July 2, 1957 A. L. SHAVER 2,797,822

CARRIER FOR TOBACCO HARVESTER

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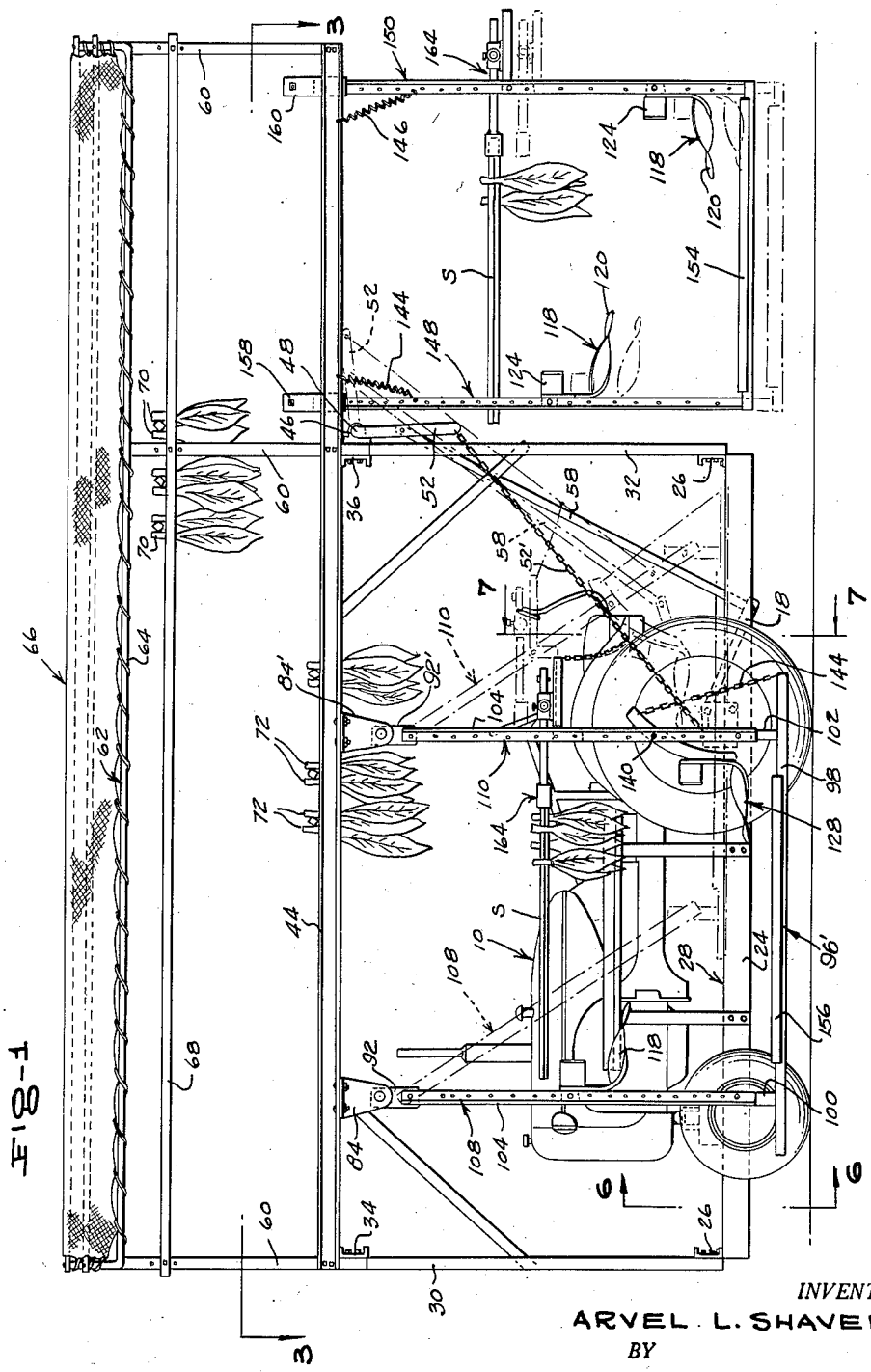


