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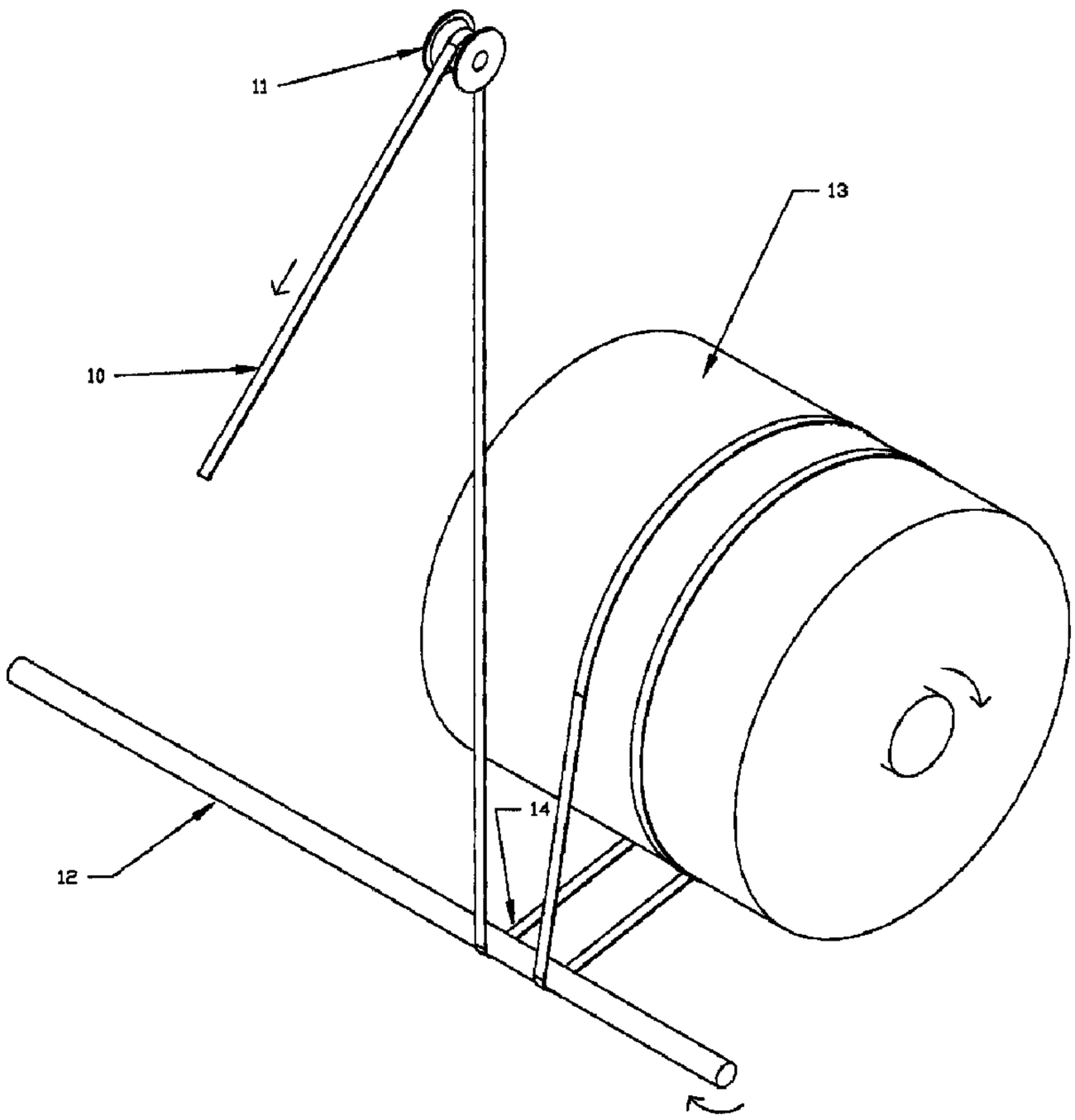
(54) Titre : METHODE ET SYSTEME ANTI-CHUTE (MATERIAU SUR BOBINE)
(54) Title: ANTI-FALL OFF SYSTEM AND METHOD



(57) Abrégé/Abstract:
The invention relates to an improvement in a system and method for dispensing a strip like material (tape, ribbon, web or string) wound on a roll, drum or reel when the strip material is unwound at a laminating machine such as a corrugating machine or press. An idler roller is positioned in parallel near the roll of strip material. The strip material is lead around the idler roller, back around the roll, drum or reel and again around the idler roller before entering the machine.

