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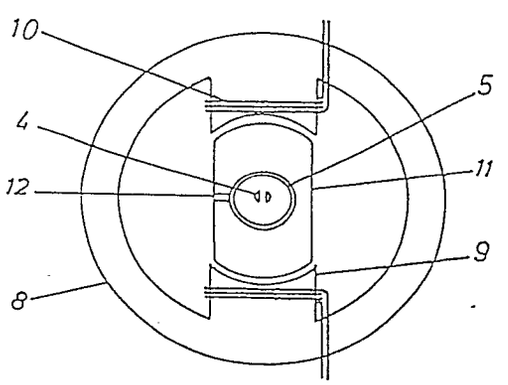
(54) **Positioning and braking device for threaders-rewinders in roll rewinding machines.**

(57) Positioning and braking device for threaders-rewinders in roll rewinding machines, consisting of a stator -8- provided with two projecting members -9- carrying respective coils -10- so that their magnetic fields add up. A rotor -11-incorporating clamps -4- is allowed to freely rotate among said coils, and the relative position of clamps in respect of the rotor can be adjusted by means of a screw -12-.

When coils are activated, the rotor tends to adopt such a position that it is crossed by a maximum number of lines of force, thus acting as a brake, so that the coil generated field tends to stop the rotor motion and to position it always in the same manner.

Fig 1



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Description

This Utility Model concerns a positioning and braking device for threaders-rewinders in roll rewinding machines.

This device results from the need of adequately positioning the clamps, hooks, cones, shafts, etc. existing in the rewinding machines used to build up coils in a non interrupted way, using a continuous band of material.

In the rewinders of said type existing in the market, the sequence to form coils as follows:

a) At the rewinding section, where one or more stations may exist, while a coil is being formed in a station the other station should be positioned in a certain way in order that, on the moment of the shift from one section to the other, the material could be threaded by the new station and start being wound in it. Otherwise, the material would became erratic. Machines existing in the market use various ways to thread the material: adhesive tape, glue, clamps, hooks, vacuum, etc.

b) On the other part, the just formed roll is still rotating at high speed and needs to be braked to prevent it from falling out of control as it leaves the rewinding station.

To accomplish this braking effect several systems are used, including electromagnetic brakes, band brakes, spring brakes, step-to-step motors, mechanical stops, ratchets, etc.

All of these devices consist of a great deal of parts, thus meaning an expensive and complex structure. They are noisy, and because of their operating roughness and mechanical friction, considerable wear is produced, resulting in a precarious reliability and requiring a periodical adjustment of parts, so that high costs of service are originated:

In order to better describe this new positioning and braking device, a sheet of drawings is attached to this specification showing in a simplified and diagrammatic way a case of implementation of the device, such case being used as an illustrating and non limiting example only.

In said drawings, figure 1 shows a rewinding station, provided in this case with clamps as a threading mechanism (also capable of using alternatively hooks, vacuum, glue, etc.), while figure 2 shows an elevation view of the rewinding unit and figure 3 a side view of same unit.

According to the drawings, in the particular case of rewinders incorporating clamps (figure 2 and figure 3) used to produce plastic bags In rolls or coils (-6-), the material band (-7-) arrives at the rewinding unit previously welded and transversely precut at fixed distances corresponding to a bag length.

While a coil (-6-) Is being formed at a station (-2-), positioning clamps (-4-) of the next station (-3-) have already emerged from their housing (-5-), so that the material runs by the middle of said clamps. When the prefixed number of bags have passed to the first station (-2-), next station (-3-) starts rotating, so that on this moment there is always a transverse precut line between the first (-2-) and second (-3-) sections. This causes that the band (-7-) being simultaneously drawn by both stations and therefore broken by the precut line, starts being wound among the clamps (-4-) of the second station (-3-).

Immediately after, the first station (-2-) is restrained from turning to prevent the roll (-6-) to rotate and clamps (-4-) retract into their housing (-5-), allowing the coil to fall down. As the unit (-1-) rotates a complete turn, clamps (-4-) of the first station (-2-) will emerge from their housing (-5-) and will wait the roll (-6-) to complete at the second station (-3-), and so on. This device is characterized in that it comprises a stator (-8-) provided with two projecting members (-9-) in opposition, carrying respective coils (-10-) electrically connected so that their magnetic fields add up.

The rotor (-11-) is mechanically fitted so that it is allowed to freely rotate among the coils. Clamps (-4-) or, in an other case, the pertinent positioning mechanism, are integral with the rotor and their relative position could be adjusted by regulating the screw (-12-).

When both coils (-10-) are activated, a magnetic field is created tending to close through the rotor (-11-), therefore rotating said rotor until it positions in such a way that it is crossed by a number of lines of force as great as possible. This position is shown in figure 1.

If the rotor (-11-) is rotating on the moment of the coils (-10-) being activated, each time the rotor ends face the coils (-10-) the created magnetic field tends to maintain the rotor in this position, therefore acting as a powerful brake aimed to stop and hold it at a still position.

This device shows two positioning possibilities that are equivalent, that is, in a turn of the rotor (-11-) two stopping positions can be reached.

Similarly, if instead of two coils (-10-) there were four coils two-to-two opposed, or six coils three-to-three opposed, etc., four, six, etc. possible stopping positions at each turn could be reached.

