THE NATIONAL ARCHIVES

'SPIRIT OF INVENTION'
MAKER BUILD OF AERIAL FLYING MACHINE

INVITATION TO TENDER – OPEN COMPETITION

DEADLINE FOR TENDER SUBMISSIONS – 5PM (UK TIME) 16 DECEMBER 2022

1. ABOUT US

i. The National Archives (TNA), based in Kew, South West London, is the official archive of the UK government, England and Wales. We are home to 1000 years of history and are the guardians of some of the world's most iconic documents from the Domesday Book to Downing Street tweets. We believe that archives are for everyone because they are about everyone, past, present and future.

ii. Our collection is one of the largest in the world, containing over 11 million historical government and public records including paper and parchment, digital records and websites, photographs, posters, maps, drawings and paintings. We are focused on preserving the collection for future generations and making it accessible and available to everybody.

iii. We are expert advisers in information and records management and are a cultural, academic and heritage institution. We fulfil a leadership role for the archive sector and work to secure the future of physical and digital records. Further information about The National Archives' role, its plans, policies, performance and projects can be found on our website here.

2. BACKGROUND TO THE REQUIREMENT

i. At The National Archives we are reimagining the way we share the stories contained in our unique collection. We are focused on both developing and diversifying our audiences and delivering an ambitious and inspiring programme of exhibitions and events that experiments with the way visitors interact with archival material.

ii. 'Spirit of Invention' is a temporary exhibition that aims to engage new audiences with our collection through hands-on participatory activity. The National Archives hold thousands of registered designs: patents, 'ornamental' and 'useful' designs. Most of these designs date from the Victorian period and represent an age of invention when anyone could draw, describe and register an invention and perhaps make their fortune, change the world or just inspire or delight a future visitor to the archives.

iii. The exhibition will take visitors on a journey of innovation, design and creativity. We will use our Victorian records as a source of inspiration, a jumping off point, to explore the creative process of invention in the 21st century. Through our collections we will inspire our visitors, spark their imaginations and ultimately give them the space and confidence to have a go at inventing something for themselves. We will take the spirit of Victorian invention and apply it to our lives and world today.

iv. Spirit of Invention will be a fun, participatory experience primarily targeted at a family audience but should also appeal to a wide range of ages and abilities from primary school to university students. As part of our methodology for the exhibition, we will work with a panel of 10 ' Young Curators, aged between seven and ten, from local schools to feed into the development of the exhibition content. We want the exhibition to be about the joy of making, of imagination, and care-free creation and our Young Curators will be key to understanding how we do this.

3. AUDIENCE

i. This exhibition is primarily aimed at a family audience, appealing to a wide range of ages and abilities from primary to university students. However this experience should also appeal to adults from the 'Curious Minds' and 'Cultural Devotee' segments too.

ii. When creating this experience, we should consider some of the characteristics that are typical of the target adult audience for our public engagement activity in general. These are visitors who:

- Are generally culturally active and engaged
- Live within a reasonable catchment area to the site at Kew (dependent on transport accessibility and willingness to travel – e.g. for some visitors this would mean in the immediate local area and for other visitors, this would mean other parts of London and the surrounding counties).
- Are open to trying out new experiences and will enjoy the interaction/'hands-on' elements
- Value the social aspect and full 'visitor experience' (inc. catering, retail etc.) of a visit
- Are intellectually curious, looking for quality learning and enjoyable engagements for themselves / their family
- Come with their children or grandchildren and want to find engaging activities that they can do together. These may be existing National Archives visitors.

iii. This is the first large scale participatory exhibition at The National Archives therefore it is anticipated that we will be attracting new audiences and surprising our current audiences by engaging them using new fun and interactive experiences and activities.

4. REQUIREMENT

i. We are seeking to appoint a series of makers / fabricator to interpret five inventions held in the Invention's Catalogue. Each invention has its own history and parallel with the modern world, they all sought to solve challenges. This tender relates to one of the inventions – the **Aerial Flying Machine.**

ii. Documentation for the Aerial Flying Machine can be found in the appendix.

iii. In the spirit of the exhibition, which concentrates on invention and creativity we are not looking for faithful replication of the invention, to be placed behind a glass box. Instead we are asking makers to be inspired by the original thought and design. How you experiment or innovate around the original invention is up to you.

