

May 10, 1927.

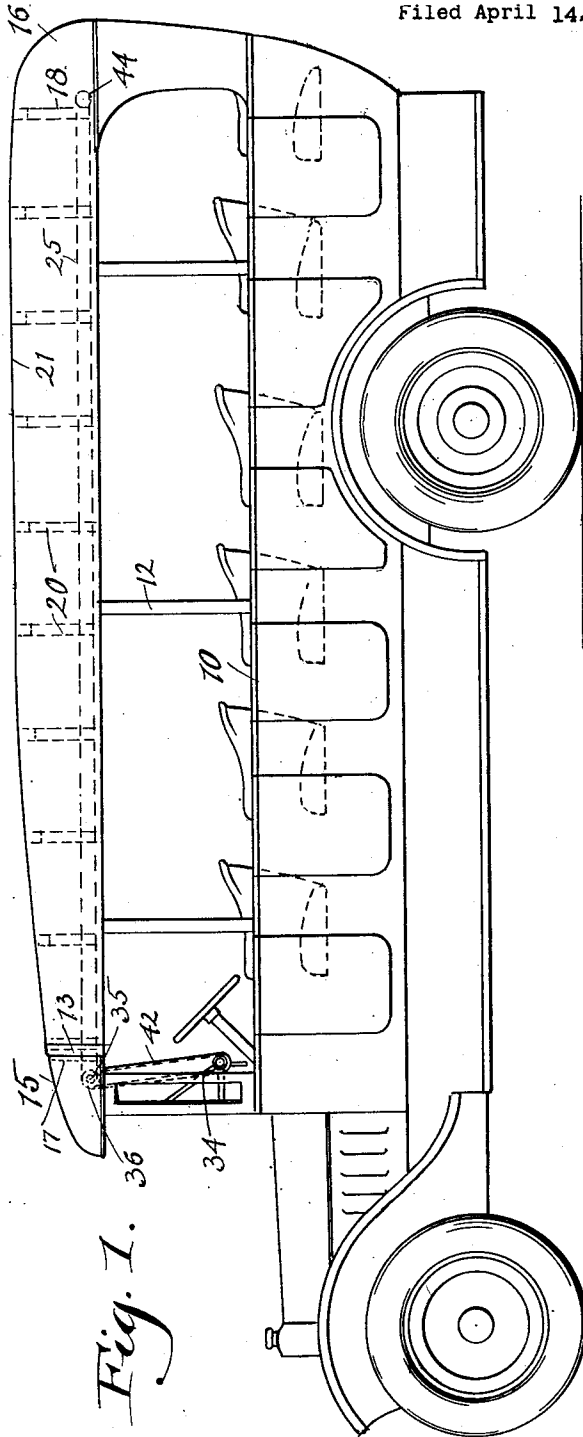
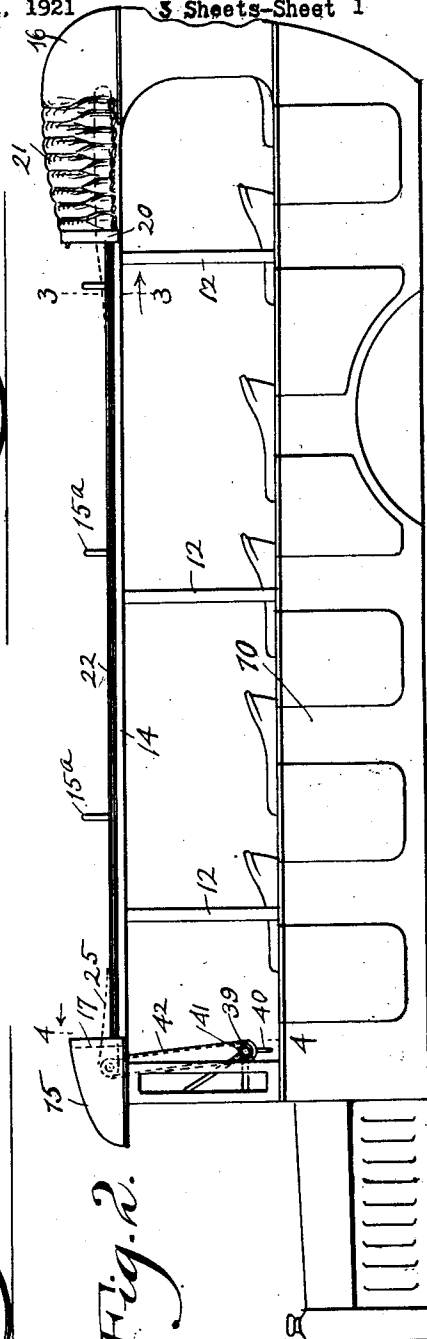
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J. H. TEACHOUT

