June 26, 1934. W. A. ADAMS 1,963,948

WORKBENCH

Filed Jan. 21, 1933 3 Sheets-Sheet 1

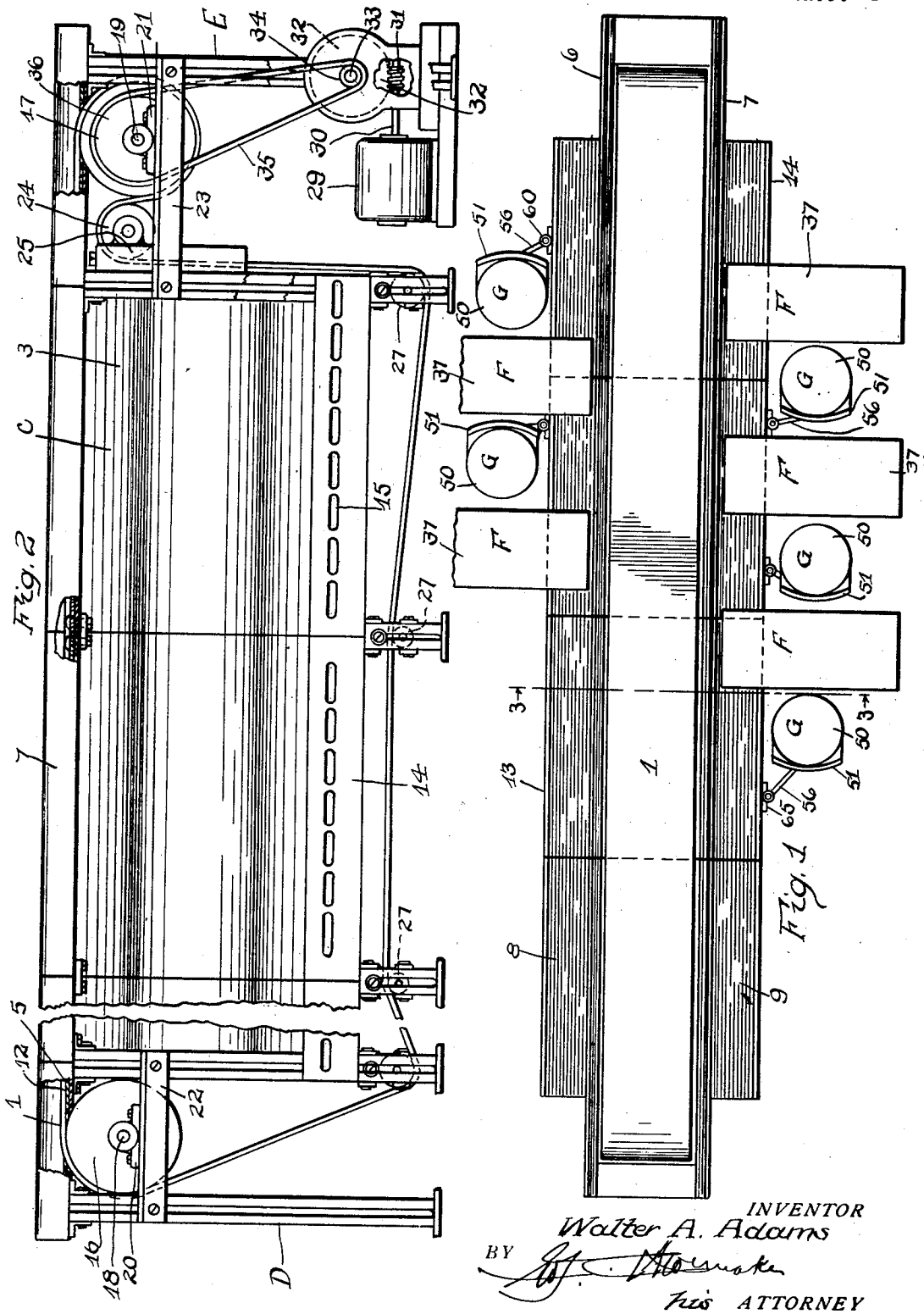


Fig. 2

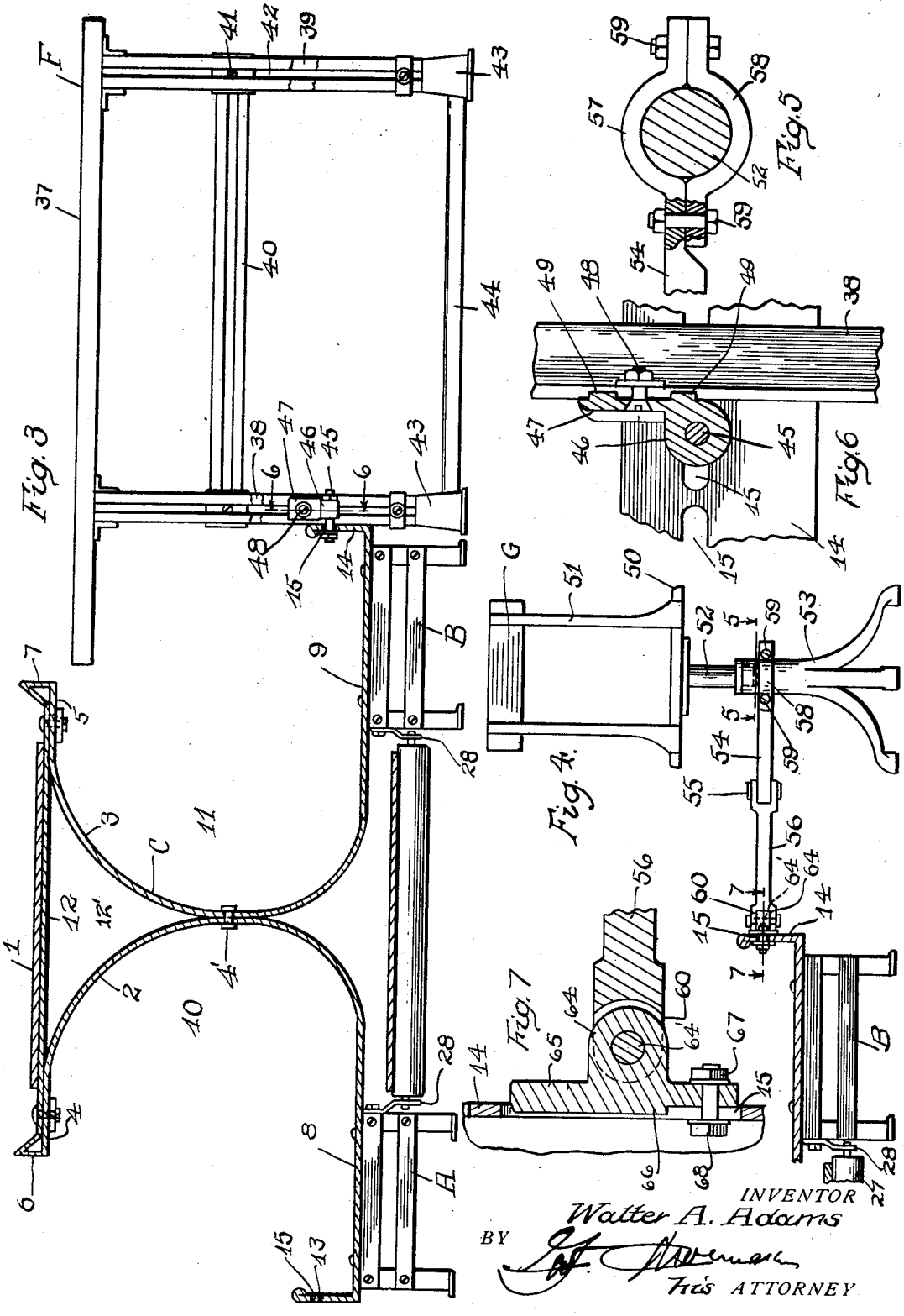
Fig. 1

INVENTOR
Walter A. Adams
BY
his ATTORNEY

