July 26, 1966 N. W. BURWELL ETAL 3,263,232

ANTENNA TRANSPORTABLE SYSTEM

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FIG. 1.

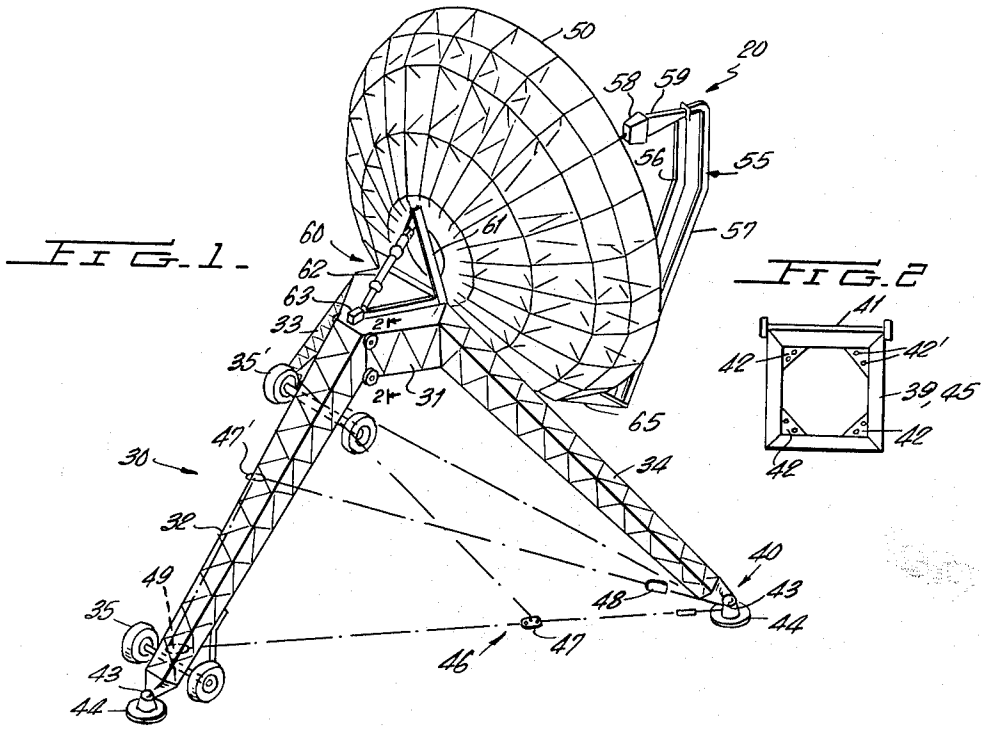

FIG. 2

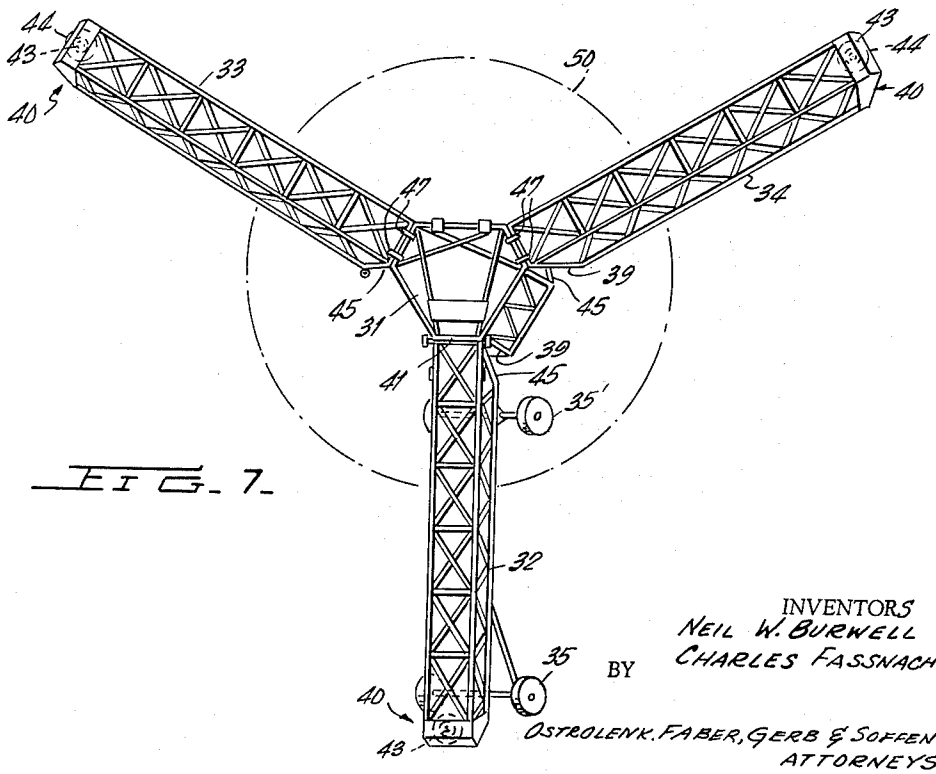

FIG. 7.

INVENTORS
NEIL W. BURWELL
CHARLES FASSNACHT

BY OSTROLENK, FABER, GERB & SOFFEN
ATTORNEYS

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ANTENNA TRANSPORTABLE SYSTEM

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FIG. 3.