FIG. 1

INVENTOR.
ARVEL L. SHAVER
BY
McMorrow, Berman & Davidson
ATTORNEYS

July 2, 1957 A. L. SHAVER 2,797,822

CARRIER FOR TOBACCO HARVESTER

Filed Sept. 2, 1955 5 Sheets-Sheet 2

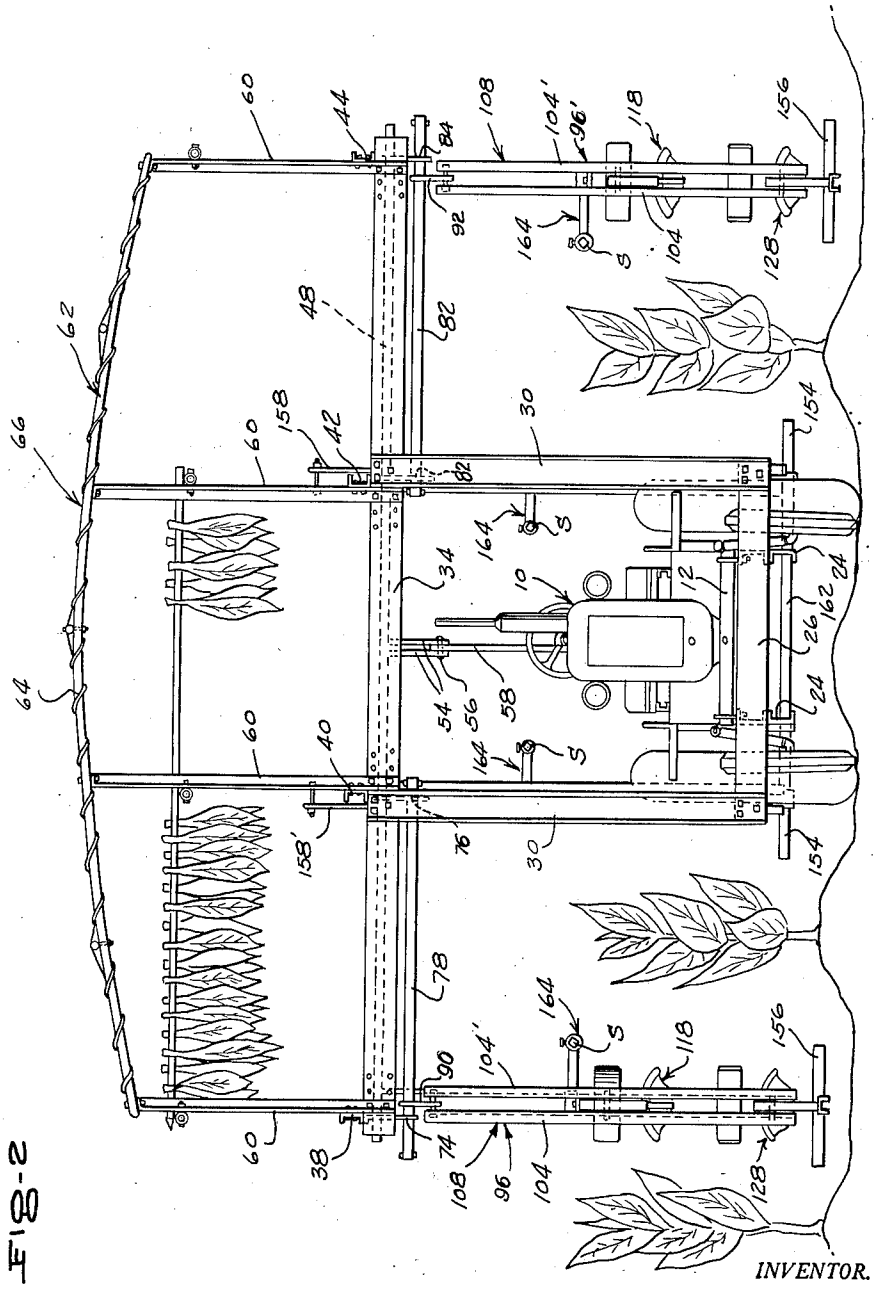


FIG-2

July 2, 1957 A. L. SHAVER 2,797,822

CARRIER FOR TOBACCO HARVESTER

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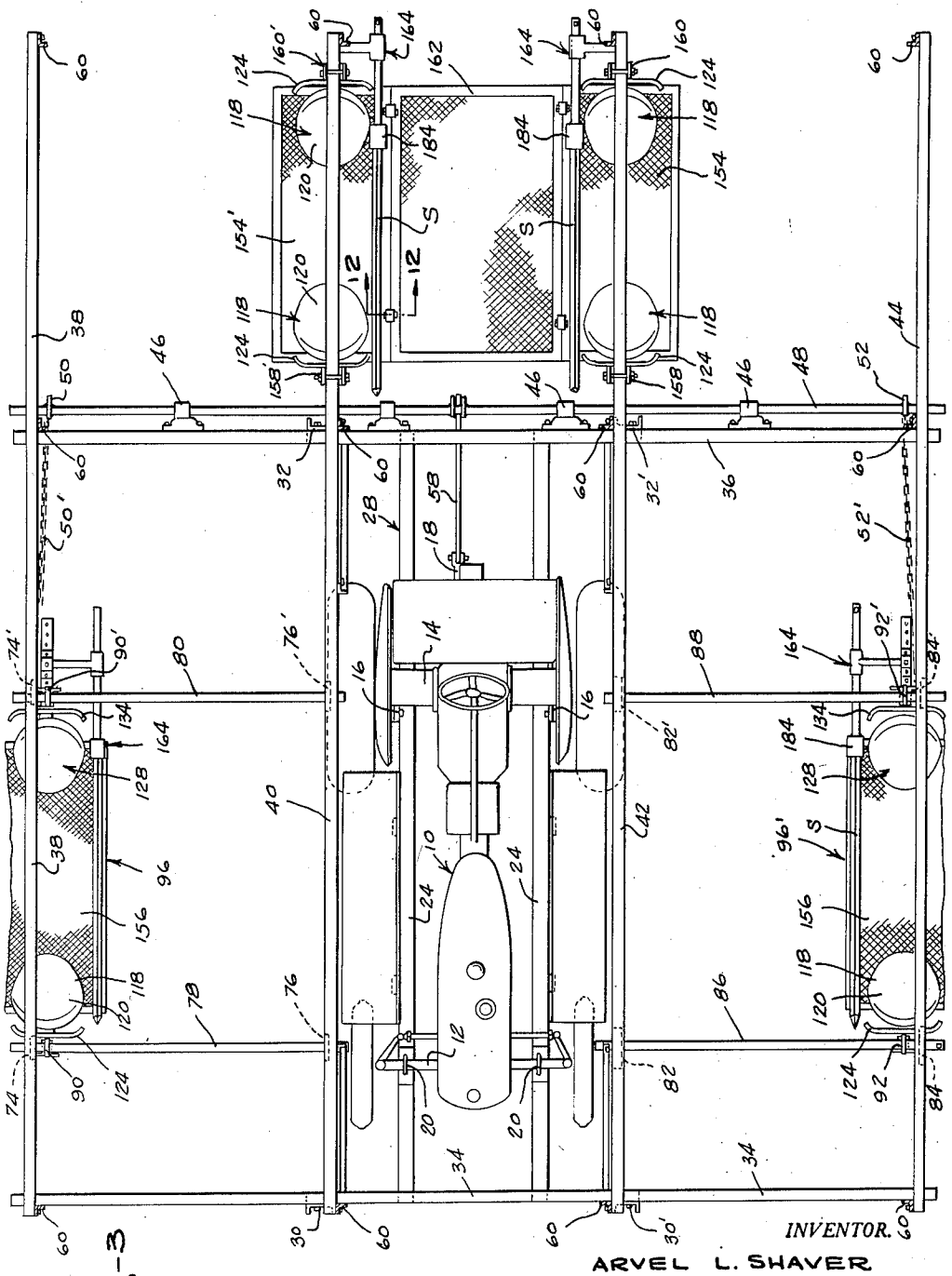


