



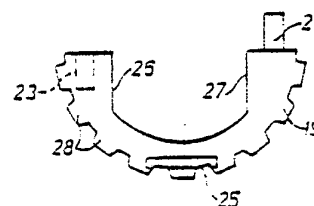
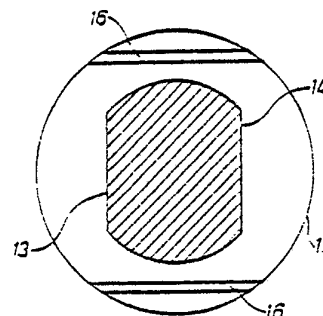
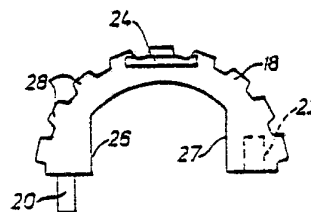
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification³ : F16H 55/46, 55/12</p>	<p>A1</p>	<p>(11) International Publication Number: WO 82/ 03110 (43) International Publication Date: 16 September 1982 (16.09.82)</p>
<p>(21) International Application Number: PCT/SE82/00035 (22) International Filing Date: 9 February 1982 (09.02.82) (31) Priority Application Number: 8101482-1 (32) Priority Date: 10 March 1981 (10.03.81) (33) Priority Country: SE (71) Applicant (for all designated States except US): AKTIEBOLAGET ELECTROLUX [SE/SE]; Luxbacken 1, S-105 45 Stockholm (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): FRANCKE, Kurt, Oskar [SE/SE]; Taggsvampsvägen 139, S-141 46 Hud-dinge (SE). STRAND, Sten, Torbjörn, [SE/SE]; Sälgsti-gen 25, S-149 00 Nynäshamn (SE).</p>	<p>(74) Agents: HAGELBÄCK, Evert et al.; AB Electrolux, Patentavdelningen, S-105 45 Stockholm (SE). (81) Designated States: BE (European patent), CH (Euro-pean patent), DE (European patent), DK, FR (Euro-pean patent), GB (European patent), JP, NL (Euro-pean patent), US. Published <i>With international search report.</i> <i>With amended claims.</i></p>	

(54) Title: SPLIT PULLEY

(57) Abstract

The invention proposes to form the flanges (11, 12) of a driving pulley as a part of the driving shaft (10), for example by moulding the shaft (10) and the flanges (11, 12) so as to constitute one unit, the portions (18, 19) of the driving pulley being attachable between the said flanges (11, 12).



* (Referred to in PCT Gazette No.26/1982, Section II)

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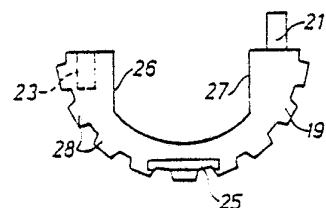
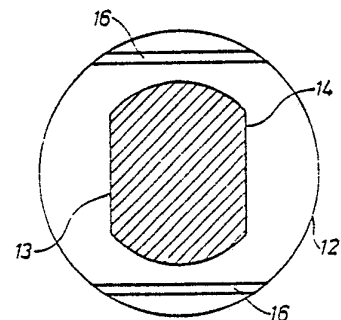
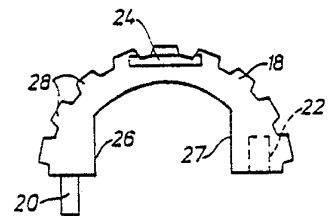
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The invention proposes to form the flanges (11, 12) of a driving pulley as a part of the driving shaft (10), for example by moulding the shaft (10) and the flanges (11, 12) so as to constitute one unit, the portions (18, 19) of the driving pulley being attachable between the said flanges (11, 12).



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JP	Japan	US	United States of America

SPLIT PULLEY

The present invention relates to a driving pulley arranged on an essentially cylindrical rotary shaft which is provided, at its ends, with pins for supporting the shaft.

