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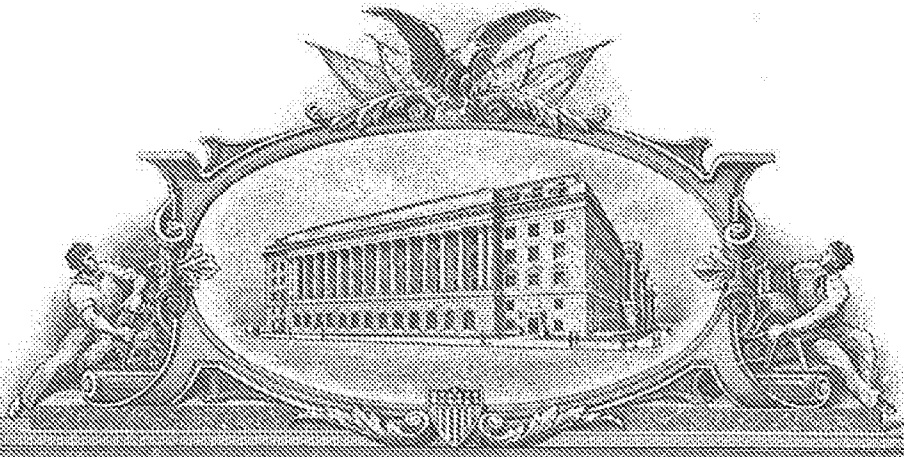
Application number: 62773520

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THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

June 13, 2019

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *62/773,520*
FILING DATE: *November 30, 2018*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US62/773,520*



Certified by

Andres Ibarra

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a **PROVISIONAL APPLICATION FOR PATENT** under 37 CFR 1.53(e)

INVENTOR(S)

Given Name (first and middle (if any))	Family Name or Surname	Residence (City and either State or Foreign Country)
Atsushi	YASUMOTO	Itami-shi, Hyogo, Japan

Additional inventors are being named on the separately numbered sheets attached hereto

TITLE OF THE INVENTION (280 characters max)

NAILPRINTER

CORRESPONDENCE ADDRESS

Direct all correspondence to:

Customer Number

_____ - _____
Type Customer Number here

_____ - _____
Place Customer Number Bar Code Label here

OR

CORRESPONDENCE ADDRESS

CUSTOMER NO.
00513

By: /Kenneth W. Fields/

Kenneth W. Fields
Registration No. 52,430

WENDEROTH, LIND & PONACK, L.L.P.
1030 15th Street, N.W., Suite 400 East
Washington, D.C. 20005-1503
Phone:(202) 721-8200
Fax:(202) 721-8250
November 30, 2018

ENCLOSED APPLICATION PARTS (check all that apply)

Specification *Number of Pages* [2] CD(s), Number _____
 Drawings *Number of Sheets* Other, (specify) Application Data Sheet

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)

- Applicant claims small entity status. See 37 CFR 1.27.
- A check or money order is enclosed to cover the filing fees of \$ 280.00
- The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account No. 23-0975. Filing Fee Amount \$280.00
- Please charge my Credit Card in the amount of \$280.00 to cover the above fees.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

- No.
- Yes, the name of the U.S. Government agency and the Government contract number are: _____

The USPTO is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17, and 1.492, which may be required by this paper and for the entire pendency of the present application to Deposit Account No. 23-0975, except fees for multiple dependent claims.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

<input type="checkbox"/>	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Atsushi		YASUMOTO		
Residence Information (Select One) US Residency ● Non US Residency Active US Military Service					
City	tami-shi, Hyogo		Country of Residence ⁱ	JP	
Mailing Address of Inventor:					
Address 1	c/o FUNAI ELECTRIC CO., LTD.				
Address 2	7-7-1, Nakagaito, Daito-shi				
City	Osaka	State/Province			
Postal Code	574-0013	Country ⁱ	JP		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.			
Customer Number	00513		
Email Address	wlp@wenderoth.com	Add Email	Remove Email

Application Information:

Title of the Invention	NAILPRINTER		
Attorney Docket Number	PR18-2113A	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Provisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

Request Early Publication (Fee required at time of Request 37 CFR 1.219)

Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	00513		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	<input type="text"/>	<input type="button" value="Remove"/>
Application Number	Continuity Type	Prior Application Number
<input type="text"/>	<input type="text"/>	<input type="text"/>
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.		<input type="button" value="Add"/>

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h) (1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	<input type="button" value="Remove"/>
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>		
<input type="button" value="Clear"/>		
<input type="radio"/> Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>		
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>		
Organization Name	FUNAI ELECTRIC CO., LTD.	
Mailing Address Information For Applicant:		
Address 1	7-7-1, Nakagaito, Daito-shi	
Address 2		
City	Osaka	State/Province
Country	JP	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	PR18-2113A
	Application Number	
Title of Invention	NAILPRINTER	

Assignee	1
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Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here.