ABSTRACT

The invention relates to an improvement in a system and method for dispensing a strip like material (tape, ribbon, web or string) wound on a roll, drum or reel when the strip material is unwound at a laminating machine such as a corrugating machine or press. An idler roller is positioned in parallel near the roll of strip material. The strip material is lead around the idler roller, back around the roll, drum or reel and again around the idler roller before entering the machine.

ANTI-FALL OFF SYSTEM AND METHOD

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

This invention relates to an improvement in a system and method for dispensing a tape, i.e., ribbon, web or string, generally referred to herein as "tape", when the tape is being unwound at a laminating machine such as a corrugating machine or press. One aspect of the present invention is to prevent the tape from falling off the edge of the tape package when unwinding. Another aspect is to prevent the tape from twisting in the dispensing equipment.

DESCRIPTION OF THE PRIOR ART

Reinforcing or Tear tapes have been used for many years in modern packaging as an aid to maintain structural integrity or as an easy open feature in boxes, packages and/or containers. One limitation of the dispensing equipment used at the laminating machine is the difficulty to prevent the tape from falling off the edge of the tape package. To be able to put a reasonable amount of linear footage on a tape package, the use of a cross winding principle is mandatory, so for a tape with a width of ½ inch wide, the tape package can be 13 to 18 inch wide, with a diameter up to 18 inches. As a result, the tape is wound on the package with a traverse pattern so that when the tape is wound around a spindle, at the same time the tape is moved in a back and forth movement along the length of the spindle. The ratio between the numbers of revolutions of the spindle over the stroke of the tape along the length of the spindle is known as the winding ratio. Since the tape can be slippery at room temperature there is a danger that, when the tape gets at the edge of the tape package and it stays there until it changes direction to go back toward the middle of the package, it can come off the edge of the tape package and fall off down to the spindle of the tape package. When that happens, the tape cannot go back to the delivering surface of the tape package and the package stops delivering tape with the result that the tape breaks.

To prevent the tape from coming off the edge of the tape package, the tape industry has used different techniques such as: adhesive formulation providing added tack between the layers of the tape package, fast winding ratios to try to limit the amount of time when the tape is positioned near the edge of the tape package, roll flanges made of hard materials or paper coated with pressure sensitive adhesives placed on the edges of the tape package to create a physical barrier to prevent the tape from falling off the edge of the tape package, and so on. Each of these techniques have their drawbacks which can reduce tape performance at the laminating machine. For example, increasing the tack of the adhesive formulation of the tape can diminish the performance of the tape in the laminating process or can cause other tape dispensing problems such as pulleys becoming gummed with adhesive deposits coming from the adhesive of the tape. Another example is the tape that can be damaged by the physical barrier on the edge of the tape package, when the physical barrier rubs on the sides of the tape package during shipment.

The literature is abundant with tape dispenser systems and tape splicing systems for unwinding tape packages at laminating machines or presses. Often the literature is describing splicing system, as all tape must be feed to continuously running processes and since all tape packages contain a very limited amount of linear footage, the splicing feature becomes a critical element. We can see this in the following patents (or application): US 4,917,327; US 5,029,768; US 2002/0059982; US 6,325,324; US 5,775,629 and US 6,622,959. It would be evident to someone outside this industry that the simplest way to diminish the criticality of the splicing system would be to increase the amount of linear footage on a tape package. But as the industry is well aware, one of the main reason why tape packages are not made larger is that as the diameter of the tape package increases, the amount of time that the tape stays at the edge of the package increases, thus increasing the dangers of having tape fall offs to a point where it becomes a major problem. This invention solves this problem, as any increases in the tape package diameter does not increase the occurrence of fall offs.

