

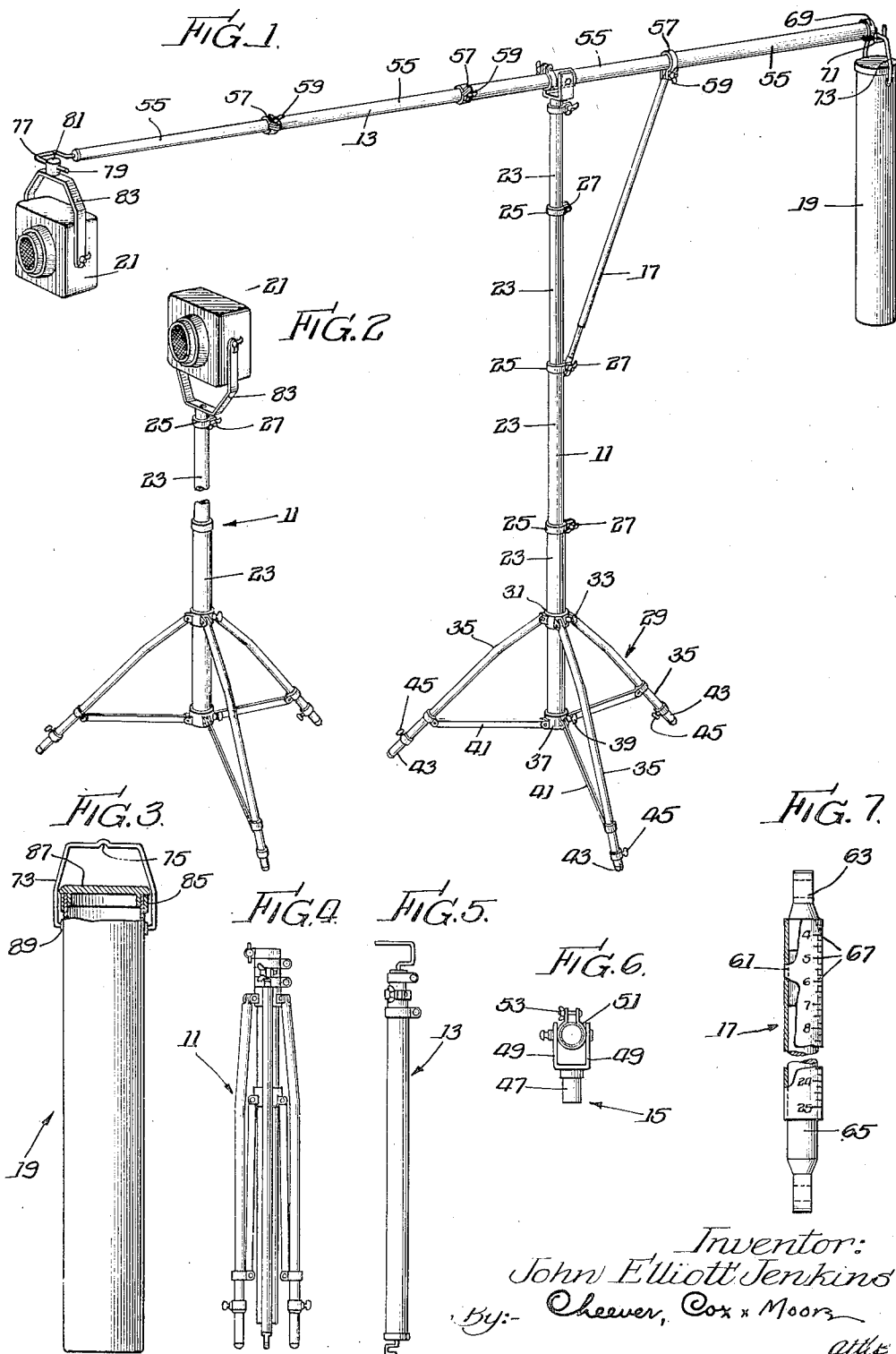
Jan. 9, 1934.

