Jan. 16, 1962 P. W. R. JOHNSON 3,017,231

WORK BENCH SYSTEM WITH QUICK-DISCONNECT LEGS

Filed Jan. 12, 1959 2 Sheets-Sheet 1

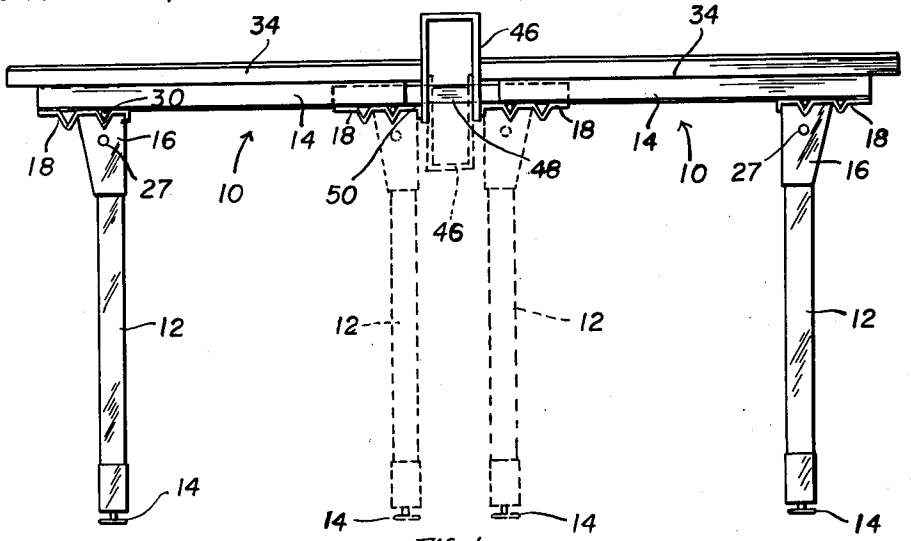

FIG. 1

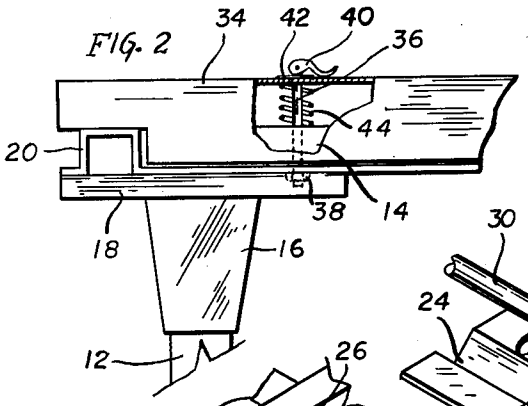

FIG. 2

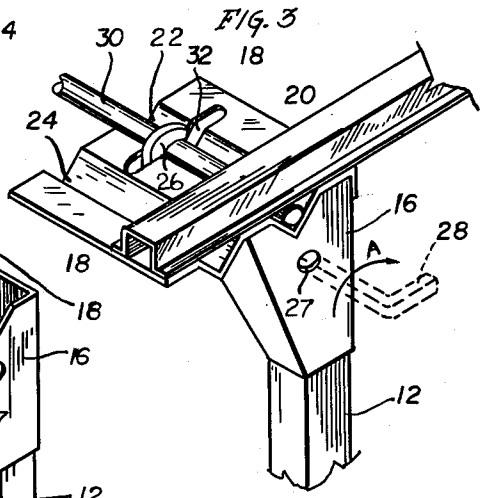

FIG. 3

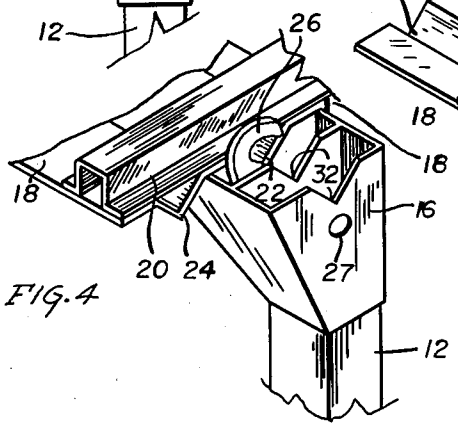

FIG. 4

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WORK BENCH SYSTEM WITH QUICK-DISCONNECT LEGS

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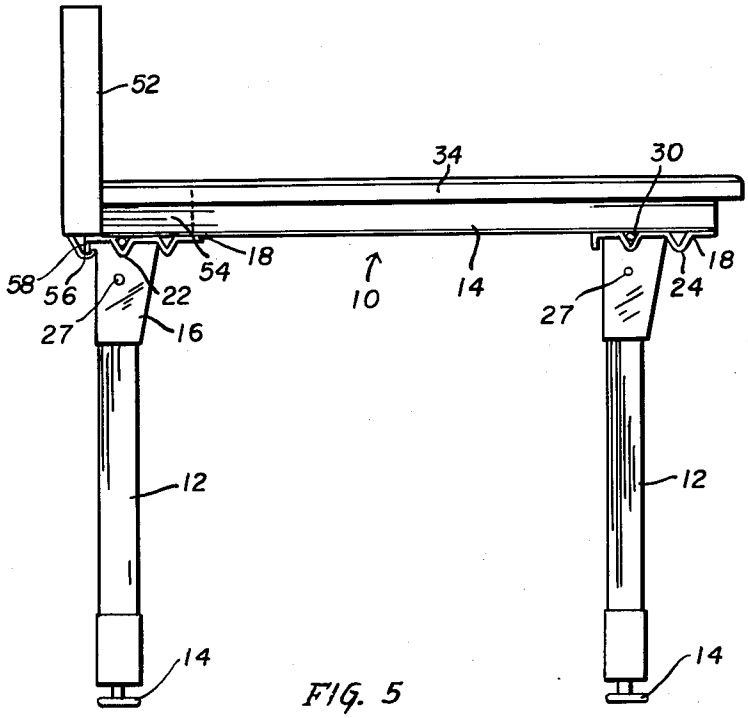

FIG. 5

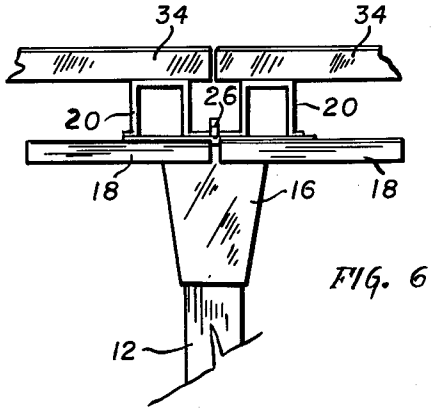

FIG. 6

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WORK BENCH SYSTEM WITH QUICK-DISCONNECT LEGS

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4 Claims. (Cl. 311—110)

This invention relates to a work bench system and more particularly to a work bench frame and leg arrangement whereby additional bench units may be added or deleted at will.

An object of the present invention is to provide a leg structure incorporating means for easily, rapidly and positively connecting and detaching a leg to a frame support for the work top without the use of nuts, bolts, or screws and the like.

Another object of the present invention is the incorporation of a service panel between back-to-back work bench units, the structure of which contemplates the elimination of the rear set of legs in both work bench units, the service panel functioning as a common shelf and service duct. In addition, the present work bench system may be arranged in a single line.

A further object of the present invention is to provide service panels that may extend upwardly and function additionally as stanchions for light supports or as shelves, or may extend downwardly in the rear of the work bench units for enclosing wiring and piping.

Another object of the present invention is to provide a work bench system in which the work bench units may be joined by inserts, making the arrangement easily separable.

In addtion, all the components of the work bench system are interchangeable.

Still another object of the present invention is to provide a simplified clamp for removably securing the work bench top to the work bench frame structure.

Another object of the present invention is the utilization of common latch rods in order to simply and rapidly connect adjoining work bench frames automatically into a multiple unit construction.

Another object of the present invention is to permit automatic alignment of side-by-side bench units as well as automatically adjusting the height of adjacent bench units to be uniform.

