

Feb. 20, 1951

W. R. FLEMING, JR

2,542,497

PORTABLE TOWER FOR USE IN TRIMMING TREES

Filed Dec. 13, 1949

2 Sheets-Sheet 1

Fig. 5.

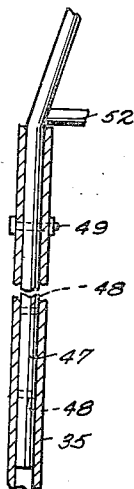
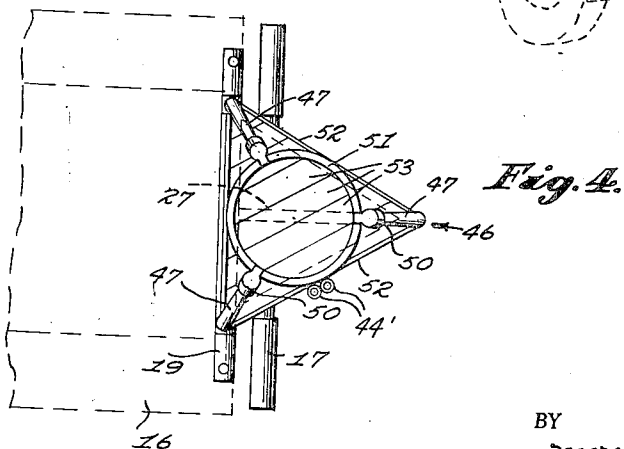
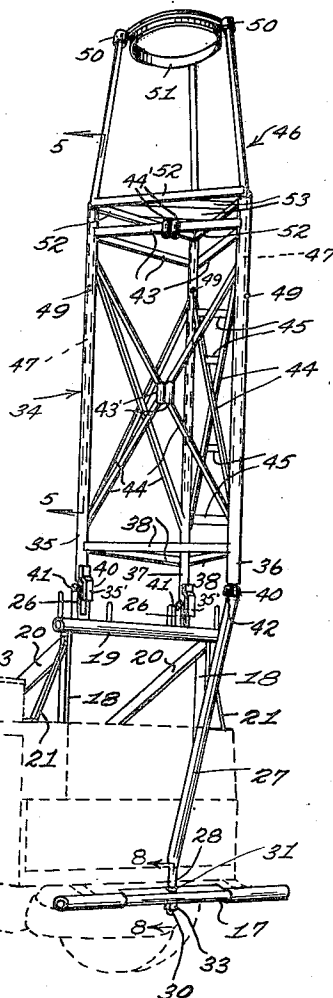
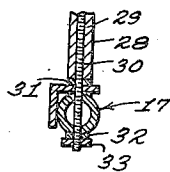


Fig. 1.

Fig. 8.



BY

McMorrow, Bertram & Davidson
ATTORNEY

INVENTOR

WILLIAM R. FLEMING, JR.

Feb. 20, 1951

W. R. FLEMING, JR

2,542,497

PORTABLE TOWER FOR USE IN TRIMMING TREES

Filed Dec. 13, 1949

2 Sheets-Sheet 2

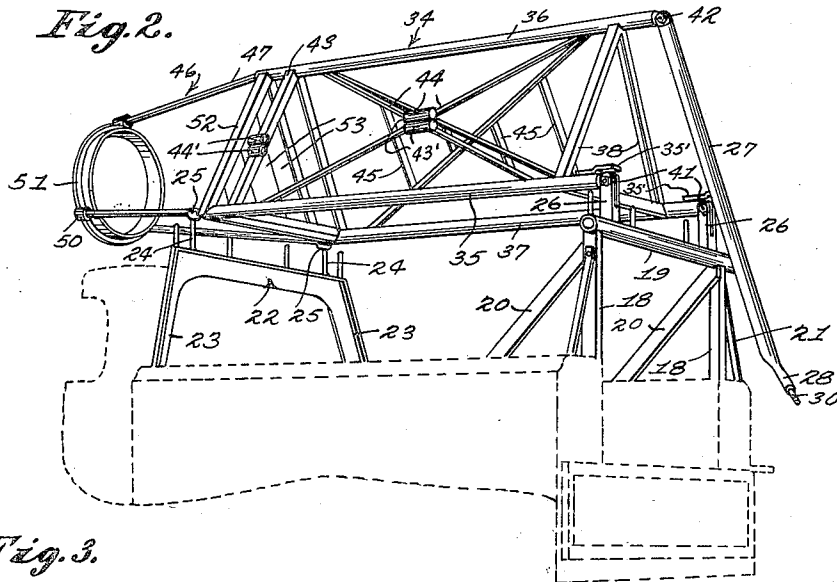


Fig. 3.