June 26, 1934. W. A. ADAMS 1,963,948

WORKBENCH

Filed Jan. 21, 1933 3 Sheets-Sheet 2



June 26, 1934. W. A. ADAMS 1,963,948

WORKBENCH

Filed Jan. 21, 1933 3 Sheets-Sheet 3

Fig. 8

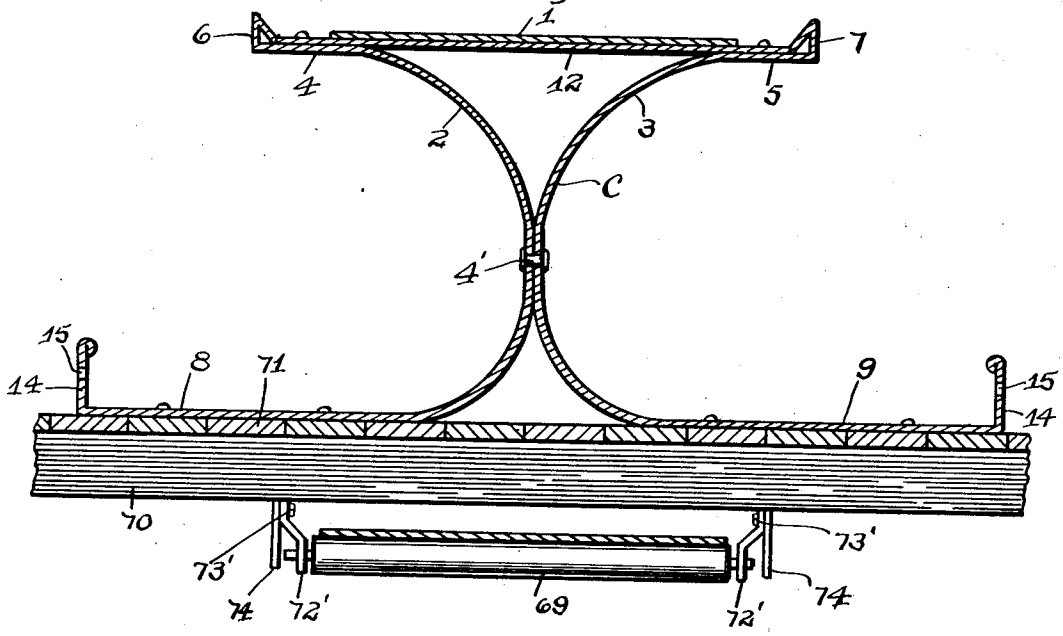