J. E. JENKINS

1,942,925

PORTABLE BOOM SUPPORT

Filed Feb. 15, 1932



Inventor:
John Elliott Jenkins
By: Cheever, Cox & Moore
attys

UNITED STATES PATENT OFFICE

1,942,925

PORTABLE BOOM SUPPORT

John Elliott Jenkins, Chicago, Ill., assignor to
Jenkins & Adair, Inc., Chicago, Ill., a corpo-
ration of Illinois

Application February 15, 1932. Serial No. 593,108

12 Claims. (Cl. 248—43)

My invention relates in general to support apparatus and has more particular reference to light portable support means especially well adapted for use with sound pick-up devices, such as are used for broadcasting and for other sound reproducing purposes.

The device of my present invention may, of course, be utilized wherever a light mobile support is desired, but I have found its use particularly apt as a mounting for microphones and will describe it as such although the scope of the invention is, of course, not determined by the particular device to be supported.

Among the difficulties encountered in using microphones and similar devices in broadcasting, in making audible motion pictures and in kindred activities is that the exigencies of the situation require mobility of the pick-up device so that it may be quickly shifted about, and, furthermore, in many cases, the microphone and its support have to be transported from place to place and quickly set up for use; and it is an important object of this invention to provide a support capable of carrying a microphone, or similar device, and of quickly and noiselessly shifting the supported device within the operating limits of the device; a device capable of having its parts extended or retracted and of having the elevation of supported devices changed within an unusually wide range, and of being quickly collapsed to form a particularly neat and compact portable package whereby the device can be carried about easily from place to place.

Another important object is to provide a swinging boom support, which can be readily conditioned for use as an ordinary adjustable floor support and this phase of the invention includes the provision of a bracket for holding the microphone and by which the microphone may be attached to the device as easily, when it is used as a boom support, as when conditioned for use as a pedestal or floor support.

Among the other objects of the invention is to provide an extensible boom support for microphones; to provide portability and ready collapsibility in a device of the class described with attendant advantages; to utilize the carrying case as a boom counterbalance when the device is set up for use by filling the case with any readily obtainable material, such as water to give it the desired weight; to use a part of the device as a measuring stick to determine the amount of fluid to be poured into the case when used as a counterweight; to provide a strong yet light weight, readily collapsible, microphone support capable of

folding into small space for transportation or storage; and in general to improve and facilitate microphone technique by providing a readily usable device of the character described.

Numerous other objects and advantages of the invention will become apparent as the same is more fully understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment of the invention.

Referring to the drawing:

Figure 1 is a perspective view of a device embodying my invention in its extended or operative position;

Figure 2 is a perspective view of the device conditioned for use as a floor stand;

Figure 3 is a perspective view partially in section, of a carrying case adapted to contain the parts of the support when collapsed for transportation or storage;

Figures 4, 5, and 6 are perspective views showing the several parts of the device in collapsed position; and

Figure 7 is a perspective view partially in section, of a part of the device.

To illustrate my invention, I have shown on the drawing a collapsible support structure comprising a main standard 11, a collapsible boom 13 adapted to be swingably and tiltably mounted on the main standard support 11, preferably at various adjustable points intermediate the ends of the extended boom and a bracket 15 by which the boom is swingably mounted on the standard 11. An extensible friction brace 17 may also be secured between the standard and boom to provide means for yieldingly securing the parts in an adjusted position. A case 19, in which the parts may be housed when in collapsed position for transportation and storage, is also provided. The case also may be used as a counter balance at one end of the boom when the parts are assembled in order to balance the weight of the device 21 to be supported on the tiltable boom.

The standard 11 preferably comprises a plurality of telescoping sleeves 23 provided at their upper ends with clamping collars 25 provided with manually adjustable thumb nuts 27, by which to clamp the telescoping parts in any desired relatively extended position. Although I may enjoy any suitable number of telescoping members 23 in order to obtain a desired extension, I find that four members, each approximately two feet in length provide a most convenient standard for broadcasting purposes, since this

number and size of telescoping tubes are adapted to fold together to form a package convenient for carrying and yet will extend sufficiently for all practical purposes.

5 The lower and outermost tubular section 23 is preferably provided with means 29 whereby to support the standard in upright position. Any suitable base may be employed but I prefer to utilize the tripod structure illustrated, which consists of a collar 31 slidable on the member 23
10 and having the thumb screw 33 for securing it in a desired adjusted position thereon. The collar 31 carries radially extending legs 35 and a second collar 37 is slidably carried on the lower tubular member 23 below the first mentioned collar 31. The second collar 37 also may be secured
15 in any desired adjustable position along the tubular member 23 by means of thumb screws 39. Each leg 35 is of preferably tubular construction and contains one or more telescoping sleeves 43, which may be extended from the legs and secured
20 in extended position by means of thumb nuts 45 in order to further increase the height of the standard 11 when necessary. The members 41 are pivotally mounted at their inner ends to the collar 37 and are pivotally secured each to a leg 35 at their outer ends.

