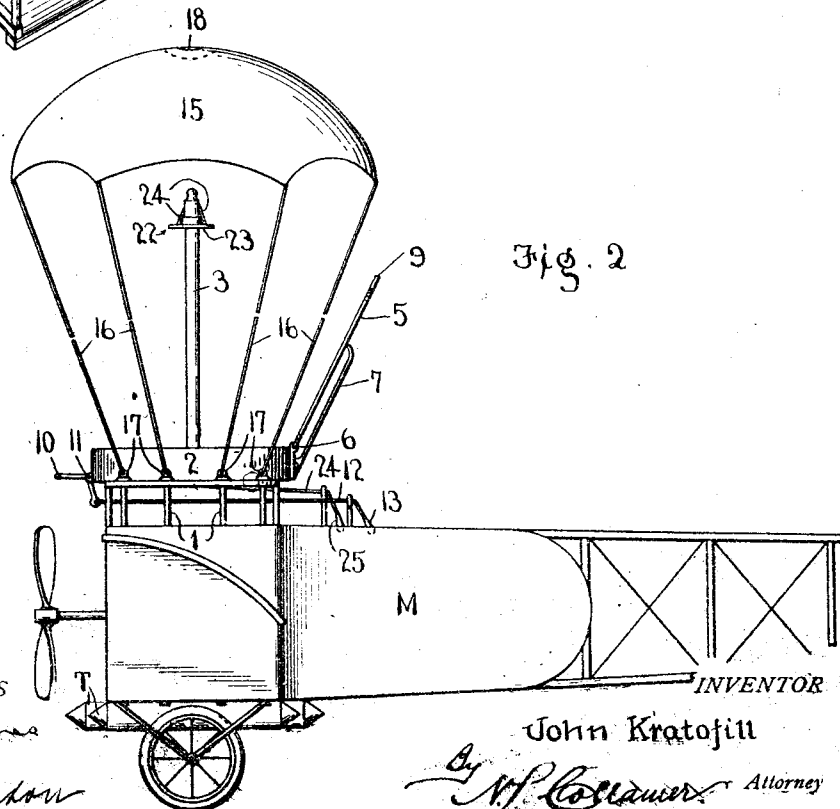
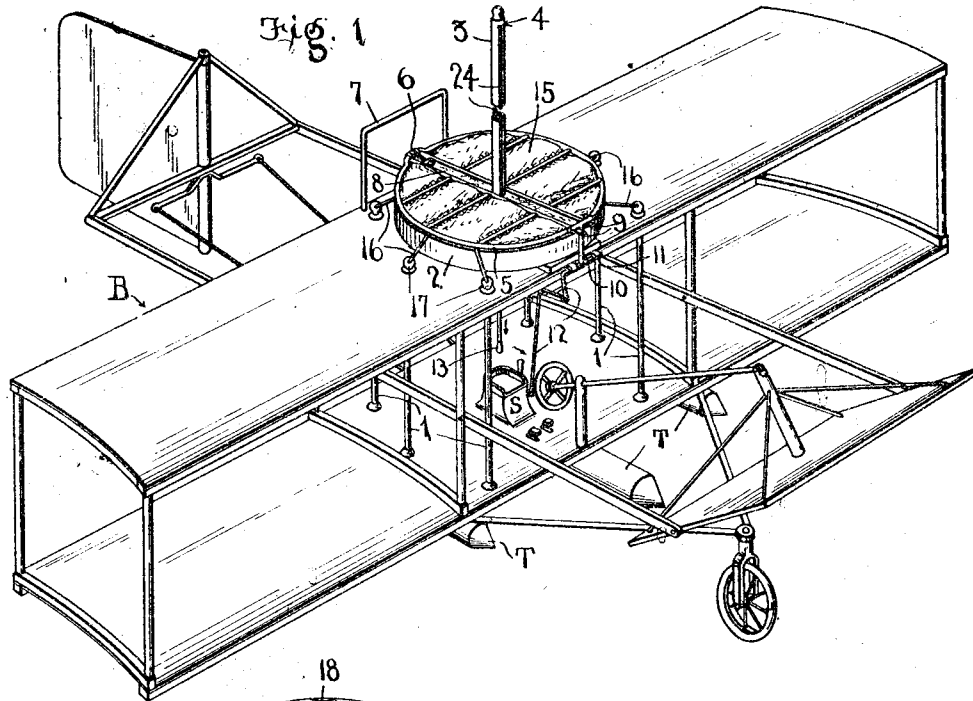


J. KRATOFILL.
SAFETY DEVICE FOR AIR CRAFT.
APPLICATION FILED FEB. 2, 1912.

1,039,295.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.



