



**Title:** COOLING MEANS FOR AIRPLANE ENGINES

**Abstract:** 1. The combination with an airplane having a fuselage of extended width, engine mounts carried by said fuselage at opposite sides thereof, a rectangular frame, two radiators disposed side by side at the front of said fuselage, and supported by said frame trussing between opposite sides of said frame, and truss members connecting said frame with said engine' mounts. '

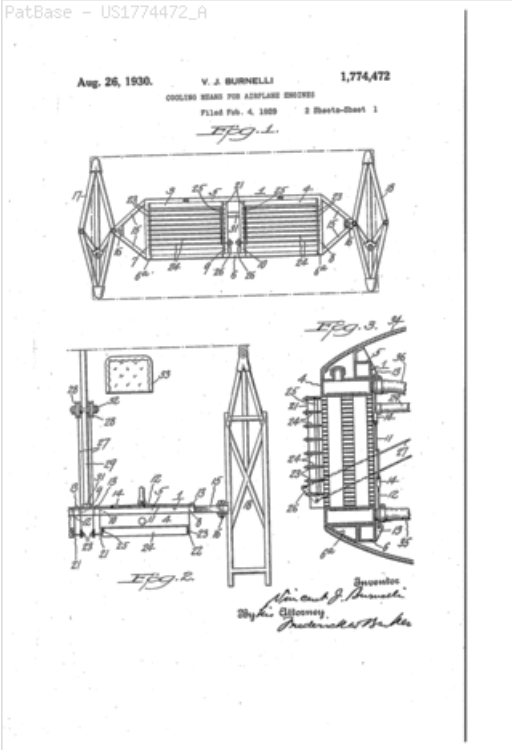
**Classifications:**

**International (IPC 8-9):** B64D33/10 (Advanced/Invention);  
B64D33/00 (Core/Invention)

**International (IPC 1-7):** B64D33/10  
**CPC:** B64D33/10

**European:** B64D33/10 L64D700/62D17G

**US:** 123/41.1 123/41.48 244/57



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US1774472 A        | 19300826         | US19290337199      | 19290204         |

**Priority:**

US19290337199 19290204

**Probable Assignee:** UPPERCU BURNELLI CORP  
**Assignee(s):** (std): UPPERCU BURNELLI CORP  
**Inventor(s):** (std): BURNELLI VINCENT J

**Classifications:**

**International (IPC 8-9):** F01N1/08 F01N1/16 F01N13/00  
F01N7/00 (Advanced/Invention);  
F01N1/08 F01N1/16 F01N7/00 (Core/Invention)

**International (IPC 1-7):** B64D27/04 B64D33/04  
**CPC:** F01N1/08 F01N1/089 F01N1/166 F01N13/002 F01N2590/00

**European:** F01N1/08 F01N1/08K F01N1/16C F01N13/00B R01N590/00  
**US:** 181/275 244/207 244/53R

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US1922825 A        | 19330815         |                    | 00000000         |

**US:** 244/136



| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US1957075 A        | 19340501         | US19310565780      | 19310929         |

**Priority:**

US19310565780 19310929

**Probable Assignee:**

E R HAWKE

**Assignee(s):** (std):

E R HAWKE

**Inventor(s):** (std):

MORGENSEN JR OTTO

**Inventor(s):**

JR OTTO MORGENSEN

**5) Family number: 22276271 (US2473212A)**

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**Title:** AIRCRAFT SPRAYER

**Abstract:** 1.. What; is claimed is: L A spraying apparatus, comprising an air inlet chamber, a mixing chamber arranged rearwardly of said air inlet chamber and in communication therewith, said mixing ohambercomprising a forward portion, a relatively wide rearward portion, and an intermediate portion, a supply chamber containing insecticidematerial communicating with the forward portion of said mixing chamber, said inlet chamber having an upwardly extending, throat and a downwardly extending bame to form a Venturi, whereby the inaterial in said supply tank is sucked into said mixing chamber, means in the forward portion of said mixing chamber for controlling. the turbulence of the air therein, means in said intermediate portion for evenly diverting the material discharging from said mixing chamber in a hori- zontal direction, means adjacent the rearward portion of said mixing chamber for controlling the discharge of said material in a Vertical direction, and a pair of air jets disposed at opposite sides of said rearward portion for laterally impinging said material being discharged from said rearward portion into the atmosphere to eiiect an even distribution thereof:

**Classifications:**

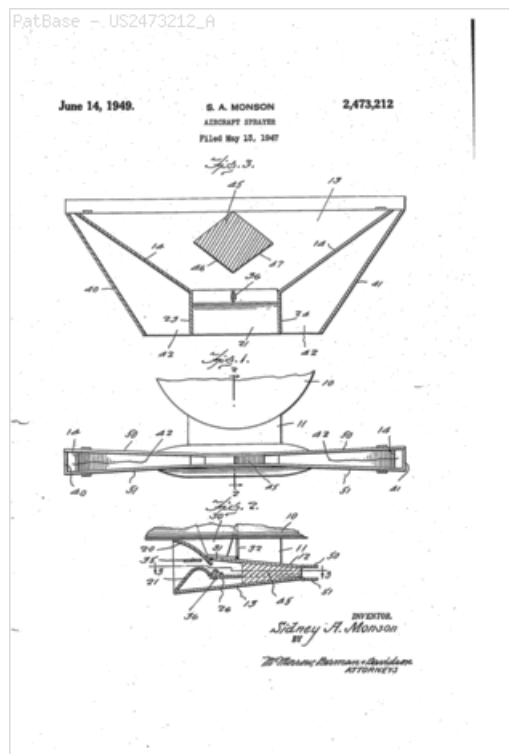
**International (ipc 8-9):** B05B7/00 (Advanced/Invention);  
B05B7/00 (Core/Invention)

**International (ipc 1-7):** B64D1/18

**CPC:** B05B7/0075

**European:** B05B7/00D

**US:** 239/654 244/136



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2473212 A        | 19490614         | US19470747815      | 19470513         |