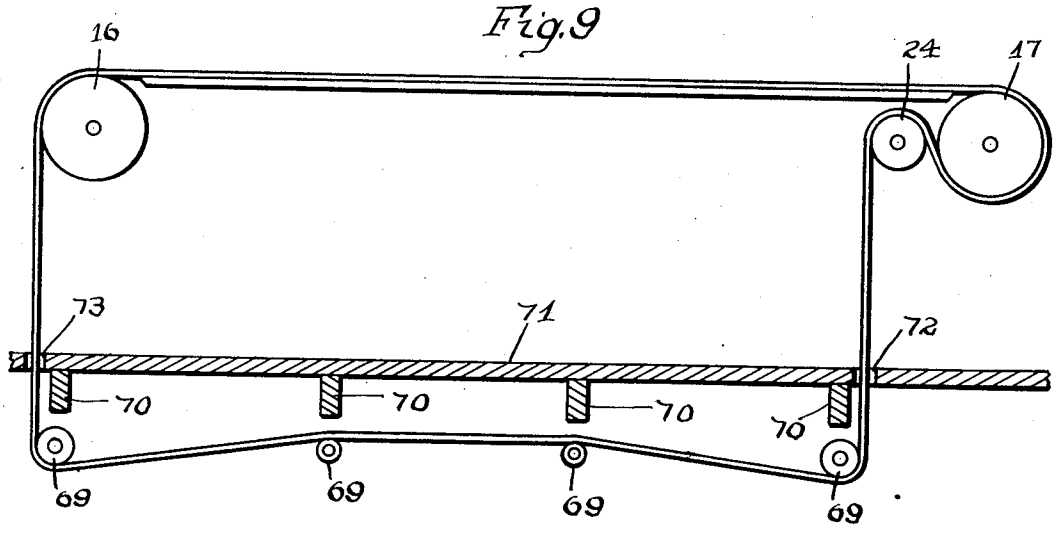


Fig. 9



INVENTOR

Walter A. Adams

BY

his ATTORNEY

Patented June 26, 1934 1,963,948

UNITED STATES PATENT OFFICE

1,963,948

WORKBENCH

Walter A. Adams, Rochester, N. Y.

