(No Model.) 2 Sheets—Sheet 1.

T. SCHNEIDER-PREISWERK.

PARACHUTE SAIL FOR BALLOONS.

No. 512,450. Patented Jan. 9, 1894.

FIG. 1.

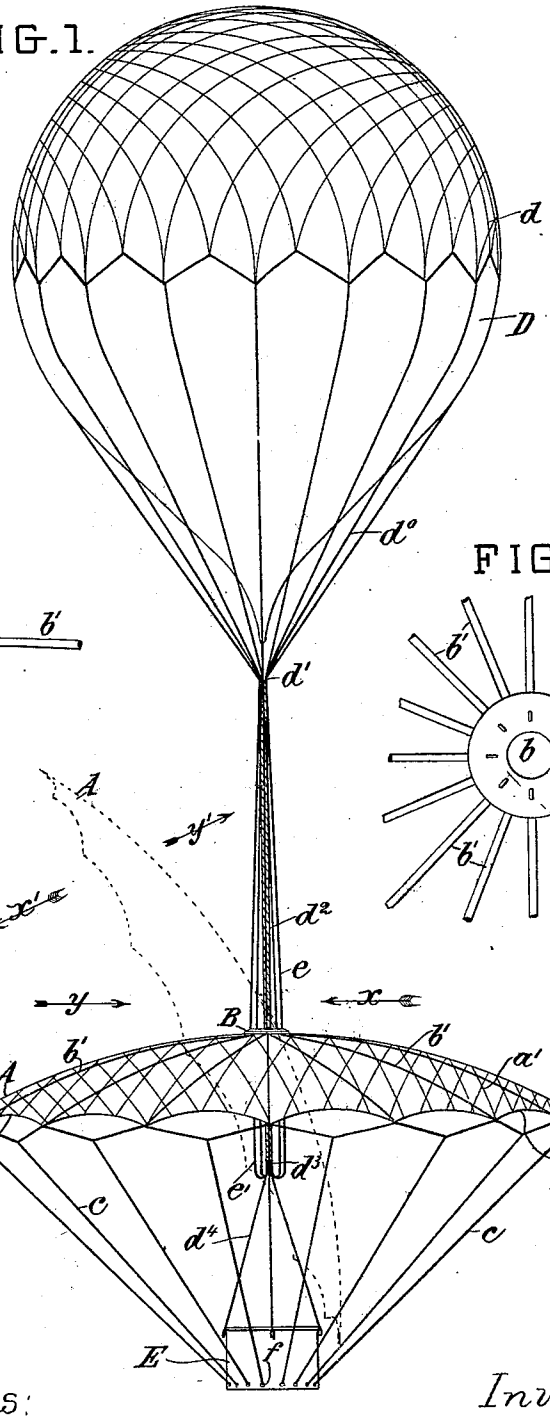


FIG. 2.

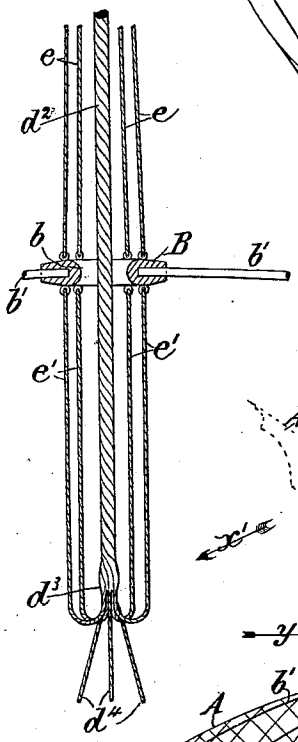
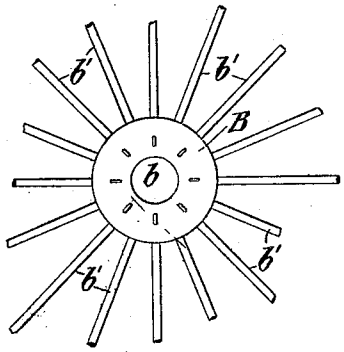


FIG. 3.



Witnesses:
Hobert Blossom
Peter A. Ross.

Inventor
T. Schneider-Preiswerk
by Henry Dennett.
his Attorney

THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

T. SCHNEIDER-PREISWERK.

PARACHUTE SAIL FOR BALLOONS.

No. 512,450. Patented Jan. 9, 1894.

FIG. 4.

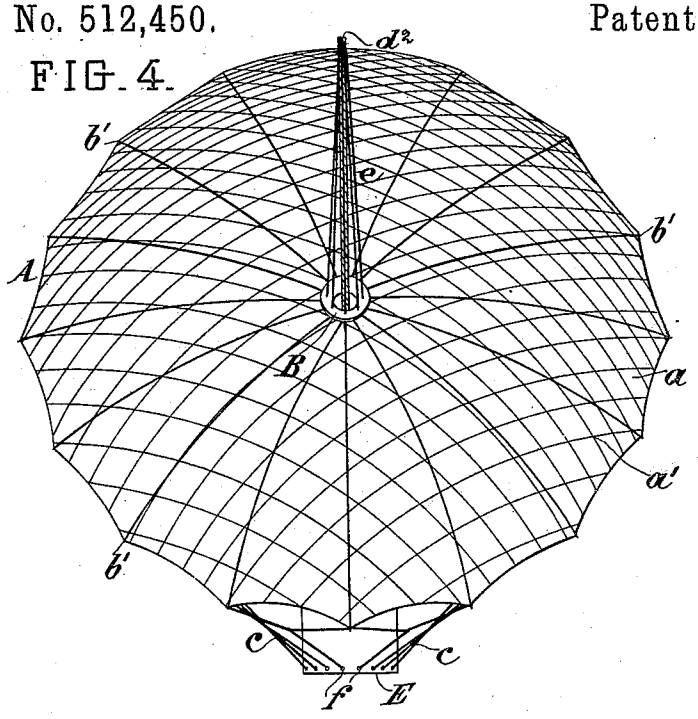


FIG. 5.

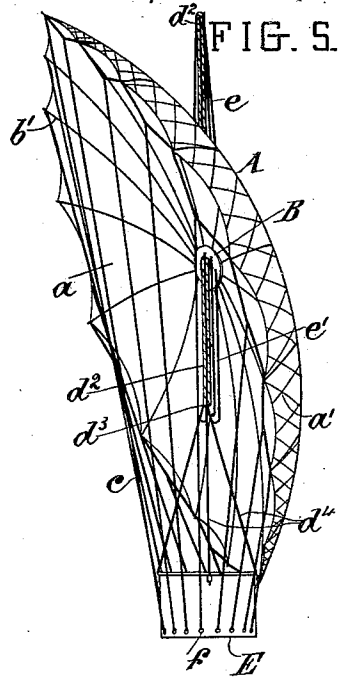
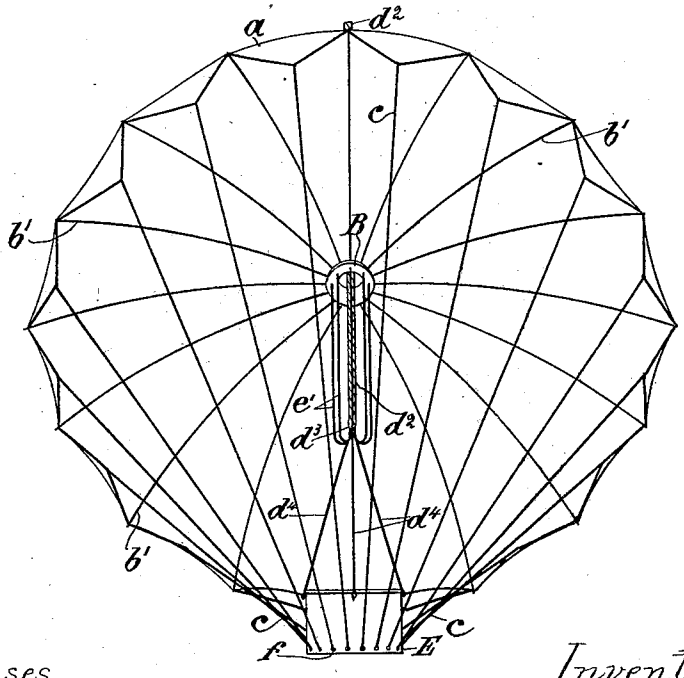


FIG. 6.



Witnesses.
Herbert Blossom.
Peter A. Ross.

Inventor.
T. Schneider-Preiswerk
by Henry Dennett
his Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THEODOR SCHNEIDER-PREISWERK, OF BASLE, SWITZERLAND.

PARACHUTE-SAIL FOR BALLOONS.

SPECIFICATION forming part of Letters Patent No. 512,450, dated January 9, 1894.

Application filed May 12, 1893. Serial No. 474,036. (No model.) Patented in England April 15, 1893, No. 7,712.

To all whom it may concern:

Be it known that I, THEODOR SCHNEIDER-PREISWERK, doctor of medicine and surgeon, a citizen of the Swiss Republic, residing at Basle, Swizerland, have invented a new and useful Parachute-Sail, (for which a patent has been granted in England, No. 7,712, dated April 15, 1893;) and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a parachute sail, which is introduced between a balloon and its car in such manner that by means of cords entering through the bottom of the car it can be so adjusted in position relative to the direction of the wind as to cause this to aid in the rising or descending motion of the balloon or for steering its motion in a horizontal direction more or less away from that of the wind, while at the same time it can serve as a parachute.