A further object of the present invention is to provide a work bench system which incorporates quick-change work tops, a rigid frame and leg assembly which eliminates the necessity for sway braces in the construction, and a general design which permits flexibility in bench arrangement.

The above and other features, objects and advantages of the present invention will be fully understood from the following description considered in connection with the accompanying illustrative drawings.

FIG. 1 is a side elevation view of a back-to-back work bench system constructed in accordance with the teachings of my invention,

FIG. 2 is a partial side elevation view of my bench unit together with the device for securing the work bench top to the frame,

FIG. 3 is a partial perspective view of the leg, leg seat and frame asembly and cam lock contructed in accordance with my invention,

FIG. 4 is another partial perspective view similar to FIG. 3 in which the leg serves as a common leg for side-by-side work bench units,

FIG. 5 is a side elevation view of a work bench unit provided with a novel back plate service duct and,

FIG. 6 is a partial side-elevation view thereof in an

arrangement similar to FIG. 4 in which there is illustrated a common leg for side-by-side work bench units.

Referring now to the drawings, the work bench system constructed in accordance with the present invention comprises bench units referred to generally by the numeral **10** and having legs **12** selectively supporting a frame **14** which is preferably rectangular in shape. An illustration of a work bench supporting frame similar to the type herein contemplated is disclosed in my copending patent application, U.S. Serial No. 713,260 filed on February 4, 1958, and now U.S. Patent No. 2,901,301 issued August 25, 1959. The legs **12** have floor-engaging feet **14** that are of the levelling type well known in the art. The upper end of each leg **12** is generally flared outward to a cone-shaped support **16** for the relatively flat leg seats **18** secured to the underside of the frame **14**, preferably at the four corners thereof. Leg seat **18** is clearly seen attached to a hat-shaped channel member **20** of the frame **14** and is provided with two elongated V-shaped grooves or troughs **22** and **24**. The grooves **22** and **24** in the preferred embodiment of the invention extend the entire length of the leg seat **18**. Although only one groove **22** is necessary in the leg seat **18**, the additional groove **24** in the leg seat increases the rigidity of the structure. The cone-shaped support **16** is provided with a hook-shaped cam lock element **26** which can be turned from the unlocked position shown in FIG. 4 to the locked position illustrated in FIG. 5 by inserting the hole **27** of the support **16** a hex wrench **28** shown in dotted lines and rotating the same in the direction of the arrow A. The locking of the leg seat **18** and its frame **14** to a leg **12** is accomplished as shown in FIG. 3 by inserting a bar or latch rod **30** in groove **22** of the leg seat **18**. Thus, the leg seat and its attached frame are drawn together in an extremely sturdy assembly by the cam lock **26** gripping bar **30** which eliminates the need for sway braces of any other supporting or reinforcing structure. However, the legs **12** may be rapidly and easily detached from the frame **14** resulting in an easily transportable "knocked down' arrangement. It should be noted that the seating of leg seat **18** on cone-shaped support **16** is positive due to the fact that the upstanding walls of the support are indented with V notches **32** which are complementary with the V-shaped groove **22** of leg seat **18**. The cam lock element **28** may be inserted through opening **32** in order to lock the leg **12** to frame **14** in the situation where a four-corner leg support of the frame is desired as illustrated in FIG. 3. However, if it is desired to use a common leg **12** for two adjoining sid-by-side frame units **14** as seen in FIG. 4 and 6 the cam lock **26** is projected between two adjacent hat-shaped channel members **20**. Of course, a bar **30** is inserted in the aligned grooves **22** of the adjoining frame units together on the common supporting leg.

A manual means for rapidly and easily securing a work bench top **34** to its corresponding frame unit **14** is shown in FIG. 2 and includes a stud **36** affixed preferably by means of a threaded nut **38** to the leg seat **18**. Pivoted to the top of stud **36** is a lever arm **40**, while adjacent to the top of the stud is a collar member **42**. A compression spring **44** surrounds the stud **38** and is contained in the interior of the work bench top **34**. The lever arm **40** may be pivoted to secure and release the work bench top **34** from the frame **14**. The means for securing the work bench top **34** to frame unit **14** is adjustable for different thickness of work bench tops by screwing in or out the stud **36** in nut **38** thereby effectively lengthening or shortening the stud **36**.

