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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 4 :		(11) International Publication Number:
C11B 1/14	A1	WO 85/ 01742
		(43) International Publication Date: 25 April 1985 (25.04.85)

(21) International Application Number: PCT/SE84/00329

(22) International Filing Date: 5 October 1984 (05.10.84)

(31) Priority Application Number: 8305543-4

(32) Priority Date: 7 October 1983 (07.10.83)

(33) Priority Country: SE

(71) Applicant *(for all designated States except US)*: TOLO FÖRSÄLJNINGS AB [SE/SE]; Kavallerigatan 7 nb, S-194 33 Upplands Väsby (SE).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)* : OTTENHOLM, Tor, Axel, Ingvar [SE/SE]; Kavallerigatan 7 nb, S-194 33 Upplands Väsby (SE).

(74) Agents: JACOBSSON, Rune et al.; Jacobsson & Billberg Patentbyrå AB, Box 21113, S-100 31 Stockholm (SE).

(81) Designated States: AU, BG, DK, FI, HU, RO, US.

Published
With international search report.

(54) Title: A METHOD FOR PRODUCING OIL FROM ANIMAL FEET AND/OR HOOVES

(57) Abstract

A mixture of animal feet and/or hooves and water is in an air-tight, pressure-resistant container subjected to high-frequency electrical energy. After a certain time the mixture of fat and water now obtained as a bouillon-like mixture is discharged from the container and is supplied to a separator for separation of the fat from the water. The separated fat in the form of oil is thereafter supplied to a filtering apparatus for removal of particularly stearine. If desired, chemicals are finally added and a chemically clean, durable oil is obtained as a final product.

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A METHOD FOR PRODUCING OIL FROM ANIMAL FEET AND/OR HOOVES

The present invention relates to a method for producing oil from animal feet and/or hooves.

Feet and hooves have previously been destroyed as being of no value together with other waste from the animal bodies. In those cases it has been a wish to utilize also this waste, the waste has been heated together with water by means of wapor. After pressing a technical fat has been obtained and a waste product for use as manure. The technical fat is not clean and becomes rancid after a relatively short time. Moreover, it stiffens already at a few degrees above zero. A possible area for using such a fat has e.g. been within the detergent industry. It is, however, for the above mentioned reasons impossible to use such a fat for instance within the food-stuff industry or on the whole instead of mineral oils.

By a method according to the present invention, on the other hand, a chemically clean oil is obtained from animal feet and/or hooves which can be used instead of high-class mineral oils. Moreover, the obtained oil has high lubrication qualities, which can make it appropriate to use in i.e. watches, gyro compasses and the like. A further essential quality of the oil is the high viscosity. It maintains without further treatment its fluid condition within the range $\pm$ 10-15^{o}C. The oil produced according to the invention is furthermore essentially cheaper than mineral oil.

In order to obtain this chemically clean oil from animal feet and/or hooves having the above mentioned qualities the present invention is characterized by the method steps
to feed high-frequency electrical energy through a mixed mass consisting of animal feet and/or hooves and enclosed in an air-tight pressure-resistant container,
to discharge from the container a mixture of fat removed from the feet and/or the hooves and water,

to separate the fat from the water,
to filtrate the fat separated in the form of oil for removal of stearine therefrom.

In the cases a more durable oil is desired, chemicals are, according to the invention, added to the oil obtained after filtration.

A method according to the invention for obtaining oil from animal feet and/or hooves can be carried out in the following manner.

The feet and/or hooves are packed in an air-tight, sufficiently pressure-resistant container, a so called autoclave, of e.g. polyesther, and the autoclave is filled with water such that it covers the feet and/or hooves.

The water and the feet and/or hooves contained in the autoclave are heated with high-frequency (e.g. 27.12MHz or 13.56MHz), to preferably 100-130^{o}C.

In a heating by subjecting the mixture in the autoclave to high-frequency energy the mixture constitutes principally of a dielectric in a capacitor aimed to find the positions with their negative side towards the positive electrode in the high-frequency autoclave and vice versa. Owing to the fact that the polarity of the electrodes is changed with an appropriate frequency the molecules are brought into vibration. This means a heating of the mixture. The required HF-energy is dependent on the volume of the autoclave. The guiding value is about 1KWh/l.

A bouillon-like solution of water and fat is discharged from the container after a sufficient heating time and is transferred to a separator for obtaining fat without water. The water-free fat is thereafter supplied to a filtering apparatus of appropriate configuration, e.g. a multi-layer filter with filter

plates, for removal of particularly stearine from the fat in the form of oil. Due to this filtration the viscosity of the oil is permanently increased and the oil can for instance be maintained in fluid condition within the temperature range ± 10-15°C. After the filtration the oil can be refined in order to make it appropriate to use in certain applications. Moreover, in order to obtain a highly durable oil appropriate chemicals can be added to the oil.

The final product obtained from a treatment of animal feet and/or hooves as described above is a chemically clean oil which for instance can be used instead of mineral oils of high grade, e.g. for use within the food-stuff industry. Moreover, the oil has high lubrication qualities, which makes it appropriate to use in connections where such qualities are required, e.g. in watches or gyro compasses. The initial products and the manufacturing process are comparatively cheap and an essentially cheaper oil than conventional mineral oils is obtained.

C L A I M S

1. A method for producing oil from animal feet and/or hooves, c h a r a c t e r i z e d b y the method steps
to feed high-frequency electrical energy through a mixture of animal feet and/or hooves and water contained in an air-tight pressure-resistant container,
to discharge from the container a mixture of fat and water removed from the feet and/or hooves,
to separate the fat from the water,
to filtrate the fat separated in the form of oil for removal of stearine from the fat.

2. A method according to claim 1, c h a r a c t e r i z e d i n that the oil after the filtration is refined.

3. A method according to claim 1 or 2, c h a r a c t e - r i z e d i n that chemicals are added to the filtrated oil and the filtrated and refined oil, respectively.

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE84/00329

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC 4

C 11 B 1/14

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC 4	C 11 B 1/00, 1/14; A 23 K 1/10
National Cl	23a1, 53g 4/01
US Cl	260:412, 412.5, 412.6, 426-237, 238, 239, 241, 244

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
A	SE, B, 424 737 (T A OTTENHOLM) 9 August 1982	1
A	DE, B, 1 000 947 (SOCIEDAD ANONIMA FRIGORIFICO ANGLO) 17 January 1957	1
A	Seifen-Öle-Fette-Wachse-98 Jg-Nr 12/1972 "Untersuchungen tierischer Fette. Kennzahlen und Glycerid zusammensetzung des Klauenöles und des Fussknochenfettes von Büffel, Rindern und Schafen", p 365-369	1-3

* Special categories of cited documents: [15]

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
1984-12-10	1984 -12- 13
International Searching Authority [1]	**Signature of Authorized Officer [20]**
Swedish Patent Office	Kerstin Boije Jansson

MJ