FIG-3

INVENTOR.
ARVEL L. SHAVER
BY
McMorrow, Berman & Davidson
ATTORNEYS

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CARRIER FOR TOBACCO HARVESTER

Filed Sept. 2, 1955 5 Sheets-Sheet 4

Fig-7

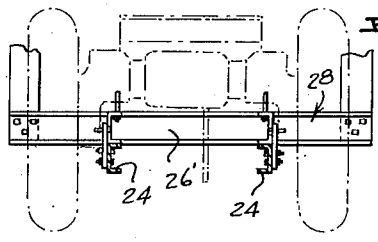


Fig-4

Fig-6

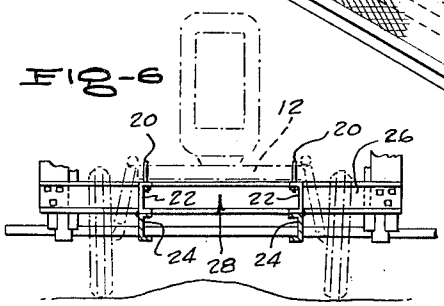
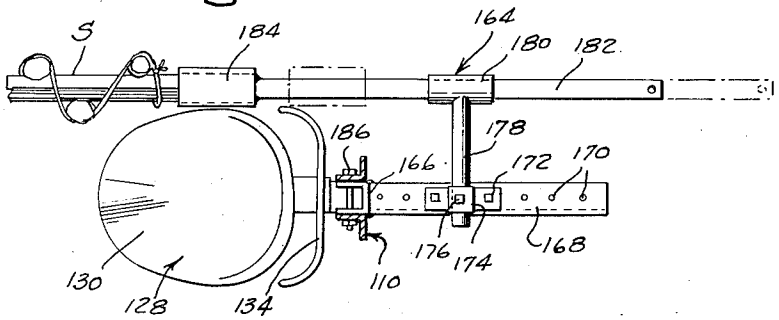


Fig-5



INVENTOR.