FOLDING TOP FOR VEHICLES

Filed April 14, 1921

3 Sheets-Sheet 1



Inventor
John Howard Teachout
by Thurston Davis & Hudson
Attorneys

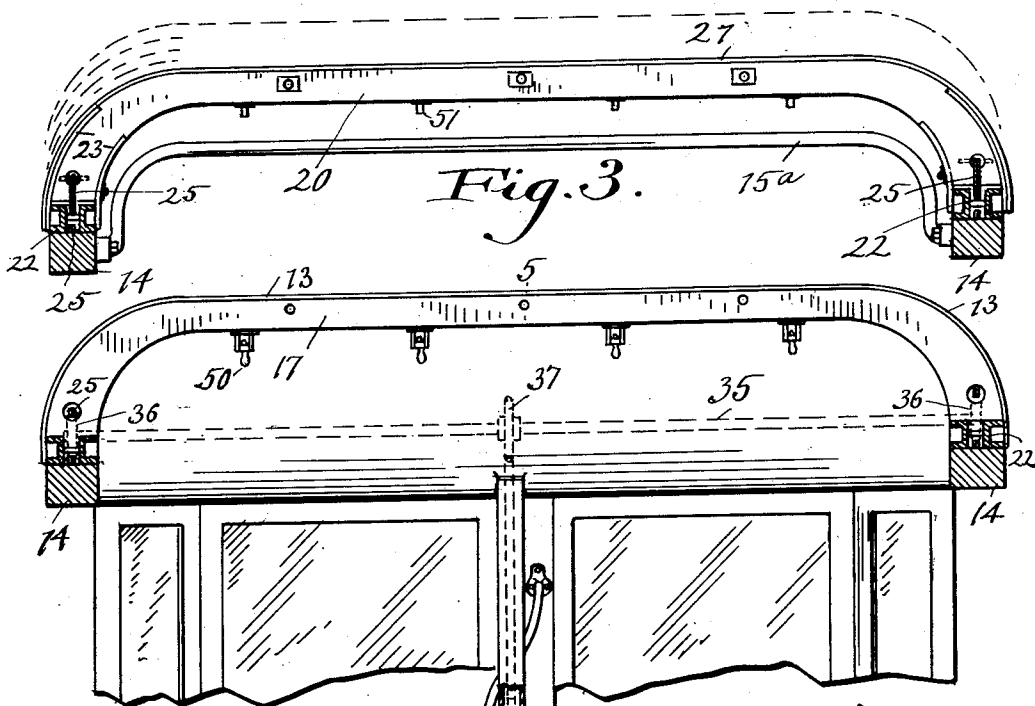
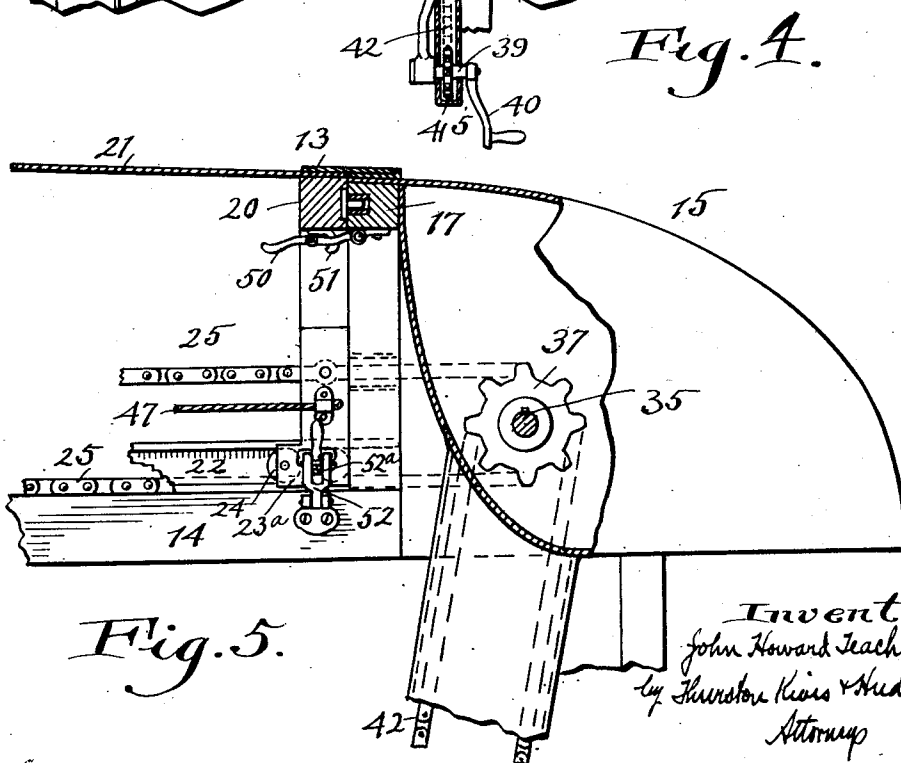
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John Howard Teachout
by Thurston Kiers & Hudson
Attorneys