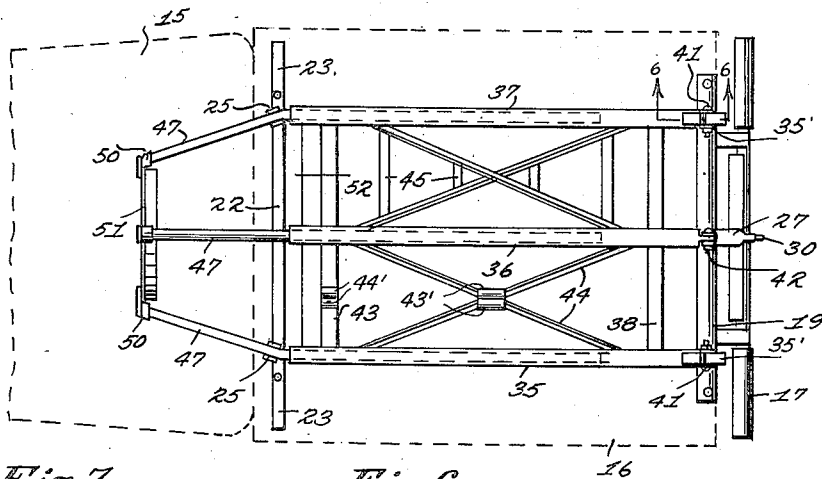
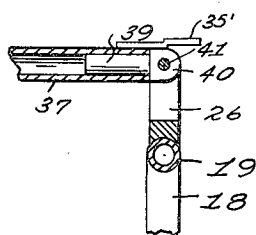
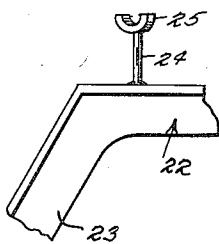


Fig. 7.

Fig. 6.



INVENTOR

WILLIAM R. FLEMING, JR.

BY

McMorrow, Berman & Davidson
ATTORNEY

UNITED STATES PATENT OFFICE

2,542,497

PORTABLE TOWER FOR USE IN TRIMMING
TREES

William R. Fleming, Jr., Fairfield, Ill.

Application December 13, 1949, Serial No. 132,740

4 Claims. (Cl. 304-9)

1

My invention relates to a portable tower for use in trimming trees or the like.

A primary object of my invention is to provide a tower of the above-mentioned type adapted to be mounted upon a truck in such a manner that it may readily raised and lowered.

A further object is to provide a portable tree-trimming tower constructed for supporting a workman at a substantial elevation above the truck in such a manner that the workman will have his hands free for the trimming operation, and at the same time safeguarding the workman against falling.

A further object is to provide a tower of the above-mentioned character constructed in telescoping sections, so that the height of the tower may be adjusted.

A further object is to provide a portable tower pivotally mounted upon a truck in such a manner that two or three men may swing the tower from a raised or operative position to a lowered or inoperative position, to facilitate the passage of the truck beneath overhead obstacles.

A still further object of the invention is to provide a portable tower of the above-mentioned character which is highly simplified, extremely rigid and strong, compact and relatively inexpensive to build.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application, and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a perspective view of a portable tower embodying my invention, and showing the same in a raised or operative position and mounted upon the rear end of a supporting truck;

Figure 2 is a perspective view of the tower in the lowered or inoperative position;

Figure 3 is a plan view of the tower in the lowered position;

Figure 4 is a plan view of the tower in the raised position;

Figure 5 is an enlarged fragmentary vertical section taken on line 5-5 of Figure 1;

Figure 6 is a similar section taken on line 6-6 of Figure 3;

Figure 7 is a fragmentary side elevation of a forward support or bolster; and

Figure 8 is an enlarged fragmentary vertical section taken on line 8-8 of Figure 1.