A back-to-back bench arrangement is shown in FIG. 1. In this arrangement, the rear legs **12** drawn in dotted lines may be eliminated since the bench structure is adequate-

ly rigid without median or middle legs. This arrangement, of course, reduces the overall cost of the assembly as well as results in better house-keeping possibilities. A service duct between the back-to-back bench units may take a variety of forms. One form may be an inverted U-shaped channel 46 which also may be turned around in an opposite position as shown in dotted lines in FIG. 1. The U-shaped channel service duct 46 may be removably affixed to back-to-back bench units by means of a connecting channel section 48 which is of the appropriate dimension and configuration to slidably fit in hat-shaped channel members 20 and through rectangular shaped openings 50 in the U-shaped channel service duct 46. Piping and wiring may then be drawn through duct 46 and appropriate power and service outlets (not shown) placed where desired along the service panel. It should be apparent that, if necessary, stanchions (not shown) may extend vertically from the service duct 46 in order to provide lighting fixtures for each work-bench station, or shelves.

An L-shaped service duct 52 for a work bench unit as shown in FIG. 5, has a part 54 which is insertable into the hat-sharped channel element 20 of the frame 14 and a catch 56 which hooks over a depending flange 58 of a leg seat 18. In this manner, the service duct 52 may be easily and rapidly inserted in and withdrawn from the frame of the work bench unit.

While I have shown and described the preferred embodiment of my invention, it will be understood that the latter may be embodied otherwise than as herein specifically illustrated or described and that in the illustrated embodiment certain changes in the details of construction and in the arrangement of parts may be made without departing from the underlying idea or principle of the invention within the scope of the appended claims.

What I claim is:

1. A work bench frame structure comprising a frame, a plurality of leg seats secured at selected locations on the underside of said frame, each leg seat having a longitudinal groove therein, an element in said groove, a plurality of legs corresponding to the number of leg seats, a pivotally mounted cam in the top of said leg adjacent to said frame for releasably engaging said element in said groove to thereby securely fasten said leg to said frame.

2. A work bench frame structure comprising a frame, a plurality of leg seats secured at selected locations on the underside of said frame, each seat having a longitudinal V-shaped groove therein, a rod in said groove, a plurality of legs corresponding to the number of leg seats, a pivotally mounted hook-shaped cam in said leg adjacent to said frame for releasably engaging said rod in said groove to thereby securely fasten said leg to said frame.

3. A work bench frame structure comprising a frame, a plurality of leg seats secured at selected locations on the underside of said frame, each seat having a longitudinal V-shaped trough therein, a rod in said trough, a plurality of legs corresponding to the number of leg seats, a pivotally mounted hook-shaped cam in said leg adjacent to said frame for releasably engaging said rod in said trough to thereby securely fas.en said leg to said frame, and each of said legs having a flared top portion provided with V-shaped grooves therein complementary to and receiving the V-shaped trough of said adjacent leg seat.

4. A work bench frame structure comprising a frame, a plurality of leg seats secured at selected locations on the underside of said frame, each leg seat being a relatively flat plate provided with an elongated trough therein, an element in said trough, a plurality of legs corresponding to the number of leg seats, a pivotally mounted cam in the top of each of said legs adjacent to said frame, and an opening in said trough for the insertion therethrough of said cam for releasably engaging said element in said trough to thereby securely fasten said leg to said frame.

References Cited in the file of this patent

UNITED STATES PATENTS

1,689,645	Turk	Oct. 30, 1928
1,784,726	Hallowell	Dec. 9, 1930
1,797,717	Coates	Mar. 24, 1931
2,596,663	Duffy	May 13, 1952
2,597,166	Murry	May 20, 1952
2,605,150	Cohen	July 29, 1952
2,609,264	Poe	Sept. 2, 1952
2,643,927	Molla	June 30, 1953
2,694,609	Trafford	Nov. 16, 1954
2,731,316	Cohen	Jan. 17, 1956
2,799,549	Luxford	July 16, 1957