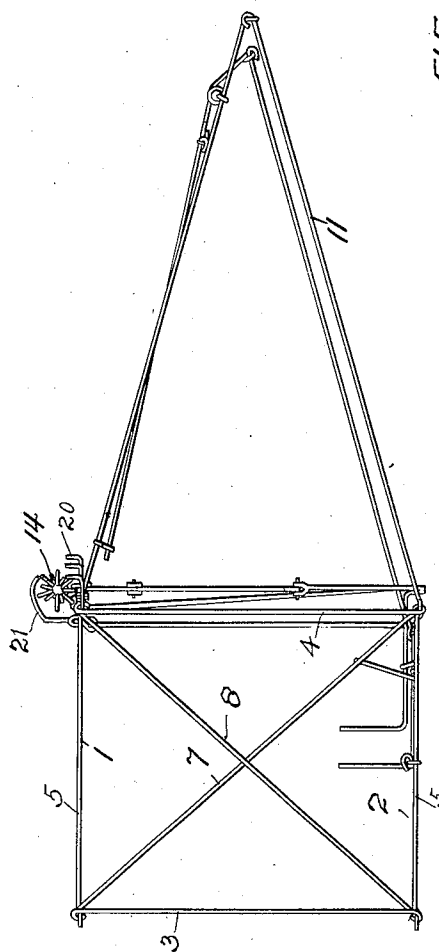
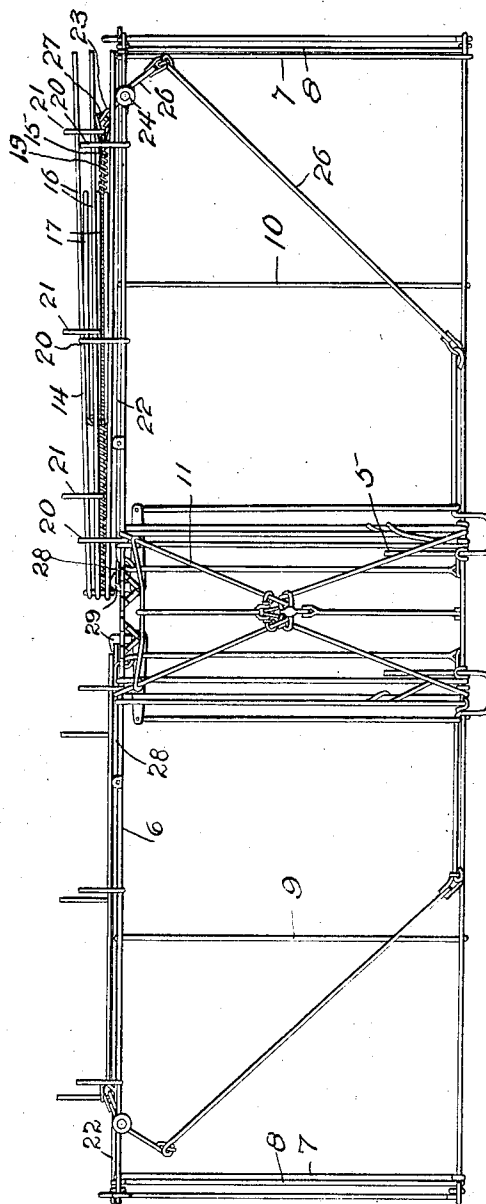


1,019,014.

2 SHEETS—SHEET 1.



F1G.2.



WITNESSES:

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SAFETY APPLIANCE FOR FLYING MACHINES.
APPLICATION FILED JULY 14, 1911.

1,019,014.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 2.