iv. Key considerations

i. It can be displayed or shown to the visitor in a way which captures their imagination
ii. Visitors can see how you were inspired by the original design
iii. It is delivered on time and in budget
iv. If visitors can touch or use it, it is safe and robust

v. To aid visitors in their understanding of the invention process, we would like you to document your journey, as you dream, develop and deliver. The National Archives would like the option to display the media in the exhibition itself or use it as part of the exhibition marketing campaign. Some ideas could be:

i. Sketches
ii. Photography
iii. Written records
iv. Video capturing various moments across the three stages (dream, develop, deliver)

vi. What we would like you to make. Aerial Flying Machine: We have in our archives a submitted design of a flying machine, similar to an airship, but dated to 1855. It is hard to decipher form the submission, but this would have been a massive ship, designed to traverse land, sea and air. It was never built, perhaps due to its ambitious design.

vii. **Your interpretation:** We would like to recreate part or all of the ship, obviously in section or at scale. Whether this is a direct replica or an modern interpretation on the ideas in the submission is up to the maker. But we would like the make to be impactful, memorable and an “wow” moment to introduce the exhibition.

viii. **Why we chose this invention:**

ix. It’s large and eye catching. Despite being a technical drawing, it evokes wonder and awe.

- It is a very early flying device. Although it is titled ‘a flying or aerial machine adapted for the Arctic regions’, the design is not adapted from any other design as the design itself is entirely new.
- Is highly ambitious - It was designed to do a rather big and particular job – safely transport passengers through the Northwest Passage. If this device was ever made, it could have revolutionised trade routes.

x. We see this make as a creative opportunity to make something beautiful inspired by the design and function of the original invention. The scale, functionality and approach to the aerial flying machine should be explored by the maker.

xi. **Scope and scale:** We would like the maker’s interpretation of the flying machine to have impact on the visitor. This could be achieved through movement, scale or other interpretations of the submission. We are not necessary looking for a direct replication of the machine, but we would like visitors to understand the function, materials or scale it would have been, had it been invented. Scale and number of airships, sections, material, movement and sound are all for the maker to decide.

xii. **Location:** The maker’s interpretation of the flying machine could be located in the atrium, the café, upstairs near the reading rooms or outside the main entrance to the archives. Images of these spaces can be found in the appendix at the bottom of this document. Locating the flying machine outside of the gallery is a way for us to extend the exhibition beyond the confines of the traditional exhibition sapce. As part of the make, we would like to see some through given to visual link to the exhibition space.

xiii. **Integration and installation:** As this will be in a communal area, and potentially at height, the maker will need to work with the TNA and exhibition designers and builders to ensure the safety of staff and visitors. The make with have to be fabricated offsite and then assembled in the space. There is potential for touring of the make so appropriate consideration for disassembly and transport is needed.

xiv. As part of the contract and within the contract price, you will be available to visit our Kew site as required, with the possibility of extended periods onsite up to install (March 23), and you will be able to assist with troubleshooting as necessary. You will have a focus on accessibility and inclusion in your work and are confident creating content that meets all accessibility requirements.

xv. You will work closely on an ongoing basis with The National Archives' events and exhibitions team, as well as the wider project team which may include other external contractors/suppliers, to deliver this dynamic interpretation. You will be sensitive to our position as a government department and the Civil Service Code.

xvi. The total contract price will not exceed £12,500 excluding VAT and including construction, fees, materials, documentation travel and all other expenses.

xvii. The contract will be for the duration of the development, production and delivery of the exhibition 'Spirit of Invention' which is due to open in spring/summer 2023.

5. TEAM

i. The project will be managed by The National Archives' exhibition team. They will lead the exhibition project team comprising the following:

Interpretation and Project Lead: Hannah Fleming (TNA) & Marnie Botwright Rance (TNA)
Guest Curator: Ruth Amos
3D/Exhibition Designer: AOC Architecture LTD
AV Producer: TBC
2D Design: TBC
3D Build: TBC
AV Hardware: TBC

The team will be supported by The National Archives in-house Curators, Education and Outreach team and Estates team.