Application January 21, 1933, Serial No. 652,908

17 Claims. (Cl. 198—19)

This invention relates to work benches.

One object of the present invention resides in the provision of factory equipment, including a work bench, in which provision is made for the temporary storage of work and which stored work is readily accessible due to unobstructed access thereto by the operatives from their place of work at the bench.

Another object of the invention is to provide a compact equipment of the nature stated, embodying among other characteristics, a work bench including a traveling conveyor on which clothing or other fabrics, shoes or other articles may be conveyed from one end of the work bench to the other and in which provision is made in the work bench for the temporary support of goods or articles to be worked upon and to which access may be readily had by operatives at their work positions adjacent the bench.

It is still further designed to provide a substantial fire resisting structure comparatively inexpensive, durable and efficient in operation and which is constructed of sections whereby to provide for ready assembling of the various parts to expedite installation and expansion and which may be quickly and readily disassembled for shipping, storing or other purposes.

It is still further designed to provide a work bench constructed and arranged whereby to provide for a work supporting surface and also to provide in the side of the structure a continuous unobstructed, outwardly opening recess with its bottom wall extending laterally beyond the first mentioned article supporting surface to constitute a relatively broad supporting surface for articles in said recess.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a top plan view of one embodiment of the invention in more or less diagrammatic outline.

Figure 2 is a side elevation, parts being broken away.

Figure 3 is a transverse sectional view on the line 3—3 of Figure 1.

Figure 4 is a detail fragmentary view showing particularly one means of connecting the chair.

Figure 5 is a detail sectional view on the line 5—5 of Figure 4.

Figure 6 is an enlarged detail sectional view on the line 6—6 of Figure 3.

Figure 7 is an enlarged detail horizontal sectional view on the line 7—7 of Figure 4.

Figure 8 is a sectional view of a modified form of the invention.

Figure 9 is a diagrammatic side view of the modification illustrated in Figure 8.

Referring now more particularly to the accompanying drawings, the reference characters A and B illustrate supporting bases of size and dimensions depending upon the requirements of installation. In some installations these bases A and B are not employed at all, as will be apparent as we proceed further with this specification.

The reference character C indicates a supporting means between the aforesaid supporting members A and B and an endless conveyor belt 1. The supporting means C is made up of a plurality of longitudinally abutting sections, and each section may, for purposes of illustration, consist of two reversely curved members 2 and 3, and, if desired, these members 2 and 3 may be formed of sheet metal or any other suitable material. When these members 2 and 3 are placed together they have their intermediate upright portions secured together in any suitable manner, as for instance, by means of suitable rivets, bolts or other fastenings 4'.

From the intermediate portions these members C extend upwardly in reverse or in substantially diverging relation and terminate in oppositely disposed substantially horizontal portions 4 and 5 and at their edges provided with suitable retaining flanges 6 and 7, respectively.

From the intermediate portions of the members C they extend downwardly in a somewhat diverging relation and are directed laterally outwardly from each other to provide relatively broad work supporting portions 8 and 9, respectively. In other words, there is preferably disposed between the aforesaid bases A and B or the floor of a building, as will be later described, and the upper lap of the endless conveyor 1, oppositely disposed transversely reversely curved members, each including an intermediate portion and an upper portion which need not be necessarily disposed in a horizontal plane, as previously stated, and a lower work supporting portion of a width greater than the width of the upper portions 5. These members C are substan-

tially C-shaped in cross section and they are constructed and arranged as illustrated and described to provide oppositely disposed longitudinal outwardly opening unobstructed recesses 10 and 11 of a character to permit unobstructed access to the oppositely disposed work supporting surfaces 8 and 9 from one or both sides of the work bench.

A plate 12 is supported upon the upper portions of the members C and secured directly upon the substantially horizontally extending portions 4 and 5 if the latter be employed, but in any event, the plates 12 are supported upon the C-shaped members for the purpose of preventing sagging of the upper lap of the conveyor belt 1. These plates 12 are preferably of a length substantially the same as the length of the members C in harmony with the building up of the structure in sections but, of course, the lengths of the plates 12 may be varied, as desired.