In the drawings, where, for the purpose of

2

illustration, is shown a preferred embodiment of my invention, the numeral 15 designates a truck upon which my tower is mounted, and including a horizontal body or bed 16 rigidly mounted upon the chassis of the truck. The truck also includes a rear, transverse, horizontal member 17 which is rigid and strong, and rigidly secured by welding or the like to the rear end of the chassis adjacent to the bottom of the body 16.

Rigidly secured to the top of the body 16 adjacent to the rear end thereof and arranged upon opposite sides of the body in transverse alignment are a pair of strong, rigid, upright supports or posts 18 extending above the top of the body 16 and rigidly connected at their tops by a transverse, horizontal, rear bolster or pipe 19, having its opposite ends welded to the tops of the posts 18. Forwardly, longitudinally extending, diagonal braces 20 have their tops rigidly secured by welding or the like to the posts 18 near and below the bolster 19, and the bottoms of the braces 20 are rigidly secured to the top of the truck body 16. Side diagonal braces 21 are also provided, and have their tops rigidly secured to the outer sides of the posts 18 below the bolster 19, and their bottoms rigidly secured to the top of the truck body, as shown. Arranged at the forward end of the body 16 is an upstanding, transverse, forward bridge or bolster 22 having side legs 23 rigidly secured to the truck body, and rigidly mounted upon the bolster 22 near the opposite sides of the same are short, upstanding pipes or supports 24 having substantially semi-circular seats or sockets 25 rigidly secured to their top ends and disposed above the tops of the bolsters 22 and 19.

Rigidly secured by welding to the top of the rear bolster 19 near opposite ends of such bolster and arranged in longitudinal alignment with the sockets 25 are a pair of upstanding, bifurcated brackets 26. A generally vertical, elongated and slightly rearwardly inclined, floating leg or brace 27 is arranged at the transverse center of the truck body and slightly rearwardly of the rear end of such body. At its lower end, the leg 27 has a reduced, vertical extension 28 having a screw-threaded opening 29 formed therein, receiving a screw-threaded stud or bolt 30 rigidly secured therein by a lock nut 31. The stud or bolt 30 projects below the bottom end of the extension 28 and through a vertical opening provided at the transverse center of the bumper 17, Figure 8, and slightly below the bottom of the bumper for receiving a washer 32 and nut 33 which may be secured in place by a cotter pin

3

or the like. The top of the brace or leg 27 is bifurcated and disposed at the elevation of the brackets 26 and rearwardly of the brackets and midway between them, for forming a tripod or three-point support for a tower 34, to be described.

The tower 34 proper comprises an upstanding, triangular frame including three equidistantly spaced, vertical, tubular legs 35, 36 and 37, rigidly connected near and above their bottom ends by horizontal bars or braces 38 welded or otherwise rigidly secured thereto. Rigidly mounted within the bottoms of the tubular legs 35, 36 and 37 are heads or blocks 39 having apertured legs 40 projecting below the bottoms of the legs, as shown. The apertured lugs 40 of the legs 35 and 37 are pivotally connected with the brackets 26, as shown at 41, while the apertured lug 40 of the leg 36 is pivotally connected with the bifurcated top end of the floating leg 27, as shown at 42. Near and slightly below the top ends, the tubular legs 35, 36 and 37 are rigidly connected by additional horizontal braces 43 similar to the braces 38. The top ends of the tubular legs 35, 36 and 37 are open. Pairs of crossing, elongated, diagonal braces 44 have their bottoms rigidly connected by welding to the tubular legs near and above the braces 38, and the tops of the braces 44 are rigidly secured to the tubular legs near and below the braces 43. The pair of crossed braces 44 between the tubular legs 36 and 37 have rigidly secured to them vertically spaced, horizontal sections of tubing or pipe 45, forming the rounds of a ladder for use in climbing and descending from the tower.

