PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Apparatus for Conveying Welding Electrodes through a Drying Stove

We, HOLDING INTERCITO S.A., a Company organised under the Laws of Panama, of 230 Birchstrasse, Zurich-Oerlikon, Switzerland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The method is known of conveying coated welding electrodes through a drying stove by means of endless conveyor means; it is also known practice to rotate the electrodes about their own axes at intervals as they proceed through the stove, for which purpose a friction surface pressing against the coatings of the electrodes is disposed in the path of the latter, so that the electrodes are pressed against their support and are thereby compelled to turn upon their own axes, the electrodes rolling backwards on the conveyor belts. This arrangement has the drawbacks that the electrodes, owing to the rearward movement on the conveyor means, such as chains or belts, are detained and rub against one another, and that owing to this reciprocal pressure the coatings of the electrodes at least suffer and are damaged. For this reason, in the arrangement described the rotation of the electrodes occurs only at intervals, and for brief periods. In addition, there is no guarantee that the electrodes will turn into a new position favourable to the process of drying.

An object of the present invention is to provide a conveyor apparatus leading through a drying stove, in which conveyor apparatus the electrodes rotates about their axes and which conveyor apparatus avoids or minimises the aforesaid drawbacks.

In accordance with the invention there is provided apparatus for conveying through a drying stove, electrodes coated with a welding proceed, can be rotated about their own axes, said apparatus including conveyor means in the form of a plurality of endless driven members, e.g., chains, adapted to advance at the same speed, said members each forming a loop and being arranged in pairs disposed one above another, the members of each pair being located on substantially the same plane and substantially parallel to each other, and all of said endless driven members being provided with driver members which are arranged so that corresponding driver members of each pair of endless driven members can propel one electrode, said apparatus also including runways disposed alongside the endless driven members and parallel thereto so that the electrodes will rest only on said runways and will be merely propelled by the driver members in such a manner that during their travel through the stove, the electrodes will roll along the runways, there being means ~~between~~ at least two chain-pair loops for transferring electrodes from the loops of one chain-pair to the loops of the other chain-pair.

Needless to say, instead of chains, belts to which driver members are secured can be used. This arrangement enables the forward and return travel of the endless driven members to be utilised. The electrodes can roll along on the rails over the entire distance, except at the reversing stations, without suffering damage.

In the accompanying drawing an embodiment of the arrangement utilising chains as the endless driven members is illustrated. In the drawing:—

Fig. 1 shows the charging end and the discharge end of a drying stove, partly in longitudinal section;

Fig. 2 is a cross-sectional view along the line I—I of Fig. 1;

Fig. 3 is a cross-sectional view of a chain with driver members, and also a rail for guiding the upper run of a chain loop;

Fig. 4 is a cross-sectional view of a chain with driver members and a rail for guiding

[Price 3/-]

between

agent, in which stove the electrodes, as they

the lower run of a loop of chain;

Fig. 5 shows a chain with the driver members placed in position, viewed from the side; and

Fig. 6 is an elevational view of a driver member.

The oven 1 is supplied with electrodes E by a conveyor ~~melt~~ belt 2, said electrodes being conveyed by a pair 3 of conveyor chains. The pair 3 of conveyor chains is driven by two chain wheels 4 mounted on a shaft, and on its return journey runs along a guide rail 5. A second pair 6 of conveyor chains is driven by chain wheels 7, a third pair 8 by the chain wheels 9, and a fourth pair 10 of chains by the chain wheels 11. Between the pairs 6 and 8 and between the pairs 8 and 10 of chains, transfer chains 12 and 12*a* are disposed which are driven by the chain wheels 13 and 14 and run over the chain tensioning sprockets 16 and 17. From the pair 10 of chains the electrodes are conveyed by a discharge belt 18 to an inspection station. Profiled rails 20 and 30, secured to cross bars 33, serve to guide the chains and support the electrode rods. The profiled rails 20 and 30 are of such cross-section that the chain is completely enclosed on three sides, whilst the fourth side presents a slot for the passage of the electrodes and a runway for the support of the same.

The upper run of each loop of chain is guided in a profiled rail 20 as shown in Fig. 4. The links 22 of the chains are provided with recesses 23. The driver members 24 take the form of spring clips, Fig. 6, which are stamped from sheet steel and hardened, and whose teeth 24*a* engage the recesses 23 of the chain links. The profiled rails 20 are each provided with a runway 27 which projects beyond the links of the chain located in the profiled rail so that the electrodes rest on the runway only and are merely propelled by the appurtenant driven members 24. Since the line of contact of the electrodes with the driver members is substantially smaller than the line of contact of the electrodes on the runways 27 of the profiled rails 20, the friction on the driver-members is smaller, so that the electrode rods 28 roll along on the run-ways 27. In the lower part of the chain loop the driver-members project downwards, so that the chains, supported by the said driver-members, run in the profiled rail 30, which has a runway 32 on which the electrode rods roll along without touching the chain links.

What I claim is:—

1. Apparatus for conveying through a drying stove, electrodes coated with a welding agent, in which stove the electrodes, as they proceed, can be rotated about their own axes, said apparatus including conveyor means in the form of a plurality of endless driven members, e.g., chains adapted to advance at the same speed, said members each forming a loop and being arranged in pairs disposed one above another, the members of each pair being located on substantially the same plane and substantialy parallel to each other, and all of said endless driven members being provided with driver-members which are arranged so that corresponding driver-members of each pair of endless driven members can propel one electrode, said apparatus also including runways disposed alongside the endless driven members and parallel thereto so that the electrodes will rest only on said runways and will be merely propelled by the driver-members in such a manner that during their travel through the stove, the electrodes will roll along the runways, there being means between at least two chain-pair loops for transferring electrodes from the loops of one chain-pair to the loops of the other chain-pair.

2. Apparatus as claimed in Claim 1, characterised by the fact that the driver-members take the form of clips stamped from sheet steel and having resilient, parted legs or projections and the endless driven members are chains whose links are provided with recesses in which the projections of the driver-members engage.

3. Apparatus as claimed in Claim 1, characterised by the fact that the endless driven members are chains which are guided by profiled rails of such cross-section as to constitute a square-section tube one of whose side faces has a continuous slot and a rib projecting outwards at right-angles to the said face, which rib serves as a runway.

4. Apparatus as claimed in Claim 3, characterised by the fact that the laterally projecting rib serving as a runway is so arranged that the electrode rods, when resting thereupon, will not touch the chain links located in the tube.

5. Apparatus for the conveyance of electrodes through a drying stove substantially as hereinbefore described with reference to any one of the embodiments illustrated in the accompanying drawings.

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I certify this, including the Drawing to be a part thereof, to be a True Copy of the Specification as accepted on the 28th day of FEB, 1955.

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the lower run of a loop of chain;

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