WITNESSES

E. B. James
D. M. Dixon

INVENTOR

John Kratofill

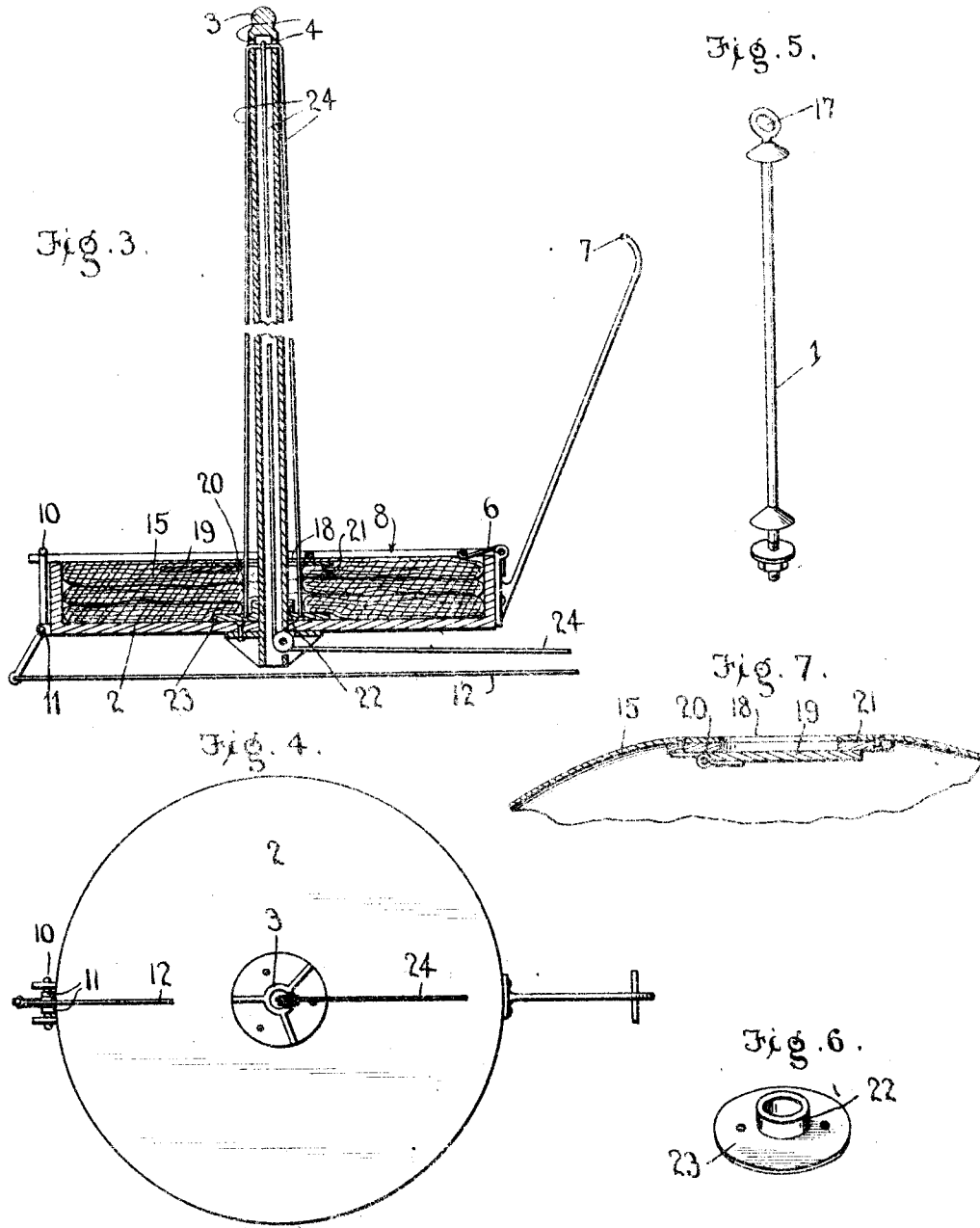
W. H. Colman Attorney

J. KRATOFILL.
SAFETY DEVICE FOR AIR CRAFT.
APPLICATION FILED FEB. 2, 1912.

1,039,295.