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Kenneth W. Fields/		Date (YYYY-MM-DD)	2018-11-30
First Name	Kenneth W.	Last Name	Fields	Registration Number
				52430

Additional Signature may be generated within this form by selecting the Add button.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PR18-2113A
		Application Number	
Title of Invention	NAILPRINTER		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

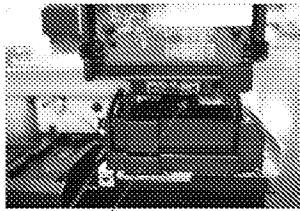
Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

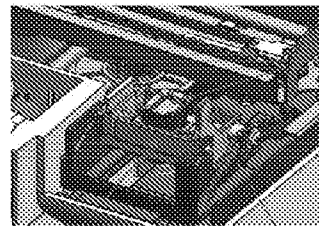
1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<p>解決したい課題</p>	<p>【従来技術】 インクジェット方式で指の爪の表面に、線画や絵柄などのデザイン画像を印刷するネイルプリント装置が知られている。インクジェット方式の印刷ヘッドは、インクを吐出して爪上に着弾、定着させることにより、爪に描画を施す。印刷ヘッドは、極細ノズルからインクを吐出する方式であるために、ノズルが乾燥して目詰まりが発生することを防止するために吐出を行う時以外はNOZZLEをCAPPING部材により覆うことで乾燥を防止するように構成されている。</p> <p>【課題】 従来プリント装置では装置本体が持ち運ばれた場合でもインクヘッドがCAPPING状態に保持されるようにインクヘッドはロック部材により移動を抑制されCAPがNOZZLEから外れないよう構成されているものがある。ところがネイルプリンタにおいては個人によって長さの異なる爪の全域に印刷を行うためにはインクヘッドをX-Y 2方向に走査させる構成とする必要がしばしば生ずる。この場合インクヘッドのCAPPING保持はX-Y 2方向に対して各々方向への移動を抑制するためロック機構を動作させる専用の駆動源がさらに必要になって製品コストが増大し、ロック機構としても配置スペースが必要であることから装置の大型化の要因となっていた。</p>
<p>発明概要 (作用効果)</p>	<p>【目的】 CAPPING状態の保持機構 本発明は、専用の駆動源を必要とせず、より簡易な構成によって、インクヘッドのCAPPING状態保持が可能なロック機構を備えたネイルプリンタを提供することを目的とする。</p> <p>【発明のポイント】(または、【クレーム案】) 印刷装置はインクを吐出するインクヘッドとインクヘッドを搭載して搬送するヘッド搬送部を有し、ヘッド搬送部は第一方向及び第二方向にヘッドを移動可能に構成され、ヘッド搬送部を駆動制御して対象物にインクヘッドからインクを吐出して描画を行う制御部を備える。印刷装置は印刷を行わない待機状態ではCAPPING部材でインクヘッドを被覆するヘッド維持機構を持つ。ヘッド維持機構はCAPが配置され第一方向に移動可能に構成されたCAP支持ユニットを持つ。CAP支持ユニットは突出部を有しヘッド支持部に設けた係合部と前記突出部がヘッド搬送部の第一方向移動時に係合することでCAP支持ユニットが運動して昇降しインクヘッドが封止部材に対応する位置でCAPPINGが為されるよう構成される。前記ヘッド支持部側係合部は凹状に形成されインクヘッドの第一方向移動時にCAP支持ユニット突出部と係合してヘッド維持機構側が運動するように構成されるとともに、第一方向位置においてキャッピング位置を少なくとも含む一定区間にヘッド搬送部が位置する際はヘッド支持部の第二方向への移動が維持機構側突出部との第二方向係止により規制されるよう構成される。また印刷装置はインクヘッドの第一方向への駆動を伝達する駆動伝達部を有し第一方向駆動伝達部はWORM GEAR対を含むことを特徴とする</p> <p>【効果】 上記の構成にすることによってヘッド搬送部がCAPPINGから外れてしまう意図しないヘッド移動の抑制を専用の駆動源を必要とせず達成でき、ロック機構として特別な機構無しで構成可能であるため装置の小型化が可能となり、コストを抑制することができる</p>
<p>実施形態 1</p>	<p>印刷装置はインクを吐出するインクヘッドとインクヘッドを搭載して搬送するヘッド搬送部を有し、ヘッド搬送部は第一方向及び第二方向にヘッドを移動可能に構成され、ヘッド搬送部を駆動制御して対象物にインクヘッドからインクを吐出して描画を行う制御部を備える。指挿入部に挿入された爪に対しインクヘッドを駆動させ描画を行うよう構成される。印刷装置は印刷を行わない待機状態ではCAPPING部材でインクヘッドを被覆するヘッド維持機構を持つ。</p> <div style="text-align: center;"> </div> <p style="text-align: right;">Fig.1 印刷装置構成</p> <p>①ヘッド維持機構はCAPが配置され第一方向に移動可能に構成されたCAP支持ユニットを持つ。CAP支持ユニットは突出部を有しヘッド支持部に設けた係合部と前記突出部がヘッド搬送部の第一方向移動時に係合することでCAP支持ユニットが運動して第一方向に移動しカム機構によりCAP支持ユニットが昇降しインクヘッドが封止部材に対応する位置でCAPPINGが為されるよう構成される。</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>係合部</p> </div> <div style="text-align: center;"> </div> </div> <p>Fig.2 第2方向ロック係合状態図 ヘッド支持部側係合部とCAP支持ユニット突出部が係合することでヘッド支持部を第二方向でロックする</p> <p>Fig.3 第2方向ロック非係合状態図 ヘッド支持部側係合部とCAP支持ユニット突出部が非係合時ロック解除</p>