**Priority:**

US19470747815 19470513

**Probable Assignee:** MONSON MFG CO INC

**Assignee(s):** (std): MONSON MFG CO INC

**Assignee(s):** MONSON MANUFACTURING CO INC ; MONSON MFG CO

**Inventor(s):** (std): MONSON SIDNEY A

**6) Family number: 22415780 (US2488554A)**

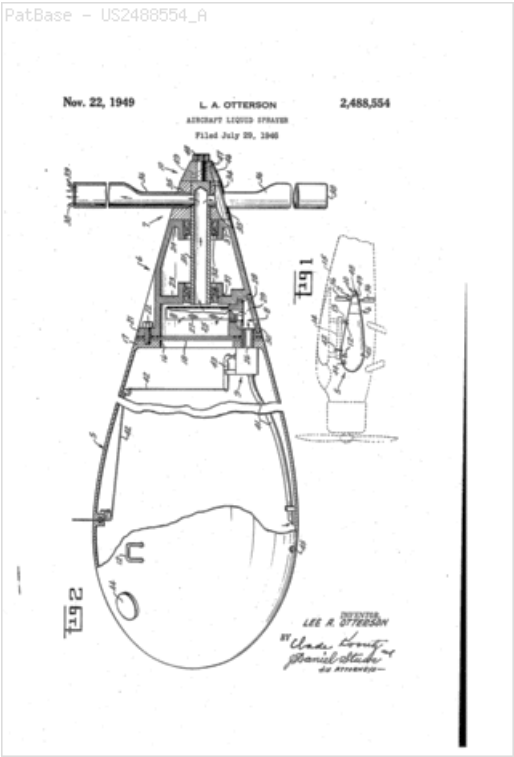
© PatBase

**Title:** AIRCRAFT LIQUID SPRAYER

**Abstract:** 1. A spraying device mountable on an airplane, comprising a liquid container having a removable wall member, a centrifugal pump and distributor assembly and means for removably mounting the same on the container against said removable wall member to facilitate removal therefrom for inspection and repair of both the container and saidwassembly, said assembly

including a tubular shaft member and means mounting said shaft member for rotation about the longitudinal axis thereof, said tubular shaft member being in communication at one end with the interior of said container and being provided at the other end with a hollow centrifugal distributor having liquid outlet apertures disposed radially outwardly of said tubular shaft member for distributing liquid drawn through the shaft member in a line spray from said apertures, and means for rotating said shaft member and distributor about said longitudinal axis of said shaft.

**Classifications:**  
**International (IPC 8-9):** B64D1/16 (Advanced/Invention);  
B64D1/00 (Core/Invention)  
**International (IPC 1-7):** B05B17/02 B64D1/18  
**CPC:** B64D1/16  
**European:** B64D1/16  
**US:** 239/171 239/222.17 244/136



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2488554 A        | 19491122         | US19460686835      | 19460729         |

**Priority:**

US19460686835 19460729

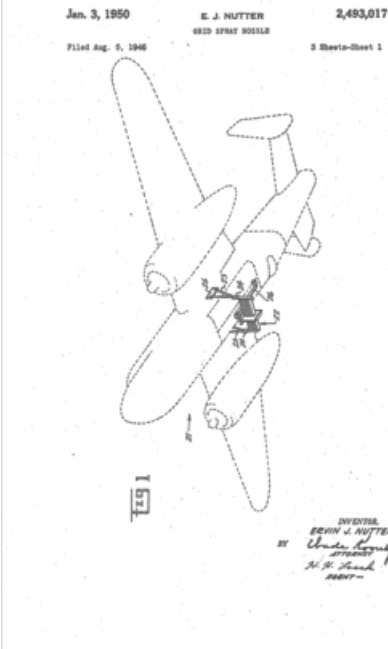
**Probable Assignee:** OTTERSON LEE A  
**Assignee(s):** (std): OTTERSON LEE A  
**Inventor(s):** (std): OTTERSON LEE A

**7) Family number: 22459116 (US2493017A)** © PatBase

**Title:** GRID SPRAY NOZZLE

**Abstract:** (Claim 1) 1. A- grid spray nozzle 'device' comprising, a. 'plurality ~of\_It; spaced' parallel "liuid" conduits 'conneetibless 'to ~sp-ray' material supply'means'"having f-'their adjacent' portions' constructed\_gt;and' 'arranged ssto ssform Wemuri- sspassage means ` 'therebetween fa and crlficesn-i%l1e's aid' liuid conduits atthe throat 45~jsection' of the said-Venturi'nassagenieans where- 'by the"liow'of~ air through theogrid' spraymozzle "Willi"pLLII 'Huid» spray' 'material 'outwardly th ere- '~fro1n~in atomizecl form. '

**Classifications:**  
**International (IPC 8-9):** B64D1/18 (Advanced/Invention);  
B64D1/00 (Core/Invention)  
**International (IPC 1-7):** B01D47/10  
**CPC:** Y10S261/54 B64D1/18  
**European:** B64D1/18  
**US:** 239/171 239/340 239/426 244/136 261/118 261/DIG.54



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2493017 A        | 19500103         | US19460688414      | 19460805         |

Priority:

US19460688414 19460805

Probable Assignee:

NUTTER ERVIN J

Assignee(s): (std):

NUTTER ERVIN J

Inventor(s): (std):

NUTTER ERVIN J

8) Family number: 21600636 (US2504247A)

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Title: AIRBORNE EXTINGUISHING EQUIPMENT

**Abstract:** (Claim 1) What is claimed is: In combination with an aircraft having spaced apart bulkheads and a cargo floor extending between said bulkheads and hollow, transverse beams spaced apart below said floor supporting the same, a tank of generally rectangular cross section resting upon said floor and extending substantially from one of said bulkheads to the other, spacers disposed between one of said bulkheads and the adjacent end of said tank securing said tank against longitudinal movement relative to said aircraft, stiffeners extending through at least two of said hollow beams, battens extending across the top of said tank above said stiffeners, U-shaped rods extending below said stiffeners and secured at their ends to said battens to secure said tank against movement away from said floor, spaced baffles extending transversely of said tank to restrain fluid in said tank against surging, a tubular conduit extending from the rear end of said tank and below the rearward portion of said aircraft, and a sprinkler head at the rearward end of said conduit.