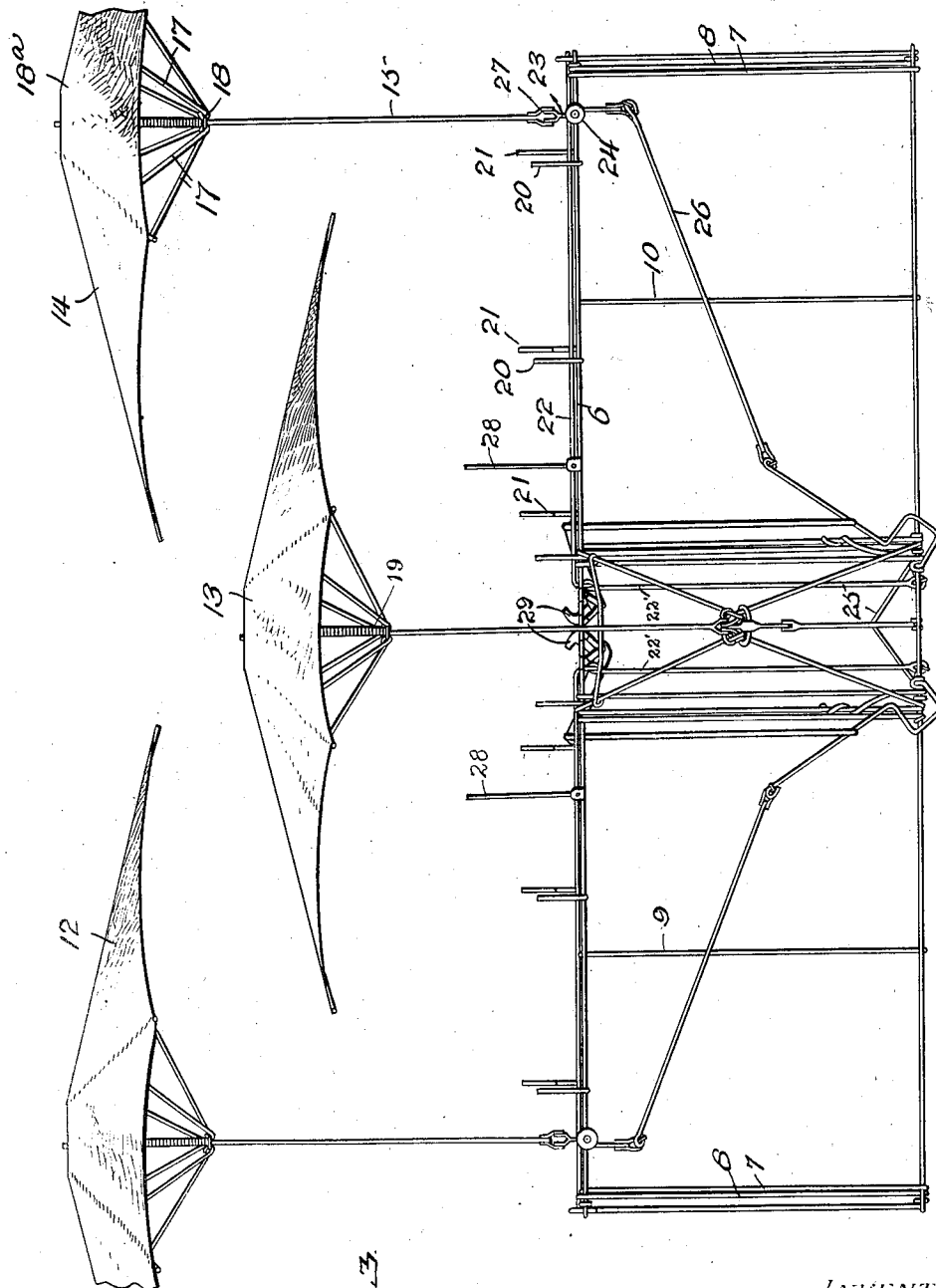


FIG. 3.

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SAFETY APPLIANCE FOR FLYING-MACHINES.

1,019,014.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed July 14, 1911. Serial No. 638,476.

To all whom it may concern:

Be it known that I, CLARENCE A. BARBER, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented new and useful Improvements in Safety Appliances for Flying-Machines, of which the following is a specification.

My invention relates to safety appliances for flying machines.

The object of my invention is to produce parachute attachments for flying machines which are normally folded to avoid resistance to the propulsion of the machine, and adapted to be readily thrown into operative position in case of accident to prevent the dangerous descent of the machine.

A further object thereof is to provide means for throwing parachute attachments from a collapsed position into operative position and for automatically expanding same to resist the descent of a flying machine, and a still further object of my invention is to produce a more simple, cheap and efficient device of said character than has heretofore been produced.

To these ends, my invention includes the combinations and arrangement of component parts to be hereinafter described and more particularly pointed out in the claims.

In the accompanying drawings, in which like reference characters indicate similar parts, Figure 1 is a side view of the frame of a flying machine of the aeroplane type showing my safety appliances attached. Fig. 2 is a rear view of the same. Fig. 3 is a rear view of a flying machine equipped with my safety attachment showing same expanded.