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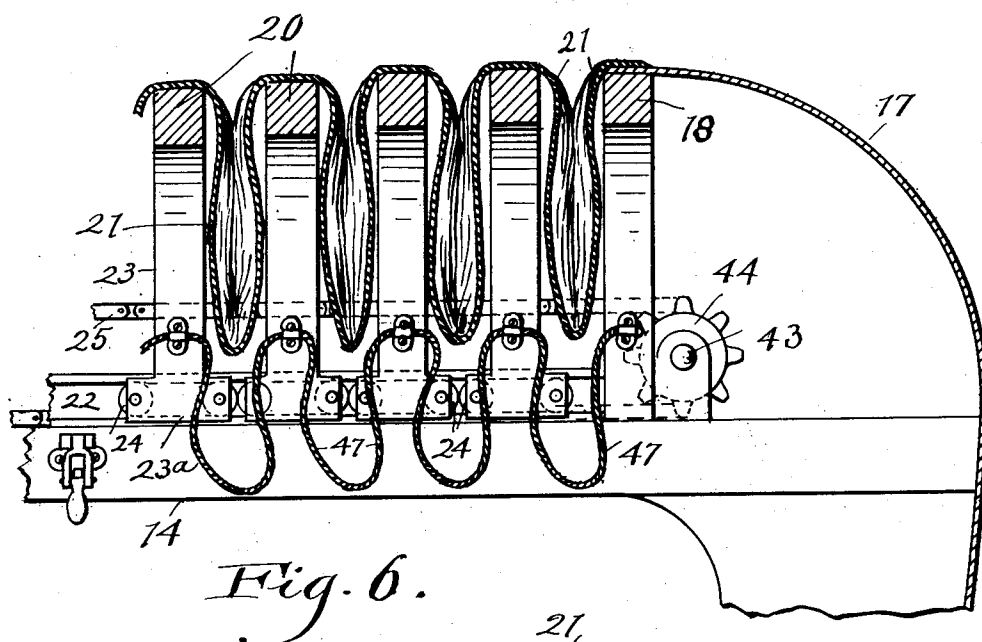
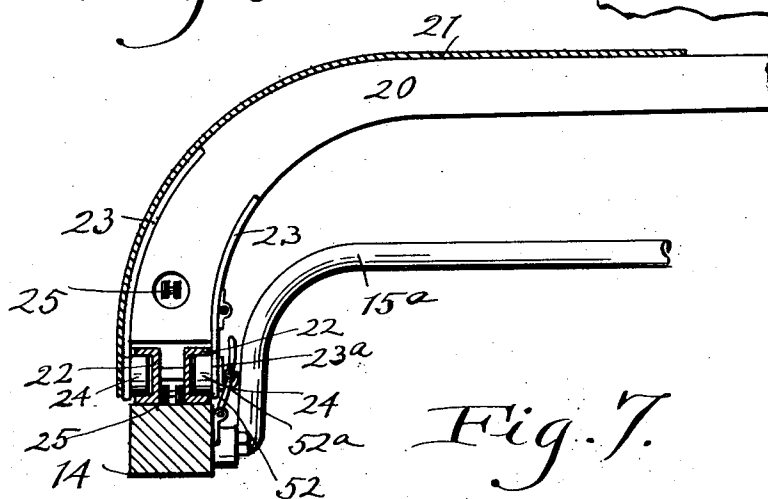
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Inventor
John Howard Teachout
by Thurston Kins & Hudson
Attorneys