Classifications:

**International (IPC 8-9):** A62C3/08 (Advanced/Invention);

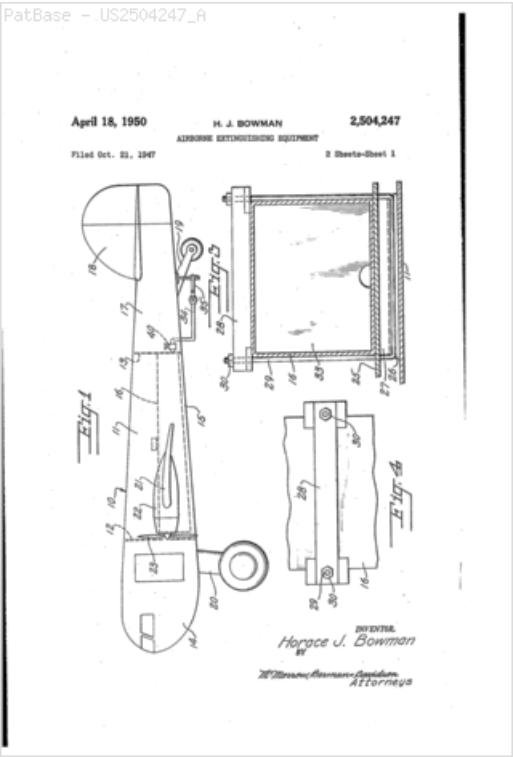
A62C3/07 (Core/Invention)

**International (IPC 1-7):** B64D1/16

**CPC:** A62C3/08

**European:** A62C3/08

**US:** 239/171 244/136



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2504247 A        | 19500418         | US19470781091      | 19471021         |

Priority:

US19470781091 19471021

Probable Assignee:

BOWMAN HORACE J

Assignee(s): (std):

BOWMAN HORACE J

Inventor(s): (std):

BOWMAN HORACE J

9) Family number: 22663811 (US2591157A)

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Title: METHOD AND APPARATUS FOR PRODUCING VAPOR TRAILS

**Abstract:** (Claim 1) 1. The process of artificially producing vapor trail\_s for sky writing comprising the steps of passing an \_airfoil through the air creating a low pressure region behind the airfoil causing the adjacent air to expand adiabatically into the low pressure region, thereby lowering the heat content of the air in said region and thereby causing the liquid content of said region to be reduced.in heat content below the freezing point, and spraying water behind the airfoil and in -the region to freeze.

Classifications:

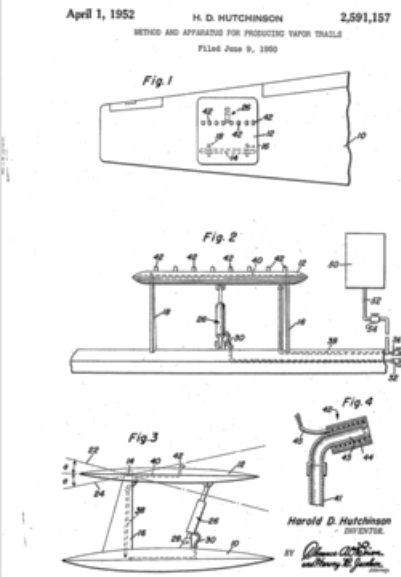
**International (IPC 8-9):** G09F21/16 (Advanced/Invention); G09F21/00 (Core/Invention)

**International (IPC 1-7):** A24F19/10 B64D1/18

**CPC:** G09F21/16

**European:** G09F21/16

**US:** 239/135 239/566 239/8 244/136 392/397 40/213



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2591157 A        | 19520401         | US19500167077      | 19500609         |

Priority:

US19500167077 19500609

Probable Assignee: HUTCHINSON HAROLD D  
Assignee(s): (std): HUTCHINSON HAROLD D  
Inventor(s): (std): HUTCHINSON HAROLD D

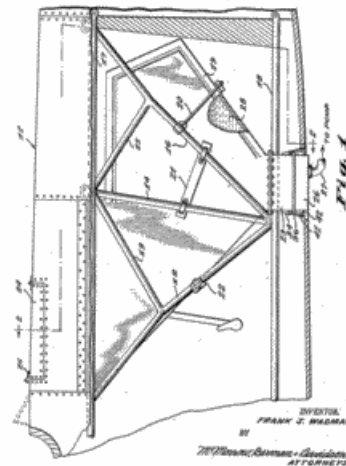
10) Family number: 22392338 (US2626769A)

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Title: AIRPLANE INSECTICIDE SPRAYING AND DUSTING APPARATUS

Abstract: (Claim 1) 1. In an airplane including  
Classifications:  
International (IPC 8-9): B64D1/16 (Advanced/Invention);  
B64D1/00 (Core/Invention)  
International (IPC 1-7): B64D1/18  
CPC: B64D1/16  
European: B64D1/16  
US: 239/654 244/136

Jan. 27, 1953 F. J. WADMAN 2,626,769  
 AIRPLANE INSECTICIDE SPRAYING AND DUSTING APPARATUS  
 Filed July 20, 1948 2 Sheets-Sheet 1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2626769 A        | 19530127         | US19480041496      | 19480730         |

**Priority:**

US19480041496 19480730

**Probable Assignee:**

WADMAN FRANK J

**Assignee(s):** (std):

WADMAN FRANK J

**Inventor(s):** (std):

WADMAN FRANK J

**11) Family number: 22163622** (US2986360A)

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**Title:** AERIAL INSECTICIDE DUSTING DEVICE

**Abstract:** (Claim 1) 1. An aerial insecticide apparatus comprising a dust hopper and a liquid insecticide tank mounted in a plane, fuselage, an air and dust mixer and a liquid and air mixer each disposed below said fuselage, supply means extending from said hopper and tank to said mixers respectively for delivering dust and liquid respectively from said hopper and said tank to said mixers whereby atomized dust and atomized liquid may be intermixed exteriorly of and sprayed by a plane, one of said mixers comprising a venturi having a bottom plate of compound curvature forming an intermediate restricted throat in the venturi into which the dust is delivered, control means for simultaneously controlling the flow of dust and liquid insecticide comprising valves in the supply means extending from said hopper and tank respectively, and manual means connected to said valves to operate the same in unison.

**Classifications:**

**International (IPC 8-9):** B64D1/18 (Advanced/Invention);

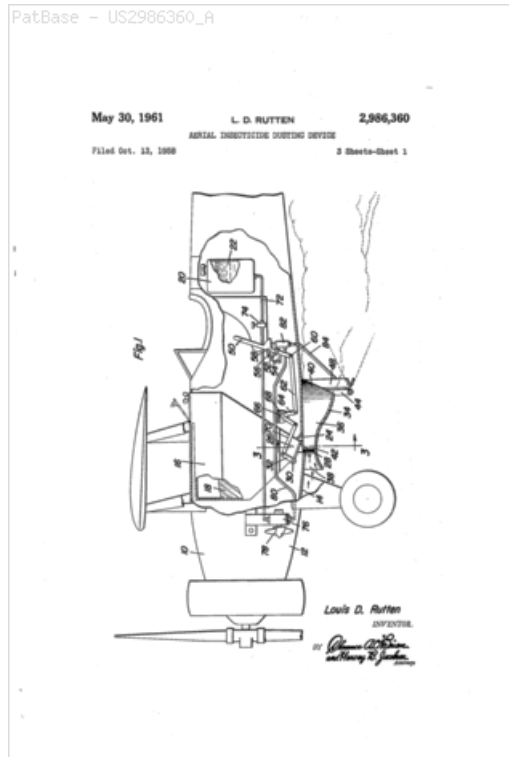
B64D1/00 (Core/Invention)