In earlier known arrangements a pulley was formed as a separate unit which was placed on the shaft during assembly, and fixed there by riveting, screwing, or other suitable procedure. Alternatively the pulley consisted of two halves screwed to each other by bolts and in that manner were attached to the shaft. These pulleys were used mainly for transmitting larger forces.

These devices have a complicated construction and are troublesome to assemble. Further, they demand close tolerances during manufacturing so that the shaft will not jam during assembly and thus be exposed to defective load or in extreme cases to become bent.

The purpose of the invention is to eliminate the above drawbacks and to provide a driving pulley wherein the shaft and the flanges of the pulley can be adapted in one piece and in which the following assembly work is simplified. The purpose has been achieved by the device according to the invention obtaining the characteristic features stipulated in the following claims.

Further advantages of the invention will be obvious in the following description of an embodiment in connection with the accompanying drawing wherein Fig. 1 is a schematic bottom view of a portion of a shaft having the flanges of the driving pulley, Fig. 2 is a section along the line II - II in Fig. 1 which in addition shows both portions of the driving pulley before the assembly.

The shaft, as a whole designated by 10, has two radial flanges 11,12. Outside the flanges the shaft in the embodiment is cylindrical but in the space between the flanges it has two diametrically lying plane surfaces 13,14 for providing a turning-proof connection between the driving pulley and the shaft. Naturally any other suitable profile would be fully conceivable. In the surfaces facing each other on the flanges 11,12 notches 15,16 are formed, said notches being essentially perpendicular in relation to the plane surfaces 13,14.

The driving pulley 17 comprises two identical semicircular portions 18,19 each of them being separately placeable in the space between the flanges 11,12. Each portion 18,19 is at its one end provided with a steering pin 20,21 respectively

which during the assembly of the portions are intended to fit into corresponding grooves 22,23 respectively at the other ends of the portions 18,19.

On the side walls of the driving pulley 17 elevations 24,25 are adapted which during the assembly of the portions 18,19 snap into notches 15,16 and lock the portions 18,19 in place between the flanges 11,12. In addition, each portion 18,19 has on its inside two opposed plane surfaces 26,27 the extension of which being half the length of the plane surfaces 13,14 so that when the portions 18,19 have been placed between the flanges 11,12 a turning-proof connection is achieved between the driving pulley 17 and the shaft 10. A driving belt, not shown, grips into teeth 28 adapted in the periphery of the driving pulley 17 for transmission of power from a driving member, not shown. Both the shaft 10, flanges 11,12 delivered with a profile between the flanges and the notches 15,16 can be moulded for instance of plastics. In the same manner the portions 18,19 of the driving pulley 17 together with the steering pins 20,21 and the grooves 22,23 are manufactured by the same procedure which decreases the manufacturing costs. By this arrangement, on one hand the assembly of the driving pulley is simplified, on the other hand, gluing, welding, or other attaching of the driving pulley onto the shaft is superfluous.

The invention is not limited to the embodiment shown but several modifications are conceivable within the frame of the invention as characterized in the following claims.

C l a i m s

1. Driving pulley mounted on an essentially cylindrical rotary shaft having at its ends pins for supporting the shaft, characterized in that the flanges (11,12) of the driving pulley (17) constitute a unit with the shaft (10), and the driving pulley (17) comprises two identical semicircular portions (18,19) which can
5 be placed on the shaft portion between the flanges (11,12).
2. Driving pulley according to Claim 1, characterized by two diametrically disposed plane surfaces (13,14) shaped on the shaft (10) between the flanges (11,12) and the same profile (26,27) on the inside of the driving pulley (19) for turning-proof connection between the shaft (10) and the driving pulley (17).
- 10 3. Driving pulley according to Claim 1, characterized in that each portion (18,19) of the driving pulley has at its one end a steering pin (20,21) intended to fit into grooves (22,23) shaped in the other portion of the driving pulley.
4. Driving pulley according to Claim 2, characterized in that notches
15 (15,16) are adapted in the surfaces facing each other of the flanges (11,12) into which elevations (24,25) formed on the inner side walls of the portions (18,19) are intended to snap during the assembly of the driving pulley (17) on the shaft (10).
5. Driving pulley according to Claim 1, characterized in that both the shaft (10) and the flanges (11,12) are moulded in one piece of for instance plastics.
- 20 6. Driving pulley according to claim 1, characterized in that the portions (18,19) of the driving pulley are made of a plastic material.