Patented Sept. 24, 1912

2 SHEETS--SHEET 2.



WITNESSES

L. B. James
J. M. Dixon

INVENTOR

John Kratofill

By *L. C. Bellamer* Attorney

UNITED STATES PATENT OFFICE.

JOHN KRATOFILL, OF CHICAGO, ILLINOIS.

SAFETY DEVICE FOR AIR-CRAFT

1,039,295.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed February 2, 1912. Serial No. 675,086

To all whom it may concern:

Be it known that I, JOHN KRATOFILL, a citizen of the United States, and resident of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Safety Devices for Air-Craft: and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to aeronautics, and more especially to parachutes; and the object of the same is to produce a safety device for attachment to a flying machine of any type whereby the same will be so retarded in its descent, in case it should fall, that the occupants and the machine will not suffer injury. This object is accomplished by the construction hereinafter described and claimed, and as shown in the drawings in which—

Figure 1 is a perspective view of a biplane with my safety attachment applied and housed. Fig. 2 is a side elevation of a monoplane with my safety attachment applied and spread. Fig. 3 is a central vertical section on an enlarged scale of the attachment itself, housed; and Fig. 4 is a bottom plan view thereof. Fig. 5 is a perspective detail of one of the fastening bolts, and Fig. 6 is a similar detail of the traveler; and Fig. 7 is an enlarged section through the valve at the top of the parachute.

In the drawings the letter B designates a biplane and M is a monoplane, each having a driver's seat S and each also by preference having three cigar-shaped tanks T for compressed air carried at the bottom of the framework so that the machine may not sink in case it falls into the water. If these tanks be filled with gas they will be buoyant, but I prefer air. I have shown my invention applied to but two types of flying machine, but it may be applied to any type, even to a balloon.

Secured upon the top of the framework, or upon the uppermost plane or the top of the balloon-envelope, as by bolts 1, is a case 2, preferably round and shallow, and upstanding from the center of its bottom is a tubular

mast 3 rising 8 or 10 feet above the casing and having lateral perforations 4 near its upper end. The cover 5 for the casing is preferably of skeleton construction as shown, and may be of wire netting, is mounted at its rear side on a spring-hinge 6 attaching it to the casing and tending to throw it open against a stop 7 as seen in Fig. 2, is slotted fore and aft as at 8 with wires 9 alongside the slot standing astride the mast and projecting at its front edge, and is held closed against the tension of the spring in the hinge by any suitable means. Herein I have shown a T-headed latch 10 in Figs. 1 and 3 engaging the tips of the wires 9, its stem being pivoted as at 11 and adapted to be turned on its pivot by means of connections 12 leading to a handle 13 adjacent the driver's seat S; so that, when this handle is drawn upon, the cover is unlatched and flies open.

The numeral 15 designates the body of a parachute whose size will be proportionate to the size and weight of the air-ship, and 16 are ropes leading from the edge of the body to the casing and preferably attached to eyes 17 at the upper ends of the fastening bolts as seen in Fig. 2. In the top of the parachute body at its center is an opening or vent 18, and 19 is a valve mounted on a spring hinge 20 tending to throw it normally over such vent and close it, but permitting it to be laid wide open as seen in Fig. 3. Preferably the vent is surrounded by a wide ring or annulus 21, which is of metal whatever the material of the body 15, and to this ring the hinge is attached. Slidably mounted on the mast 3 is an annular traveler 22, preferably having a flange 23 so that it will not bind thereon; and from this traveler lead cords or ropes 24 which pass upward through the vent 18 and outside the mast, inward through the perforations 4, and downward throughout the length of the mast, and are led thence to a handle 25 within reach of the seat S. Thus is described the preferred embodiment of my invention although I desire not to be limited to the precise details of construction.