The work supporting portions 8 and 9 of the members C extend laterally on opposite sides of the work bench beyond the upper ends of the members C, with the result that the recesses 10 and 11 open not only outwardly horizontally but also upwardly to facilitate access to the recess to deposit or remove work therefrom and it is preferable to provide the outer longitudinal edges of the work supporting portions 8 and 9 with upstanding retaining flanges 13 and 14, respectively, provided with a plurality of spaced slots 15 or otherwise to provide the same with means to effect certain adjustments to be hereinafter referred to.

The members C constitute the intermediate sections for the support of the upper lap of the conveyor 1. End sections D and E of any suitable character are disposed, the former at the charging end of the conveyor or bench and the latter at the discharging end of the conveyor or bench and the endless conveyor belt 1 operates over the upper rollers 16 and 17 journaled at 18 and 19, respectively, in suitable bearings 20 and 21 secured in any suitable manner on the cross pieces 22 and 23, respectively, of the end frames D and E, the belt continuing from the roller 16 over the roller 17 and partially around the latter and over a common belt takeup 25 including a pulley 24 and secured to the frame E and the belt thence passes downwardly and over a plurality of rollers 27 journaled at their ends in suitable brackets 28 secured in any suitable manner to the bases A and B and passing thence upwardly to the roller 16 at the charging end of the equipment.

The conveyor belt 1 is operated in any suitable manner, preferably by an electric motor 29 mounted upon a suitable base. The motor has its drive shaft 30 provided with a worm 31 which meshes with a worm gear 32, keyed on the shaft 33 journaled in any suitable manner in the frame E. This shaft 33 may be otherwise journaled in any suitable supporting means, but in any event, a pulley 34 is keyed on the shaft 33 adjacent said worm gear 32 to receive one end of the endless drive belt 35 operatively connected at its other end with a pulley 36 keyed to the aforesaid shaft 19 and located adjacent the aforesaid roller 17 whereby to drive the shaft 19 and thereby cause the conveyor belt 1 to travel over the rollers, as aforesaid. Any other suitable driving means may be substituted for the driving belt shown and the speed of the drive may be controlled in any well known manner.

Tables F extend in spaced relation laterally from the work bench. These tables may be composed of metal or any other suitable material and each includes a top 37 and pairs of inner and outer legs 38 and 39, respectively, formed of spaced channel irons or otherwise, and the inner and outer legs may be connected by the adjustable braces 40 by bolts 41 in the slots 42 of the legs. These legs 38 and 39, no matter how formed, are preferably secured in sockets of feet 43 connected by the cross pieces 44. The tables are preferably formed alike and they are preferably rigidly or fixedly connected to opposite sides of the work support or other part of the equipment and in any event, they are preferably fixed with relation to the work bench. In the present instance, the flanges 13 and 14 of the work supporting surfaces are each provided with the aforesaid slots 15 adapted to receive the bolts 45, passed through eyes 46 in lugs 47, secured by a bolt 48 or otherwise to the inner pair of legs 38 of the respective tables F. The lugs 47 each preferably carry ribs 49 on its rear face to fit in the respective slot 42 to prevent turning of the lugs in the event of loosening of the securing nuts on the bolts 45. Thus, the tables are firmly connected, in one aspect of the invention, to the equipment, and they may be adjusted longitudinally along the framework of the bench and may be arranged different distances apart without encountering any obstruction to the handling of work between the tables and the work supporting recesses and according to work or requirements and they may be readily connected up with the framework or disconnected therefrom for shipping or for storing or other purposes.

Chairs G for operatives are located between the tables in such a manner as to be shifted from one position to another within the space between the tables F and yet be maintained between the work bench and the outer ends of the tables so as to be restrained from being forced or pushed outwardly beyond the outer ends of the tables into an aisle, which would be objectionable in the event that this equipment be located in a narrow room or in the event that there be a plurality of work benches located in parallelism in a room or building with just sufficient space between the benches and the walls to provide the necessary widths to aisles. One of the essential objects of the present invention is to keep chairs used by operatives out of the aisles and one way in which the chairs G may be thus restrained is to provide each chair with a restraining means.

Each chair includes a seat portion 50 and a back 51 and the chair is preferably of swivel type having a pedestal 52 and mounted upon a base 53.