**International (IPC 1-7):** B64D1/18

**CPC:** B64D1/18

**European:** B64D1/18

**US:** 239/171 239/654 239/656 244/136

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2986360 A        | 19610530         | US19580766842      | 19581013         |

**Priority:**

US19580766842 19581013

**Probable Assignee:**

RUTTEN LOUIS D

**Assignee(s):** (std):

RUTTEN LOUIS D

**Inventor(s):** (std):

RUTTEN LOUIS D

**12) Family number: 22869168** (US3061247A)

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**Title:** AIRPLANE LIQUID-SPRAYING DEVICE

**Abstract:** (Claim 1) 1. An airplane spraying unit including in combination a propeller-driven airplane having a fixed wing, a fuselage, and landing gear; a hollow spray boom of substantial length supported below said fuselage aft of said propeller and below and parallel to said wing, said boom extending out on both sides of said fuselage and having a plurality of spray nozzles on each side, of said fuselage; means for pumping spray solution into said boom under pressure; and pivotally mounted swinging means for raising and lowering said boom between a non-spraying position closely adjacent to said wing and a spraying position well below said landing gear, out of the draft of said propeller and out of the turbulence set up by movement of said landing gear through the air, and for holding said boom in either said position.

**Classifications:****International (IPC 8-9):** B64D1/16 (Advanced/Invention);

B64D1/00 (Core/Invention)

**International (IPC 1-7):** B64D1/18**CPC:** B64D1/16**European:** B64D1/16**US:** 239/171 244/136

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3061247 A        | 19621030         | US19600030109      | 19600519         |

|                            |                |
|----------------------------|----------------|
| <b>Probable Assignee:</b>  | HYDE RICHARD E |
| <b>Assignee(s): (std):</b> | HYDE RICHARD E |
| <b>Inventor(s): (std):</b> | HYDE RICHARD E |

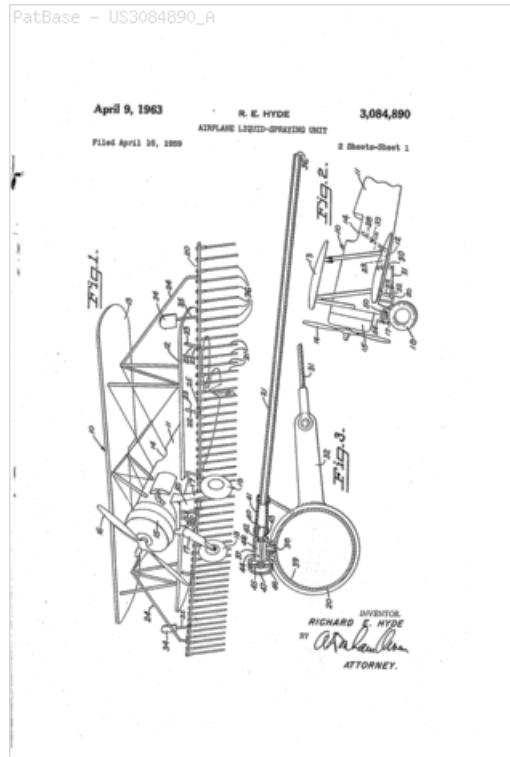
**Abstract:** (Claim 1) 1. \_A-n airplane sprayin unit including in combination an airplane, hav,ing a wing, of fuselage, and landing gear; a hollow boom of substan.tial length rotatably supported by said airplane below said fuselage -and below and paral- lel to said win-; means for pumping spray solution into said boom under pyessure; a series of nozzle tubes connected to said boom- and e xtending.transversely thereto; and means for riDtat;n\_, said boom from a position where said nozzle tubes are generally horizontal and above said landing gear to a position where said nozzle tubes extend downwardly to a level below said landing gear and b-elow the turbulent airstream provided by the wing and landing,gear when said.airplane, is in flight.

**International (IPC 8-9):** B64D 1/16 (Advanced/Invention);

**International (IPC 1-7):** B64D1/18

**European:** B64D1/16

**US:** 239/171 244/136

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3084890 A        | 19630409         | US19590806854      | 19590416         |

**Priority:**

US19590806854 19590416

**Probable Assignee:**

HYDE RICHARD E

**Assignee(s):** (std):

HYDE RICHARD E

**Inventor(s):** (std):

HYDE RICHARD E

**14) Family number: 22767201** (US3191866A)

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**Title:** HOLLOW SPRAY ATOMIZING HEAD HAVING A KNIFE EDGE CONSTRUCTION

**Abstract:** (Claim 1) 1 A spray atomizer comprising a hollow atomizing head presenting two merging planar surfaces disposed in acute-angular relation to one another and at their line of juncture producing an exposed knife edge, means for flowing liquid which is to be atomized from the hollow interior of the head to said knife edge over one of said surfaces, and means for delivering a current of atomizing air to the knife edge over the other of said surfaces, the atomizing head presenting a planar exterior face and having said surface over which the current of air passes projecting from one edge thereof as a lip prolongation of the face disposed in obtuse-angular relation to the face, means being provided for suspending said head from an airplane so as to occupy a position below the belly of the latter and placing said planar face at the underside with the lip at the after end.

**Classifications:**

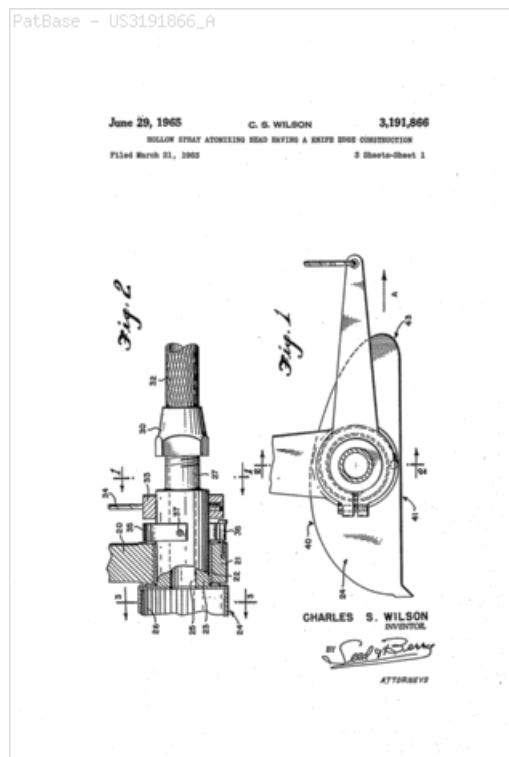
**International (IPC 8-9):** B05B7/02 B05B7/04 B64D1/18 F23D11/12 (Advanced/Invention);  
 B05B7/02 B05B7/04 B64D1/00 F23D11/10 (Core/Invention)