6. TIMEFRAME

Date	Stage	Maker / Artist deliverable
24 November 2022	Request for Proposals sent out	Proposals created and sent to The National Archives
5pm (UK time) 6 December 2022	Questions deadline	Any questions to be submitted to The National Archives contact
5pm (UK time) 16 December 2022	Proposals deadline	Proposals submitted to The National Archives before 5pm
23 December 2022	Appoint makers	Contracts signed (anticipated)
3 January 2023	Design / build commences	Programme and deliverables to be determined by maker and The National Archives as part of contract, but will probably include • Initial workshop and ideas session, from which a direction of design travel will be agreed • Regular updates with The National Archives • Co-ordination with The National Archives in relation to integration with the exhibit • Recording and sharing of materials which document the invention process • Health and Safety documentation where necessary
3 January 2023 to 22 March 2023	Design and build process	
23 March 2023 (or before)	Install / deliver to the TNA in the gallery	All elements must be onsite before the 23rd of March
Duration of Exhibition (End of May 2023 to End of August/Mid-September 2023)	Snagging and maintenance / upkeep	Expectation to make sure invention is maintained and in working order during the exhibition.

7. HOW TO RESPOND

i. If you have any clarification questions related to your Tender Response, please submit these to procurement@nationalarchives.gov.uk by **5pm (UK time) on 6 December 2022**

ii. Please submit your Tender Response to procurement@nationalarchives.gov.uk by **5pm (UK time) on 16 December 2022.**

iii. It is for you to determine what format your Tender Response should take so as to describe your offer in a clear, comprehensive fashion. However please ensure your Tender Response includes the following as a minimum:

i. Your understanding of the brief and deliverables;
    1. Your understanding of the brief and deliverables, why has this captured your imagination?

    2. Any initial ideas / creative response, this could be a simple mood board, sketches or written description

ii. A description of the expertise and experience you have in delivering these types of makes;

iii. Examples of relevant previous work;

iv. Your contract price, exclusive of VAT and inclusive of travel and all other expenses. Please also include a breakdown of your price, showing as a minimum your day rate(s).

NOTE: Your submitted contract price must include any and all duties and levies (except UK VAT, which should be excluded) which may be payable on your proposed solution as submitted. If some or all of your proposed solution includes goods or services which are sourced from outside the UK, you must tell us (a) which goods/services are sourced from outside the UK, (b) the associated commodity code(s), (c) the associated duties and levies payable and (d) confirmation that your contract price includes all such duties and levies (except UK VAT). For the avoidance of doubt, your contract price should reflect the equivalent of Incoterm DDP (Delivery Duty Paid) and therefore the full cost to The National Archives should your bid be successful.

8. EVALUATION CRITERIA

i. Your Tender Response will be evaluated using the following criteria:

Criteria	Maximum available unweighted score	Weighting	Maximum available weighted score
Understanding of the brief (Section 7 i)	10	5	50
Experience (Sections 7 ii and iii)	10	3	30
Price (Section 7 iv)	10	2	20

ii. Price scores will be evaluated as follows:

The bidder submitting the lowest compliant price will be awarded the maximum of 10 (unweighted) points. All other bidders will be awarded a (unweighted) points score by applying the following formula:

((lowest submitted price/bidder's submitted price)*10)

To illustrate this via a worked example:

Bidder 1 submits a price of £10,000
Bidder 2 submits a price of £17,000
Bidder 3 submits a price of £31,000

Bidder 1 is awarded 10 (unweighted) points – ((10,000/10,000)*10) = 10
Bidder 2 is awarded 5.88 (unweighted) points – ((10,000/17,000)*10) = 5.88
Bidder 3 is awarded 3.23 (unweighted) points – ((10,000/31,000)*10) = 3.23"

iii. Quality categories will be evaluated according to the table below:

10 Points	**Outstanding:** • Potential Supplier has provided a response that addresses all parts of the requirement • Potential Supplier has provided evidence to support all elements of their response • The evidence supplied is convincing and highly relevant to the requirement • Potential Supplier's response is clear and easy to understand • Where relevant, Potential Supplier has demonstrated a high level of capability to deliver new and innovative service approaches
7 Points	**Good:** • Potential Supplier has provided a response that addresses all parts of the requirement • Potential Supplier has provided evidence to support most elements of their response • The evidence supplied is good and relevant to the requirement • Potential Supplier's response is clear and easy to understand • Where relevant, Potential Supplier has demonstrated some level of capability to deliver new and innovative service approaches
4 Points	**Average:** • Potential Supplier has provided a response that addresses some parts of the requirement • Potential Supplier has provided evidence to support some elements of their response, but not all • The evidence supplied has some limited relevance to the requirement • Potential Supplier's response is not always clear and easy to understand • Where relevant, Potential Supplier has demonstrated limited capability to deliver new and innovative service approaches
1 Point	**Poor:** • Potential Supplier has provided a response that fails to address most parts of the requirement • Potential Supplier has provided little or no evidence to support most elements of their response • The evidence supplied is very weak and has very limited relevance to the requirement • Potential Supplier's response is not always clear and easy to understand • Where relevant, Potential Supplier has demonstrated little or no capability to deliver new and innovative service approaches