CAP支持ユニットが上昇しCAPがヘッドノズルに当接する

Fig.4 CAPPING状態図



CAP支持ユニット 突出部

Fig.5 ヘッド維持機構

上記構成によりヘッド搬送部の第一方向位置によりヘッド支持部の第二方向ロック状態を選択することが可能となる。つまりキャッピング状態でヘッド搬送部を第一方向に移動しないようロックすればヘッドは第二方向にロックされることとなる。

②次に第一方向のロックについて説明を記載します。

ラック歯車形状を持つベアリング部材がヘッド搬送部に固定されており、ベアリング部材によって第一方向軸に沿ってガイドされヘッド搬送部が第一方向に移動するように構成される。また印刷装置は第一の駆動源と、駆動伝達部を有し第一駆動源より発生する駆動トルクをラック歯車に伝達することでヘッド搬送部が第一方向に動作する。この構成において本機は第一方向駆動伝達部にウォームホイールとWORM GEARを含むことを特徴とする

被駆動側から移動させる際には駆動源であるMOTOR軸を回転させる必要があるがWORMギアを用いることで一般に知られている通りウォームのリードねじれ角が摩擦角以下で有る場合はウォームギア対の噛み合い歯面に生じる摩擦抵抗によって被駆動側であるウォームホイール側からウォームギアを回転させることができないというセルフロックが働いてヘッド搬送部はロックされることとなり結果として印刷装置を持ち運んだとしてもヘッド搬送部は第一方向及び第二方向には移動せずキャッピング状態が保持される

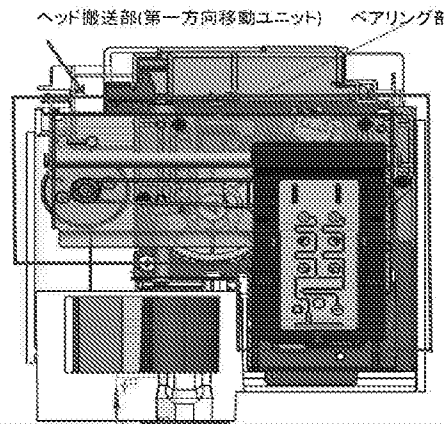


Fig.6 ヘッド搬送部

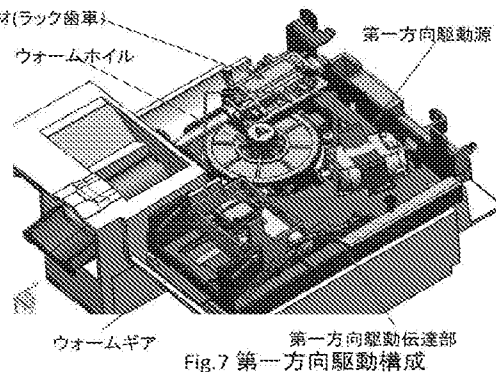


Fig.7 第一方向駆動構成

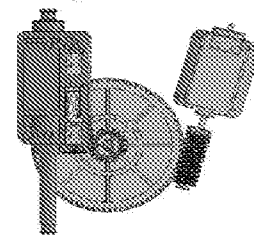


Fig.8 第一方向駆動伝達部

Electronic Acknowledgement Receipt

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First Named Inventor/Applicant Name:	Atsushi YASUMOTO
Customer Number:	513
Filer:	Kenneth Wayne Fields/Michelle Francis
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