The operation of the safety device is as follows: Being attached to the top of the

air craft as shown and described, the parachute is folded or collapsed and housed within the casing, and the cover is closed and latched. The aviator now makes a flight as usual, and should he find his machine falling he has but to pull on the handle 5 to unlatch the cover which immediately flies open, and then pull on the handle 25 which forcibly raises the traveler to the top of the mast. This lifts the parachute out of the casing, when it begins immediately to open out under the influence of the upward rush of the air as the machine falls, and 15 finally the traveler tosses the center of the parachute off the mast, the valve 19 closes under the influence of its spring hinge, and the parachute expands completely with the result that the descent of the machine is retarded and the aviator comes down slowly and safely. If he is above a body of water, the tanks or pontoons T will float the machine until aid arrives or he can ascend again. Indeed, his fall may be only temporary, as owing to an interruption to the engine, and if he can start it up again he will be able to glide to earth and alight where desired.

Thus it will be seen that I have devised means for employing the well-known and thoroughly reliable parachute for safeguarding the air craft and its occupants, but I store it in an open casing on the top of the craft, retain it in folded or housed condition therein by a light skeleton cover and the simplest kind of a latch easily tripped and extremely unlikely to get out of order (and it may even be within reach of the operator in some types of machines), and eject it from its casing in the direction and to the height desired and necessary to permit it to catch the air so that it shall open out quickly and automatically.

The merit of the invention lies in its simplicity and lightness, and in its positive action and freedom from complications liable to cause failure of operation at critical moments. Before making an ascent the aviator will look well to his safety device, and see that it is in order and ready to be instantly thrown open to the air. The size and materials of parts are not essential.

What is claimed is as follows:

1. A safety device for air craft comprising a round and shallow casing secured upon 55 the craft, a parachute whose body is folded within the casing and whose ropes are attached thereto, a tubular mast rising from the bottom of the casing through the body of the parachute and having perforations 25 near its upper end, an annular traveler slidably mounted upon the mast beneath the parachute, and ropes leading from the traveler upward through the parachute, inward through said perforations, and down-

ward within the mast to a point within reach 65 of the aviator.

2. A safety device for air craft comprising a casing upon the craft, a parachute whose body is adapted to be folded therein and whose ropes are connected to the craft, 70 a tubular mast rising from the casing through a hole in the top of the parachute and having perforations near its upper end, a traveler sliding on the mast below the parachute, and a rope leading from the 75 traveler upward through the hole, inward through one of said perforations, and downward throughout the length of the mast; combined with a valve for closing said hole in the parachute when the latter is tossed 80 off the upper end of the mast.

3. A safety device for air craft comprising an open-topped casing secured upon the craft, a parachute whose body is adapted to be housed therein and has a vent in its top 85 and whose ropes are attached to the craft, a mast rising from the casing through said vent, a spring-closed valve adapted to close the latter, a spring-opened cover hinged at one side to the casing, having a slot standing 90 astride the mast, and provided with a catch opposite its hinge, a latch for said catch, an ejector for the parachute, and connections leading from the latch and the ejector to within reach of the aviator. 95

4. A safety device for air craft comprising a parachute whose top has a vent and whose ropes are connected with the craft, a spring-closed valve adapted to close said vent, a mast rising rigidly from the craft 100 through said vent, manually-controlled means for tossing the parachute off the mast, a cover for retaining the parachute in folded condition, the cover having a slot standing astride the mast, and manually-controlled 105 means for freeing the cover.

5. A safety device for air craft comprising a parachute whose top has a hole and whose ropes are connected with the craft, a mast rising from the craft through such 110 hole, manually-controlled means for tossing the parachute off the mast, means for retaining the parachute in folded condition around the mast, and devices for releasing it at will independent of said tossing means. 115

6. A safety device for air craft comprising a parachute connected with the craft and having a hole in its top, a valve normally closing said hole, a cover for retaining the parachute in folded condition and 120 the valve open, a spring hinge tending to raise the cover, and a manually-controlled latch engaging the free edge of the cover when the latter is depressed upon the parachute. 125

7. A safety device for air craft comprising a parachute connected with the craft and having a hole through its top, a spring-

actuated valve adapted to close said hole,
a mast rising from the craft through said
hole and holding the valve open, manually-
released means for holding the parachute
5 folded around the mast, and mechanism for
tossing it off the mast and releasing said
valve when said means is released.

In testimony whereof I have hereunto
subscribed my signature this the twenty-
ninth day of January, A. D. 1912.

JOHN KRATOFILL

Witnesses:

JOHN EHLERS,
JOHN EULBERG.