SUMMARY OF THE INVENTION

The present invention is directed to a system and method using means to prevent strip material

such as a tape from falling off the edges of the tape package. An idler roller is used and positioned near the unwinding tape package, where the tape, coming off the tape package when unwinding, will go around the idler roller and back around the tape package at least once and from there to the system dispensing the tape to the laminating machine. In this manner when the tape is coming off the tape package, it goes around the idler roller and tape package combination at least once before going through the rest of the dispensing system, in effect creating at least one loop of tape going around the idler roller tape package combination. This apparatus and method prevents the tape from falling off the tape package because the tape leaving the package at the nip point of the tape and tape package when unwinding is being pulled towards the centre of the tape package by the preceding loop of tape going around the idler roller tape package combination. Without that innovation, when the tape leaves the tape package at the moment the tape is at it's edge, the tape actually tries to find the shortest route, which is going off the side of the tape package; a defect called a fall-off.

With this innovation, we use the fact that the tape is always somewhat slippery between each of it's layers on the tape package, so that when the tape first leaves the tape package during unwinding, it is pulled away from the edge of the tape package and towards the centre of the tape package by the preceding loop of tape around the idler roller tape package combination, as the loop of tape around the idler roller tape package combination is ahead in the winding pattern of the tape package. Alternatively, when the tape leaves the idler roller tape package combination for the last time before going to the rest of the dispensing system towards the laminating machine, this tape has already been pulled off the tape package at least once, thus is loose on the idler roller tape package combination and is then being pulled towards the center, away from the tape package edges by the geometry of the tape dispenser. As a result, the tape is always pulled towards the center (length) of the tape package either by the preceding loop around the idler roller tape package combination, or by the geometry of the dispenser when the tape finally leaves the idler roller tape package combination.

Another improvement resulting of the use of the loop of tape around the idler roller tape package combination, is the fact that the tape stays flat at all time during unwinding, even if the tape is being pulled to the center of the tape package by the geometry of the tape dispenser and the

traverse winding of the tape package, which helps prevent the tape from twisting further along the tape dispensing equipment.

These and other novel features of the invention will be more fully described herein below.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be described with reference to the accompanying drawing wherein:

FIG. 1 is a view of the tape package, idler roller and first pulley of tape dispenser system.

FIG. 2 is a top view of the tape package, idler roller and first pulley of tape dispenser system.

FIG. 3 is a side view of the tape package, idler roller and first pulley of tape dispenser system.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides an improved system and method for the dispensing of a strip material such as a tape at the corrugating machine or press. A tape package **13** is unwound, where the tape is wound with a traverse wind ratio as can be seen by the tape paths **14**, **15** and **16** around the tape package **13**. The tape **10** first leaves the nip point **17** and before going to the pulley **11** of the tape dispensing system, it goes around idler roller **12** and back around the tape package **13** idler roller **12** combination at least once, before going to the pulley **11**.

What is claimed is:

1. A system for dispensing strip material wound transversely on a roll, drum or reel and mounted for rotation about an axis wherein the strip is lead around an idler roller, around said roll, drum or reel and again around the idler roller and then fed to other parts of the dispensing system, whereby fall off of the strip material from said roll, drum or reel is avoided.

2. A system as claimed in claim 1 wherein the said axis is horizontal.

3. A system as claimed in claim 2 wherein strip material is a reinforcing or tear tape.

4. A method of dispensing a strip material wound transversely on a roll, drum or reel and mounted for rotation about a first axis comprising the following steps:

a) placing an idler roller along a second axis parallel to said first axis;
b) leading said strip material around said idler roller;
c) leading said strip material around said roll, drum or reel;
d) leading said material again around the said idler roller.