9. PROCUREMENT TIMETABLE

i. The procurement timetable is as follows:

Ref.	Description	Date
1	Invitation to Tender published	24 November 2022
2	Deadline for Potential Suppliers to submit clarification questions to procurement@nationalarchives.gov.uk*	5pm (UK time) 6 December 2022
3	Deadline for Potential Suppliers to submit Tender Responses to procurement@nationalarchives.gov.uk	5pm (UK time) 16 December 2022
6	Contract award (anticipated)	By end of 20 December 2022

* *Any clarification question received that TNA deems to be relevant to more than one Potential Supplier may be shared with all Potential Suppliers.*

10. CONTRACT TERMS

i. The contract will be awarded subject to our standard terms and conditions, which can be found here.

ii. TNA reserves the right not to award and to complete its objectives through other means.

11. APPENDIX

i. Aerial Flying Machine - Archive Documentation
ii. Image of atrium
iii. Image of café
iv. Image of area outside reading rooms
v. Image of area outside the entrance to The National Archives

i. Aerial Flyer documentation

Design for A Flying or Aerial Machine adapted for the Arctic Regions

Provisionally Registered for Arthur Kinsella, of Kilkenny, Ireland.

Fig. 1.

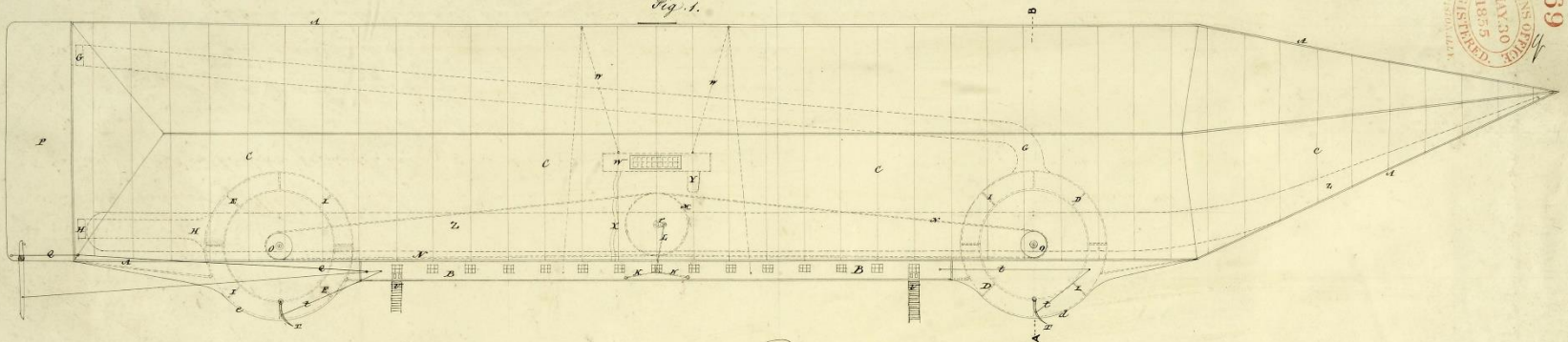
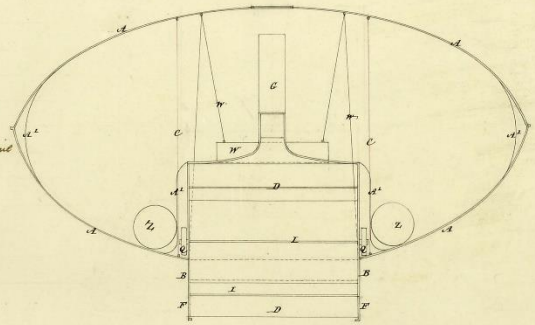


Fig. 2.