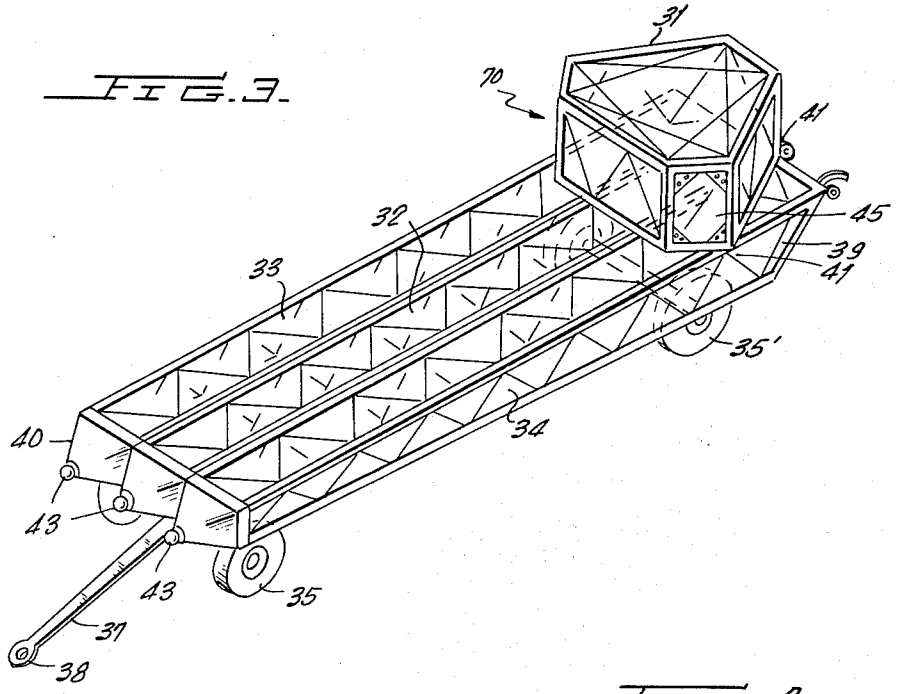


FIG. 4.

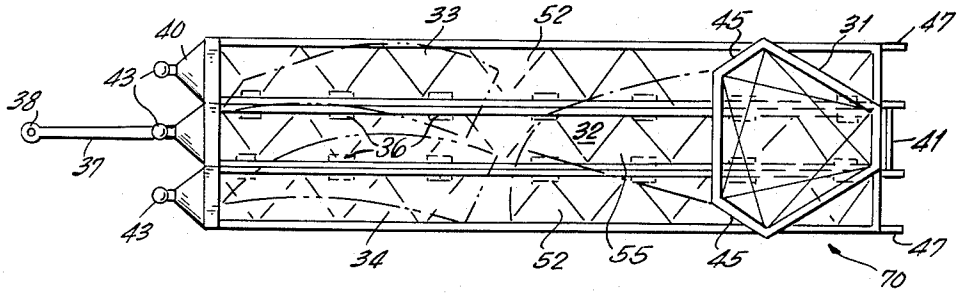
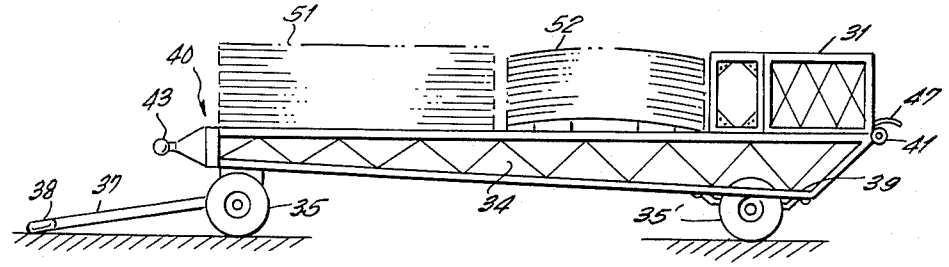


FIG. 5.



INVENTORS
NEIL W. BURWELL
BY CHARLES FASSNACHT

OSTROLENK, FABER, GERB & SOFFEN
ATTORNEYS

July 26, 1966 N. W. BURWELL ETAL 3,263,232

ANTENNA TRANSPORTABLE SYSTEM

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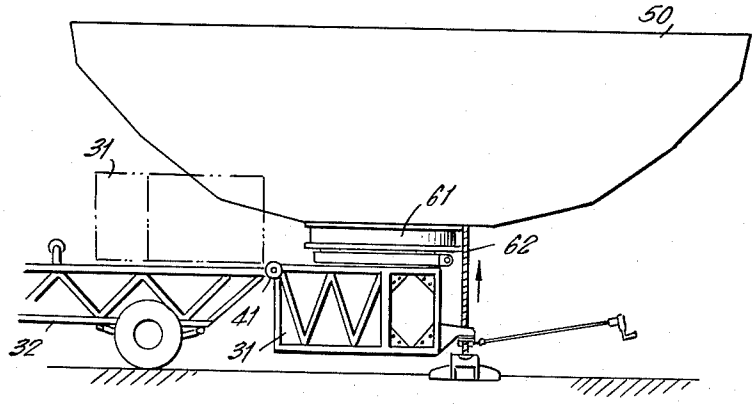
FIG. 6.



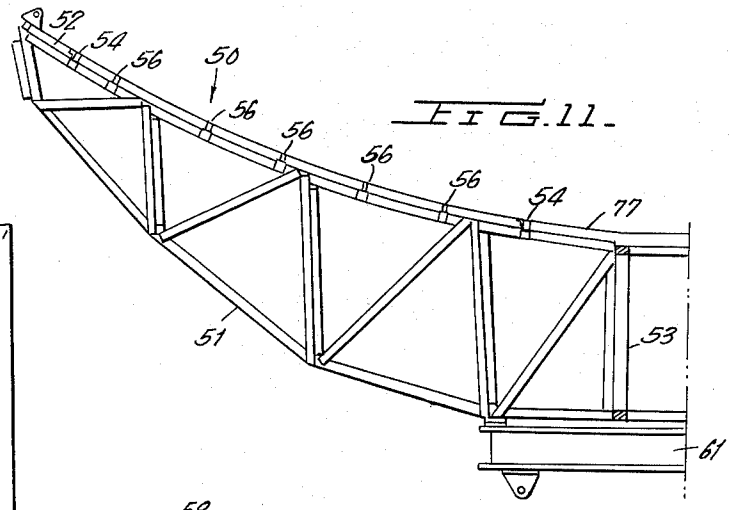


FIG. 11.

FIG. 10.

FIG. 16.

INVENTORS
NEIL W. BURWELL
CHARLES FASSNACHT
BY
OSTROLENK, FABER, GERB & SOFFEN
ATTORNEYS

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ANTENNA TRANSPORTABLE SYSTEM

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FIG. 8.