ARVEL L. SHAVER

BY

McMorrow, Berman & Davidson

ATTORNEYS

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CARRIER FOR TOBACCO HARVESTER

Filed Sept. 2, 1955 5 Sheets-Sheet 5

Fig-8

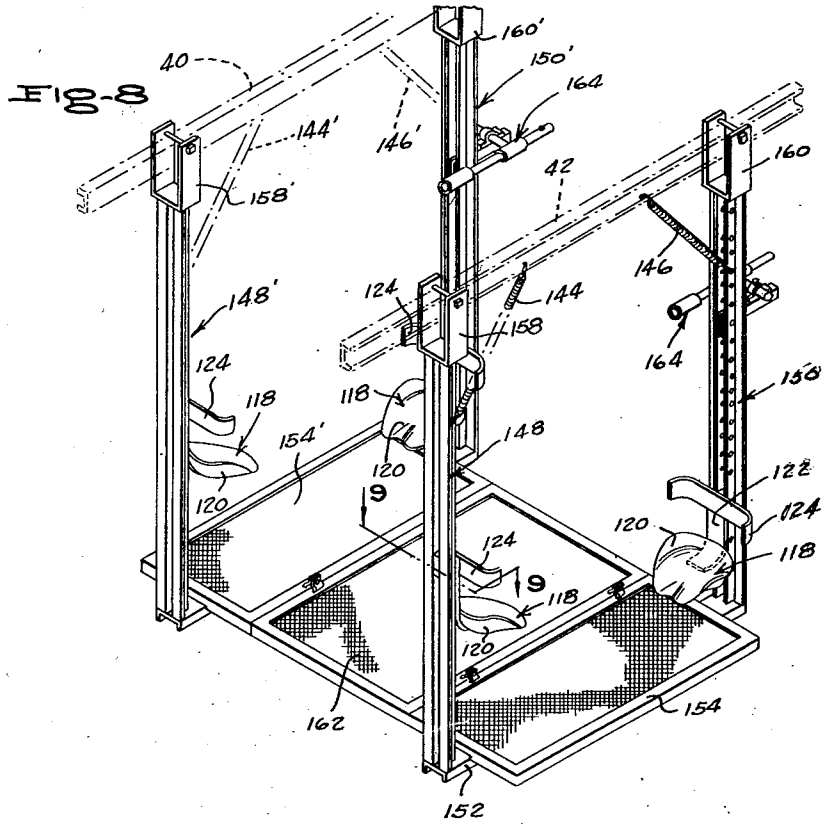


Fig-9

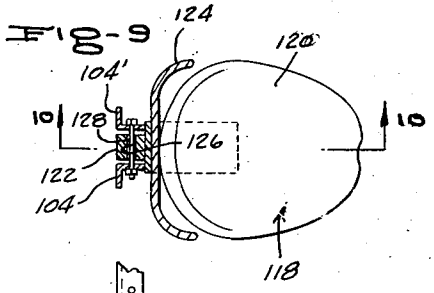


Fig-11

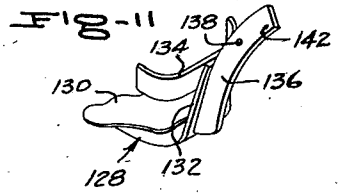


Fig-10

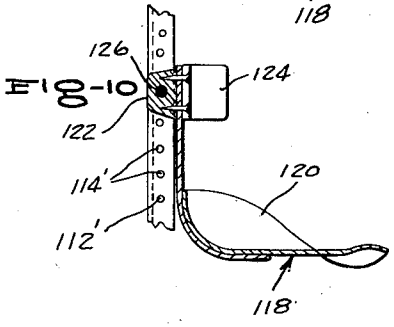
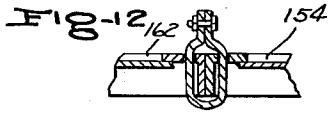


Fig-12



INVENTOR.

ARVEL L. SHAVER

BY

McMorrow, Berman + Davidson

ATTORNEYS

United States Patent Office

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CARRIER FOR TOBACCO HARVESTER

Arvel L. Shaver, Lumberton, N. C.

Application September 2, 1955, Serial No. 532,272

5 Claims. (Cl. 214—5.5)

This invention relates to a carrier for transporting groups of tobacco harvesters through fields of tobacco plants and has for its primary object to facilitate the rapid gathering of the tobacco leaves and the stringing of said leaves on sticks.

Another object is to facilitate the rapid attachment of the carrier onto a conventional farm tractor having a power lift.

A further object is to carry croppers, i. e., persons who strip the leaves from the tobacco stalk, close to the ground along rows of tobacco plants and to transport within easy reach of the croppers stringers, i. e., persons who tie the leaves together and place them on the tobacco sticks, so that a cropper may hand the leaves stripped from the plants to an adjacent stringer.