Description. The purpose of Utility to which the Shape or configuration of this Design has reference is the facility with which the machine can be raised and lowered and guided in and through the air, without the aid of Ballast or the escape of gas as hereto fore practised in Aerial Machines. The Design is exhibited drawn to geometrical scale and exhibits two views thereof Fig. 1 is a side elevation thereof and Fig. 2 a transverse and vertical section through the line AB at Fig. 1. AA is a shell or casing of light wood twisted cane or rope covered with oiled silk. B a gallery connected and secured thereto by standing rigging C, D and E are propelling wheels or fans each revolving in a case F built in and forming part of the casing AA. There are pipes G and H extending from the top & one of the aforesaid cases and the side of the other as exhibited one end of each of such said pipes being open to the case to which it is fixed and the other end open to the atmosphere at the stem or rear end of the machine, the centre part of the wheels D and E is formed hollow to contain gas for lightening the weight of said wheels and the floats or vanes I fit as near as may be the case in which they rotate, motion being imparted thereto through the Agency of ordinary "treadles" K a connecting rod L Fly wheel M and straps or bands N passing over said Fly wheel and a pulley O fixed upon the hollow axes of the wheels D and E, P is a rudder to each side of which leather ropes Q are attached and extend into the aforesaid gallery to enable the persons there to alter the direction of motion of the machine from right to left and vice versa. The guard plates d and e are fixed with metal to enable the Machine to be propelled upon the ice. T T are grappling irons two at each side of the Machine which may be raised up by means of ropes t t when not required for use. U U are gangways two at each side of the machine affording access to the gallery. The treadles K are connected by a rod L to a crank L on the Fly wheel shaft said treadles being employed for imparting motion to the propelling wheels or fans D and E. W is a suspended room of sufficient size to hold bed for about three persons and capable of being raised and lowered by the ropes w w. X is an elastic pipe for supplying atmospheric air to said room and Y is a bag through which persons enter the aforesaid room when lowered the end of said bag being tied before raising the room within the case AA a flexible air tight bag or case Z made of rep and silk fits as near as may be said bag being employed to contain gas with which it is inflated when the machine is required for use within this bag or case are placed two flexible pipes marked Z in Fig. 2 and shown by dotted lines in Fig. 1 extending from stem to stern of the machine as shewn the pipes Z are furnished with the means of opening or closing a communication with one or other or both of the fans D and E said pipes being employed for raising and lowering the machine at will that is to say by compressing atmospheric air therein the machine will descend and by allowing the air to escape therefrom the machine will ascend. The machine is propelled through the air by the rotary movement of the wheels D and E acting against the external air and at the same time forcing it through the pipes G and H and the ends of the same at the rear end or stern of the machine so acting against the external atmosphere as to cause an abutment for the compressed air to push against and thus effect the desired horizontal movement of the machine. The parts of this design which are new or original are claimed to be the shape or configuration and so far as all the parts

Prince and Campy. Agents for Patents and Registration of Designs — 4 Trafalgar Squares London.

Transcript of Record

Aerial Flying Machine Transcription

Design for a flying or aerial machine adapted for the arctic regions
Provisionally registered for Arthur Kinsella, of Kilkenny, Ireland.

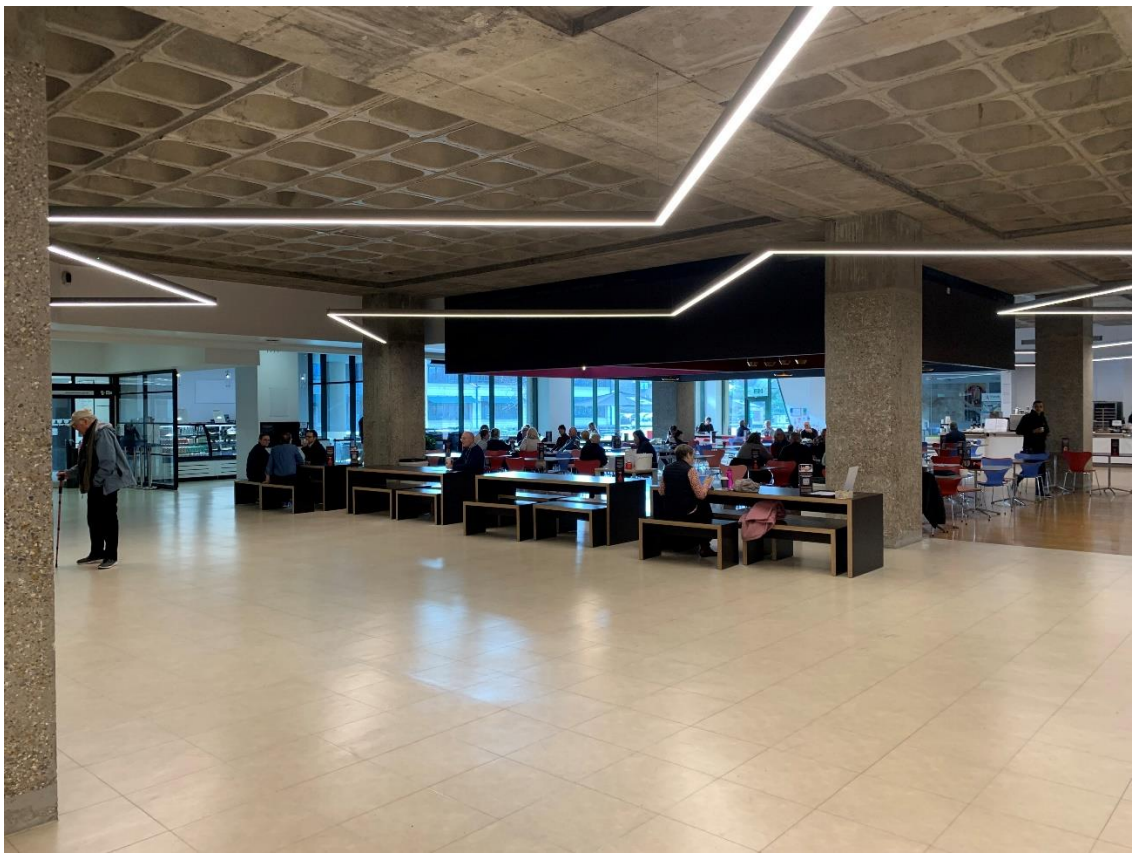
Description
The purpose of utility to which the shape or configuration of this design has reference is the facility with which the machine can be raised and lowered and guided in and through the air without the aid of ballast or the escape of gas as heretofore practiced in aerial machines. The design is exhibited drawn to geometrical scale and exhibits two views thereof.

