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(54) Device for supporting reels, skeins or cakes of yarn in spooling machines

(57) This invention concerns a device for supporting yarn windings such as reels, skeins and cakes in spooling machines. It includes a horizontal elastic bar (12) fixed to overhang a support bracket (11) which is susceptible to elastic oscillations in a vertical direction, a vertical elastic component (13) connected to and hanging from this said elastic bar which is susceptible to omni-directional swinging oscillations and by a rotating spindle (14) connected to the bottom end of the said vertical elastic component destined to carry the winding. The horizontal elastic bar and the vertical elastic component move elastically in reaction to the forces applied to the spindle whilst this is being unwound.

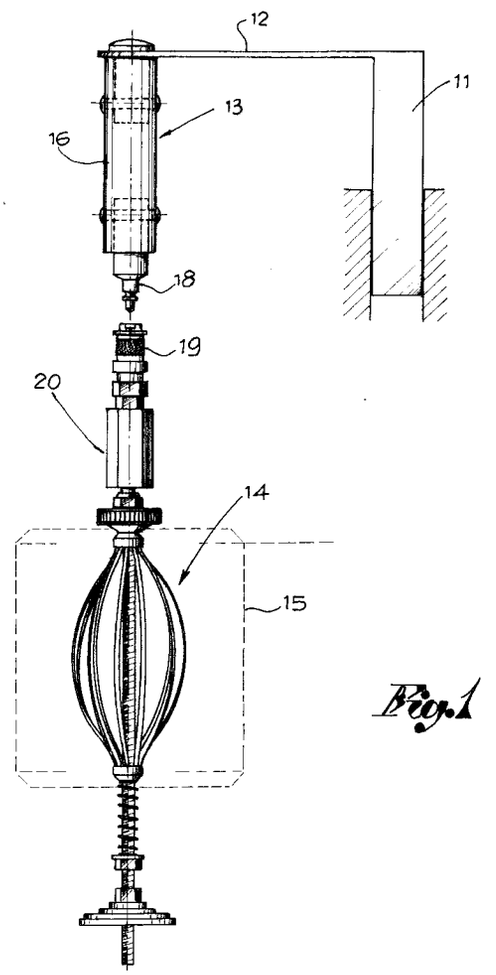

Fig.1

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Description

Field of the Invention

[0001] This invention belongs to the equipment sector for working and winding yams and particularly concerns a device for supporting reels, skeins, or cakes of yarns of the "deroulé" unwinding type, in other words paying off, in spooling machines.

State of the technique

[0002] Until now, the support for yarn collectors such as reels, skeins and cakes in the said machines has been created with devices comprised essentially of a rotating spindle facing upwards, and a rigid support arm to carry the material to unwind. The whole support system proves to be rigid however and causes defects and problems which operators in the sector know well.
In fact, if the starting reel is not cylindrical but oval for example, the following may happen when it rotates:

- uneven yarn tension - jerky yarn;
- vibration in the support system and even in the machine it is installed on.

The consequences are often too much tension on the final reel or even frequent yarn breakage, all detracting from the quality of the resulting yarn winding.

Purpose and advantages of the Invention

[0003] The purpose of this invention is to supply a device for supporting yarn windings in spooling machines which thanks to its elastic structure is capable of effectively damping any vibrations from unreeling, even irregular yarn unreeling, and thus of removing the causes of the defects and problems in the technical note. The advantages that derive, include faster than normal working speeds without yarn breakage, giving higher productivity and good quality yarn winding in terms of uniformity and regularity in the tension of the yarn winding.

Detailed description of the Invention

[0004] The purpose and advantages mentioned above are achieved through the invention with a support device conforming to claim 1.
Greater detail shall become more evident following the description made with reference to the indicative and non-restrictive enclosures in which;

Fig. 1 shows the device with the spindle detached;
Fig. 2 shows a view of device group; and
Fig. 3 shows the device with a variation to the damping elastic components.