AMENDED CLAIMS

(received by the International Bureau on 5 July 1982 (05.07.82))

1. (amended)
Driving pulley mounted on an essentially cylindrical rotary shaft having at its ends pins for supporting the shaft, characterized in that the flanges (11,12) of the driving pulley (17) constitute a unit with the shaft (10), and the driving pulley (17) comprises two identical semicircular portions (18,19) which are
- 5 attachable on the shaft portion between the flanges (11,12).
2. (amended)
Driving pulley according to Claim 1, characterized by two diametrically disposed plane surfaces (13,14) shaped on the shaft (10) between the flanges (11,12) and the same profile (26,27) on the inside of the driving pulley (17) for turn-proof connection between the shaft (10) and the driving pulley.
- 10 3. Driving pulley according to Claim 1, characterized in that each portion (18,19) of the driving pulley has at its one end a steering pin (20,21) intended to fit into grooves (22,23) shaped in the other portion of the driving pulley.
4. (amended)
Driving pulley according to Claim 2, characterized in that notches
- 15 (15,16) are adapted in the surfaces facing each other of the flanges (11,12) into which notches elevations (24,25) formed on the side walls of the portions (18,19) are intended to snap during the assembly of the driving pulley (17) on the shaft (10).
5. Driving pulley according to Claim 1, characterized in that both the
- 20 shaft (10) and the flanges (11,12) are moulded in one piece of for instance plastics.
6. Driving pulley according to Claim 1, characterized in that the portions (18,19) of the driving pulley are made of a plastic material.