Fig 1. is a side elevation thereof and Fig 2. transverse and vertical section through the line. AB at Fig 1. AA is a shell or casing of light wood, twisted cane or rope covered with oiled silk, B a gallery connected and secured thereto by standing rigging C,D and E are propelling wheels or fans each revolving in a case F built in and forming part of the casing AA. There are pipes G and H extending from the top of one of the aforesaid cases and the side of the other as exhibited one end of each of such said pipes being open to the case to which it is fixed and the other end open to the atmosphere at the stem or rear end of the machine, the center part of the wheels D and E is formed hollow to contain gas for lightening the weight of said wheels, and the floats or vanes I fit as near as may be the case in which they rotate, motion being imparted thereto through the agency of ordinary 'treadles' K a connecting rod L fly wheel M and straps or bands N passing over said Fly wheel and a pulley O fixed upon the hollow axes of the wheels D and E, P is a rudder to each side of which tiller ropes are attached and extend into the aforesaid gallery to enable the persons there to alter the direction of motion of the machine from right to left and vice versa. The guard plates d and e are shod with metal to enable the machine to be propelled upon the ice, TT are grappling irons two at each side of the machine which may be raised up by means of ropes t,t when not required for use, UU are gangways two at each side of the machine for affording access to the gallery. The treadles K are connected by a rod L to a crank r on the Fly wheel shaft said treadles being employed for imparting motion to the propelling wheels or fans D and E, W is a suspended room of sufficient size to hold beds for about three persons and capable of being raised and lowered by ropes w w, X is an elastic pipe for supplying atmosphere air to said room and Y is a bag through which persons enter the foresaid room when lowered - the end of said bag being tied before raising the room - within case AA a flexible air tight bag or case A1 made of rope and silk fits, as near as may be said bag being employed to contain gas with which it is inflated when the machine is required for use within this bag or case are placed two flexible pipes marked Z at Fig 2 and shown by dotted lines at Fig 1 extending from stem to stem of the machine as shown. The pipes Z are furnished with the means of opening or closing a communication with one or other or both of the fans D and E said pipes being employed for raising and lowering the machine at will - that is to say by compressing atmosphere air ^to escape therefrom the machine will descend and by allowing the air to escape therefrom the machine will ascend.

The machine is propelled through the air by the rotary movement of the wheels D and E acting against the external air and at the same time forcing it through the pipes G and H and the exit of the air at the near and or stern of the machine forgoing against the external atmospheric air serves as an abatement for the compressed air to push against and thus effect the desired horizontal movement of the machine. The parts of this design which are new or original as regards the shape or configuration thereof are all the parts.

ii. Image of Atrium

iii. Image of café



IV. Image outside of the reading rooms

V. Image of outside The National Archives