Still another object is to support the loaded tobacco sticks on the carrier so that the harvesting operation may be continued over an extended period of time.

A still further object is to improve the rapidity with which the picking of tobacco progresses and to eliminate the discomforts experienced by the pickers in conventional hand picking processes.

The above and other objects may be attained by employing this invention which embodies among its features a bed frame carried by a tractor and extending beyond opposite ends thereof, columns carried by the bed frame and extending vertically upwardly therefrom adjacent opposite ends thereof, cross beams carried by the columns and extending transversely across and beyond opposite sides of the bed frame in vertically spaced relation thereto, transversely spaced rails carried by the cross beams and extending parallel to the tractor above the top thereof on opposite sides of the bed frame, and crew supporting carriages carried by the rails and depending therefrom adjacent opposite sides of the tractor for supporting tobacco harvesting crews adjacent spaced rows of tobacco plants.

Other features include holders for tobacco sticks carried by the carriages and extending horizontally above the ground between the rows of tobacco plants.

Still other features include a canopy carried by the cross beams and extending therebetween in upwardly spaced relation thereto, and tobacco stick supporting bars carried by the cross beams beneath the canopy.

Further other features include a crank shaft carried by the rearmost cross beam for rocking movement about a transversely extending horizontal axis, a link connected to said crank shaft and to the power lift of the tractor for rocking said crank shaft, crank arms carried by the crank shaft and extending laterally outwardly therefrom adjacent opposite ends thereof, and flexible members connected to the rear end of each carriage and to the crank arms for elevating the carriages during periods of transportation or storage.

In the drawings:

Figure 1 is a side view of a tractor supported carrier embodying the features of this invention;

Figure 2 is a front end view of the carrier showing it as it would appear in operation;

Figure 3 is a horizontal sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a fragmentary perspective view of a forward carrier;

Figure 5 is a fragmentary enlarged sectional view taken substantially on the line 5—5 of Figure 4;

Figure 6 is a fragmentary sectional view taken substantially on the line 6—6 of Figure 1;

Figure 7 is a fragmentary sectional view taken substantially on the line 7—7 of Figure 1;

Figure 8 is an exploded perspective view of the rearmost carriers;

Figure 9 is an enlarged horizontal sectional view taken substantially on the line 9—9 of Figure 8;

Figure 10 is a vertical sectional view taken substantially on the line 10—10 of Figure 9;

Figure 11 is a rear perspective view of the croppers seat used on the carriage illustrated in Figure 4; and

Figure 12 is an enlarged sectional view taken substantially on line 12—12 of Figure 3.

Referring to the drawings in detail, a conventional farm tractor designated generally 10 carries adjacent its forward end a conventional axle 12 which is mounted on the tractor to rock about a horizontal axis which extends longitudinally below the tractor body, all in a conventional manner. Suspended from the rear axle housing 14 of the tractor 10 are plates 16 which project downwardly from said housing adjacent opposite ends thereof and carried by the tractor 10 and extending rearwardly from the rear end thereof is a power lift 18 of conventional form.

Coupled as by inverted U-bolts 20 to the front axle 12 of the tractor 10 and extending downwardly therefrom adjacent opposite ends thereof are brackets 22 to which are welded or otherwise secured spaced parallel longitudinally extending girders 24 which, as illustrated in Figure 1, extend longitudinally adjacent opposite sides of the tractor and beyond opposite ends thereof. The girders 24 are coupled to the plates 16 carried by the rear axle housing 14 and define with transversely extending cross members 26 and 26' a bed frame designated generally 28.

Carried by the front cross member 26 and extending vertically upwardly therefrom adjacent opposite ends thereof are front columns 30 and 30' and carried by the rear cross member 26' are vertically extending rear columns 32 and 32'. Carried by the columns 30 and 30' and extending transversely therebetween and beyond opposite sides of the tractor 10 is a front beam designated 34. A rear beam 36 is carried by the columns 32 and 32' and extends transversely therebetween and beyond opposite sides of the tractor adjacent the upper ends of said columns 32 and 32', as will be readily understood upon reference to Figure 3. Supported on the beams 34 and 36 and extending longitudinally thereof are transversely spaced parallel overhead rails 38, 40, 42 and 44. As illustrated in Figure 3, these rails extend in horizontally spaced relation to the tractor 10 and beyond the rear end thereof to define supports for the rear carriages, to be more fully hereinafter described. Secured to the rear beam 36 and extending outwardly therefrom to the rear thereof are transversely spaced bearing brackets 46 in which is mounted for rocking movement about a horizontal axis a crank shaft 48 carrying adjacent opposite ends downwardly extending crank arms 50 and 52. A bifurcated lever 54 (Fig. 2) is secured to the crank shaft 48 substantially midway between opposite ends and pivotally connected as at 56 to the lever 54 is a link 58, the lower end of which is pivotally connected to the tractor

power lift 18 (Fig. 1) so that as the power lift 18 is elevated, the crank shaft will be rotated about its horizontal axis into substantially the broken line position illustrated in Figure 1. This will move the crank arms 50 and 52 in arcuate paths adjacent opposite ends of the rear beams 36, as will be readily understood upon reference to Figure 1. Flexible members 50' and 52' are connected to the crank arms 50 and 52, respectively, for a purpose to be more fully hereinafter described.