5. A method as claimed in claim 4 wherein the said axes are horizontal.

6. A method as claimed in claim 5 wherein strip material is a reinforcing or tear tape.

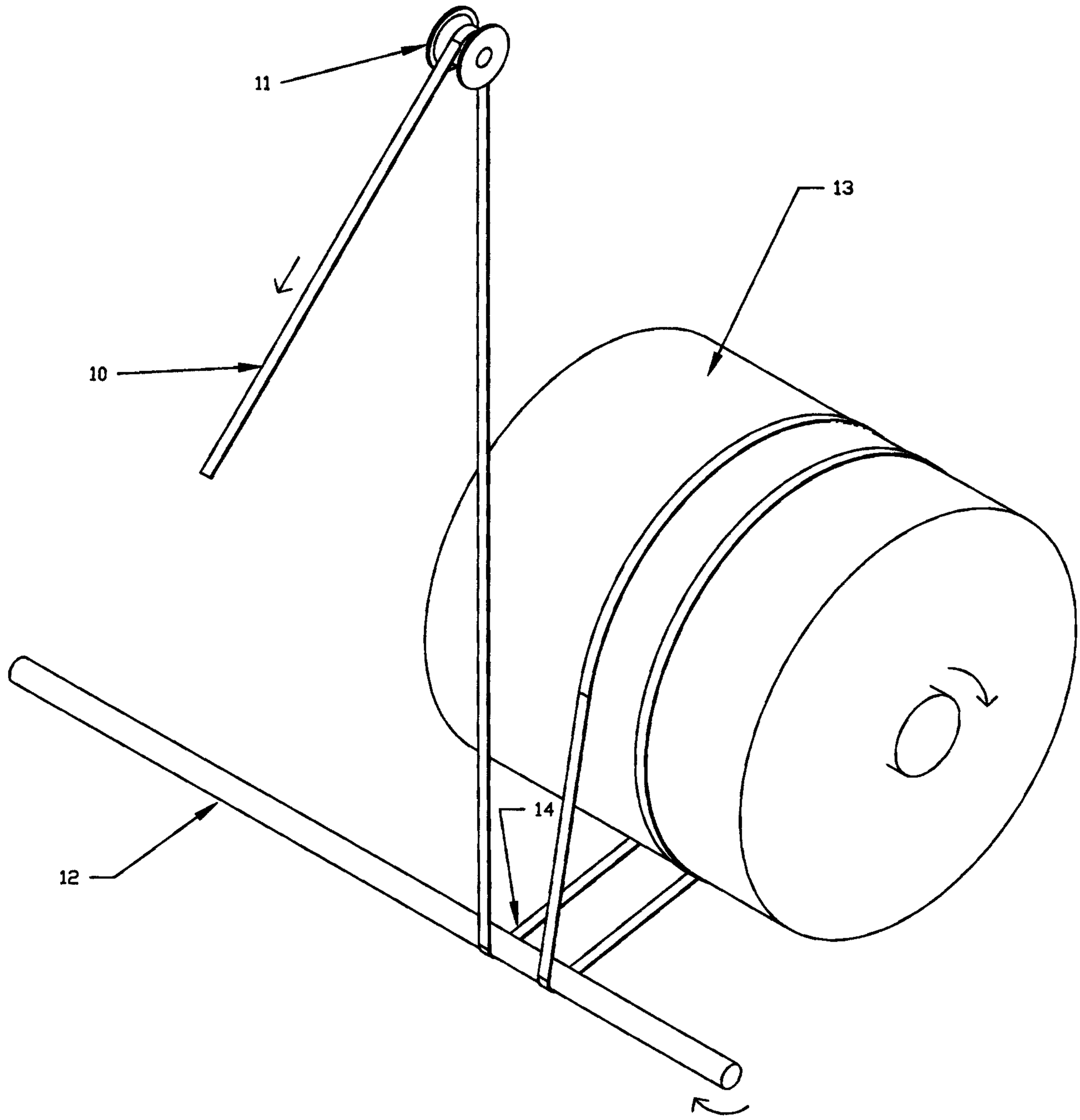