As shown in these drawings, the device includes a support bracket, 11, a horizontal bar 12, a vertical elastic part 13 and a rotating spindle, 14 which takes and supports a yarn winding, generally indicated as 15.
Support bracket 11 can have any conformation complementary to the part to which the device is fitted for use.
Horizontal bar 12 is fixed overhanging bracket 11 and is elastic; for example made of steel for springs or of another elastically flexible material.
The vertical elastic part 13 is directed downwards from the top, starting from horizontal bar 12 and carries the rotating spindle which also faces downwards. This elastic component 13 may be made of a sleeve element (16 Figs. 1 and 2) made of an elastomer material and is thus flexible and elastic or can be of any other elastic element such as a spring or similar 17 (Fig. 3) or even of a combination of elastomer elements and springs. The elastic component 13 is restricted at the top by the free end of the horizontal elastic bar 12 and at the bottom by a shank 18, to which the rotating spindle 14 is connected with a rapid connection joint 19.
Spindle 14 and rapid joint 19 are united together and therefore not require a detailed description. The only thing to note is that a coupling with bearings 20, between spindle 14, and joint 19 is foreseen so that the spindle can rotate with joint 19 permitting easy detachment of the spindle from the support system -Fig. 1 - for maintenance operations, changing the yarn winding etc.
Within the ambit of the complex - see Fig. 2 - the horizontal bar 12 permits damping of the forces and the vertical movements the yarn winding is subject to on the spindle. On the other side, the vertical elastic joint 13 contributes to damping the forces and lateral omni-directional oscillations of the winding with the spindle. All this eliminates undue and/or violent traction on the unwinding yarn thus avoiding the problems mentioned above permitting achievement of the objectives for which the invention was conceived.

Claims

1. The device for supporting yarn windings, such as reels, skeins and cakes in spooling machines with a support bracket 11, to mount the same, characterised by a horizontal elastic bar 12, fixed to overhang the aforementioned support bracket (11) susceptible to elastic oscillations in a vertical direction, by a vertical elastic component (13) connected to and hanging from the said horizontal elastic bar susceptible to omni-directional swinging oscillations and by a rotating spindle (14) connected to the bottom end of the said vertical elastic component destined to carry the winding. The horizontal elastic bar and the vertical elastic component move elastically in reaction to the forces applied to the spindle through the yarn winding while this is being unwound.

2. A device according to claim 1 in which the said horizontal elastic bar (12) is made of steel for springs or another elastically flexible material.

3. A device according to claim 1, in which the said vertical elastic component (13) is restricted at the top to the said horizontal elastic bar and has a shank (18) at the bottom to which the rotating spindle (14) is connected/disconnected through a rapid connection joint (19).

4. A device according to claim 3, in which the said vertical elastic component (13) is composed of a sleeve element (16) made of an elastomer material.

5. A device according to claim 3, in which the said vertical elastic component (13) is constituted by at least one spring (17).

6. A device according to claim 3 in which the said vertical elastic component (13) is comprised of a combination of at least one elastomer element and a spring.

7. A device according to any previous claim in which the coupling with a bearing (20) between the spindle and the rapid connection joint is provided for the free rotation of the spindle.