**International (IPC 1-7):** B05B7/30

**CPC:** B05B7/02 B05B7/0416 B64D1/18 F23D11/12

**European:** B05B7/02 B05B7/04C B64D1/18 F23D11/12

**US:** 239/171 239/318 239/434 244/136

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3191866 A        | 19650629         | US19630266991      | 19630321         |

**Priority:**

US19630266991 19630321

**Probable Assignee:**

WILSON CHARLES S

**Assignee(s):** (std):

WILSON CHARLES S

**Inventor(s):** (std):

WILSON CHARLES S

**15) Family number: 887625 (US3476337A)**

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**Title:** SOLIDS SPREADER FOR AGRICULTURAL AIRCRAFT

**Abstract:** (Claim 1) 1. In combination with an airplane including a solids hopper centrally disposed forward of the cockpit, with said hopper having a filling inlet, a discharge outlet therebelow and a gate pivotally mounted across said outlet to control the outlet, and lever means operable from the cockpit to control the gate, the improvement consisting of, a spreader including a throat connectable to the airplane to receive solids discharged through said hopper outlet and providing a rear discharge opening for solids, a vane housing connected to said throat to receive solids through said throat rear discharge, said vane housing including, a rearwardly and outwardly diverging top plate, a rearwardly and outwardly diverging bottom plate spaced below said top plate, a side plate on each side between said top and bottom plates, a substantially centrally disposed, directly rearwardly extending, partition structure between said plates, a plurality of vertically disposed vanes with forward ends symmetrically spaced at predetermined distances apart across said throat rear discharge and extending rearwardly with predetermined vane curvature successively greater outwardly from, and symmetrically disposed with relation to, said partition, said vanes thus dividing the vane housing into windstreams, means to affix said vanes with relation to said top and bottom plates, an air louver on each side outwardly and forwardly of said vane housing and defined in cross-section by a respective side plate and an arcuate louver plate adjoined thereto, with said louver plate extending at an angle to flight direction for louver air discharge, a plurality of spaced apart solids passage holes in each vane disposed from the rear end forwardly, and means for selectively occluding said passage holes whereby to predetermine the total opening area through each vane and the total component transverse area through each vane for controlling solids passage between windstreams, whereby the louver air discharge limits the area over which solids are distributed upon the ground from an airplane in flight thereover, and whereby the solids discharged from respective windstreams determines the density pattern of solids distribution over said area of distribution.

**Classifications:**

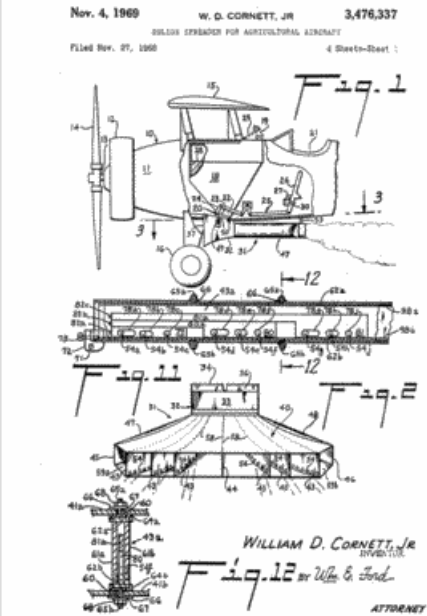
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B64D1/00 (Core/Invention)

**International (IPC 1-7):** B64D1/18

**CPC:** B64D1/18

**European:** B64D1/18

**US:** 239/171 244/136



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ US3476337 A      | 19691104         | US19680779582      | 19681127         |

Priority:

US19680779582 19681127

|                     |                      |
|---------------------|----------------------|
| Probable Assignee:  | WILLIAM D CORNETT JR |
| Assignee(s): (std): | WILLIAM D CORNETT JR |
| Inventor(s): (std): | CORNETT WILLIAM D JR |
| Inventor(s):        | WILLIAM D CORNETT JR |

16) Family number: 924675 (US3533582A)

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Title: SPREADER DEVICE FOR THE DISPERSAL OF GRANULAR MATERIALS AND CHEMICALS FROM AN AIRCRAFT

Abstract: ABSTRACT OF THE DISCLOSURE

Apparatus for the dispensing and dispersal of seeds, granular material and chemicals and the like from an aircraft, in which hopper means are provided for storing the material and a chute is provided for discharging the material from the hopper out into the aircraft slipstream below the aircraft center and lateral chutes are provided for dispensing the material from the hopper onto a spreader wing below the lateral chutes, which wing is provided with curved guide vanes for uniformly distributing the material over a predetermined area and the wing further is secured to the center chute and is of cantilever design so that it requires no external bracing and contributes to the lift of the aircraft.

Classifications:

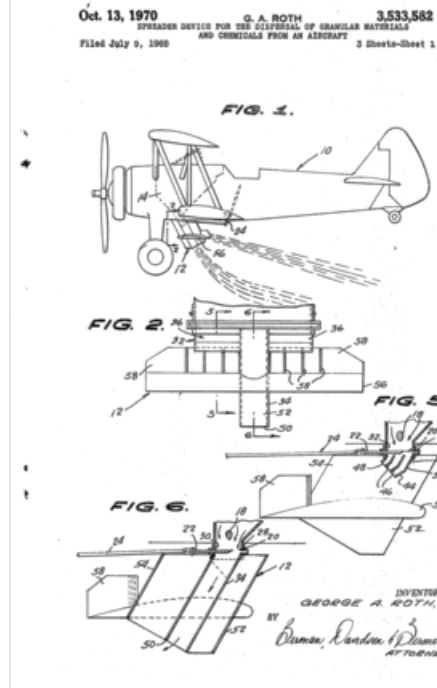
International (IPC 8-9): B64D1/16 (Advanced/Invention)

International (IPC 1-7): B64D1/16 B64D1/18

CPC: B64D1/16

European: B64D1/16

US: 244/136

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3533582 A        | 19701013         | US19680743385      | 19680709         |