The tower 34 further comprises an upper, adjustable section 46 including triangularly spaced, elongated, vertical bars or legs 47 telescopically engaging within the tops of the tubular legs 35, 36 and 37. The legs or bars 47 are provided with vertically spaced, transverse openings 48 receiving transverse bolts 49 extending through the bars 47 and through openings in the tubular legs 35, 36 and 37, whereby the upper tower section 46 may be bodily adjusted vertically within the tubular legs 35, 36 and 37. Above the tops of the tubular legs 35, 36 and 37 the bars or legs 47 converge slightly and extend above the tops of the tubular legs for a substantial distance, such as approximately three feet, although this distance may vary. The top converging extensions of the legs or bars 47 are rigidly secured at their tops within radially projecting sockets 50 rigidly secured to a horizontal, annular band or ring 51 which is preferably about two feet in diameter, although this diameter may vary. The bars or legs 47 are additionally rigidly secured together at the bottoms of their top converging extensions and adjacent to the tops of the tubular legs 35, 36 and 37, when the upper tower section 46 is at its lowermost, adjusted position, by means of horizontal bars or braces 52, having boards or planks 53 rigidly mounted thereon and forming a horizontal platform.

The ring 51 is smooth and free from burrs or rough edges, so that a workman standing upon the platform formed by the boards 53 will not have his clothing or hands damaged.

I provide stop plates 35' rigidly secured by welding or the like to the rear sides of the legs 35 and 37, adjacent to the bottoms of the legs. These stop plates 35' project below the bottom ends of the legs 35 and 37 for a slight distance, Figure 6. The arrangement is such that when the tower is raised to the upright position, Fig-

4

ure 1, if for any reason the leg 27 should not be properly connected with the member 17, the stop plates 35' will contact the rear sides of the fixed brackets 26 to prevent the tower from falling over backwards.

I also provide sleeves or holders 43' rigidly secured by welding or the like to the braces 44 at the left-hand side of the tower, Figures 1 and 2. These sleeves 43' are disposed near the longitudinal center of the tower adjacent to the point of crossing of the braces 44. The bottoms of the sleeves 43' are closed, so that the sleeves may hold handle extension of long-handled pruners, or the like, not shown. The tops of the handle extensions are removably held in openings or bands 44' secured by welding to the adjacent brace 43 and arranged in alignment with the sleeves 43'.

The use and operation of the portable tower is as follows:

The tower has been described in the upstanding or operative position, as shown in Figure 1. While in this position, the workman ascends the tower by using the ladder formed by the rounds 45, and stands upon the platform formed by the boards 53 and within the ring 51, which, for the average size man will be arranged at the waist, or slightly below the waist. The upper part of the body and the arms are thus entirely free for work, such as trimming of trees. The workman is free to lean in all directions against the ring 51, and with his feet resting upon the platform there is substantially no liability of falling.

When the workman has descended from the platform, and it is desired to move the platform to a new location, two or three men can readily lower the platform to the horizontal or inoperative position shown in Figure 2. To do this, it is merely necessary to remove the nut 33 from the bottom end of the stud 30 and disengage the lower end of the floating leg 27 from the opening of the bumper 17. The entire platform may then be swung vertically forwardly and downwardly to the substantially horizontal position of Figure 2, and the tubular legs 35 and 37 will engage in and be supported by the semicircular sockets 25 carried by the forward bolster 22. During the lowering of the tower, the floating leg 27 may be held, in order to retard the downward movement of the tower. When the tower 34 is in the lowered, horizontal position, it may be transported from place to place by the truck, and it will easily pass under the usual overhead obstructions encountered.

The top tower section 46 may be adjusted vertically by engaging the bolts 49 in various sets of the openings 48 of the legs 47. In Figure 1, the upper tower section is shown in the lowermost, adjusted position, and the platform in this position is preferably approximately 14½ feet above the ground, although this distance may vary. Through adjustment, as previously described, I contemplate being able to raise the platform approximately an additional 5 feet from the ground.