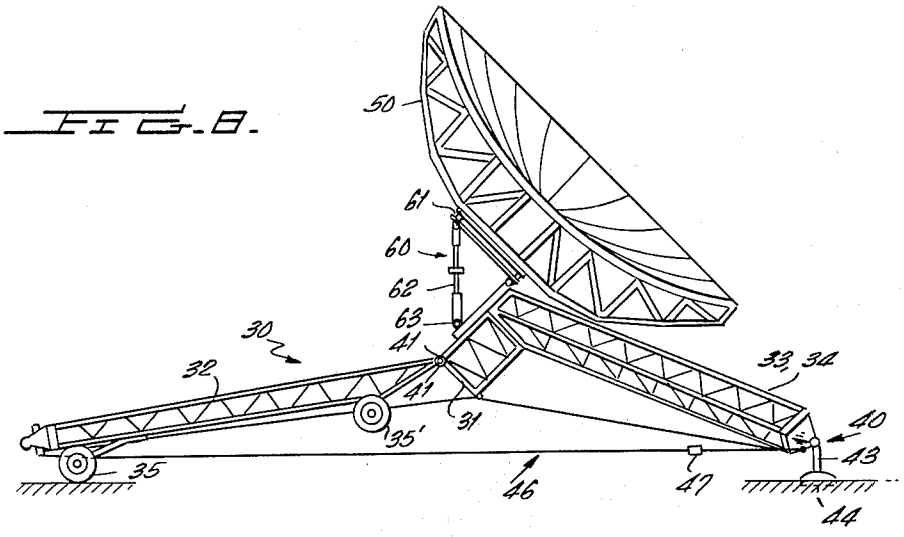
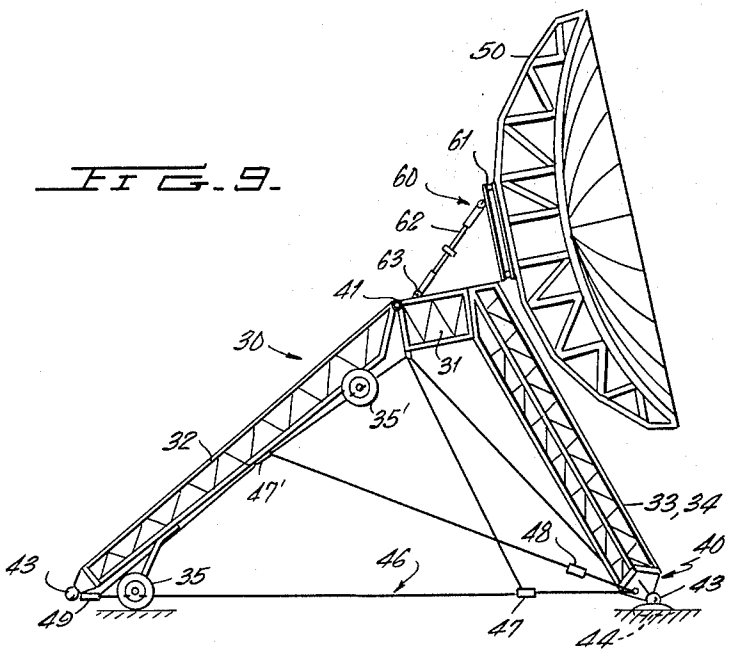


FIG. 9.



INVENTORS
NEIL W. BURWELL
BY CHARLES FASSNACHT

OSTROLENK, FABER, GERB & SOFFEN
ATTORNEYS

July 26, 1966 N. W. BURWELL ETAL 3,263,232

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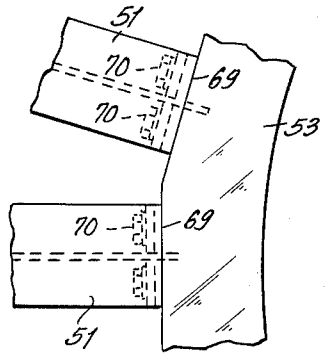
FIG. 12.



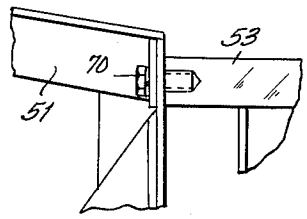


FIG. 12A.

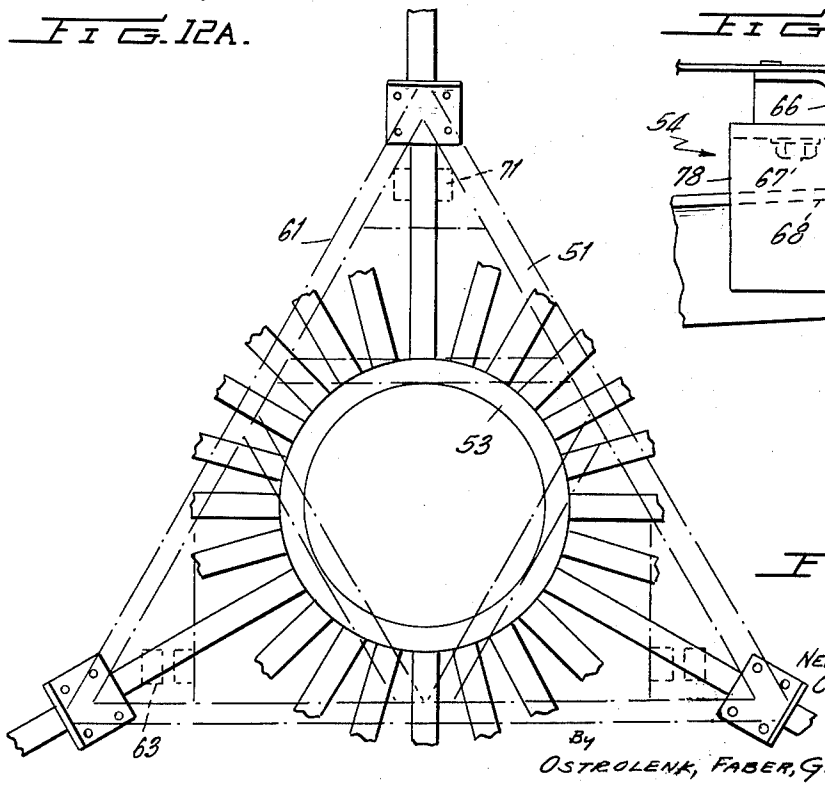


FIG. 13A.