**Priority:**

US19680743385 19680709

**Probable Assignee:**

GEORGE A ROTH

**Assignee(s):** (std):

GEORGE A ROTH

**Inventor(s):** (std):

ROTH GEORGE A

**Inventor(s):**

GEORGE A ROTH

**17) Family number: 968663** (US3604509A)

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**Title:** AIRPLANE FOAM GENERATOR

**Abstract:** (Claim 1) 1. 1. A foam generator comprising a. tubular chamber, b. means for creating an airstream through said tubular chamber, c. said chamber being open on two opposite ends, d. a spray nozzle attached to the chamber at one of said openings to said tubular chamber, e. said opening containing the spray nozzle being designated the mouth, f. a source of foamable liquid under pressure h. means called dispersing nozzle on the other opening for dispersing foam so generated within the chamber, j. means between the front and rear of the chamber for creating turbulence, thereby causing foam, k. said dispersing nozzle being adjustable in configuration to regulate the

**Classifications:**

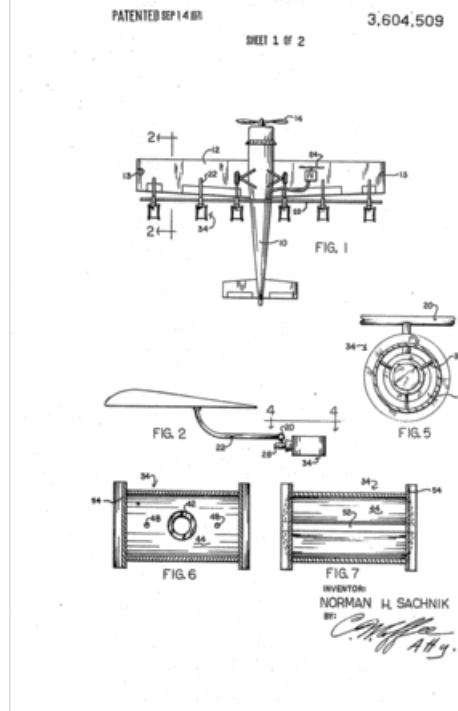
**International (IPC 8-9):** A62C3/02 B64D1/16 (Advanced/Invention);  
A62C3/00 B64D1/00 (Core/Invention)

**International (IPC 1-7):** A62C35/00 B64D1/18

**CPC:** Y10S261/26 A62C3/0207 B64D1/16

**European:** A62C3/02B B64D1/16

**US:** 169/15 239/171 261/DIG.26

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US3604509 A        | 19710914         | US19690824868      | 19690515         |

**Priority:**

US19690824868 19690515

**Probable Assignee:**

NORMAN H SACHNIK

**Assignee(s):** (std):

NORMAN H SACHNIK

**Inventor(s):** (std):

SACHNIK NORMAN H

**Inventor(s):**

NORMAN H SACHNIK

**18) Family number: 8288216** (US4278221A)

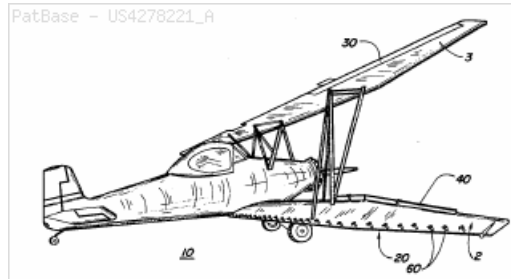
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**Title:** Agriculture spray plane

**Abstract:** An improved agricultural spray plane of the biplane type, the improvement including a pair of spray booms mounted on each of the lower wings and defining the trailing edge of each of the wings for substantially the entire length of the wings. A spoiler is mounted on the upper surface of each of the lower wings forward of the spray booms to compensate for the elimination of ailerons found on conventional biplanes. Each of the upper wings include an aileron and apparatus for simultaneously controlling ailerons and spoilers is also provided.

**Classifications:****International (IPC 8-9):** B64D1/18 (Advanced/Invention);

B64D1/00 (Core/Invention)

**International (IPC 1-7):** B64D1/18**CPC:** B64D1/18**European:** B64D1/18**US:** 239/171 244/136**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US4278221 A        | 19810714         | US19790095778      | 19791119         |

**Priority:**

US19790095778 19791119

**Probable Assignee:**

EAGLE AIRCRAFT CO

**Assignee(s):** (std):

EAGLE AIRCRAFT CO

**Inventor(s):** (std):

WILSON WELDON D

**Title:** Method for treating a site occupied by a population of birds and aerial spreading device

**Abstract:** The invention relates to a method permitting the spreading of a toxic product over a group of birds to be destroyed, in a limited, rapid and inexpensive manner. One or more zones used as a dormitory by the birds in question is marked out, light markers are put into position and nocturnal spreading of the product is effected, in the form of a mist. The device used to form this mist comprises a casing 20 which is fastened under an aeroplane and contains a profiled air conduit 21 which is divided into divergent channels by partitions 27. Considerable turbulence of the mixture of air and of droplets of the product is obtained by baffles 33 fastened against these partitions. This device can be used for the aerial spreading of all types of liquid products, particularly in agriculture or viticulture.

**Classifications:**

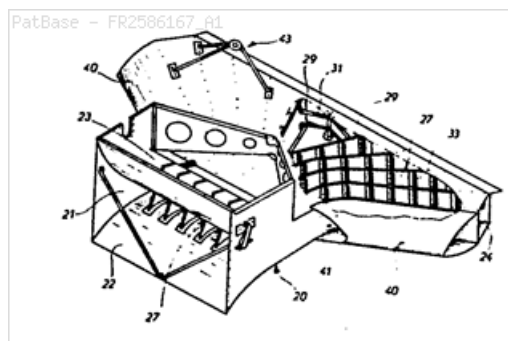
**International (IPC 8-9):** A01G13/10 B64D1/18 (Advanced/Invention);

A01G13/10 B64D1/00 (Core/Invention)

**International (IPC 1-7):** A01G13/10 A01M25/00 A01M7/00 B64D1/18

**CPC:** A01G13/10 B64D1/18

**European:** A01G13/10 B64D1/18



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2586167 A1       | 19870220         | FR19850012478      | 19850814         |
| FR2586167 B1       | 19871030         | FR19850012478      | 19850814         |

**Priority:**

FR19850012478 19850814

**Probable Assignee:**

ISSELE JEAN

**Assignee(s): (std):**

ISSELE JEAN

**Title:** Agri-chemical spreader

**Abstract:** A spreader for widely broadcasting agri-chemicals from a conventional airplane. Preferably the spreader comprises a central body comprised of an upper and lower top which diverge away from each other between a central front and a rear. The generally wing-shaped spreader includes a front throat having a mouth in which a plurality of spaced apart vane fronts are disposed. The vanes extend in arcuate spaced-apart relationship throughout the interior of the spreader, terminating in pivoted swallow-tail portions. Each swallow-tail portion includes a pair of pivoted tabs which can be adapted to deflect agri-chemicals in a desired fashion. Preferably the throat includes a releasable plate for quick connecting the spreader to the aeroplane, and a front, lower baffle plate may be adjusted to redirect air flow. Upon the opposite lateral outwardly diverging sides of the body two pairs of cooperating air injection chutes are employed. These chutes inject air within the lateral periphery of the spreader so as to insure uniform product output and prevent the creation of aero-dynamic "dead zones" within the apparatus.