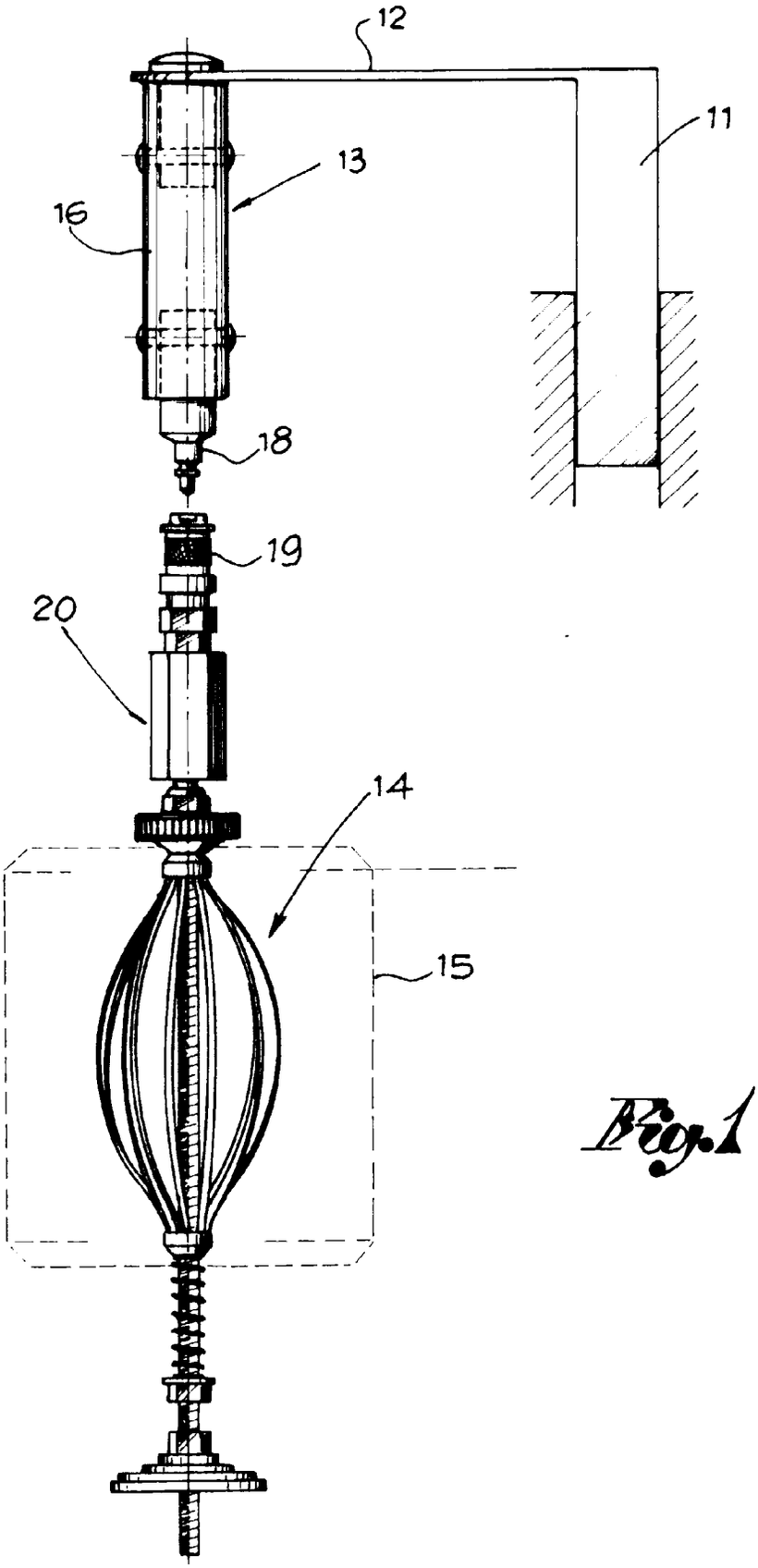

Fig.1

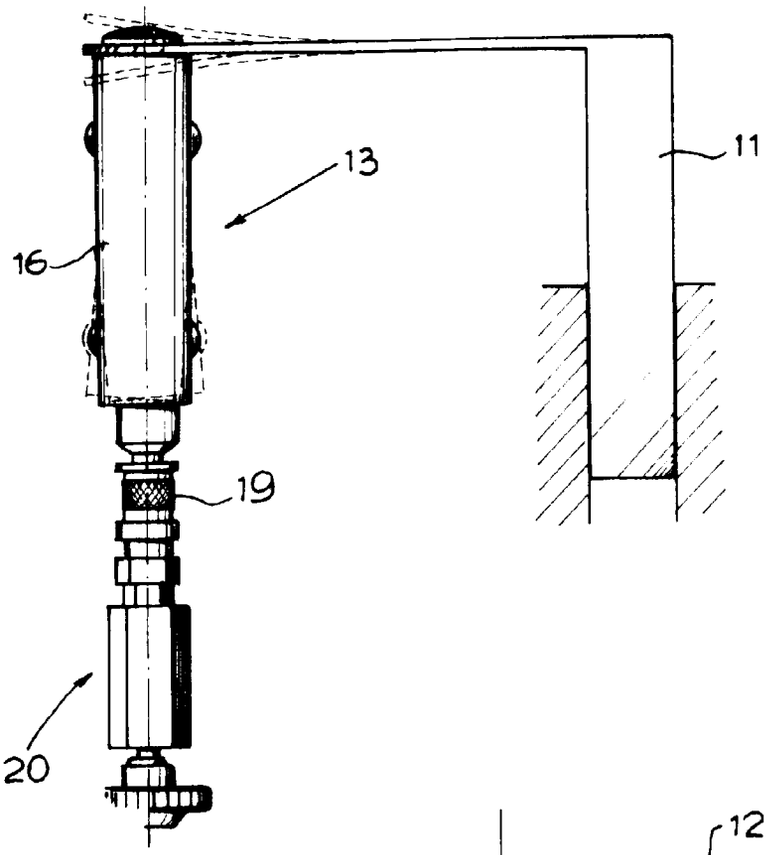