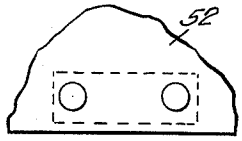


FIG. 13.

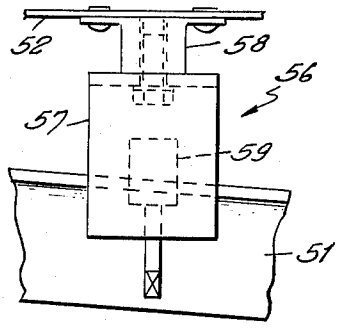


FIG. 14.

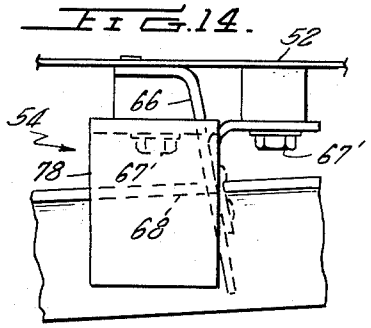


FIG. 15.

INVENTORS
NEIL W. BURWELL
CHARLES FASSNACHT

By
OSTROLENK, FABER, GERB & SOFFEN
ATTORNEYS

United States Patent Office

3,263,232

Patented July 26, 1966

3,263,232

ANTENNA TRANSPORTABLE SYSTEM

Neil W. Burwell, Southampton, and Charles Fassnacht, Philadelphia, Pa., assignors, by mesne assignments, to Washington Aluminum Co., Inc., Baltimore, Md., a corporation of Delaware

Filed May 24, 1962, Ser. No. 197,477
13 Claims. (Cl. 343—713)

This invention relates to a mobile antenna system, and more particularly to such an antenna system wherein the system carrying transport trailer may be readily converted to form the prime elevated support structure thereof.

The mobility requirements of many electronic communications systems necessitate an antenna system that may be readily transported to and assembled at a designated installation site. To increase antenna range, such installations usually require an appreciable elevation of the antenna with respect to the ground surface. One arrangement of the prior art to obtain such an elevated system is to erect a separate tower at the installation site and install a trailer transported antenna system on such a tower. This arrangement does not utilize the trailer itself, therefore resulting in an inefficient system concept requiring trailer stowage at the site. Also such separate towers of the prior art typically require a complicated arrangement of guys to stabilize the system and provide the necessary azimuth and elevation adjustments.

Another arrangement of the prior art is to use the existing trailer as the base for the antenna erection. This arrangement permits little height advantage and since it uses the trailer as a foundation only, results in considerable weight which serves little or no structural value.

In our system the complete trailer chassis is converted into an elevated support structure, thereby yielding an improved structure avoiding many of the disadvantages of the prior art arrangements. The assembly procedure is preferably reversible, allowing the erected antenna to be easily disassembled for convenient movement of the entire system to another site.

Briefly stated the trailer chassis utilized of our invention is formed of a plurality of supporting legs, which may be disassembled as a trailer chassis and constructed to form an elevated structure to contain the antenna reflector and associated R-F equipment. In a preferred embodiment of our invention the reflecting surface is formed of a plurality of members, which may also be disassembled to be contained within the support leg formed transport chassis. Thus, the entire antenna system may be contained on a trailer chassis which is transported to the installation site, and all the members thereof utilized to form the antenna installation. Full use is made of the trailer as a prime structural member, and after the equipment is installed, it becomes an extremely rugged tower capable of withstanding high wind and ice loads. The utilization of the transport trailer itself as the prime structural member effects a considerable weight and material saving over the prior art systems which elevate the antenna reflector to a comparable height.

An additional feature of our invention is the use of a cable and winch assembly, in conjunction with a lifting jack, to erect the antenna support structure. The lifting jack may serve the dual function of interconnecting the antenna reflector to the support structure, after erection thereof, to provide a reflector elevation adjustment. Also, the unit is completely self-contained, does not require an external power source or vehicle to accomplish the erection, with all necessary equipment being furnished on the transport trailer.

In an illustrated embodiment of our invention, the basic support structure is a tripod consisting of rectangular open-lace aluminum structural legs, which may be attached along their length in a spaced parallel juxtaposed relationship to form the transport trailer chassis. One of the legs contains the necessary wheel axles and running gear to permit transportation thereof. A tow bar with a standard lunette eye is provided for attachment to a prime mover vehicle.

To erect the antenna system the tripod forming legs are disassembled from their juxtaposed relationship and connected peripherally about a central hub in a star-like manner. The antenna reflector and associated R-F equipment is assembled and connected to the top surface of the central hub. The rear leg, which contains the wheel axles, is pivotally attached to the central hub and the two front legs hooked onto the central hub. A lifting jack then raises the central hub sufficiently to rigidly secure the two front legs to mating 120° separated surfaces of the central hub. The remotely extending ends of all the legs are then interconnected by a cable assembly, with the lifting jack being removed as soon as the tension has been taken up by the cables. The assembled antenna reflector is secured to the central hub and preferably interconnected thereto by the lifting jack which is arranged to permit an elevation adjustment of the antenna reflector. The cable assembly draws the rear leg towards the front legs while it rolls on its wheel suspension, thereby elevating the central hub. The front leg is then rigidly secured to a mating surface of the central hub to maintain its position and prevent collapse of the tripod. Ground anchors may then be added for increased wind resistance.

The above described procedure is completely reversible. That is, the rigid securing means of the pivoted leg to the central hub may be disengaged and the elevated tripod structure lowered. The other two legs are then disconnected from the central hub. The legs are then connected in spaced parallel juxtaposed relationship to form the transport trailer. The R-F equipment may then be disassembled and placed on the leg-formed trailer chassis. The wheel axles and running gear remain on one of the structural legs, permitting immediate transportation of the disassembled system.