Referring to the drawings, 1 indicates the frame of an aeroplane comprising the upper and lower longitudinal rods 1 and 2, at each end thereof, the vertical end rods 3 and 4, the front and transverse rods 5 and 6, the diagonal braces 7 and 8 and the intermediate vertical rods 9 and 10.

11 indicates the rear extension frame medially mounted on the main frame 1 on which is carried the propeller. The particular form of said frame and of the planes and other parts forms no part of my invention and need not be more particularly described.

For the purpose of preventing the dangerous descent of a flying machine in event of accident, I provide a plurality of col-

lapsible parachutes 12, 13 and 14, normally carried in a collapsed condition in horizontal position adapted to be conveniently and quickly raised to a vertical position and automatically expanded to resist the descent of the machine.

In the present embodiment of my invention, said parachutes are normally folded and carried upon suitable brackets on the transverse rod 6 of the main frame of an aeroplane, and upon the rear extension 11 thereof in position to offer the least resistance to the flight of the machine, and so connected by levers and trips with the operator's seat, that they may be quickly and conveniently elevated and expanded for service. As the construction and operation of each parachute is substantially the same, I shall limit the description herein to one of such members.

Each of the parachutes, 12, 13 and 14, are constructed substantially as folding umbrellas, and comprise the rod 15, ribs 16 pivoted at one end thereof, supporting arms 17 pivoted at one end to said ribs intermediate of their ends, and at the opposite ends to the sleeve 18 loosely carried on said rod. The ribs 16 are covered with a strong flexible fabric 18*. Surrounding the rod 15, I provide a coiled spring 19 secured upon the outer end thereof, and to the sleeve 18 adapted to be expanded when the frame is closed and to quickly raise or expand the parachute when it is elevated as hereinafter described. The parachutes thus described, are normally carried in a folded and horizontal position on the brackets 20 and held thereon by the arms 21 on the pivoted rod 22, which is pivotally connected with the controlling lever 25 by which the parachute is elevated by the rods 22' for the purpose of simultaneously releasing it from confinement with the actuation of the elevating mechanism.

I will now proceed to describe the means by which the parachutes are elevated.

At the lower end of the rod 15, it is connected with the lever 23 which is fulcrumed on the stud 24 carried on the frame of the machine and connected at its opposite end with the link rod 26 which is at its opposite end connected with the controlling lever 25 fulcrumed on the main frame 1 adjacent to the operator's position therein. As shown in the drawings, the lever 23 is hinged with the rod 15 at 27 to permit the

parachute to adjust itself to the position of the main frame when elevated. When the operator loses control of the flying machine and desires to descend without accident, the 5 controlling levers 25 are rocked on their pivots which actuate the levers 23 through the link rods 26, simultaneously rocking the pivoted rods 22 to release the parachutes and elevate them to a vertical position. The 10 descent of the machine tends to spread the ribs of the parachutes, but such action is supplemented by the action of the springs 19 hereinbefore described.

For the purpose of expediting the raising 15 of the parachutes to a vertical position as described, springs 28 may be secured on the main and rear frames adjacent to the ends of the parachutes which are normally confined by the triggers 29 connected preferably with the controlling levers 25 by which 20 they are simultaneously actuated with the levers 23 and the springs thus released throw the parachutes upwardly to assist the action of the levers.

25 Having thus described my invention, what I claim as new and desire to be secured by Letters Patent, is—

1. The combination with a flying machine, of a parachute carried thereon in a 30 normally recumbent and folded position,

rocking arms for holding same in such position, lifting levers for raising said parachute, means for releasing said holding arms, a spring for imparting initial movement to the parachute for raising same, a 35 controlling lever for simultaneously actuating said releasing means for the holding arms and releasing means for the spring and the lifting levers, and a spring carried on said parachute adapted to expand same 40 when raised, substantially as described.

2. The combination with a flying machine, of a parachute carried thereon in a normally recumbent and folded position, 45 rocking arms for holding same in such position, lifting levers for raising said parachute, means for releasing said holding arms, a spring for imparting initial movement to the parachute for raising same, a trigger for normally holding said spring 50 inactive, a controlling lever for simultaneously actuating said releasing means for the holding arms, spring trigger and lifting levers, and a spring carried on said parachute adapted to expand same when raised, sub- 55 stantially as described.

CLARENCE A. BARBER.

Witnesses:

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