FIG. 1

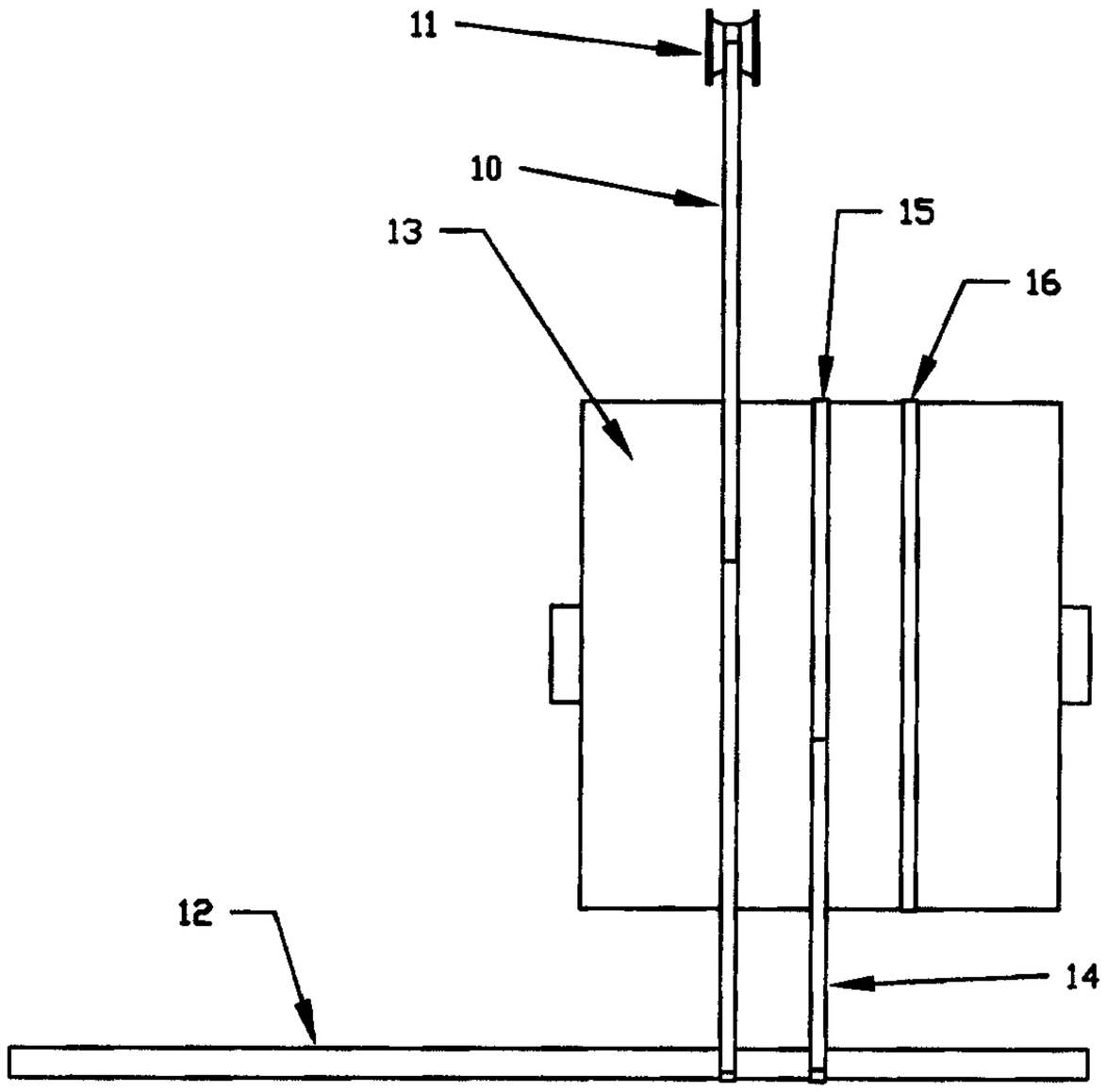


FIG. 2

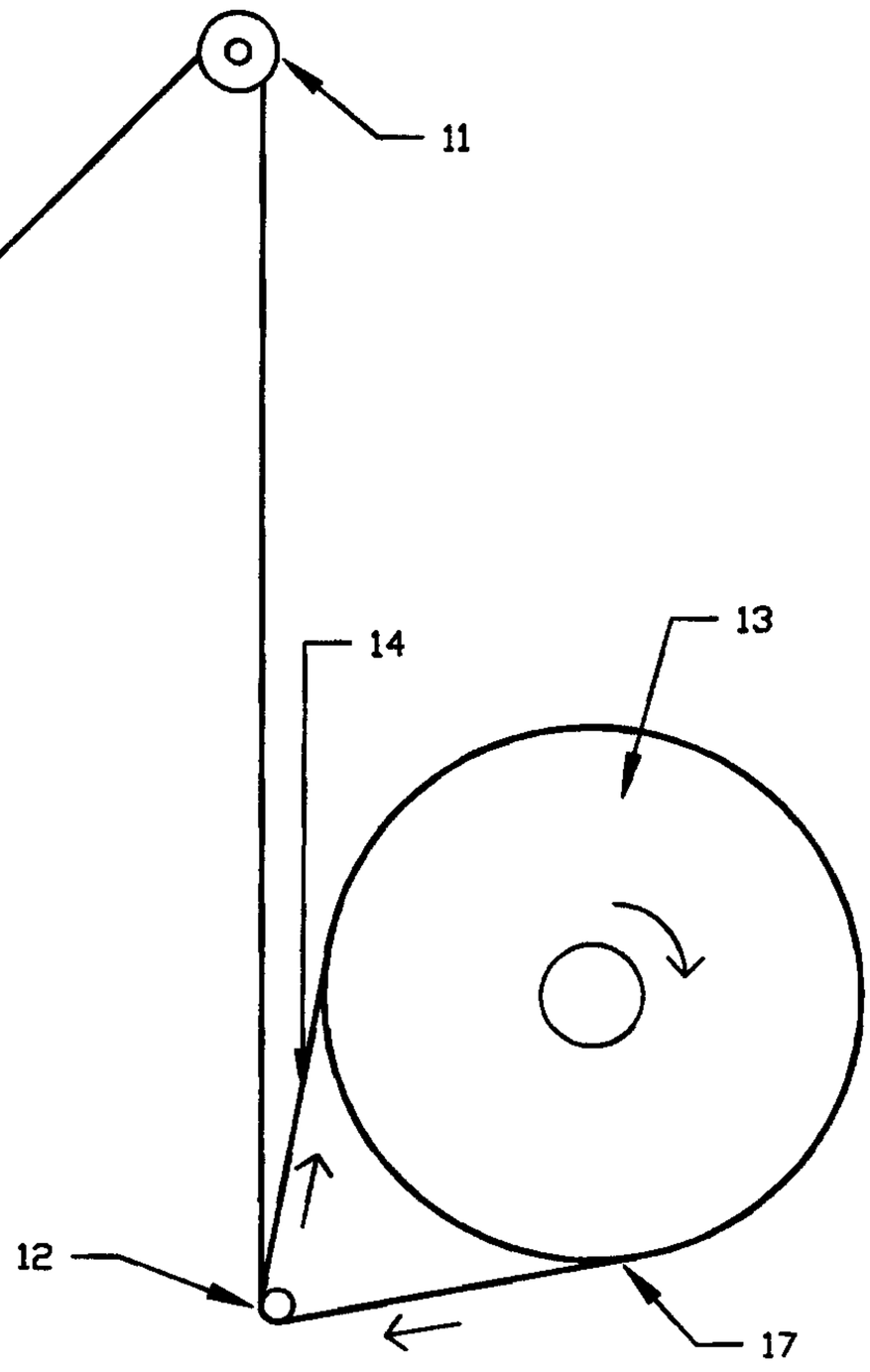