Fig.2

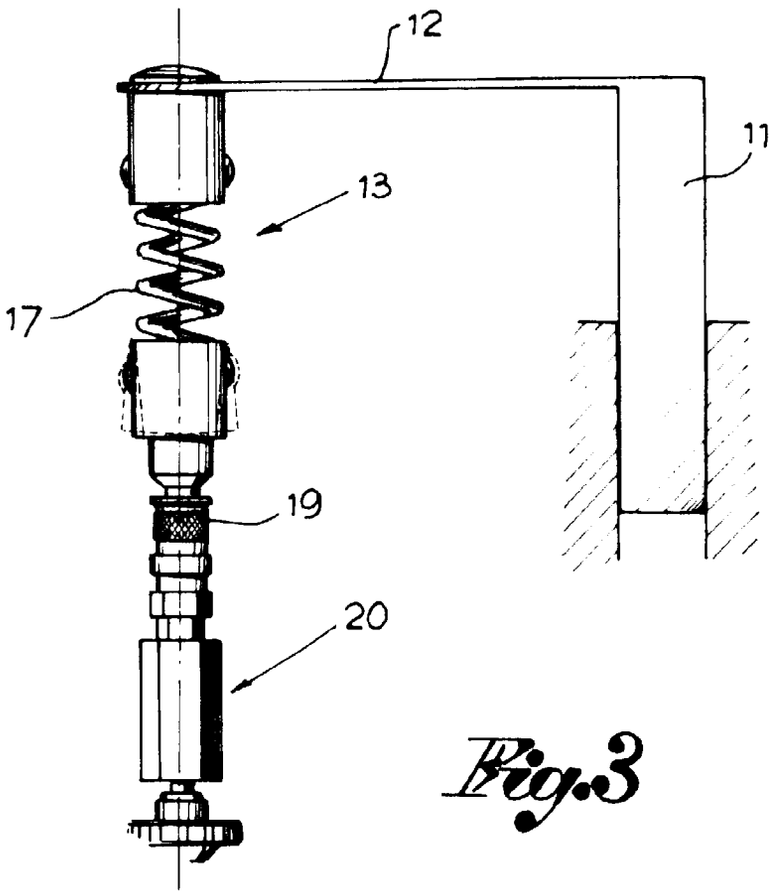

Fig.3