

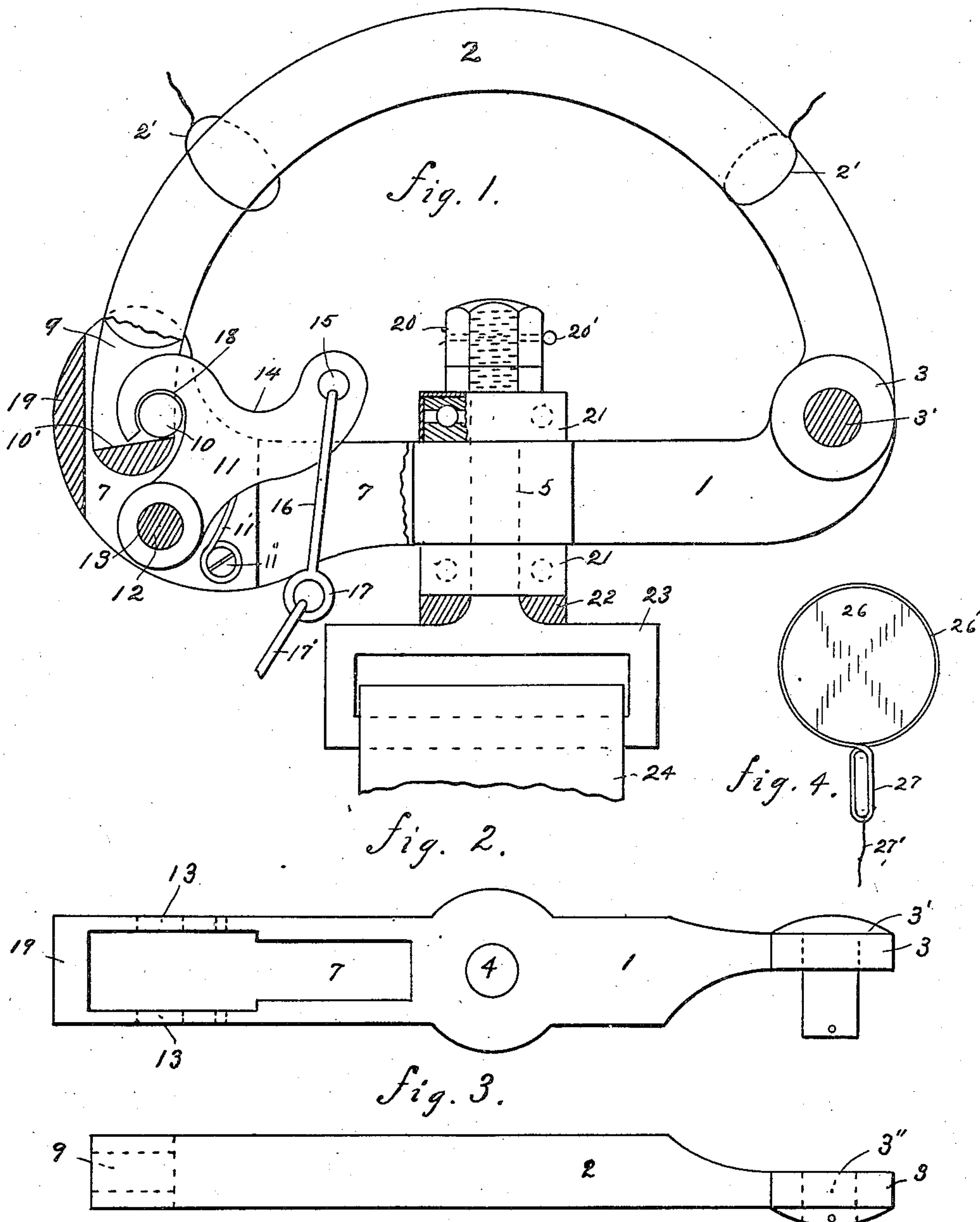
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PARACHUTE

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INVENTOR.