It will be apparent that by sliding the collars 31 and 37 on the lower outermost tubular member 23 that the legs may be operatively extended
30 to form a suitable supporting tripod, or may be folded closely against the tubular member as shown in Figure 4 of the drawing in order to produce a collapsed, compact assembly for transportation or storage.

The uppermost and innermost of the collapsed tubular members 23 is adapted to receive the lower cylindrical portion 47 of the bracket 15, which comprises a pair of spaced arms 49 extended upwardly of the cylindrical portion 47
40 and a split collar 51 pivotally mounted for rotation about a horizontal axis between the arms 49. The collar 51 is provided with a thumb nut 53 for clamping same upon any member that may be inserted therein. The collar 51 is thus arranged for tilting movement about a horizontal axis and may be rotated about a vertical axis with respect to the standard by turning the bracket 15 in the upper end of the innermost
45 member 23.

The boom 13 preferably comprises a plurality of telescoping sleeves 55 adapted each to fit snugly in the next larger sleeve if the series and provided at their outer ends with clamping
55 collars 57 having manually adjustable thumb nuts 59 by which to clamp the parts in any desired relatively extended position. Although I may employ any suitable number of telescoping members 55, in order to obtain a desired boom extension, I find that four members, approximately two feet in length provide a most convenient standard for ordinary purposes. This number and size of telescoping tubes also are adapted to fold together as illustrated in Figure
60 5 of the drawing to facilitate packing of the parts within the case 19.

One of the intermediate sleeves 55 and preferably the sleeve adjacent the largest of the sleeves 55 is of a size to be snugly received within the collar 51 of the bracket 15, whereby the boom may be tiltably supported at the upper end of the standard 11 as shown in Figure 1. The thumb nut 59 of the bracket 57 at the upper end of the largest of the sleeves 55 also is provided
75 to engage one end of the friction brace 17 in

order to attach same to the boom, the other end of the friction brace 17 being similarly attached to the thumb nut 27 of one of the clamps at the upper end of one of the intermediate sleeves of the standard 11.

The friction brace may be relatively permanently connected to the thumb nut 27 but is preferably adapted for ready detachment from the nut 59 in order to facilitate the mounting and demounting of the boom on the standard. The friction brace may be folded parallel with the parts 23 as shown in Figure 4 of the drawing.

The friction brace 17 is illustrated in detail in Figure 7 of the drawing and comprises a cylindrical member 61, the upper end of which is provided with a lug 63 by which the brace may be attached to the thumb nut 59 and the friction brace includes a plunger 65, which is snugly and frictionally engaged within the bore of the sleeve 61 so that there is a certain amount of frictional movement of the plunger 65 within the sleeve. This frictional resistance renders the brace operative to hold the boom in a desired tilted position with respect to the standard, yet permits the angle of tilt to be axially adjusted by hand. The cylinder 61 is or may be provided with graduations 67 in order that the brace may be used as a measuring stick for determining the amount of ponderable material, preferably fluid to be poured into the case 19 in order that it may act as a counter-balance.

The largest of the telescoping tubes 55 is preferably provided with a ferrule 69 having a hook 71 for the purpose of receiving and supporting the case 19 used as a counter-balance for the device 21, which is supported at the other end of the extended boom, the case 19 being provided with a handle or bail 73 at its upper end as shown in Figure 3 of the drawing and the handle is looped as at 75 so that the case 19 will hang centrally from the hook 71. The innermost of the telescoping members 55 is also provided with a hook 77, which may be arranged in a horizontal plane when the boom is extended for use. The hook has a straight portion 79 at its outer end or tip which is adapted to penetrate a diametrical channel formed in a cylindrical portion 81 formed on the bracket 83, which is used to carry the device 21 so that in order to attach the device to be supported to the boom, it is merely necessary to engage the portion 81 with the hook 77 by sliding the same so that the hook will penetrate the diametrical channel in said portion. The advantage of providing the bracket 83 with a cylindrical portion 81 is to facilitate the use of the bracket in conjunction with the upright standard 11 in order to utilize the device of my present invention as a simple floor stand. The use of the device in this manner is illustrated in Figure 2 of the drawing in which the boom and its support bracket 15 have been removed from the standard 11 and the cylindrical portion 81 of the bracket 83 has been inserted in the upper end of the standard 11 in place of the cylindrical portion 47 of the boom-carrying bracket 51.