An arm 54 is pivotally connected at 55 to an arm 56 and it is also loosely secured to the pedestal 52 in any suitable manner, as by means of clamps consisting of a member 57 carried by the arm 54 and cooperating with a clamping member 58 to loosely embrace the pedestal 52 and secured by the bolts 59. The arm 56 of each connection 54—56 has its outer end bifurcated to provide spaced ears 60 adapted to pivotally embrace a projection 64 extending from a plate 65, the pivot being shown at 64'. The plate 65 has a rearwardly directed rib 66 extending into one of the aforesaid slots 15 of the respective side flanges 13—14 of the work supports to prevent turning of said plate in the event of loosening of the nuts 67 of the bolts 68 which pass through

each of said plates and the corresponding flange at the respective side of the work support. Thus the chairs are in fact flexibly connected for various movements between the tables and positively confined in the space between the tables for the purposes hereinbefore stated and the chairs or other seating means may be swung on their swivels to have their backs arranged so that the operatives may take work from or place work on the traveling work bench from the left or right side, as may be preferable or desired.

In Figures 8 and 9 there is shown more or less diagrammatically a modified form of the invention as regards the mounting of the lower endless belt rollers and otherwise the structure is the same as that hereinbefore described. In this modified structure the lower rollers 69 for the endless conveyor are suspended from the ceiling beam or rafter 70 immediately beneath the floor 71 on which the equipment is mounted and directly upon which the outwardly opening recesses, aforesaid, have their lower walls directly mounted. Openings 72 and 73 are formed in the floor through the ceiling to permit the laps of the endless belt 1 to pass to and from the aforesaid rollers 16, 17, 24, and 69, and which rollers 69 are journaled in bearing brackets 72' secured by suitable fastenings 73' to the hangers 74 suspended from the ceiling beams 70. It is believed that as the only difference between this modified form of the invention and the form first described resides in passing the belt conveyor through openings in the floor to spacers below the floor rather than have the lower rollers mounted directly on the framework structure, that the illustration of Figures 8 and 9 and this description is sufficient for an understanding of the modified form of the invention.

From the foregoing it will be understood that the work bench structure is built up in sections and it is also to be understood that the intermediate sections may be the same in length or that they may vary in length and that the work bench may be of any suitable length, according to demands. As stated hereinbefore, any suitable type of end sections may be employed and secured to the adjacent intermediate sections in any suitable manner, the intermediate sections being bolted or otherwise removably secured together for permanency in the matter of structure.

It will also be understood that the tables may be spaced different distances apart and that they are adjustably tied to the work bench structure and that the chairs arranged between the tables are tied in position between the tables and adjustable and movable to various positions between the tables for the comfort or needs of the operatives.

It will also be understood that the clothing, fabrics or other articles to be worked upon are placed on the conveyor belt at the front or charging end of the traveling work bench and conveyed to and beyond any point therebetween and the discharge end of the traveling work bench, eliminating the use of trucks in the room or building.

The entire structure with the possible exception of the traveling endless belt is composed preferably of metal or other fire resisting material and tied together for the purpose of reducing fire and other hazards.

It will be understood that by virtue of the peculiar formation of the connected reversely curved sections C that there is formed a continuous passage 12' extending from end to end of the bench between the end sections D and E which may be utilized for various purposes, including the installation of electric wiring, air pipes, steam pipes, vacuum pipes et cetera (not shown).

What is claimed is:

1. In a work bench, the combination with a supporting means, of oppositely disposed transversely reversely curved members each including an intermediate curved portion and an upper horizontal portion and a lower horizontal work supporting portion of a width greater than the width of said upper horizontal portions and secured to said supporting means, the curved vertical intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions and said upper horizontal portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, a plate supported on said upper horizontal portions of said members, rollers journalled in said supporting means under said members, and an endless belt movable over said plate and said rollers to convey articles along the work bench.

2. In a work bench, the combination with a supporting means, of oppositely disposed transversely reversely curved members each including an intermediate curved portion and an upper horizontal portion and a lower horizontal work supporting portion of a width greater than the width of said upper horizontal portions and secured to said supporting means, the curved vertical intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions and said upper horizontal portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, rollers journaled in said supporting means, an endless belt having its upper lap movable above said upper horizontal portions of said reversely curved members with its lower lap movable over said rollers, and means to prevent sagging of the upper lap of the belt.

3. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and an endless belt having its upper lap movable over the bench above said upper substantially horizontal portions of said members.

4. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting

portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and an endless belt having its upper lap movable over the bench above said upper substantially horizontal portions of said members, said upper substantially horizontal portions each having a flange at its outer edge.

5. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and an endless belt having its upper lap movable over the bench above said upper substantially horizontal portions of said members, said work support portions each having an upstanding flange at its outer edge.

6. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and an endless belt having its upper lap movable over the bench above said upper substantially horizontal portions of said members, said work support portions each having an upstanding flange at its outer edge, and spaced tables detachably and adjustably connected to the said flanges of the work support portions.

7. In a work bench, the combination with a supporting means, of oppositely disposed transversely reversely curved members each including an intermediate curved portion and an upper horizontal portion and a lower horizontal work supporting portion of a width greater than the width of said upper horizontal portions and secured to said supporting means, the curved vertical intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions and said upper horizontal portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and means for conveying articles over the said upper substantially horizontal portions of said members.

8. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench, and means for conveying goods over the work bench above said intermediate portions of said members.

9. In a work bench, the combination with a supporting means, of oppositely disposed transversely curved members mounted on said supporting means and each including an intermediate curved portion and an upper substantially horizontal portion and a lower work supporting portion, the said curved intermediate portions of said members being connected together in reverse relation and located substantially intermediate the longitudinal edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses so as to permit unobstructed access to the oppositely disposed work supports from the sides of the work bench.

10. A work bench comprising oppositely disposed transversely curved members, each including an intermediate portion and upper and lower substantially horizontal portions, said intermediate portions of said members being connected together in reverse relation and being wider at their lower portions than the upper substantially horizontal portions and with the latter and the said intermediate portions forming oppositely disposed longitudinal, outwardly opening, unobstructed, continuous recesses at opposite sides of the work bench.

11. A work bench comprising oppositely disposed transversely curved members, each including an intermediate portion and upper and lower substantially horizontal portions, said intermediate portions of said members being connected together in reverse relation and being wider at their lower portions than the upper substantially horizontal portions and with the latter and the said intermediate portions forming oppositely disposed longitudinal, outwardly opening, unobstructed, continuous recesses at opposite sides of the work bench, and an endless belt operable above and below said members.

12. In a work bench, the combination with means for supporting articles to be worked upon, of a supporting means for the article supporting means, including a member formed to provide a continuous, longitudinal, outwardly and upwardly opening recess with the lower wall of the recess extending laterally beyond the first mentioned supporting means to constitute a relatively broad supporting surface for articles below the aforesaid article supporting means.

13. In a work bench, the combination with a movable conveyor belt, of means for supporting the conveyor belt including sections of sheet metal members abutted and secured in longitudinal alinement and formed to provide continuous, longitudinal, relatively deep, unobstructed and horizontally and upwardly opening

recesses on opposite sides of the work bench for the reception of work.

14. In a work bench, the combination with means for supporting articles to be worked upon, of a supporting means for the article supporting means, including a member formed to provide a continuous, longitudinal, relatively deep, outwardly and upwardly opening recess with the lower wall of the recess relatively broad to constitute a supporting surface for articles below the aforesaid article supporting means.

15. In a work bench, the combination with means for supporting articles to be worked upon, of a supporting means for the article supporting means, including a member formed to provide a continuous, longitudinal, relatively deep, outwardly and upwardly opening recess with the lower wall of the recess relatively broad to constitute a supporting surface for articles below the aforesaid article supporting means, and which has an upstanding retaining member at its outer longitudinal edge.

16. In a work bench, the combination with a supporting means, of oppositely disposed members mounted on said supporting means and each including an intermediate portion and an upper laterally directed portion and also a lower laterally directed work supporting portion, the said intermediate portions of said members being connected together in reverse relation and located substantially intermediate the edges of the horizontal work support portions whereby to provide oppositely disposed longitudinal outwardly opening unobstructed recesses accessible from the sides of the work bench.

17. In a work bench, the combination with means for supporting articles to be worked upon, of a supporting means for the article supporting means, including oppositely disposed transversely reversely curved members each including an intermediate curved portion and together forming an upper continuous passage open at its ends only and also including lower outwardly directed portions constituting oppositely disposed work supports.

WALTER A. ADAMS.