**Classifications:**

**International (IPC 8-9):** B64D1/18 (Advanced/Invention);

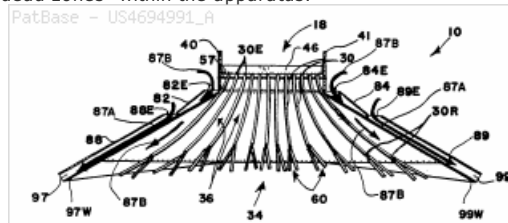
B64D1/00 (Core/Invention)

**International (IPC 1-7):** B05B1/20 B64D1/00 B64D1/18

**CPC:** B64D1/18

**European:** B64D1/18

**US:** 239/171 239/176 244/136



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US4694991 A        | 19870922         | US19860829915      | 19860218         |

**Priority:**

US19860829915 19860218

**Probable Assignee:**

BRECKENRIDGE VIRGIL H

**Assignee(s): (std):**

BRECKENRIDGE VIRGIL H

**Inventor(s): (std):**

BRECKENRIDGE VIRGIL H

**Title:** Device for liquid and solid delivery from crop spraying aircraft

**Abstract:** PCT No. PCT/GB93/00302 Sec. 371 Date Sep. 7, 1994 Sec. 102(e) Date Sep. 7, 1994 PCT Filed Feb. 12, 1993 PCT

Pub. No. WO93/15954 PCT Pub. Date Aug. 19, 1993. An orifice discharge device is provided for use in crop spraying aircraft to provide a downward spray of treatment substance especially liquid for crop or ground treatment. The device comprises an air passage having an inlet portion with a bell mouth, and an outlet portion having an Outlet discharge extending laterally relative to the inlet portion of the air passage, an elbow portion being provided between the inlet portion and the outlet portion. Treatment substance is supplied by a supply conduit to the outlet portion for discharge via a discharge nozzle of the supply conduit. In use, the inlet portion receives a horizontal flow of air and a high velocity downwards discharge of air with treatment substance (liquid particles) occurs from the outlet discharge of the outlet portion of the air passage. The device is preferably of streamline form.

**Classifications:**

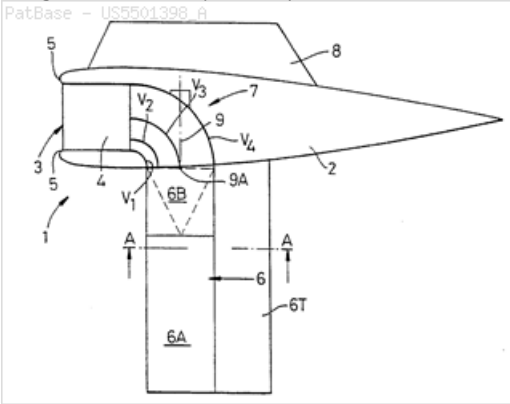
**International (IPC 8-9):** B64D1/18 (Advanced/Invention);  
B64D1/00 (Core/Invention)

**International (IPC 1-7):** B05B17/00 B64D1/18

**CPC:** B64D1/18

**European:** B64D1/18

**US:** 239/171 244/136



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU199334614 A1     | 19930903         | AU19930034614      | 19930212         |
| EP0625110 A1       | 19941123         | EP19930903280      | 19930212         |
| GB9202872 A0       | 19920325         | GB19920002872      | 19920212         |
| US5501398 A        | 19960326         | US19940290708      | 19940907         |
| WO9315954 A1       | 19930819         | WO1993GB00302      | 19930212         |

**Priority:**

GB19920002872 19920212 WO1993GB00302 19930212

**Probable Assignee:** CUSTOM FARM SERVICE OF ARIZONA

**Assignee(s):** (std): ARIZONA CUSTOM FARM SERVICE ; CUSTOM FARM SERCIVE OF ARIZONA ; CUSTOM FARM SERVICES OF ARIZON ; MAXWELL DAVIDSON LTD

**Assignee(s):** MAXWELL DAVIDSON LIMITED ; CUSTOM FARM SERVICES OF ARIZONA INC ; CUSTOM FARM SERVICE OF ARIZONA

**Inventor(s):** (std): DAVIDSON MAXWELL W ; DAVIDSON MAXWELL WINGATE

**Inventor(s):** MAXWELL WINGATE DAVIDSON

**Designated states:** AT AU BE CA CH DE DK ES FI FR GB GR IE IT JP LU MC NL NO NZ PT SE US

**22) Family number: 13224344 (US5667170A)**

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**Title:** Pod mounted refueling system

**Abstract:** A refueling system mounted to an aircraft fuselage for transferring fuel from a tanker aircraft to a receiver aircraft. The refueling system including a pylon extending from the fuselage at a position aft of the main wing and having a refueling pod mounted thereto at an outboard location. A refueling hose is disposed within and extendable from the refueling pod and functions to transfer fuel from the refueling pod to the receiver aircraft. A means for transferring fuel from a fuel source, located within the aircraft, to the refueling hose is also provided. The pylon and refueling pod are configured so as to channel the refueling hose in a preferred direction to maximize safety during refueling. The channeling of the refueling hose is accomplished by mounting the refueling pod at an angle to the pylon, mounting the refueling pod at an angle to a horizontal plane, mounting the pylon at angle to the fuselage, or a combination of these mounting arrangements. The pylons are preferably supported by a sandwich-type reinforcement of the fuselage floor between the pylons.