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# UNITED STATES PATENT OFFICE

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## PARACHUTE

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My invention relates to improvements in parachutes and in which the aviator is suspended from the supporting-surface by a system of detachable suspensory-connected guys and accessories combined with a swiveling aviator-harness connected with said guys. As the harness ordinarily is in fixed non-swiveling position relative to the supporting-surface, the aviator on landing may be presented backwards against some obstacle and be injured seriously. Also, on landing, the parachute may still be inflated and the aviator be injured by being dragged by the inflated parachute over rocks or wire fences, etc. before it comes to rest.

The object of my invention is to provide a way and means by which the aviator may turn himself so as to face forward at any time before landing, irrespective of the parachute, so that he may see obstacles and help himself to avoid such and consequent injury to himself or parachute.

Another object, is to provide means to deflate the parachute as aviator lands, to avoid danger to himself, or to the parachute by being torn in dragging before it can be deflated.

I attain these objects by the combination, construction, and operation of the mechanism, shown in the diagrammatic drawings accompanying this specification, and in which like numerals denote like parts in all the views, and in which Figure 1, is a side elevation of my invention showing a horizontal body-member having a swingable guy-receiving arm pivoted thereto and at one side thereof, a releasable locking-device comprising a lever 11 pivotally mounted thereon and spring-pressed into locking position, by spring 11', the swivel-member for the aviator-harness, and the release-connection for unlocking the arm to deflate the parachute when landing,

Fig. 2, is a plan view of the body of same, and the arm-joint and seat thereon.

Fig. 3, is plan view of the vertically-swingable guy-receiving arm and pivot-joint bearing thereon.

Fig. 4, is a side or outline view of the fan or instrument used by aviator in turning himself on the swivel-joint to harness.

In carrying my invention into practice I

make use of an elongated, lower body-member 1, of metal, and having at one side thereof, a transverse arm-pivot seat 3, and at the opposite side, an enclosed, central, vertical cavity 7, for the reception of the free end of arm 2, pivoted thereto by pivot-stud 3', and for the locking-mechanism 10—11 for holding said parts together after the suspensory guys 2' are mounted on said arm.

Said metal arm 2, is of upwardly-curved outline, and has a transverse pivot-hole 3'' in one end thereof, which engages with said pivot 3' in body 1, and at the opposite end, a central, vertical, sunken, lock-notch 9, for the reception of the locking-mechanism 10—11.

The side walls of cavity 7 extend parallel with the arc of motion of arm 2, and the floor 10' of cavity 9 extends downwardly and outwardly; so that roller 10, when under the strain from guys, tends to lock itself more firmly therein.

By reason of the sunken notch offering no protuberances on the inner side of arm 2, the outer guys thereon will encounter no resistance or obstacle, in exit or discharge therefrom, when the arm is unlocked by the aviator to deflate the parachute.

Said locking-device comprises a pivoted lever 11, having a transverse pivot-hole 13 for mounting same in body 1, and an upwardly and inwardly extending arm 14 having an end hole 15 for the attachment thereto of a vertical actuating-wire 13, which extends downwardly and through space 7, and is provided with a lower end-loop 17, for attachment thereto of a flexible cord 17', leading to within reach of the aviator.

The lower free end of said cord may be attached to some convenient place on the aviator-harness so as to be at hand for unlocking arm 2, to deflate the parachute.

Lock-lever 11 has also formed in its upper portion, a circular, transverse seat 18, for the reception of the anti-friction locking-roller 10, which bears against floor 10' in arm 2, when in locked position.

Lever 11, may be held in locked position by a spring 11', located in said cavity and held by a screw 11'' threaded in one side-wall thereof, and the free end of said spring bears



against the under side of lever 11 and forces same into cavity 9 of arm 2.

The outer ends of the side walls of cavity 7 are joined together by a rib 19 between same.

Roller 10 may be held in seat 18, by slightly pening both side-edges of said seat to raise a burr thereon, but it must be loose enough to turn freely therein and create slight friction when arm 2 is unlocked.

The side walls of cavity 7 are provided with transverse aligned holes 13 for the reception of pivot-stud 12 on which is pivoted lever 11.

In placing the parachute suspensory-guys 2' on arm 2, I divide said guys into two separate groups or sets, and the first set to be mounted on said arm, I form with small lower-end loops so that they have to be forced thereon, these guys are to remain permanently and not be discharged therefrom when arm 2, is unlocked; Fig. 1, shows one each of such guy-ends.