The tower is extremely strong and rigid, and very light, considering its height and strength. It is very easy to manipulate and well adapted to serve a variety of useful purposes.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A portable tower, comprising a wheeled support, forward and rear longitudinally spaced transverse bolsters mounted upon the wheeled support, a transverse bar mounted upon the wheeled support adjacent to and below the rear transverse bolster, an upstanding brace detachably connected with said transverse bar and extending above the same and having its top arranged substantially at the elevation of the rear transverse bolster and spaced rearwardly of such bolster, an upstanding triangular frame arranged above the rear bolster and upstanding brace and including forward legs pivotally connected with the rear bolster and a rear leg pivotally connected with the upstanding brace, a substantially horizontal platform secured to the top of the triangular frame, upstanding bars connected with the platform and projecting above the same, and a ring secured to the upstanding bars near their tops and spaced above the platform, the arrangement being such that when the upstanding brace is disconnected from the transverse bar below the rear bolster the upstanding triangular frame and platform may be swung downwardly as a unit for engagement upon the forward transverse bolster to be supported thereby in a substantially horizontal position.

2. A portable tower, comprising a wheeled support, forward and rear longitudinally spaced transverse bolsters mounted upon the wheeled support, a rear transverse bar mounted upon the wheeled support substantially adjacent to the rear transverse bolster and spaced a substantial distance below the rear transverse bolster, an upstanding brace having its lower end detachably connected with said rear transverse bar and having its upper end arranged at substantially the elevation of the rear transverse bolster and spaced rearwardly thereof, a lower tower section including triangularly spaced tubular legs arranged above the rear bolster and upstanding brace, a pair of said tubular legs having their lower ends pivotally connected with the rear bolster, the other of said tubular legs having its lower end pivotally connected with the top of the upstanding brace, brace means extending between adjacent pairs of the tubular legs for rigidly connecting the same, an upper tower section including triangularly spaced substantially vertical bars telescopically engaging in the tops of the tubular legs, means connecting the triangularly spaced bars and tubular legs, whereby said upper tower section may be vertically adjusted, a horizontal platform carried by said upper tower section, and a ring mounted upon said upper tower section above said platform, the arrangement being such that when said upstanding brace is disconnected from said rear transverse bar the upper and lower tower sections may be lowered as a unit into engagement with the forward transverse bolster.

3. A portable tower, comprising a truck, forward and rear longitudinally spaced transverse bolsters mounted upon the truck, a rear bumper mounted upon the rear end of the truck below the

rear bolster, an elongated upstanding floating leg having its lower end detachably connected with the bumper, the top end of the floating leg being arranged adjacent to and rearwardly of the rear bolster, upstanding brackets secured to the rear bolster near the opposite ends thereof and arranged substantially at the elevation of the top of the floating leg and spaced substantially equidistantly upon opposite sides of such leg, a lower upstanding tower section including triangularly spaced connected vertical tubes, the bottom ends of a pair of said tubes being pivotally connected with said brackets, the bottom end of the other tube being pivotally connected with the top of said floating leg, ladder means carried by a pair of said tubes, an upper tower section including triangularly spaced substantially vertical bars telescopically engaging within the triangularly spaced tubes of the lower tower section, means connecting the triangularly spaced bars and tubes and permitting vertical adjustment of the upper tower section, a substantially horizontal platform arranged between and connected with the triangularly spaced bars of the upper tower section, said triangularly spaced bars projecting above said platform, and an annular ring secured to the tops of the triangularly spaced bars and spaced above said platform and arranged in substantial vertical alignment therewith, the arrangement being such that the tower may be lowered to a substantially horizontal inoperative position wherein it is supported by the forward bolster when said upstanding floating leg is disconnected from said bumper.

4. An adjustable tower, comprising a lower substantially vertical tower section including triangularly spaced substantially vertical tubular legs, brace means connecting adjacent pairs of said tubular legs, ladder means secured to an adjacent pair of said tubular legs, an upper tower section mounted upon the lower tower section and including triangularly spaced generally vertical bars telescopically engaging in the tops of said tubular legs, bolt means connecting said triangularly spaced bars and said tubular legs and permitting vertical adjustment of said upper tower section, a substantially horizontal platform secured to said upper tower section above the tops of said tubular legs, said triangularly spaced bars extending above said platform and converging, and a substantially annular ring connected with the tops of said triangularly spaced bars and arranged above said platform.

WILLIAM R. FLEMING, Jr.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
967,803	Mercer	Aug. 16, 1910
1,362,944	Kirby	Dec. 21, 1920
1,953,390	Bosch	Apr. 3, 1934
2,490,166	Arnould	Dec. 6, 1949