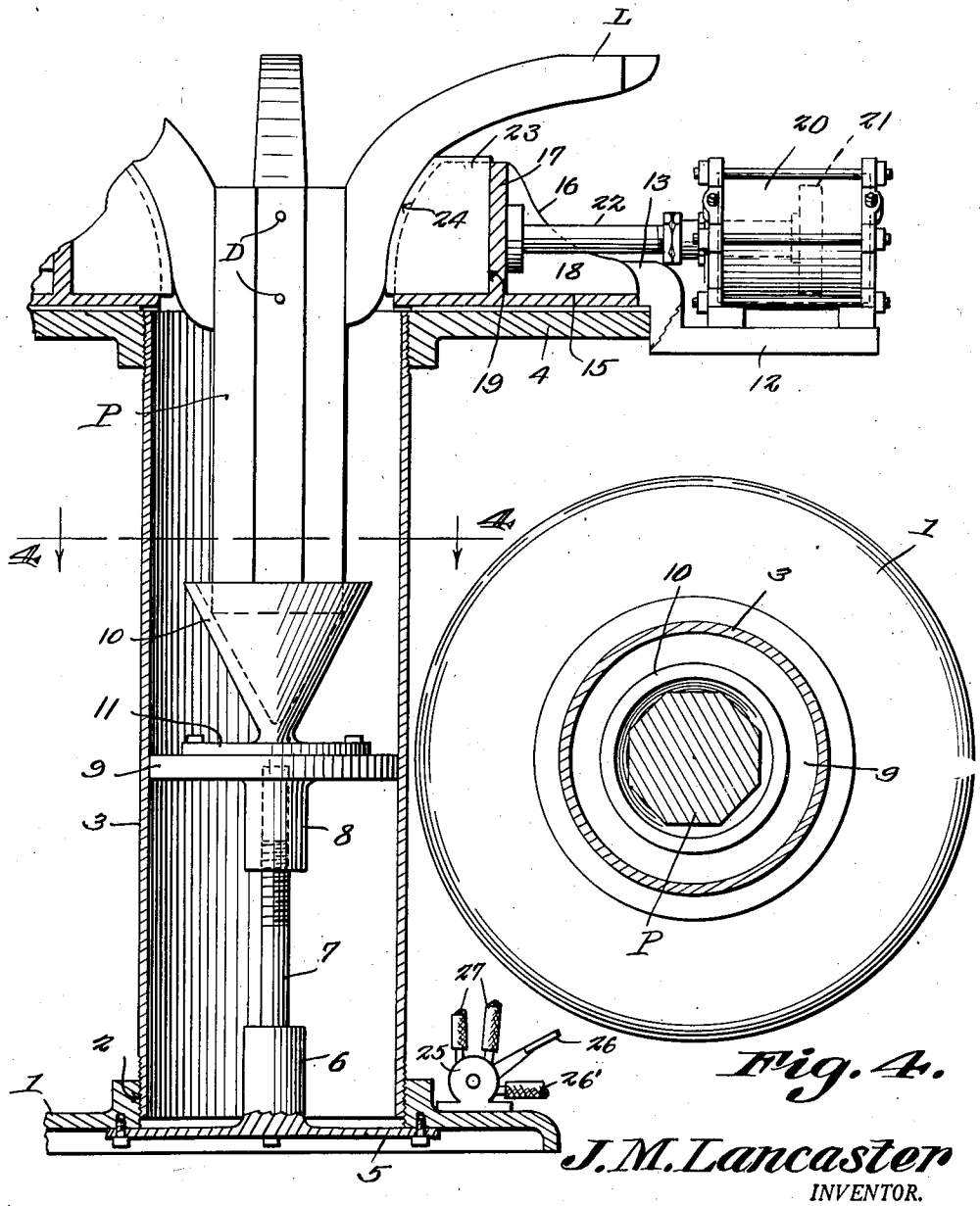


Fig. 4.

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FURNITURE CLAMP FOR DUNCAN PHYFE TABLES

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5 Claims. (Cl. 144—289)

This invention relates to a furniture clamp designed primarily for use in assembling the legs and center post of Duncan Phyfe tables.

Heretofore it has been necessary to assemble these parts mainly by hand operation and this has been not only slow but not always as accurate in results as might be desired.