The second set, I form with relatively large end-loops so that they will readily slip therefrom when the arm is unlocked from body 1. As additional help to permanently retain the first set of guys on said arm, a cord may be tied around same outside said first set, or a raised stop may be formed on the arm at this point.

Thus when arm 2 is unlocked, the outside set of guys at once slip off same approximately simultaneously and without drag or entanglement, spill the air and deflate the parachute, and avoid dragging same across the field, or tearing the parachute.

In order that the aviator may face about freely in any direction before landing, and to avoid having his back injured by being swung against a tree, wall, or wire fence etc., I provide a vertical swivel-joint in the body member 1, and to which I attach the strap 24 of the harness, thus making same freely revolvable. Said strap 24, is provided with a double or dual ring or loop at its lower end for the attachment of the harness-members in the usual manner.

At the middle of the lower or body-member 1, I form a vertical, transverse, hole 4, see Fig. 2.

In said hole I mount a swivel-bolt 5, and the lower end of said bolt I form, preferably, into a wide transverse loop 23, for the attachment thereto of the strap 24 leading to the aviator-harness.

On both the upper and lower sides of body 1, and registering with and enclosing bolt 5, I mount an antifriction thrust-bearing 21, see Fig. 1, and below the lower bearing, I mount a washer 22, having a lower rounded-edge hole, for the reception of a rounded shoulder on bolt 5 where it joins loop 23.

This gives added strength to bolt 5 where it is most needed.

The upper end of bolt 5 is threaded for the reception of a castellated nut 20, and said bolt is secured from turning by cotter-pin 20' through same, see Fig. 1.

Thus the aviator-harness is easily turned in any direction irrespective of the parachute position.

That the aviator may readily turn himself about in the air, irrespective of the parachute I provide a sail or fan 26, comprising a light wire edge or form 26' covered with fabric, and a handle 27, and said handle may consist of an extra amount of edge-wire bent into handle shape, or a wooden handle may be driven on over the ends of the form-wire; said fan will also enable the aviator to maintain his position after turning.

Said sail or paddle the aviator may extend to one side, and, using the air as a fulcrum, easily turn himself to face in any direction at will. The sail is preferably held at arm's length and slightly above the aviator, and, by varying the angle of incidence thereof, the motion of same through the air in descent will impart a sidewise slip or glide to the parachute, and by slightly twisting the paddle a rotatory motion will be imparted that will revolve the aviator on the swivel-joint so as to face in any direction; the action of the sail may be increased by making same larger, and the handle may be jointed or telescoped so as to go in the pack.

Said sail I stow in the parachute-pack, and attach a cord 27' to the handle 27, and the opposite end thereof may be attached to a suitable place on the harness, to retain same at hand.

By putting the sail in the pack first on packing, it will in no way interfere with the withdrawal of the parachute and always be at hand, and yet out of the way of the aviator before launching.

Thus it will be noted that no special instructions are needed to use my devices, other than to properly pack the parachute in the container so it will readily come forth, as is ordinarily done. The sail being put in pack first will come out last, and after the parachute is pulled out by the pilot-chute, and will be at hand by reason of its connecting cord.

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

1. A guy-controlling device comprising a body having a horizontal pivot-joint at one side thereof, a guy-receiving arm mounted on said body, a releasable locking device for the free end of said arm, a vertical pivot-bearing in said body located between said arm pivot and the free arm-end, and a vertically-acting, flexible, release connection, attached to, and extending downwardly from,



said locking-device, to within reach of the aviator, for unlocking said arm.

2. The combination with a releasable guy-holding device comprising, a body having an arm pivoted at one side thereof and a releasable arm-lock at the opposite side, a vertical swivel-joint located between said pivot and arm-lock, of a flexible tension-connection extending downwardly from said arm-lock to within reach of the aviator, for tripping said arm-lock to free the guys.

3. In combination in a guy-holding device, a horizontal body, a vertically-swingable arm horizontally pivoted thereto and oscillatable in a vertical plane, an arm-locking device actuating in a vertical plane, and a flexible tension-connection attached to said arm-locking device and extending downwardly to within reach of the aviator and through said body.