It is thus seen that the basic concept of our invention resides in the use of the transport trailer itself as the prime support member for a mobile antenna system. The trailer and all the members of the antenna system are interrelated to permit a complete system, including the erection means and R-F equipment to be contained on the support structure formed trailer chassis which is delivered to the installation site.

It is therefore a primary object of this invention to provide a mobile antenna system wherein the transport chassis may be disassembled and converted to form an antenna carrying elevated support structure.

Another object of this invention is to provide a mobile antenna system wherein the transport trailer is formed of three separate elongated structural members which may be disassembled and constructed to form a tripod antenna support structure.

A further object of this invention is to provide a mobile antenna system wherein the support structure members form the transport trailer containing the antenna reflector, R-F equipment and elevating means.

An additional object of this invention is to provide a mobile antenna system wherein the trailer chassis may be converted to serve as an elevated support structure, and no external power means are required to elevate the support structure.

Still another object of this invention is to provide a mobile antenna system having an elevated support struc-

ture which may readily be converted to form a transport chassis.

Still a further object of this invention is to provide a mobile antenna system including an elevated support structure which may be converted to a trailer chassis, the entire antenna system being transported to or from the installation site on that trailer chassis.

Still an additional object of this invention is to provide an antenna support structure which may be readily assembled from a trailer chassis by the utilization only of connecting bolts and a cabling arrangement, said assembly process being reversible.

These as well as other objects of the invention will become readily apparent after reading the following descriptions of the accompanying drawings in which:

FIGURE 1 is a perspective view of the erected antenna system built in accordance with the teachings of our invention.

FIGURE 2 is a cross section along line 2—2 of FIGURE 1 and looking in the direction of the arrows, which shows the connection of the support legs to the central hub.

FIGURE 3 is a perspective view of the trailer chassis, constructed of the tripod forming legs of the support structure.

FIGURES 4 and 5 are plan and elevation views respectively of FIGURE 3, with the addition of the reflector forming members, and associated R-F equipment, as delivered to the installation site.

FIGURES 6–9 successively show the erection of our antenna system.

FIGURE 10 schematically shows a reflector and feed system utilized in conjunction with our invention.

FIGURE 11 illustrates the radial supporting rib of a preferred reflector structure which may be utilized in conjunction with the antenna system of our invention.

FIGURES 12–15 depict structural details of the reflector structure of FIGURE 11 with: FIGURES 12 and 12A showing the connection of the radial rib to the central reflector hub; FIGURES 13 and 13A showing the intermediate support structure between the reflective surface and radial rib; FIGURE 14 showing the intercostal support connection between the reflective surface and radial rib; and FIGURE 15 showing the connection of the ribs about the central reflector hub and support frame.

FIGURE 16 illustrates a typical dual polarized feed horn which may be utilized in conjunction with our invention.

Referring initially to FIGURE 1, antenna system **20** comprises a support structure **30**, reflector **50** and an R-F antenna feed **55**. Reflector **50** is interconnected to central hub **31** of structural member **30** by an interconnection means generally shown as **60**. A plurality of legs, preferably three in number, **32, 33, 34**, are connected to raised central hub member **31**. A wheel and axle transport means **35,35'** is permanently secured to one of the legs **32** of the structure support **30**. Thus it is seen that antenna reflector **50** and R-F feed **55** are elevated by structure **30**.

FIGURE 2 depicts a preferable connection of support legs **32–34** to central hub **31**. Central hub **31** contains 120° separated surfaces **45** which mate with similarly constructed leg end surfaces **39** (best shown in FIGURES 3 and 7). Gusset plates **42** disposed in each of corners of surfaces **39** and **45** contain apertures to receive bolt means **42'**; preferably two in each gusset plate. The interconnection of each of the legs **32–34** to central hub **31** by the eight bolt means **42'** through gusset plates **42** provides an extremely rigid connection able to withstand considerable loading. A pivot rod **41** interconnects leg **32** and hub **31**, the purpose of which will be set forth below.

Referring now to FIGURES 3–5 it is seen that structural member **30** forms a trailer chassis **70** prior to erection thereof, support legs **32, 33, 34** are positioned in juxtaposed spaced parallel relationship and attached along their length thereof by bolt means **36**, extending through mating apertures in the open-lace constructed legs. Reflector **50** is contructed of a plurality of members which when disassembled may be stacked on the leg formed trailer chassis **70**, as best shown in FIGURE 5. Radial ribs **51** and reflector face panels sections **52** are shown stacked at the front and rear portions of the trailer, respectively. R-F feed **55** is shown interposed between the face panel stacks.

Transport means **35, 35'**, which is permanently secured to central leg **32**, contains all the running gear, air-over hydraulic brake equipment and electrical equipment for the requisite trailer lighting. All the running gear remains intact on this leg section when it is later erected, and therefore dispenses with the requirement of disconnecting air or electrical lines within the leg. Preferably, a four-wheel type suspension is utilized with the front and rear wheels **35, 35'** being located relatively near their respective ends of the trailer. The rear suspension is preferably of a conventional fixed axle-type wheel and the front suspension of a fifth wheel type. Hence, the turning radius of the trailer will therefore only be limited by the braking lines leading to the fifth-wheel axle, since this wheel is capable of 360° rotation. A towing tug **37** is provided for attachment to a prime mover vehicle, with a standard lunette eye **38** at its open end.

Each of the legs **32–35** are of rectangular open-lace construction and include slope ends **39** having bolt receiving gusset plates **42** in each corner thereof, as discussed in conjunction with FIGURE 2. End **40** contains a ball joint **43** adapted to be connected to a bearing pad **44** (see FIGURE 1). Central hub **31** is preferably permanently pivoted to leg **32** by pivot rod **41**. Members **31–34**, as well as all other structural members discussed below, are preferably formed of aluminum for weight reduction and increased resistance to environmental conditions.