Carried by the rails 38, 40, 42 and 44, and extending upwardly therefrom are uprights 60 supporting at their upper ends a canopy frame 62 to which is laced as at 64 a canopy 66 which is supported in upwardly spaced relation above the rails 38, 40, 42 and 44, as will be readily understood upon reference to Figures 1 and 2. Supported on the uprights 60 above and in vertically spaced relation to the rails 38, 40, 42 and 44 are transversely spaced longitudinally extending bars 68 carrying upwardly extending longitudinally spaced pairs of spaced lugs 70 defining longitudinally spaced notches for the reception of filled tobacco sticks. Similar longitudinally spaced pairs of lugs 72 are carried by and extend upwardly from the rails 38, 40, 42 and 44 to hold filled tobacco sticks in longitudinally spaced relation on the rails.

Carried by the rail 38 and extending downwardly therefrom intermediate its ends are longitudinally spaced brackets 74 and 74' and similar brackets 76 and 76' are carried by the rails 40. Extending through the brackets 74 and 76 adjacent the forward end of the carrier is a shaft 78, while a similar shaft 80 extends through the brackets 74' and 76' adjacent the rear end of the tractor 10. Carried by the rail 42 and extending downwardly therefrom intermediate its ends are longitudinally spaced brackets 82 and 82' and similar brackets 84 and 84' are carried by the rail 44. Extending through the brackets 82 and 84 adjacent the forward end of the carrier is a shaft 86 while a similar shaft 88 is carried by the brackets 82' and 84' adjacent the rear end of the tractor 10. Carried by the shafts 78 and 80 adjacent the rail 38 and extending downwardly from said shafts are bracket arms 90 and 90', and similar bracket arms 92 and 92' are carried adjacent the rail 44 by the shafts 86 and 88, respectively.

Outer carriages designated generally 96 and 96' are provided and each comprises an inverted channel bar 98 which carries adjacent opposite ends upwardly extending legs 100 and 102 to which pairs of angle irons 104 and 104' and 106 and 106' are respectively connected. The pairs of angle irons define hangers 108 and 110, respectively, and extending through the adjacent flanges 112 and 112' of the angle irons 104 and 104' are longitudinally spaced aligning openings 114 and 114', respectively. Similar aligning openings 116 and 116' extend through adjacent flanges of the angle irons 106 and 106', respectively. It is to be noted that by the thus described structure the upper ends of the pairs of hangers 108 and 110 of each of the carriages 96 and 96' are connected to the overhead rails 38 and 40 and rails 42 and 44 respectively, for pivotal movement.

A seat designated generally 118 comprises a saddle 120 carrying at its back an upwardly extending block 122 to which is connected in vertically spaced relation to the saddle 120 a back rest 124. The block 122 is provided intermediate its ends with a transversely extending opening 126 for the reception of a bolt 128 by means of which the seat 118 may be supported at a selected height on a hanger.

A similar seat designated generally 128 comprises a saddle 130 carrying an upwardly extending back strap 132 to which is connected adjacent its upper end a back rest 134. A curved rib 136 is carried by the back strap 132 and extends outwardly therefrom, as illustrated in Figure 11, and extending through said rib 136 is a transversely extending opening 138 for the reception of a pivot bolt 140 by means of which the seat 128 is pivotally supported between the adjacent flanges of the angle bars 106 and 106' of a rear hanger 110, as will be readily understood upon reference to Figure 4. Extending through the rib 136 in upwardly spaced relation to the opening 138 is an opening 142 to which is connected one end of a flexible member 144, the opposite end of which is connected to the supporting bar 98 of the carrier on which the seat 128 is supported.

Suspended on springs 144 and 146, and 144' and 146' carried by the rails 40 and 42 adjacent the rear end of the tractor 10 are hangers 148 and 150 and 148' and 150' which extend downwardly from the rails 40 and 42 and carry at their lower ends, an inverted channel iron 152 which extends horizontally between the hangers 148 and 150. A similar channel iron 152' is carried by and extends between the lower ends of the hangers 148' and 150'. A tread 154 is carried by the inverted channel iron 152 and a similiar tread 154' is carried by the inverted channel iron 152'. A similar tread 156 is carried by each inverted channel bar 98 and extends between the legs 100 and 102 of the channel bar 98. Yokes 158 and 160 are carried by the upper ends of the hangers 148 and 150 and extend upwardly adjacent opposite sides of the rail 42, while similar yokes 158' and 160' are carried by the hangers 148' and 150' and extend upwardly adjacent opposite sides of the rail 40. Carried by and extending between adjacent treads 154 and 154' is a platform 162.