The construction of this parachute sail is shown on the accompanying drawings, in which—

Figure 1 represents the same in side view as applied to a floating balloon. Fig. 2 shows a cross section of the ring in which the ribs of the parachute sail are fixed and Fig. 3 shows a plan of the ring. Figs. 4, 5 and 6 show different positions of the parachute sail.

As will be seen from the figures the parachute sail A consists of a ring B (Figs. 2 and 3) made out of suitable material with a central opening b in which the ribs b' of the parachute are readily fixed, these being of any desired number and length, according to the size of the parachute. These ribs are bent downward somewhat at their outer ends and are covered with a suitable fabric a such as sail cloth, over which a cord netting a' is then spread. Each two points of this cord netting are connected between two ribs b' by means of a hauling cord c. The cords d^0 which hang down from the cord netting d, with which the balloon D is covered in the usual manner, are united at d' to a single cord d^2, which at d^3 is divided into the cords d^4, which carry the car E. On the cord d^2 is mounted the ring B of the parachute sail A and which is connected to the cord d^2 by a number of cords e e', the length of which is at least equal to the semi-diameter of the parachute sail and which are also connected to the ring B, so that the parachute sail is suspended freely upon the cord d^2. The cords e', which are connected, on the one hand, with the ring B and, on the other hand, at d^3 to the cord d^2 limit the upward motion of the parachute. These cords e' are somewhat longer than the distance from B to d^3 in order to admit of a one-sided raising of the parachute sail. The hauling cords c connected to the netting a' enter through a corresponding number of openings f into the car E near the bottom thereof and they are connected thereto in any suitable manner such that the parachute sail can be maintained by these cords c in the desired position.

If the air currents are not desired to co-operate in the raising or falling of the balloon, the parachute sail is maintained in a horizontal position as shown in full lines at Fig. 1. If the parachute sail is brought into the position shown in dotted lines at Fig. 1, the air currents, if they have the direction of the arrow x (Fig. 1), will operate upon the convex surface thereof, (Fig. 4) so as to cause the balloon with its car to be moved in the direction of the arrow x' (Fig. 1). If, on the other hand when the parachute sail is in this dotted position, the wind acts in the direction of the arrow y, it will operate against the concave inner surface thereof (Fig. 6) and will drive the balloon in the direction of the arrow y' (Fig. 1). The parachute sail can also be brought into an oblique position relatively to the wind (Fig. 5), so that the balloon will travel in a direction deviating from that of the wind.

In order to enable the motion of the balloon to be made dependent upon the parachute sail, the diameter of the same must be at least one-fifth greater the diameter of the balloon. The opening of the ring B is made sufficiently large to enable the parachute sail to assume a maximum oblique position. The opening also allows of the observation of the balloon from the car.

On the accompanying drawings the parachute sail is only shown applied to a free floating balloon; it can, however, also be applied

to a captive balloon in order to impart to this a horizontal motion deviating more or less from the direction of the wind.

As above stated, the parachute sail can in case of need also be employed as a parachute.

I am well aware that it has been proposed to suspend a propeller from a balloon of vertically elongated form, said propeller having a platform, on which the aeronaut stands, and a rudder. It is proposed that the aeronaut shall, by rocking the structure sidewise, assist the balloon in its ascent. This construction I do not employ and do not claim. My parachute sail is circular in its general outline and the large opening B, is situated centrally. An ordinary car E, occupied by the aeronaut, is suspended directly from an ordinary balloon D, and the symmetrical, umbrella-shaped parachute, A, is suspended from the balloon independently of the car, and may be tilted in any direction from the car through the medium of the cords *c*, arranged symmetrically around the parachute sail and car. It will be obvious to any one at all familiar with this art, that the balloon, car and parachute are at all times free to turn about a vertical axis and that there can be no bow or stern, front or rear; consequently all of the parts of my device are arranged symmetrically about this axis, which in the present case corresponds with the rope d^2. I employ no rudder, and my parachute and car have no bow and no stern.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination with a balloon and a car suspended therefrom, of an umbrella-shaped, substantially circular, symmetrical parachute sail, having a comparatively large opening in its center and suspended from the balloon independently of the car, the suspender of the car passing down through the central opening in the parachute, and hauling cords arranged symmetrically about the parachute and car, said cords being connected at their upper ends to the margin of the parachute and secured detachably to the car, whereby the occupant of the car may set the parachute in any desired position relatively to the wind by taking in and letting out said cords.

2. The combination with a balloon, the car, and the cord or cords by which the car is suspended from the balloon, of a parachute sail A, having a ring B at its center loosely embracing the suspending cord from the balloon and ribs *b'*, secured to said ring, the cords *e*, by which the parachute is suspended from the balloon above and independently of the car, the netting forming a part of the parachute cover, and the hauling cords *c*, connected to the said netting and extending down to and entering the lower part of the car, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THEODOR SCHNEIDER-PREISWERK.

Witnesses:
GEORGE GIFFORD,
AMAND RITTER.