4. In combination, a parachute and suspensory-guys, a swivel-member connecting the aviator's harness to said guys, a releasable guy-holding arm adapted to receive said guys, the same being divided into separate groups, and deliver only one of said groups when released, a releasable locking device for one end of said arm, a releasable tension-connection attached to said locking-device and extending to within reach of the aviator, an aviator-harness connected to said swivel-member, and a direction-controlling fan or hand actuated flat surface having a handle at one side thereof and connected to the aviator-harness by a flexible connection.

5. In combination, a parachute, suspensory-guys therefor separated into opposed groups, a guy holding releasable arm, a locking device for said arm, and a tension-connection from said locking-device extending to within reach of the aviator for unlocking said arm.

6. In combination, a parachute, guys therefor separated into two opposed groups, a body, a releasable guy-retaining arm horizontally pivoted in said body, and arranged to deliver one set only of said guys when released, a releasable locking-mechanism for said arm, a harness swivel-member vertically pivoted in said body, and a tension release-member or connection extending from said arm-lock to within reach of the aviator.

7. The combination with a parachute and suspensory-guys divided into separate groups, a releasable member for receiving both said groups and one of said groups permanently attached to said member and the other of said groups releasably mounted thereon, of a release-cord extending from said release-member to the aviator-harness.

8. The combination with a releasable guy-controlling device, of a set of suspensory-guys divided into dual groups the loops at the lower ends of one group fitting snugly on said controlling device and arranged to re-

main permanently thereon, and the other of said groups having larger loops on the lower ends and arranged to be delivered therefrom when said device is released.

9. The combination in a guy-controlling device having a swivel-device thereon, a releasable arm-lock and a release-connection, of a swingable arm having a smooth outside surface from which the guys will slip readily and a locking-slot through same at the outer free end for the insertion of a locking-tumbler for holding same locked position, and over which the guys will readily slip.

10. The combination in a guy-controlling device, a horizontal body, a through vertical slot or socket in one end of said body and having a closed outer end, a releasable guy-receiving vertically-swingable arm pivoted on a horizontal pivot located in the opposite end of said body and having a through locking-slot in the outer end of same and parallel therewith, a locking-bolt horizontally pivoted in said slot beneath and adapted to engage and hold the free end of said arm inside said body-slot, a vertical harness swivel-bolt pivoted in the middle of said body and beneath said arm, harness attachment-loops on the lower end of said bolt, and a flexible arm-release connection attached to said locking-bolt and extending down through said body-slot and to within reach of the aviator whereby said arm is released.

11. The combination in a guy-controlling device of a body, a swingable guy-receiving arm pivoted at one side thereof, and at the opposite side a releasable arm-lock, a swivel-mechanism located midway between said points and comprising an integral, vertical, cylindrical socket or seat, a revoluble pivot-member mounted in said seat, a harness-attachment at the lower end of said member, and a release-member or cord extending from said arm-lock to within reach of the aviator.

12. In combination in a guy-controlling device, a base or body, a vertically swingable guy-receiving arm pivoted at one side of said base, an arm-locking device located at opposite side of said base, a revoluble, vertical, pivot-member located midway of the body and extending upwardly through same and having a nut or other stop on upper end of same and harness attachment-members below same, and a movable, flexible, arm-release cord, for unlocking the arm-locking device, extending to within reach of the aviator.

13. A guy-controlling device comprising a body, a guy-receiving swingable arm pivoted to said body and so constructed and operated as to receive two sets of suspension-guys thereon and deliver only one set of same when liberated, a releasable arm-lock, and a flexible release cord operable by the aviator to release said arm.

14. In combination, a guy-controlling body the guys cooperating therewith being divided



into two individual groups or sets and the lower ends thereof so arranged and attached that only the second or last group or set to be mounted thereon, is delivered when released, 5 a swingable guy-receiving arm horizontally and transversely pivoted at one side or end of said body, a releasable locking-device for the free end of said arm and located in said body at the end opposite the pivot, a vertical 10 swivel-device for the attachment of the aviator-harness and located midway between the ends of said body, and a flexible release-cord for unlocking the arm.

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