**Classifications:**

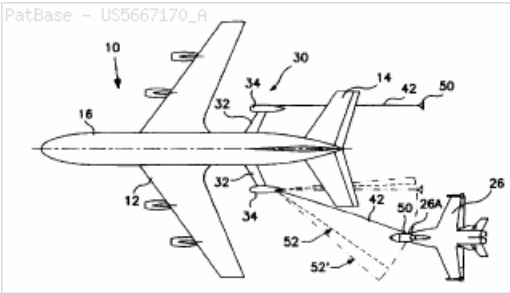
**International (IPC 8-9):** B64D39/02 (Advanced/Invention);  
B64D39/00 (Core/Invention)

**International (IPC 1-7):** B64C39/08 B64D37/04 B64D37/06 B64D39/02

**CPC:** B64D39/02

**European:** B64D39/02

**US:** 244/135A 244/136 244/45R



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US5667170 A        | 19970916         | US19940350787      | 19941207         |

**Priority:**

US19940350787 19941207

**Probable Assignee:** BAE SYSTEMS FLIGHT SYSTEMS INC

**Assignee(s):** (std): TRACOR FLIGHT SYSTEMS INC  
**Assignee(s):** AEL IND ; BAE SYSTEMS FLIGHT SYSTEMS INC ; BANKERS TRUST CO ; MARCONI FLIGHT SYSTEMS INC  
**Inventor(s):** (std): BRIGGS CHARLES WHITFORD ; MOSS WILLIAM GREGORY ; ROBERTS KENNETH DALE

**23) Family number: 44065520** (US7624666B)

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**Title:** OBSCURATION METHOD FOR REDUCING THE INFRARED SIGNATURE OF AN OBJECT

**Abstract:** An object such as an aircraft in flight is obscured from infrared detection when viewed from an external viewing location. The method includes providing the object having an externally viewable hot region associated therewith, wherein the hot region has a temperature greater than 150 degrees centigrade. A source of an obscuring agent is provided, wherein the obscuring agent comprises a mixture of carbon dioxide gas and water vapor. The obscuring agent is ejected from a dispensing location so as to flow between the hot region and the external viewing location. The obscuring agent has a temperature of less than that of the hot region.

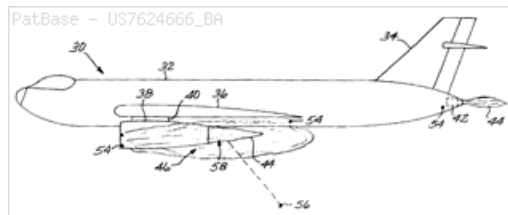
**Classifications:**

**International (IPC 8-9):** B64D1/18 (Advanced/Invention)

**CPC:** B64D33/04 B64D2033/045 F41H3/00 F41J2/00

**European:** B64D33/04 F41H3/00 F41J2/00 L64D33/04A

**US:** 89/1.11



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ US7624666 BA     | 20091201         | US20030615133      | 20030708         |

**Priority:**

US20030615133 20030708

**Probable Assignee:** RAYTHEON CO

**Assignee(s):** (std): RAYTHEON CO

**Assignee(s):** RAYTHEON COMPANY

**Inventor(s):** (std): O NEILL MARY MORABITO ; WELLMAN WILLIAM H

**Inventor(s):** O'NEILL MARY MORABITO

**Agent(s):** LEONARD A

**24) Family number: 62004924** (US2017297710A)

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**Title:** METHOD AND APPARATUS FOR ARTIFICIAL DISTRIBUTION OF INSECTS OR SPRAY

**Abstract:** A diffuser for distributing spray or insects from an aircraft is mounted on an aircraft and comprises a distribution tube connected to an insect source at a first end and open to the outside at a second end for distribution of the insects. A nozzle surrounds the second end and a tube cover surrounds the second end within the nozzle. The tube cover has an aerofoil, or wing-shaped, cross section. The nozzle shape sets up an air transition volume between the aircraft and ambient air designed for a maximum wind shear over any cubic centimeter volume within the air transition volume to be less than 60 km/h, and therefore allowing distribution of insects such as mosquitoes from the aircraft without damage, or allowing aerosols to be spread as large droplets.

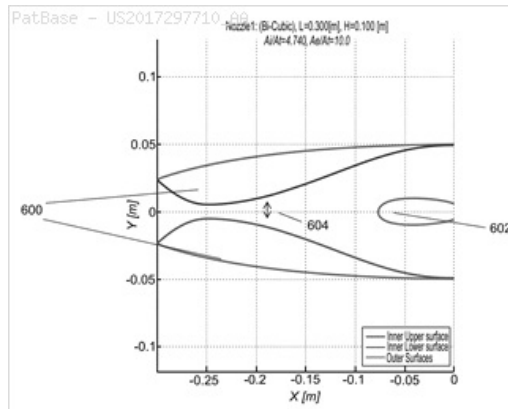
**Classifications:**

**International (IPC 8-9):** B05B7/14 B64D B64D1/18 (Advanced/Invention);

B64D (Subclass/Invention)

**International (IPC 1-7):** B64D1/18

**CPC:** B05B7/1459 B64D1/18



**Family:**

| Publication number  | Publication date | Application number | Application date |
|---------------------|------------------|--------------------|------------------|
| ■ AU2015323280 AA   | 20160331         | AU20150323280      | 20150921         |
| ■ BR112017005768 A2 | 20171212         | BR20171105768      | 20150921         |
| ■ CN107000844 A     | 20170801         | CN201580063293     | 20150921         |
| ■ CO20170003905 A2  | 20170711         | CO20170003905      | 20170421         |
| ■ CR20170163 A      | 20180201         | CR20170000163      | 20150921         |
| ■ EP3197775 A1      | 20170802         | EP20150791374      | 20150921         |

|                     |          |                |          |
|---------------------|----------|----------------|----------|
| ■ IL251295 A0       | 20170529 | IL20150251295  | 20150921 |
| ■ IN201727012659 A  | 20170609 | IN201727012659 | 20170407 |
| ■ MX2017003733 A1   | 20170919 | MX20170003733  | 20150921 |
| ■ SG11201702171S A1 | 20170427 | SG20171102171  | 20150921 |
| ■ US2017297710 AA   | 20171019 | US20150513232  | 20150921 |
| ■ WO16046823 A1     | 20160331 | WO20151L50964  | 20150921 |

**Priority:**

US20140053242P 20140922      US20150513232 20150921      WO20151L50964 20150921

**Probable Assignee:** SENECIO LTD

**Assignee(s):** (std): HANAN LEPEK ; RIMON ARIELI ; SENECIO LTD

**Inventor(s):** (std): ARIELI RIMON ; HANAN LEPEK ; LEPEK HANAN ; RIMON ARIELI

**Agent(s):** IP SENTINELS PATENT AND TRADEMARK ATTORNEYS; CAROLINA MERCEDES DAZA MONTALVO; CABINET LAURENT AND CHARRAS; EHRLICH GAL ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW