

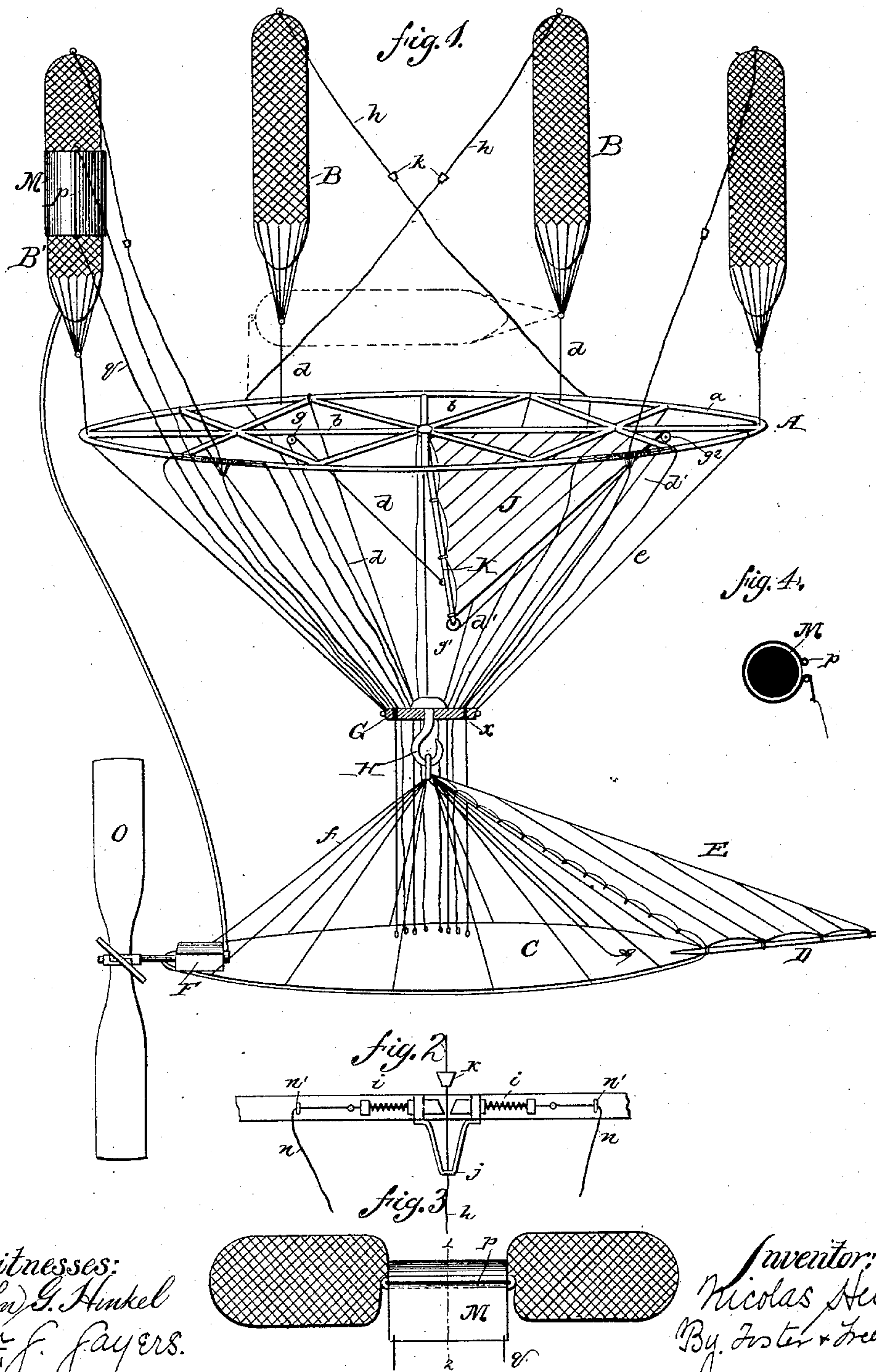
(No Model.)

N. HELMER.

AIR SHIP.

No. 328,218.

Patented Oct. 13, 1885.



Witnesses:
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UNITED STATES PATENT OFFICE.

NICOLAS HELMER, OF NEW YORK, N. Y.

AIR-SHIP.

SPECIFICATION forming part of Letters Patent No. 328,218, dated October 13, 1885.

Application filed October 9, 1884. Serial No. 145,092. (No model.)

To all whom it may concern:

Be it known that I, NICOLAS HELMER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Air-Ships, of which the following is a specification.

My invention relates to that class of air-ships in which gas-bags are used to support the apparatus in the air, and a propelling-fan is employed to move it in the desired direction; and my invention consists in constructing the various parts, as fully described hereinafter, so as to permit the area of the gas-bags exposed to the action of the air-current to be increased or diminished, and so as to facilitate the adjustments and operations of the apparatus.

In the drawings, Figure 1 is an elevation illustrating an air-ship embodying my improvement. Fig. 2 is an enlarged view of part of the apparatus for varying the positions of the gas-bags; Fig. 3, a view illustrating one mode of compressing the gas-bag to supply gas to the motor. Fig. 4 is a section on the line 1 2, Fig. 3.