An object of the present invention is to provide a new and novel form of clamp useful in assembling the legs of the table with the center post or pedestal, there being embodied in the apparatus a means for clamping the center post so that it will not be shifted out of proper position while the several parts are being pressed together.

A further object is to provide the machine with new and novel means for centering and holding the post or pedestal portion of the table.

A still further object is to provide an apparatus which can be adjusted for use with three or more legs.

A further object is to provide a clamp which can be quickly applied to and disconnected from the work.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings

Figure 1 is a top plan view of the machine, a portion being shown in section.

Figure 2 is a section through the center post or pedestal clamp.

Figure 3 is a vertical transverse section through a portion of the apparatus, the parts of a table being positioned therein.

Figure 4 is a section on line 4—4 of Figure 3.

Referring to the figures by characters of reference 1 designates a base having a central opening 2 into which is screwed the lower end of the tubular standard 3 which, in turn, is screwed into or otherwise attached to the center of a circular table 4.

Located under and attached to the base 1 is a disk 5 which closes the opening 2 and has a central post 6 from which is extended a screw threaded rod 7 coaxial with the standard 3. Mounted on this rod is a sleeve 8 extending downwardly from a plate 9 which, as shown particularly in Figure 3, fits snugly within the standard 3 but obviously can be adjusted relative to the disk 5 by screwing or unscrewing the sleeve 8 on the rod 7.

A conical centering cup 10 is located above the plate 9 and has a base 11 bolted onto said plate. This cup is coaxial with rod 7 and standard 3 and it can, of course, be adjusted upwardly or downwardly relative to the table 4 for the purpose hereinafter explained.

The table top 4 is provided, at regularly spaced points, with brackets 12 extending radially beyond the table top and each having parallel arms 13 bearing on the table top and detachably held thereto by bolts 14 or the like. The arms 13 of each bracket constitute guides between which is mounted a slide 15 which includes side walls 16 connected by an intermediate transverse partition 17. Thus each slide has a pocket 18 in one end portion and another pocket 19 in its other end portion.

Each bracket 12 supports a cylinder 20 which is fixedly secured thereto and has a piston 21 the rod 22 of which is radially disposed relative to the table top 4 and extends into the pocket 18 of the slide adjacent thereto, this rod being secured in any suitable manner to the center of the partition 17 of said slide. The pocket 19 of each slide has a clamping block 23 seated therein and projecting upwardly and also toward the center of the table. This block is preferably formed of wood although it can be made of any other suitable soft material which will not injure the work. The block is so shaped that the active space 24 thereof will coincide in contour with the surface to be engaged by the clamp.

A valve of suitable construction has been indicated generally at 25 and has, in the present instance, a foot lever or treadle 26 whereby the valve can be shifted for the purpose of controlling the flow of air under pressure through the valve, from an air supply pipe 26' to air distributing pipes 27. These latter pipes are used for directing air into the respective ends of each cylinder so that when the valve is shifted by pressure on the treadle 26, air will be directed simultaneously to the outer ends of all of the cylinders so that the pistons 21 will be simultaneously pushed inwardly toward the center of the table whereas, when the valve is returned

to normal position, air under pressure will be directed into the inner ends of the cylinders 20 so as to push the piston 21 outwardly simultaneously. The structure of the valve can be of any suitable type and as the valve constitutes no part of the present invention, considered per se, it is not thought that a detailed illustration or description thereof is essential. It need only be stated that the tubes for supplying air to the respective ends of the cylinders are preferably in the form of air hose which can be detached or connected easily. It may also be added that those pipes leading to the outer ends of the cylinders are formed with valves 28 by which the flow of air to the cylinders can be retarded or advanced as desired. This is due to the fact that some of the cylinders are more remote from the controlling valve 25 than are others. As it is desirable to have all of the pistons 21 shifted simultaneously, those cylinders remote from the controlling valve 25 have their valves 28 opened a greater distance than are the valves of the remaining cylinders. By this adjustment simultaneous actuation of the pistons can be effected. A block 29 is fixedly secured to the table and has a rod 30 extending upwardly therefrom.

A sleeve 31 is slidably and rotatably mounted on the rod and this sleeve has an arm extending radially therefrom as shown at 32. The block is located close to the opening in the table top 4, as shown in Figure 2 and that portion of the arm remote from the sleeve 31 has a presser foot 33 connected thereto by a screw 34 extending upwardly into the arm. This presser foot is so located that when the arm 32 is in position over the standard 3, the presser foot 33 can be positioned with its screw 34 coaxial with the standard.