A very important feature of this device is self-positioning, i.e. the device does not need any mechanism to find its position, for it creates its own self-position on activation of coils (-10-).

It is worth emphasising that the magnetic field created on activation of coils (-10-) acts on the rotor (-11-) in motion as a powerful brake, thus differing from conventional types in that it eliminates mechanical friction, wear and respective adjustements, it is noiseless, simply designed and needs no servicing.

After the description of the device to which the foregoing specification refers, it is necessary to insist that details of implementation of the disclosed invention could differ, i.e. they could show minor changes always based on the essential principles of the invention, these principles being those contained in the paragraphs of the specification.

In fact, the current Patent Law establishes as not

being patentable features such as changes in shape, size, proportions and materials of a patented subject matter, thus setting the legislator criterion so that when an invention, able to result in a practical and industrializable reality, is patented, no one may use it under the pretext of having introduced modifications to present the invention as new and of his own.

Claims

1.- Positioning and braking device for threaders-rewinders in roll rewinding machines, essentially characterized in that it consist of a static coil carrier, being the coils in opposed positions, and existing among said coils a rotor carrying a threading mechanism.

2.- Positioning and braking device for threaders-rewinders in roll rewinding machines, according to claim 1, characterized in that on activating said coils a magnetic field is created tending to position said rotor in such a way that it is crossed by a number of lines of force as great as possible, thus causing the threading and rewinding mechanism to adopt a position able to thread the material band.

3.- Positioning and braking device for threaders-rewinders in roll rewinding machines, according to the foregoing claim, characterized in that the magnetic field created on activating coils acts on the moving rotor as a powerful brake.

4.- Positioning and braking device for threaders-rein roll rewinding machines, according to the foregoing claims, characterized in that both positioning and braking functions are accomplished at any moment of the cycle, with no limitation of time for any of both functions within its work cycle.

Fig 1

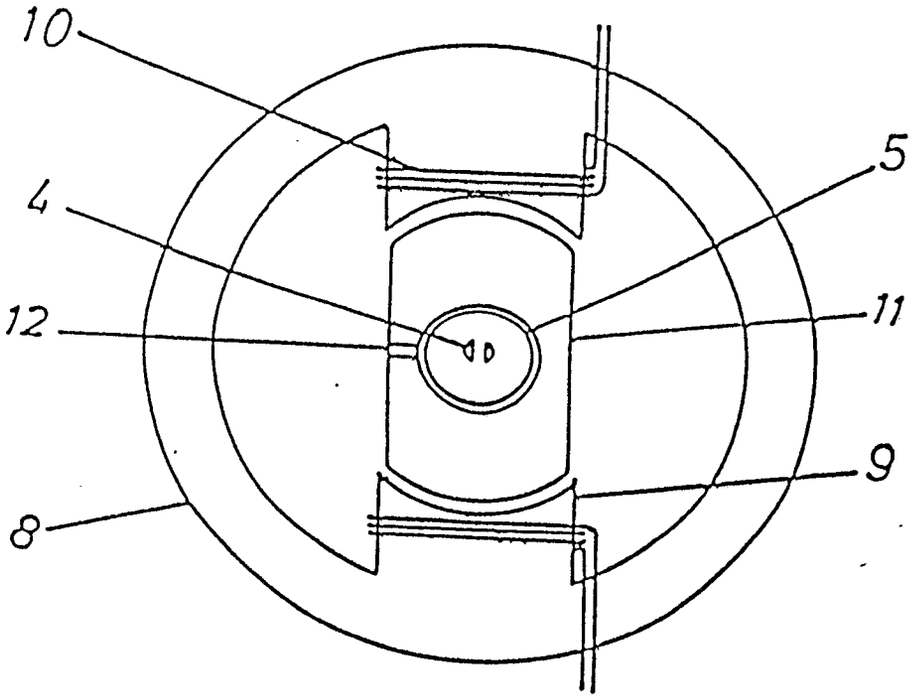

Fig 2

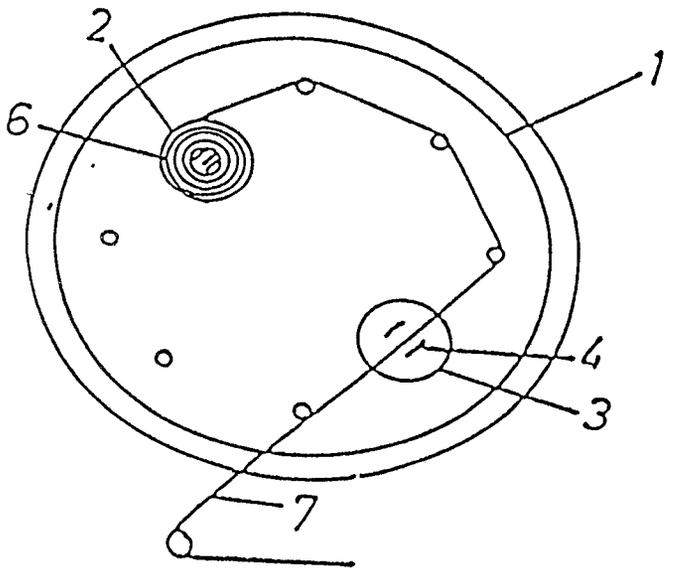

Fig 3