The case 19 may be made in any desired manner and in any suitable shape but I prefer to form it as a seamless cylindrical tube closed at one end to form a bottom for the case, the other end being opened and preferably re-enforced as by the band 85. A cover 87 also is preferably provided and this may be formed for screw-threaded engagement in the upper open end of the case or a bayonet, or other form of quick detachable closure may be employed. The bail

73 may be formed or wire stock or other suitable material and preferably comprises a strip of material having inturned ends journaled in small paths 89 formed in the side walls of the casing near the upper open end thereof.

The device of my present invention can be quickly and easily collapsed as shown in Figures 4, 5 and 6 into such small compass that all the parts may be snugly housed within the case 19, thus providing an extremely neat and convenient package for transporting the device from place to place. It is obvious, however, that the parts may be readily removed from the case and erected as illustrated in Figures 1 and 2; and that when erected the device can be used either with the vertically and horizontally swingable boom for supporting a microphone 21 or other device at a convenient easily changed location or the device may be used as a floor standard in conjunction with the bracket 83 which permits the device to be used at will either as a boom support or as a floor standard.

Among the several important features is the possibility of using the carrying case 19 as a counter-balance at the end of the boom opposite the supported device; the use of a friction brace in order to permit the boom to be held in a desired position or easily adjusted to any other desired position; the graduation of the friction brace for use as a fluid measure for determining the weight of the counter-balance; and in general, the provision of a neat, compact, readily and universally usable support whereby broadcasting and kindred technique may be materially improved.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing description and it is obvious that numerous changes may be made in the form, construction, and arrangement of the several parts without departing from the spirit or scope of my invention, or sacrificing any of its attendant advantages; the form herein described being a preferred embodiment for the purpose of illustrating my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In a suspension device, an upright, said upright having a socket, a boom, means demountably seated in the socket to swingably support the boom on the upright, a bracket detachably mounted on the boom and adapted to receive and support a microphone, or similar device, said bracket having a portion receivable in the socket of the upright whereby to mount the microphone or similar device on the upright when the boom is demounted therefrom.

2. In a suspension device, an upright, a boom carried by the upright for tilting movement about a horizontal axis, means at one end of the boom to support a microphone or similar device, means at the other end of the boom to provide a counter-balance to maintain the boom in a state of substantial equilibrium, said upright and boom being collapsible and said counter-balance comprising a casing adapted to receive and enclose the boom and the upright when in collapsed position.

3. In a suspension device, an upright, a boom carried by the upright for tilting movement about a horizontal axis, means at one end of the boom to support a microphone or similar device, an adjustable brace to maintain the boom in a desired tilted position with respect to the upright,

and means on the boom to provide a counter-balance to maintain the boom in a state of substantial equilibrium, said counter-balance comprising a casing adapted to contain material to provide a desired counter-balancing weight at the end of the boom and said brace being graduated to provide means for measuring the amount of material in the casing.

4. In a suspension device, an upright, a boom-carried by the upright for tilting movement about a horizontal axis, means at one end of the boom to support a microphone or similar device, and means at the other end of the boom to provide a counter-balance to maintain the boom in a state of substantial equilibrium, said counter-balance comprising a casing adapted to contain a material to provide a desired counter-balancing weight at the end of the boom, said brace being graduated to measure the amount of material in the casing and said casing being adapted to receive the boom and the upright when in collapsed position.

5. In a suspension device, a standard having a boom supporting portion, a boom, means to detachably and swingably support the boom on the boom supporting portion for tilting movement about a horizontal axis, support means to detachably mount a microphone, or similar device, on the boom, said support means comprising a portion adapted to cooperate with the boom to mount the microphone thereon and also formed to co-operate with the standard when the boom is demounted therefrom whereby to mount the microphone, or other device, directly on the standard.

6. In a suspension device for microphones and the like, an upright having a support portion, a boom removably mounted on said support portion for swinging movement on the upright, and means to support a microphone on the boom, said means comprising a portion formed for detachable engagement on the boom and for assembly on the support portion of the upright when the boom is demounted from the upright whereby the microphone may be supported on the upright or on the boom if desired.