Patented May 10, 1927.

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UNITED STATES PATENT OFFICE.

JOHN HOWARD TEACHOUT, OF CLEVELAND HEIGHTS, OHIO, ASSIGNOR TO THE WHITE MOTOR COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FOLDING TOP FOR VEHICLES.

Application filed April 14, 1921. Serial No. 461,210.

It is customary to equip large passenger busses which are used for sight seeing purposes, with permanently fixed tops. But in many sections of the country, particularly in mountainous districts where such busses are used, it is desirable that, when the weather permits, there shall be no top canopy to prevent the passenger from looking upward at things worth seeing.

The present invention is a folding top for such busses; the object being to provide a folding top and operating mechanism therefor which will enable the driver alone to quickly spread the top when occasion for its protection arises, and to quickly fold it up when it is desired to have it in that condition.

The invention consists in the construction and combination of parts shown in the drawings and hereinafter described as briefly defined in the appended claims.

In the drawings, Fig. 1 is a side elevation of a bus equipped with the present invention,—the top being unfolded or spread for the protection of the passengers; Fig. 2 is a similar view when the top is folded back out of the way; Fig. 3 is a transverse vertical section of the top in the plane of line 3—3 on Fig. 2; Fig. 4 is a transverse vertical section in the plane of line 4—4 on Fig. 2, Fig. 5 is a longitudinal section of the front end of the top pocket in the plane of line 5—5 on Fig. 4. Fig. 6 is a longitudinal vertical section of the rear part of the top when the folding part thereof is folded back, as shown in Fig. 2; Fig. 7 is a transverse vertical section of one side of the top near one of the movable cross bows.

The body 10 is provided with a fixed skeleton top comprising uprights 12 fixed to the body along the sides thereof, two parallel longitudinal bars 14 secured to these uprights; a permanent front top portion 15, and a permanent rear top portion 16. The permanent front top portion includes a transversely extended bow 17 fixed to the two bars 14, and fitted within and secured to the rear end of the canopy of the front top portion. The permanent rear top portion 16 includes a transverse bow 18 which is fitted within and secured to the front end of the canopy of the rear top portion, and also to the bars 14. These two bows 17 and 18 help to hold the two bars 14 in the spaced parallel position in which they should be. Other

bowed cross braces 20 and fixed cross braces 15^a are also extended between and fixed to the bars 14 at intervals, between the fixed front and rear portions of the top, the functions of these cross braces being to help to hold the bars 14 in parallel relation. The space between the fixed front and rear top portions 15 and 16 may be closed by the folding portion of the top, which folding portion consists of a plurality of cross bows 20 and a canopy 21 which may be made of suitable flexible material such as the waterproof cloth commonly employed for automobile tops. The rear end of this canopy is preferably fixed permanently with the rear fixed frame portion.

The ends of the cross bows 20 are supported upon the bars 14 and have a guided sliding engagement with rails 22 which are fixed upon the bars 14. There are two rails 22 fixed to each bar 14, each rail being in the form of a channel bar; and the two channel bars are spaced apart and arranged back to back. The open or grooved sides of the two channel bars are therefore exposed as shown, and there is a space between the closed backs thereof for the accommodation of the sprocket chain 25.