Reference is now made to FIGURES 6–9 which successively illustrate the manner in which the trailer chassis **70** is converted to the prime support structure **30**. The reflector **50** and associated R-F equipment is first removed from the trailer bed and assembled, in the manner that will be more fully set forth below. Bolt means **36** are disconnected permitting the removal of front legs **33** and **34** from rear leg **32**. Lifting handles may be provided to facilitate such handling. Center hub **31** is pivoted about **41** from the stowage position shown dotted in FIGURE 6. The reflector interconnecting support frame **61** is connected to the top of center hub **31**, and the assembled reflector **50** connected thereto. Hooks **47** at ends **39** of front legs **33, 34** are placed at the top of their respective surfaces **45** of central hub **31** to position those legs about the hub.

The structure will now be in the star-like position of FIGURE 7. The legs **32–34** are shown spread apart about 120° separated surfaces **45** of central hub **31** which mate with similarly shaped surfaces at leg end **39**. Rear leg **32** is pivoted thereto by rod **41**, and front legs **33, 34** positioned by hooks **47**. It is apparent from this figure that as the ends **40** of the legs are brought together, central hub **31** will be elevated, thereby forming a tripod structure with the antenna reflector secured to that member.

A screw jack **62** is inserted into a lifting lug of the reflector support **61** (as shown in FIGURE 6) to provide sufficient elevation of central hub **31** for the rigid connection thereto of front legs **33** and **34** at their bolt receiving gusset plates **42**. The structure is quite stable at this point due to the fact that the two front legs **33, 34** are rigidly attached to central hub **31**. This prevents overturning and eliminates the need for tag lines or other supports during the erection procedure.

A hoisting cable assembly **46**, as shown in FIGURES 8 and 9, is interconnected between the ends **40** of tripod forming legs **32–34** to provide for the bringing together of the support legs. In the particular cable interconnection shown, cable assembly **46** includes a plurality of

individual cables connecting the legs 32–34 to ring attachments 47, 47'. A winch, such as hoist 48, provides the tensioning force for drawing the legs together and thereby raising hub 31. An equalizing ring pulley 49 is preferably added at leg 32. This cabling arrangement advantageously utilizes the toggle action as the structure is elevated to maintain a nearly constant pulling force. Alternatively, other cable arrangements may be employed to erect the tripod, such as a single cable interconnecting all the legs, with an intermediate winch to provide the tensioning force for pulling the legs together.

Once sufficient tension is obtained in cable assembly 46, jack 62 may be removed and repositioned as shown in FIGURE 8 to provide elevation adjustment of reflector 50. Alternatively, a separate jack may be provided for lifting of the structure and reflector elevation adjustment. The front leg 32 is gradually drawn inward by winch 48 as it rolls on its front suspension 35 as the angular displacement of the pivotal connection at 41 is gradually lessened until end 39 of leg 32 is flush against the similarly contoured surface 45 of central hub 31. The structure will now be in the fully elevated position shown in FIGURE 1. Bolt means 42' are then inserted in gusset plates 42 of rear leg 32 to provide a stabilized structure.

Ball and socket joints 43–44 are provided to maintain stabilization of the structure against considerable winds. Base pad 44 of rear leg 32 will also provide ground clearance of wheel and axle assembly 35 when the antenna is in the erected position. If desired additional ground anchors may be provided for increased wind resistance of the antenna structure.

Azimuth pivot 63 of reflector interconnector 60 permits the requisite orientation of the reflector in accordance with the particular requirements of the system. The azimuth pivot 63 and the elevation jackscrew 62 permit an easy adjustment of reflector orientation, by simply rotating the nut of the elevation jackscrew, or adjusting the turnbuckle on the azimuth mechanism.

Feed 55 is preferably added to the antenna system after complete elevation of support structure 30, to minimize the requisite cable pulling force. Feed 55 is supported at the base of reflector 50 by a hinged bracket 65, providing a convenient method for pivoting the feed system in place, and permitting lowering for boresighting and maintenance. Feed 55 is rigidly connected to reflector 55 by a three-point suspension system which includes a dual horizontal bar arrangement and a dual wave guide run to the bottom of reflector 50 to constitute a stable structure for the horn when subjected to severe wind loading.

In summary, the erection procedure may be followed by sequentially referring to FIGURES 5, 4, 3, 6, 7, 8, 9 and 1. The complete antenna system is delivered to the site, as shown in FIGURES 5 and 4, and unloaded from the basic trailer chassis shown in FIGURE 3. The central hub 31 is pivoted as shown in FIGURE 6 and the support legs of the disassembled trailer positioned in star-like manner about central hub 31, as shown in FIGURE 7. The front legs 33, 34 are rigidly secured to central hub 31 and the oppositely extending ends of the legs interconnected by cable assembly 46, as shown in FIGURE 8. The cable assembly 46 draws rear leg 32 towards the other legs, as it slides on its front suspension, thereby elevating hub 31, as shown in FIGURE 9. Rear leg 32 is then secured to central hub 31 and the feed assembly 55 connected to antenna reflector 50, as shown in FIGURE 1.

The entire assembly procedure is completely reversible, permitting an existing antenna system to be readily disassembled and placed on its formed trailer chassis for transportation to another installation site. The permanent connection of transport means 35, 35' on leg 32 facilitates such subsequent transportation.

Referring to FIGURE 10 the antenna 50 and feed 55 are operatively connected to support member 61, which is adapted to be connected to central hub 31. As will be more fully discussed below in conjunction with FIGURE 15, support member 61 is an A-frame, and incorporates the azimuth and elevation adjusting mechanisms discussed above. Feed 55 is illustratively shown as a dual polarized feed with wave guides 56 and 57 connected to horn 58. Horn 58 will preferably include deicing terminal box 59, should the antenna be installed at a site where the environmental conditions necessitate this function.

FIGURES 11–14 illustrate a preferred reflector embodiment which may be used in conjunction with our invention. This embodiment has the particular advantage that the reflector components may be disassembled and mounted on the transport trailer 70, as shown in FIGURES 4 and 5. Also, complete interchangeability of parts is utilized to facilitate the assembly of the reflector system. All the hardware utilized in the reflector assembly is preferably stainless steel for increased environmental resistance.