A tobacco stick support designated generally 164 comprises a block 166 carrying adjacent its upper end a horizontally extending bracket arm 168 which is provided with a longitudinal row of vertical openings 170 for the reception of studs 172 by means of which a tubular socket member 174 is adjustably supported on the bracket arm 168. The axis of the socket member 174 extends transversely relative to the longitudinal axis of the bracket arm 168 and threadely entering the socket 174 through the top thereof is a set screw 176, the purpose of which will hereinafter appear. A cylindrical arm 178 extends through the socket 174 and is held in a selected position therein by the set screw 176, and carried by the arm 178 is a transversely extending tubular head 180 in which is slidably supported a bar 182 carrying at one end a socket member 184 into which one of the tobacco stick S is adapted to be thrust, in order to support the stick in a selected position. The block 166 is provided intermediate its ends with a transversely extending opening for the reception of a bolt 186 which is adapted to extend through sligned openings 116 and 116' in the hangers 110 to support the tobacco stick support 164 at a selected height above the tread 156. As illustrated in the drawings, the tobacco stick supports 164 are mounted in selected positions on the rearmost hangers of each carrier.

In use, it will be seen that the device is mounted on the carrier 10, as previously described, and the hangers 108 and 110 are mounted on their respective shafts adjacent the rails 38 and 44 so as to cause the treads 156 thereof to pass between rows of standing tobacco plants. The seats 118 are then secured to their respective rearmost hangers at selected heights above their respective treads to define croppers' seats which are occupied by the operators who strip the ripened leaves from the tobacco plants as the device progresses. The seats 118 carried by the rearmost hangers 150 and 150' are likewise adjusted to a selected height above their treads 154 and 154' to accommodate another group of croppers. Seats 118 are mounted on the forward hangers of each pair of hangers 148 and 148' and face rearwardly so that they overhang the treads 154 and 154' so as to be within easy reach of the adjacent cropper. Stick supports 164 are connected to the rearmost hangers of each pair of hangers at a selected height above the cropper's seat so as to support a tobacco stick S in a position to be used by the stringer in supporting the stripped tobacco leaves. Obviously, if so desired, the platform 162 may be dispensed with so that the treads 154 and 154' may pass between

adjacent rows of standing tobacco plants to facilitate the stripping of the leaves therefrom. Obviously, the device, as presently disclosed, is capable of carrying a crew of nine including the driver of the tractor and four groups, each comprising a cropper and a stringer. It is to be understood, however, that the device may be constructed to employ as many pairs of croppers and stringers as may be desired. During periods that the carrier is being transported or stored, the power lift 18 of the tractor may be operated to elevate the link 58 and swing the crank shaft about its horizontal axis to move the crank arms 50 and 52 upwardly, as suggested in the broken lines in Figure 1, so as to exert pull on the flexible members 50' and 52' which, being connected to the rearmost hangers 110 adjacent the lower ends thereof, will cause the carriages 96 to be elevated, as suggested by the broken lines in Figure 1. Simultaneously, with the elevation of the carriages 96, the croppers' seats 128 will be moved about their respective pivot bolts 140 so as to avoid interference with their respective treads 156, such movement being controlled by the flexible members 144.

With croppers occupying the croppers' seats and stringers occupying the stringers' seats, it is obvious that as the tractor 10 is advanced through a field of tobacco, it may be guided so that the seats 128 occupied by the croppers will pass between the tobacco plants to enable the croppers to gather the ripened leaves and hand them to the stringers in the stringer seats who place them on the tobacco sticks held in and adjacent support 164. When a stick S becomes filled, it may be supported overhead on the rails 38, 40, 42 and 44, or on the bars 68 and the gathered tobacco will be protected from direct sunlight by the canopy 66. By thus providing the storage space above the heads of the crew, it is obvious that frequent trips to the tobacco barns will be avoided. Obviously, when the device has to pass through relatively narrow gateways the croppers and stringers will dismount so that the lift 18 may be operated to move the treads 156 above the level of adjacent fence posts.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

1. A tractor supported carrier for transporting groups of tobacco harvesters through fields of tobacco plants, said carrier comprising a bed frame carried by a tractor and extending beyond opposite ends thereof, columns carried by the bed frame and extending vertically upwardly therefrom adjacent opposite ends thereof, cross beams carried by the columns and extending transversely across and beyond opposite sides of the bed frame in vertically spaced relation thereto, pairs of longitudinally spaced hangers carried by the cross beams and extending downwardly therefrom on opposite sides of the bed frame, a platform carried by and extending between each pair of hangers adjacent the lower ends thereof, tobacco harvesters' seats carried by the hangers and extending outwardly therefrom above the platforms, holders for tobacco sticks carried by the rearmost hangers and extending forwardly therefrom above the seats, a crank member carried by the rearmost columns adjacent their upper ends for rocking movement in a vertical arcuate path, a link connected to the crank and to the power lift, and a flexible member connected to the rearmost hanger of each pair of hangers and to the crank member for moving the hangers and elevating the platforms.