C is the lower platform, O the propelling-wheel, D the bowsprit, E the jib-sail, and F the motor, of a balloon or air-ship. These parts I do not particularly describe here, as they may be constructed in any suitable manner, but preferably that set forth in my application Serial No. 142,106, filed September 3, 1884.

The platform C and its adjuncts are supported from a trussed frame, A, consisting of a circular or elongated rim, *a*, and suitable cross-braces, *b*, to form a light but rigid structure, which is normally in a horizontal position, and which is elevated and supported by means of elongated gas-bags B, inclosed in suitable nettings, connected at their lower ends to the frame A by means of cords *d*. I have shown four gas-bags, but any suitable number may be employed.

In order to permit the platform C to be turned readily and independently of the frame A, I connect the two by means of a swiveled connection. Thus cords or cables *e* may extend from the frame A to a block, G, in which swivels a hook, H, and cords *f*, connected to the platform C, center upon such hook, which will

turn in the block G without necessarily revolving the latter.

To permit the turning of the platform C and yet hold the frame A in a stationary position in the direction of the air-current, I provide the platform with a guiding-sail, J, which may be arranged above or below the frame. As shown, the sail is below and supported by a spar, K, suitably-braced cords, *d d'*, extending around pulleys *g g' g''* and to the platform C, so that the sail may be reefed or set from the said platform.

It is desirable that the gas-bags shall occupy vertical or horizontal positions, according as it is necessary to expose a greater or less surface to the air-current, for which reason I provide means to change the positions of one or all of the bags, as circumstances may require. Different means of effecting this result will be obvious, those shown consisting in connecting to each gas-bag a cable, *h*, extending through a guide-eye, *j*, upon the frame A to the lower platform, and provided with a conical stop, *k*, adapted to engage with the contiguous bevel-faces of spring-bolts *i i*, sliding in guides upon the side of the ring *a*.

When the bag is in a vertical position and the operator upon the platform C draws the cable *h* downward, the stop *k* will, as the bag approaches a horizontal position, enter between the bolts *i i* and force back the latter until it passes the same, when the bolts will spring in above the stop and prevent it and the cable from rising, thereby locking the bag in its place. By pulling outward both or one of the bolts *i* the stop is released and the bag will take its vertical position. The bolts may be drawn back by electro-magnets or otherwise, one means consisting of cords *n* connected to the outer ends of the bolts and passing through guide-eyes *n'* to the platform C.

An electromotor, compressed-air engine, or other suitable motor may be employed for driving the fan O. Where a gas-motor is used, the gas required for driving the same will be supplied from one or more of the bags B', and means are employed for compressing the latter to force the gas downward through a pipe, *s*, to the engine. Thus a band, M, may be contracted around the bag so as to expel more or less of the contents. As shown, a loop, *p*, is

connected to one edge of the band, which passes around the bag and then through the loop, as shown in Fig. 4, so that when ropes *g*, connected to the loose end of the band, are drawn
5 downward, the said band will be contracted around the bag.

In order to properly guide the various operating-cords extending from the upper portion of the apparatus to the platform, I form
10 in the block *G* a series of perforations, *x*, and pass the various cords through these perforations and downward to a position accessible from the platform.

The bags are made out of silk varnished, as
15 usual, and to secure greater strength and durability I employ a supplemental coating of collodion varnish. As this varnish would not take proper hold upon a silk surface, I cover the bag with an envelope of cambric, to which
20 the said collodion varnish is applied. As I do not here claim the manner of making the said varnish, it will be sufficient to state that it consists of a solution of collodion, to which castor-oil or vegetable oil is added to maintain
25 the varnish soft and elastic. In some instances I add a second layer of cambric to the first, with a second coating of collodion varnish outside the outer layer.

I claim—

30 1. The combination, with the platform and propelling apparatus, of elongated gas-bags connected at the ends to support the platform, and appliances, substantially as described, whereby the bags may be moved from a vertical to a horizontal position, and vice versa,
35 substantially as set forth.

2. The combination of the supporting-frame, elongated gas-bags connected each at one end to said frame, cords *h*, stops *k*, spring-bolts *i*, and appliances for withdrawing said bolts, 40 substantially as set forth.

3. The combination, with the trussed frame *A*, supported by a series of independent separable gas-bags, each connected to and supporting said frame independently of the others, of 45 the platform *C*, carrying the driving-wheel *O*, and gas-motor, and a connection between the motor and one of said supporting gas-bags, and appliances, substantially as described, for compressing the said bag, for the purpose set forth. 50

4. The combination, with the frame *A*, supported by the gas-bags, and platform *C*, having a swiveled connection with said frame, of a sail, *J*, carried by the frame, for the purpose set forth. 55

5. The combination of the trussed frame *A*, supported by a series of independent separable gas-bags, each connected to and independently supporting said frame at a point different from the others, platform *C*, cords for operating upon the gas-bags, and the intermediate perforated block, *G*, connecting the trussed frame and platform *C*, substantially as and for the purpose set forth. 60

In testimony whereof I have signed my name 65 to this specification in the presence of two subscribing witnesses.

NICOLAS HELMER.

Witnesses:

HERMAN BESTENBOSTEL,
FREDERIK DEUTSCHMANN.