Reflector 50 is comprised of a number of pie-shaped reflector plates 52, which are adjacently arrayed to form the outer annular region of parabolic reflecting surface 50, with a central spun aluminum dish 77 at its center. An overlapping lip is preferably added to a radial edge of each of the face panels 52 to assure R-F surface continuity across the gap between these panels. This overlapping lip is preferably backed with a dielectric material to avoid sporadic contact and resulting noise generation. Reflecting plates 52 are connected to a similar plurality of supporting ribs 51 extending outward from central reflector hub 53. Ribs 51 preferably bisect the joint between two adjacent face panels 52. The construction of one such rib 51 and the attachment of the reflector plate 52 thereto are shown in FIGURE 11. Face panels 52 are directly attached to ribs 51 by a plurality of intercostal circumferential rings 54 and intermediate support members 56.

FIGURES 13 and 13*a* illustrate the connection of intermediate support member 56 to face panel 52. Channel bracket stand-off 57 is welded to rib 51 and is positioned to be connected to a mating threaded self-locking heli-coil insert 58 attached to reflector plate 52. Channel bracket 57 is then bolted to rib 51 by the insertion of a standard socket wrench in access 59.

FIGURE 14 illustrates the connection of the intercostal members 54. Ring costal member 66 is connected by bolts 67, 67' to reflector section 52 and to stand-off 78 welded to rib 51. Opening 68 in rib 51 provides socket wrench access to bolt 67.

FIGURES 12 and 12*a* illustrate the connection of the peripherally disposed ribs 51 to central reflector hub 53. Central reflector hub 53 contains a plurality of precision-matched flat surfaces 69 equally spaced and adapted to receive the mating flat surface of rib 51. Bolts 70 securably attach the ribs 70 to central reflector hub 53.

FIGURE 15 is a plan schematic showing the connection of ribs 51 to central hub 53 and their relationship with respect to support member 61. Support member 61 is an A-frame and includes azimuth hinge pin 63 and elevation hinge pin 71, the latter being connected to jack 62, to permit adjustment of reflector position.

FIGURE 16 illustrates a typical horn structure which may be used in conjunction with our invention. Horn 58 is of the type described in copending U.S. patent application (A–108) Serial No. 166,205 filed January 15, 1962 in the name of David F. Bowman, entitled "Microwave Signal Transfer Apparatus" and assigned to the assignee of the instant invention, in which dual polarized signals entering wave guide ports 73, 74 are combined by spear 75 to yield a composite dual polarized signal at aperture 76. Septum 79 provides improved impedance

matching at the transition region. Housing 59 is provided for a deicing terminal box.

It is therefore seen that we have provided a mobile antenna system, wherein the entire disassembled structure is transported to the installation site on a trailer chassis, and the chassis may be converted to form a rugged elevated tripod structure capable of withstanding high wind and ice loads.

A practical working embodiment of the instant invention has been designed for a troposcatter communication antenna system operating in the 755 to 985 megacycle range and utilizing WR 975 waveguide runs. The maximum weight of the loaded trailer including the entire antenna system is 8,000 pounds. Each of the support legs are 30 feet long and weigh approximately 300 pounds. When erected, the tripod structure has a 40 foot base which may be stabilized in winds up to 120 miles per hour, with only three ground anchors, and is stable without anchors in winds up to 30 miles per hour. The reflector is a 28 foot dish having an F/D ratio of 0.414. It is constructed of 24 sectorial pie sections, each having a $\frac{1}{16}$-inch thick aluminum preformed surface. Each face panel weighs approximately 60 pounds, and each supporting rib approximately 80 pounds. The complete erection of the antenna system, or breakdown and restowage on the trailer, is designed to be accomplished within a single day.

In the foregoing disclosure this invention has been described with a preferred illustrative embodiment. Since many variations and modifications will now become apparent to those skilled in the art, we prefer therefore not to be limited to the specific disclosure contained herein but only by the appended claims.

We claim:

1. A mobile support structure comprising: a first, second and third leg; a first means constructed to fasten said legs directly to one another in spaced parallel relationship along the length thereof to form a trailer to form a trailer chassis; each of said legs having longitudinally extending top, bottom and side surfaces; said first means fastening side surfaces of adjacent legs in face-to-face relationship, with a side surface of said first leg facing a side surface of said second leg, and a side surface of said third leg facing the opposed side surface of said second leg; wheel axle transport means directly securable to the bottom surface of at least one of said legs for movement of said leg-formed trailer chassis; and a second means constructed to fasten said legs in a tripod manner.

2. A mobile support structure comprising: a first, second and third leg; a first means constructed to fasten said legs directly to one another in spaced parallel relationship along the length thereof to form a trailer chassis; each of said legs having longitudinally extending top, bottom and side surfaces; said first means fastening side surfaces of adjacent legs in face-to-face relationship, with a side surface of said first leg facing a side surface of said second leg, and a side surface of said third leg facing the opposed side surface of said second leg; wheel axle transport means directly securable to the bottom surface of at least one of said legs for movement of said leg-formed trailer chassis; and a second means constructed to fasten said legs in a tripod manner; said first and second means including removably connected bolts.

3. In a mobile antenna system a support structure comprising: a first, second and third leg; a first means constructed to fasten said legs directly to one another in spaced parallel relationship along the length thereof to form a trailer chassis; each of said legs having longitudinally extending top, bottom and side surfaces; said first means fastening side surfaces of adjacent legs in face-to-face relationship, with a side surface of said first leg facing a side surface of said second leg, and a side surface of said third leg facing the opposed side surface of said second leg; wheel axle transport means directly securable to the bottom surface of at least one of said legs for movement of said leg-formed trailer chassis; and a second means constructed to fasten said legs in a tripod manner about a central hub; said central hub constructed to receive an antenna reflector, feed, and reflector positioning means.

4. A mobile support structure comprising: a first, second and third leg and a central hub; means positioning said legs about said hub in a star-like manner; elevating means constructed to raise said central hub whereby said legs define a tripod; said elevating means adapted to permit the lowering of said tripod whereby some of said legs may be disconnected from said central hub and fastened in spaced parallel relationship to form a trailer chassis; transport means permanently connected to one of said legs; said transport means including a plurality of wheel axles, each having a pair of rotatively supported wheels.