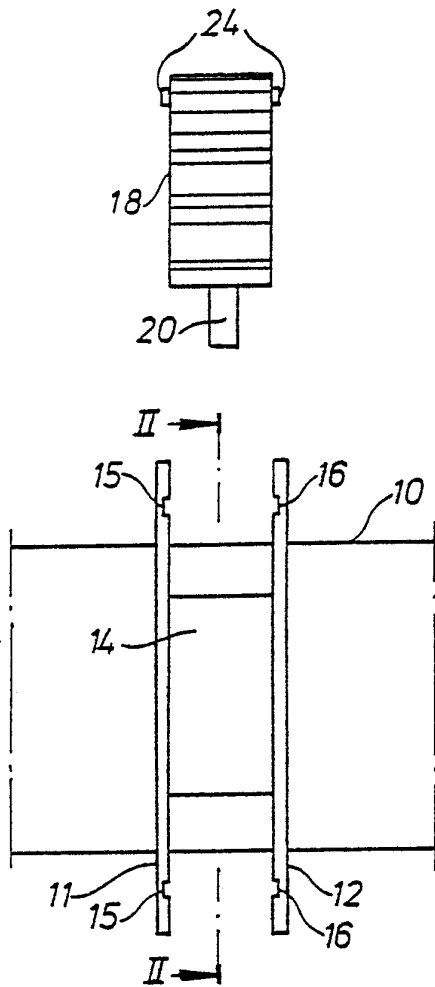


Fig. 1

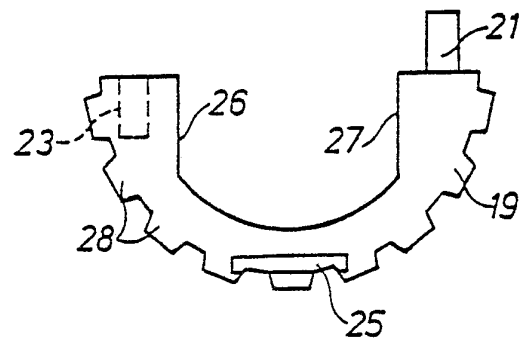
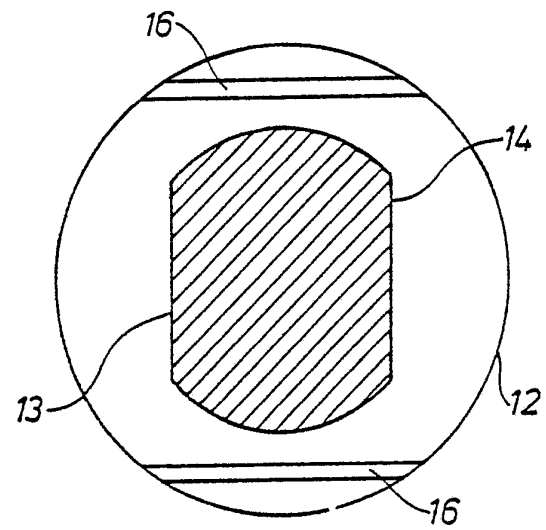
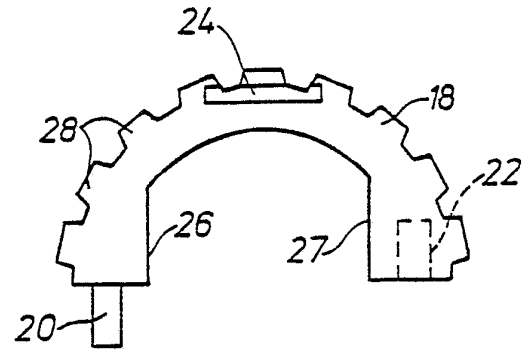
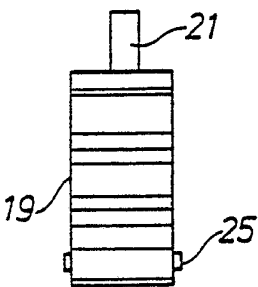
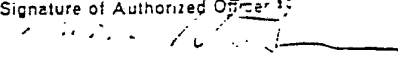


Fig. 2

INTERNATIONAL SEARCH REPORT

International Application No

POT/SE82/00035

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 ³		
F 16 H 55/46, F 16 H 55/12		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System ¹	Classification Symbols	
IPC 3	F 16 H 55/00, 55/12, 55/36, 55/46, F 16 D 1/06	
US Cl	74:230.01, 230.3, 230.11, 230.12, 230.13, 230.14.../...	
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 ⁶	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
A	US, A, 3 005 356 (GANDRUD) 24 October 1961	
A	US, A, 3 106 101 (HARRIMAN) 8 October 1963	
A	US, A, 4 031 769 (KASSING) 28 June 1977	
A	US, A, 4 043 214 (WESTLAKE) 23 August 1977	
<p>⁹ Special categories of cited documents: ¹⁵</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ²	Date of Mailing of this International Search Report ¹	
1982-05-11	1982-05-14	
International Searching Authority ⁷	Signature of Authorized Officer ¹³	
Swedish Patent Office		

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

II Fields Searched (cont)

US C1 74:230.15, 243, 446, 447, 448, 450;
 287:52, 52.03;
 403:344, 345

National C1 47b20, 47b21, 47b25, 47b26, 47c2

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹⁰

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. Claim numbers ... because they relate to subject matter ¹² not required to be searched by this Authority, namely:

2. Claim numbers ... because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out ¹³, specifically:

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ¹¹

This International Searching Authority found multiple inventions in this international application as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

The additional search fees were accompanied by applicant's protest.

No protest accompanied the payment of additional search fees.