Each bow 20 is provided with two plates 23 at each end, said plates being extended below the bow ends and being secured one to the inner and one to the outer face of the bow whereby the lower end of said plates will lie on opposite sides of the two rails 22. The lower end of each of these plates is provided with a wide foot 23^a, on the inner side of which two rollers 24 are rotatably mounted, said rollers being loosely fitted within the groove of the adjacent rail or channel bar 22. Each bow is therefore mounted to travel forward or backward on the rails 22 and is so guided that the two ends of said bow will move equally.

A transverse shaft 35 is mounted beneath the fixed front top portion in bearings supported by the two bars 14. To this shaft two sprockets 36 are fixed in line with the spaces between the rails 22. A third sprocket 37 is fixed to this shaft. A transverse shaft 39 is mounted in convenient position with respect to the driver's seat. It has a crank fixed to it, and also a sprocket wheel 41. A sprocket chain 42 is trained over sprocket wheel 41 and sprocket wheel 37, whereby the driver may turn shaft 35.

Beneath the rear fixed part of the top a shaft 43 is mounted and on it are secured two sprockets 44, these being in alignment respectively with the two sprockets 36. A sprocket chain 25 is associated with each of the bars 14, and is trained over a front sprocket 36, and a rear sprocket 44. The lower leg of this chain rides on the top of the bar 14 between the two rails 22. The upper leg of this sprocket chain passes through holes in the bows 20, but is fixed to the front one of the bows 20.

A spacing cable 47 is fixed to the front bow and passes through all of the other bows 20 and is fixed to them all.

If the top is spread as shown in Fig. 1, and it is desired to fold it back, the operator by manipulation of the adjacent crank 40 will drive shaft 35 and thereby the sprocket chain will be caused to travel, so that the upper run of each will move rearward. This will draw the front bow rearward into engagement with the next bow, which will then be pushed rearward against the next bow, and so on, whereby all of the bows will be moved rearward into the position shown in Fig. 2, the canopy attached to said bows folding up accordian-wise between the bows. All that needs to be done when the top is to be again spread is for the operator to turn his handle in the opposite direction, the front bow is then drawn forward, and the spacing cables 47 as they are stretched will successively pick up the other bows 20 and move them forward until the movable parts come to the position shown on Fig. 1.

The front fixed top is provided with a rearwardly extended flange 13 into which the front bow 20 will telescope coming to the position shown in Fig. 5. A latch 50 of any suitable construction may be provided for connecting the front movable bow 20 with the fixed front bow 17. This latch may be pivoted to the bow 17 and may engage a hook 51 on the bow 20. Similar latches 52 may be pivoted to the side bars 14 for engagement with hooks 52^a carried by the bows 20 near their lower ends. By means of these latches the front bow will be securely fixed in position such as will

prevent any accidental folding up of the movable top. If desired, each of the movable bows 20 may be provided with hooks for engagement by clamps carried by the bars 14.

Having described my invention, I claim:

1. A folding top for vehicles, comprising, in combination, a skeleton frame having two side bars, guide rails fixed to said bars, a plurality of top bows which are mounted to slide along said track rails, a flexible canopy secured to said bows, a pair of endless sprocket chains, the upper runs of which pass through holes in said bows, means connecting the front bow to said sprocket chains, sprocket wheels mounted in the top frame adjacent the rear end thereof, other sprocket wheels mounted on the top frame adjacent the front end thereof, the two sprocket chains being trained over said sprocket wheels and the two wheels being supported directly over the side bars so that the chains are positioned along the tops of the bars centrally thereof, means by which to simultaneously turn the front sprocket wheels, and means apart from said canopy to stop each of said bows during its forward movement when it has reached its allotted position.

2. A folding top for vehicles, comprising, in combination, a skeleton frame having two side bars, a fixed front top portion, a fixed rear top portion, rails secured to said side bars, bows, wheels mounted on their ends adapted to ride on said rails, a flexible canopy secured to the bows, and to the fixed rear top portion, sprocket wheels mounted in the fixed rear top portion, other sprocket wheels mounted in the front top portion, sprocket chains trained over said sprocket wheels and extending directly above the bars centrally thereof, said bows having holes through them through which the upper runs of said sprocket chains pass, means connecting the front bow with the upper runs of said sprocket chains, and flexible devices connecting said bows together in series.

In testimony whereof, I hereunto affix my signature.

JOHN HOWARD TEACHOUT.