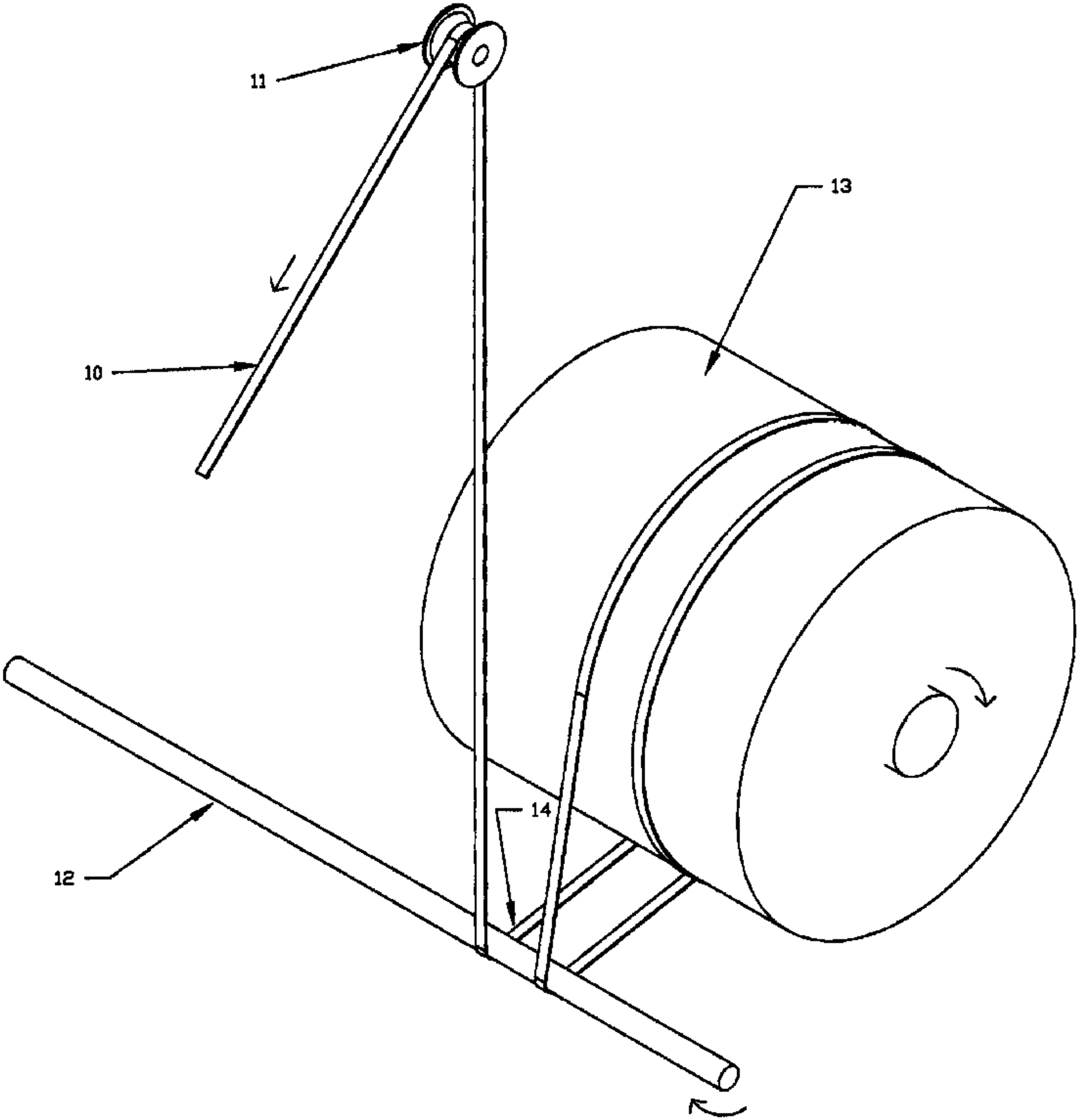


FIG. 3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