7. In a suspension device for microphones and the like, a collapsible upright comprising telescopic members, collapsible means formed on the lowermost member forming a support base whereby to support the upright in upright position, a collapsible cross arm comprising a plurality of telescopic parts, support means on the upright for carrying the cross-arm tiltingly thereon, said support means including a mounting portion detachable on the upright and swingable thereon about a vertical axis and carrying means for receiving the cross-arm, said carrying means and said mounting portion being connected for relative pivotal movement, counter-balance means mounted on the cross-arm on one side of the support means, means to support a microphone or similar device on said cross-arm on the side of the support means opposite from the counter-balance means, said cross-arm being slidable in the carrying means to permit the cross-arm to be arranged in a condition of substantially balanced equilibrium, and holding means to secure the cross-arm against accidental displacement from arranged position at a desired angle with respect to the upright, said means being yieldable to permit the cross-arm to be shifted quickly and easily by hand and to a different relative angular position on the upright.

8. In a suspension device for microphones and

- the like, a collapsible upright comprising telescopic members, collapsible means formed on the lowermost member forming a support base whereby to support the upright in upright position, a collapsible cross-arm comprising a plurality of telescopic parts, support means on the upright for carrying the cross-arm tiltingly thereon, said support means including a mounting portion detachable on the upright and having a yoke portion swingable thereon about a vertical axis and a carrying portion for receiving the cross-arm, said carrying portion being tiltably mounted on the yoke portion, counter-balance means mounted on the cross arm on one side of the support means, means to support a microphone or similar device on said cross-arm on the side of the support means opposite from the counter-balance means, said cross-arm being slidable in the carrying portion to permit the cross-arm to be arranged in a condition of substantially balanced equilibrium.
9. In a suspension device for microphones and the like, a collapsible upright comprising telescopic members, means forming a collapsible standard on the base of the upright, a collapsible cross-arm comprising a plurality of telescopic parts, support means on the upright for carrying the cross-arm tiltingly thereon, said support means including a mounting portion carried by the upright and swingable thereon and a sleeve for embracingly receiving the cross-arm, said sleeve and said mounting portion being connected for relative pivotal movement and holding means cooperatively associated between the upright and the cross-arm for preventing accidental displacement of the cross-arm from arranged position at a desired tilted angle with respect to the upright, said means being yieldable to permit the cross-arm to be shifted quickly and easily to a different relative angular position on the upright and permitting swinging movement of the cross-arm on the upright.
10. In a suspension device for microphones or the like, a boom, a standard, means to mount the boom on the standard comprising a sleeve mounted on the standard for tilting movement about a horizontal axis, and adapted to receive the boom, means at one end of the boom to support a microphone or similar device, means at the other end of the boom to provide a counter-balance to maintain the boom in a state of substantial equilibrium on the standard, said boom being axially slidable in the sleeve to adjust the boom to a state of balanced equilibrium on the standard, and means to secure the boom in adjusted position with respect to the sleeve.
11. In a suspension device for microphones or the like, a boom, a standard, means to mount the boom on the standard comprising a sleeve mounted on the standard for tilting movement about a horizontal axis and for pivotal movement about a vertical axis and adapted to receive the boom, means at one end of the boom to support a microphone or similar device, means at the other end of the boom to provide a counter-balance to maintain the boom in a state of substantial equilibrium on the standard, said boom being axially slidable in the sleeve to adjust the boom to a state of balanced equilibrium on the standard, and means to secure the boom in adjusted position with respect to the sleeve.
12. In a suspension device for microphones and the like, a collapsible standard comprising telescopic members, collapsible means formed on the lowermost telescoping member to provide a supporting base for the standard, a collapsible cross-arm comprising a plurality of telescoping parts, support means on the standard and carrying the cross-arm tiltably thereon, said support means comprising a mounting bracket detachably pivoted on the standard, and a carrying portion tiltably on the bracket for movement about a horizontal axis and having means for receiving and supporting the cross-arm, carrying means to support a microphone or similar device on the cross-arm on one side of the support means, and demountable counter-balance means mounted on the cross-arm on the opposite side of the support means from the carrying means, said cross-arm being longitudinally adjustable in the carrying means.
- JOHN ELLIOTT JENKINS.

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