Rod 30 has transverse notches formed therein to produce a longitudinal series of ratchet teeth 35 and pivotally mounted in the sleeve 31 is a dog 36 held normally in engagement with the toothed portion of the rod by means of a spring 37. The dog has a handle 38 projecting therefrom by means of which it can be shifted against the action of spring 37 so as to become disengaged from the teeth.

Obviously by swinging arm 32 around the post 35, the jaws can be moved out of engagement with the teeth. When the arm is in position to hold the presser foot 33 in clamping position, however, the dog 36 will engage one of the teeth and by pushing downwardly on the arm 32, this dog will slip over the teeth until the arm is brought into proper position to assure a clamping action as hereinafter explained.

In using this clamp, the number of slides 15 employed is equal to the number of legs on the table to be assembled. If the table has four legs, four brackets 15 will be used. If the table has three legs only three of these brackets will be used. Supplemental openings 39 are provided in the table top 4 so that the brackets can be placed in proper positions where only three legs are used, these openings being adapted to receive the tightening bolts 14.

The blocks or clamping shoes 23 are placed in the pocket 19 after their gripping faces have been shaped to coincide with the contours of those surfaces to be engaged thereby. The legs L of a table are placed on the post or pedestal P, being held loosely thereto by the usual dowels D, it being understood of course that glue is placed on those faces of the table which are to be brought together. Following this assembly of the parts, the post is inserted downwardly into the standard 3 so that its lower end will engage and be centered by the conical cup 10. The arm 32 is then brought into position over the post and moved downwardly along rod 35, it being held against retrograde movement by the dog 36 engaging one of the teeth 35. The presser foot 33 is adjusted downwardly against the center of the post P and the legs L are brought to position where they will be engaged ultimately by the blocks 23. Immediately thereafter the valve 25 is operated so that air will be directed under pressure into the outer ends of all of the cylinders 20 simultaneously. This will result in simultaneous actuation of the pistons 21 and the slides 15 will be moved inwardly toward each other, causing the blocks 23 to engage the legs L and clamp them firmly against the post. By providing the overlying arm 32 there is no danger of these blocks 23 crowding the legs L upwardly and causing the center post to become displaced. Instead the center post will be tightly gripped during the leg clamping operation and by a quick movement of the valve an application of air the entire assembly can be completed, the assembled parts removed thereafter by reversing the movement of the pistons, and a new assembly of parts are inserted ready for the clamping action.

It has been found in practice that a machine such as herein described, greatly expedites the completion of tables of the Duncan Phyfe type and is advantageous also because all of the parts are held against displacement during the clamping action and are readily centered. Obviously should the operator fail to have the upper end of the post P properly centered, the action of the clamping blocks on the legs will bring the post to a center.

What is claimed is:

1. A table clamp including a hollow standard, a table top supported thereby and having an opening registering with the standard, a post centering device in the standard, holding means on the table for overlying and engaging a centered post, and means on the table and movable radially thereof for clamping a leg against a side of the held post.

2. The combination with a table, a plurality of radially movable leg clamps thereon, and means for simultaneously shifting the clamps toward each other, of a post-receiving standard supporting the table, and cooperating means in the standard and on the table, for engaging and holding the respective ends of a post projecting between the clamps.

3. The combination with a table, a plurality of radially movable leg clamps thereon, and means for simultaneously shifting the clamps toward each other, of a post-receiving standard supporting the table, and cooperating means in the standard and on the table, for engaging and holding the respective ends of a post projecting between the clamps, said means including a tapered centering cup in the standard.

4. The combination with a table, a plurality of radially movable leg clamps thereon, and means for simultaneously shifting the clamps toward each other, of a post-receiving standard supporting the table, and cooperating means in the standard and on the table, for engaging and holding the respective ends of a post projecting between the clamps, said means including a tapered centering cup in the standard, and means for adjustably supporting the cup.

5. The combination with a post-receiving standard, a table thereon and means in the standard for centering a post and supporting its upper end above the table, of radially movable slides on the table, clamping shoes removably mounted in the slides, means for simultaneously moving the shoes toward each other to bind interposed legs against the supported post, and means for engaging the upper end of the post to hold it against upward displacement.

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