2. A tractor supported carrier for transporting groups of tobacco harvesters through fields of tobacco plants, said carrier comprising a bed frame carried by a tractor and extending beyond opposite ends thereof, columns carried by the bed frame and extending vertically upwardly therefrom adjacent opposite ends thereof, cross beams carried by the columns and extending transversely across and beyond opposite sides of the bed frame in vertically spaced relation thereto, pairs of longitudinally spaced hangers carried by the cross beams and extending downwardly therefrom on opposite sides of the bed frame, a platform carried by and extending between each pair of hangers adjacent the lower ends thereof, tobacco harvesters' seats carried by the hangers and extending outwardly therefrom above the platforms, holders for tobacco sticks carried by the rearmost hangers and extending forwardly therefrom above the seats, a crank member carried by the rearmost columns adjacent their upper ends for rocking movement in a vertical arcuate path, a link connected to the crank and to the power lift, a flexible member connected to the rearmost hanger of each pair of hangers and to the crank member for moving the hangers and elevating the platforms, and means connected to the seat carried by the rearmost hanger of each pair of hangers and to the adjacent platform for tilting said seat as said platform is elevated.

3. A tractor supported carrier for transporting groups of tobacco harvesters through fields of tobacco plants, said carrier comprising a bed frame having a forward end and a rearward end and including a plurality of overhead rails extending longitudinally thereof and arranged in transverse spaced relation, a carriage positioned below each of the outermost one and the next adjacent one of said rails adjacent the forward ends thereof, each of said carriages having pairs of longitudinally spaced hangers, a platform carried by and extending between the pairs of hangers of each carriage adjacent the lower ends thereof, tobacco harvesters' seats carried by the hangers of each carriage and extending outwardly therefrom above the platform, the upper ends of said pairs of hangers of each carriage being pivotally connected to the adjacent outermost one and next adjacent one of said rails, and means operatively connected to the rearmost pair of hangers of each carriage for moving the hangers and elevating the platform.

4. A tractor supported carrier for transporting groups of tobacco harvesters through fields of tobacco plants, said carrier comprising a bed frame having a forward end and a rearward end and including a plurality of overhead rails extending longitudinally thereof and arranged in transverse spaced relation, a carriage positioned below each of the outermost one and the next adjacent one of said rails adjacent the forward ends thereof, each of said carriages having pairs of longitudinally spaced hangers, a platform carried by and extending between the pairs of hangers of each carriage adjacent the lower ends thereof, tobacco harvesters' seats carried by the hangers of each carriage and extending outwardly therefrom above the platform, the upper ends of said pairs of hangers of each carriage being pivotally connected to the adjacent outermost one and next adjacent one of said rails, another carriage positioned below a rail adjacent the outermost one of said rails adjacent the rearward end thereof, said another carriage having pairs of longitudinally spaced hangers, a platform carried by and extending between the pairs of hangers of said another carriage, tobacco harvesters' seats carried by the hangers of said another carriage and extending outwardly therefrom above the platform, the upper ends of said pairs of hangers of said another carriage being spring supported from said adjacent rail, and means operatively connected to the rearmost pair of hangers of each of said first named carriages for moving the hangers and elevating the platform.

5. A tractor supported carrier for transporting groups of tobacco harvesters through fields of tobacco plants, said carrier comprising a bed frame having a forward end and a rearward end and including a plurality of overhead rails extending longitudinally thereof and arranged in transverse spaced relation, a carriage positioned below

each of the outermost one and the next adjacent one of said rails adjacent the forward ends thereof, each of said carriages having pairs of longitudinally spaced hangers, a platform carried by and extending between the pairs of hangers of each carriage adjacent the lower ends thereof, tobacco harvesters' seats carried by the hangers of each carriage and extending outwardly therefrom above the platform, the upper ends of said pairs of hangers of each carriage being pivotally connected to

the adjacent outermost one and the next adjacent one of said rails, means connecting the rearmost pairs of hangers of each carriage to the power lift of the tractor for moving the hangers and elevating the platform responsive to the elevating movement of the power lift.

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