5. A mobile support structure comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs directly to one another in spaced parallel juxtaposed relationship along the length thereof, between said first and second ends, to form a trailer chassis; each of said legs having longitudinally extending top, bottom and side surfaces; said first means fastening the side surfaces of adjacent legs in face-to-face relationship, with the top surfaces thereof lying substantially within a common horizontal plane; transport means connected to the bottom surface of at least one of the legs of said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the fiirst ends of each of said legs to said hub to form an elevated support structure.

6. A mobile support structure comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs in spaced parallel juxtaposed relationship along the length thereof, between said first and second ends, to form a trailer chassis; each of said legs having longitudinally extending top, bottom and side surfaces; said first means fastening the side surfaces of adjacent legs in face-to-face relationship, with the top surfaces thereof lying substantially within a common horizontal plane; transport means connected to the bottom surface of at least one of the legs of said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the first ends of each of said legs to said hub to form an elevated support structure; and a third means adapted to progressively draw the second ends of said legs together, whereby said central hub is elevated with respect to the second ends of said legs.

7. A mobile support structure comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs in spaced parallel juxtaposed relationship along the length thereof, between said first and second ends, to form a trailer chassis; transport means connected to said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the first ends of each of said legs to said hub to form an elevated support structure; said first end of said legs having a generally rectangular cross section; said hub having a plurality of peripherally disposed similar rectangular surfaces, one for each of said legs and in abutting relationship therewith; the first end of each of said legs and its cooperating one of said rectangular surfaces joined together in a generally vertical plane; the vertical planes of successive ones of said legs and cooperating hub surfaces peripherally spaced about said central hub.

8. A mobile antenna system comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs in spaced parallel juxtaposed relationship along the length thereof, be-

tween said first and second ends, to form a trailer chassis; transport means connected to said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the first ends of each of said legs to said hub to form an elevated support structure; a third means adapted to draw the second ends of said legs together, whereby said central hub is elevated with respect to the second ends of said legs; said first end of said legs having a generally rectangular cross section; said hub having a plurality of peripherally disposed similar rectangular surfaces, one for each of said legs and in abutting relationship therewith; the first end of each of said legs and its cooperating one of said rectangular surfaces joined together in a generally vertical plane; the vertical planes of successive ones of said legs and cooperating hub surfaces peripherally spaced about said central hub; said hub having a horizontally disposed top surface adapted to receive an antenna reflector; and a fourth means operatively connected between said reflector and reflector receiving hub surface to permit motion of said reflector with respect to said central hub.

9. A mobile antenna system comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs in spaced parallel juxtaposed relationship along the length thereof, between said first and second ends, to form a trailer chassis; transport means connected to said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the first ends of each of said legs to said hub to form an elevated support structure; a third means adapted to draw the second ends of said legs together, whereby said central hub is elevated with respect to the second ends of said legs; said first ends of said legs having a generally rectangular cross section; said hub having a plurality of peripherally disposed similar rectangular surfaces, one for each of said legs and in abutting relationship therewith; said hub having a surface adapted to receive an antenna reflector; and a fourth means operatively connected between said reflector and reflector receiving hub surface to permit motion of said reflector with respect to said central hub; said reflector being constructed of a plurality of individual members adapted to be assembled by bolt means; said leg formed trailer chassis being dimensioned to contain said individual reflector members prior to assembly of said reflector.

10. A mobile support structure comprising: a plurality of elongated supporting legs each having a first and second end; a first means to fasten said legs in spaced parallel juxtaposed relationship along the length thereof, between said first and second ends, to form a trailer chassis; transport means connected to said leg formed trailer chassis; said first means permitting disassembly of said leg formed trailer chassis; a central hub; a second means constructed to fasten the first ends of each of said legs to set hub to form an elevated support structure; and a third means adapted to draw the second ends of said legs together, whereby said central hub is elevated with respect to the second ends of said legs; said third means including a cable actuated means interconnecting said supporting legs.

11. An antenna structure comprising a tripod support joined at a central hub; said hub being constructed to receive a reflector carrying member; said tripod support including at least one leg pivotally fastened to said hub to permit angular separation thereof about said pivot; at least two of said tripod legs constructed to permit disengagement from said hub; means for fastening said disengaged legs in side-by-side juxtaposed relationship directly to each other; said legs having top, bottom and side surfaces; the side surfaces of adjacent ones of said legs in face-to-face relationship, with the top surfaces thereof lying substantially within a horizontal plane to define a trailer chassis; said leg formed trailer chassis including a transport means permanently connected to the bottom surface of at least one of said legs.

12. An antenna structure comprising a tripod support joined at a central hub; said hub being constructed to receive a reflector carrying member; said tripod support including at least one leg pivotally fastened to said hub to permit angular separation thereof about said pivot; at least two of said tripod legs constructed to permit disengagement from said hub; means for fastening said disengaged legs in side-by-side juxtaposed relationship directly to each other; said legs having top, bottom and side surfaces; the side surfaces of adjacent ones of said legs in face-to-face relationship, with the top surfaces thereof lying substantially within a horizontal plane to define a trailer chassis; said leg formed trailer chassis including a transport means permanently connected to the bottom surface of at least one of said legs; elevating means to effect a decrease or increase of the angular separation of said pivoted leg with respect to said central hub, whereby said central hub is elevated or lowered, respectively.

13. An antenna structure comprising a tripod support joined at a central hub; said hub being constructed to receive a reflector carrying member; said tripod support including at least one leg pivotally fastened to said hub to permit angular separation thereof about said pivot; at least two of said tripod legs constructed to permit disengagement from said hub; said disengaged legs adapted to form a trailer chassis; said leg formed trailer chassis including a transport means permanently connected to one of said legs; elevating means to effect a decrease or increase of the angular separation of said pivoted leg with respect to said central hub, whereby said central hub is elevated or lowered, respectively; said reflector being constructed of a plurality of individual members adapted to be assembled by bolt means; said leg formed trailer chassis being dimensioned to contain said individual reflector members prior to assembly of said reflector; said trailer chassis containing all of the elements utilized in assembling said antenna system.

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ELI LIEBERMAN, *Acting Primary Examiner.*