

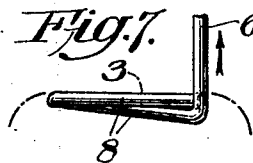
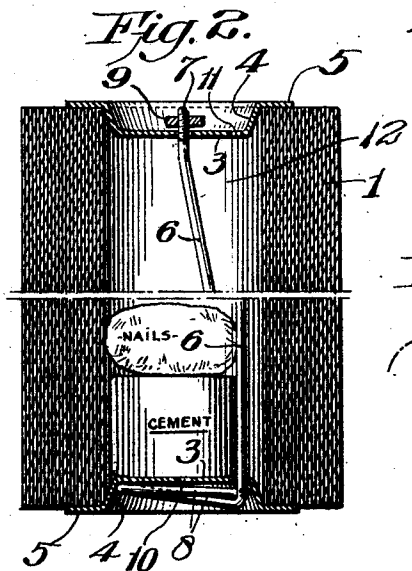
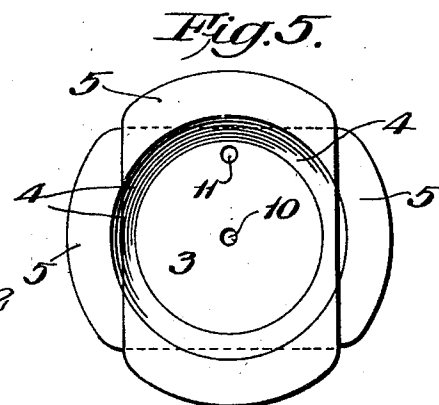
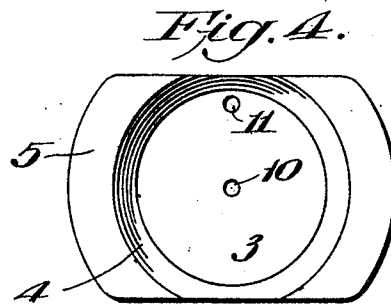
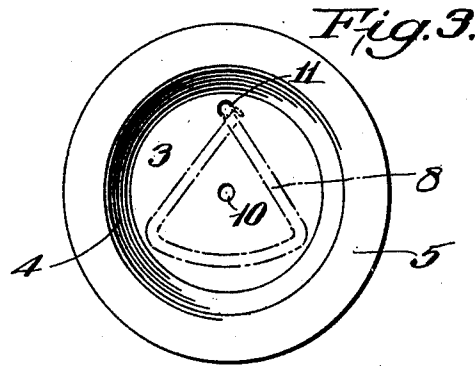
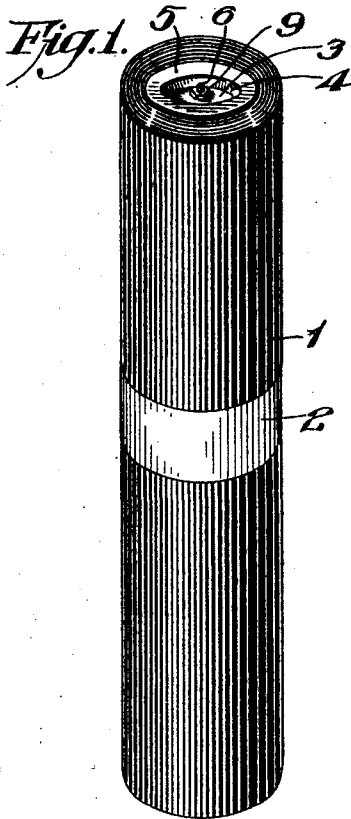
Aug. 4, 1925.

C. J. ROTHERMEL

ROLL PROTECTOR

Filed Aug. 1, 1923

1,548,632



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Patented Aug. 4, 1925.

1,548,632

UNITED STATES PATENT OFFICE.

CURTIS J. ROTHERMEL, OF PHILADELPHIA, PENNSYLVANIA.

ROLL PROTECTOR.

Application filed August 1, 1923. Serial No. 654,967.

To all whom it may concern:

Be it known that I, CURTIS J. ROTHERMEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Roll Protector, of which the following is a specification.

My invention relates to a class of devices generally employed to enclose the open ends of cylindric rolls of roofing paper or other fabrics, the interiors of which rolls are left intentionally hollow to contain, in the instance of roofing material, packages of cement and nails such as are used in laying the roofing material, and in the case of other fabrics, articles which may be used with such fabrics.

The inclosing devices, as such, to the application and use of which my invention is intended, are end-caps one of which is adapted to be placed on each end of the roll of the wrapped material, and which are united and held in place by a connecting rod, for the purpose of protecting the ends of the roll and retaining the contents of the hollow interior of the roll from falling out.

As heretofore made, these end-caps have, as stated, been adapted to be held together upon the roll by a rod which has been passed through the hollow interior of the roll and both of the caps, and has been connected with one of the caps by a hooked shape bend and with the other by a nut threaded upon that part of the rod which extends beyond such cap.

In the application of the bent end of the rod it has been usual to form a hole through the center of a cap and another hole near the periphery of said cap,—the cap itself being preferably cup-shaped, that is to say, formed with a flat central bottom through which the holes are made, which flares outwardly in the form of walls the outer edges of which are flattened to correspond with the plans of the bottom of the cap so as to form a circumferential flange which, in the application of the cap, lies upon the end of the wrapped material to enclose its hollow center.

In the foregoing construction, the hooked end of the rod which is entered and passes through the holes in one of the bottoms, is liable, when the strain of the nut is, through the rod, put upon the bottom mentioned, to bend it inward between the holes, some-

times with the result of breaking through the cap, and due to vibration in transit the nuts become loose, the caps drop off, and the packages of cement and nails fall out.

While employing the caps as heretofore employed and a connecting rod to pass through the roll and clamp the caps together, the object of my invention is to so construct the rod that while it cannot injure the cap to which its hooked end is applied, it will hold the two caps firmly together under tension which prevents the separation of the caps, loosening of the nuts and loss of caps and packages, and, at the same time, hold them tightly clamped toward each other to enclose the ends of the roll without injuriously affecting either cap. It will also permit of the use of a lighter and cheaper rod.

It will further in the transportation or handling of the device obviate the tendency of the inner end of the hook heretofore used,—which end passes through a hole central of the bottom of the lower cap,—to puncture, for instance, the bag or can containing the cement, so as to let it escape, and will otherwise prevent injury to the contents of the interior of the roll.

With the object of overcoming the foregoing, and other, disadvantages of the protectors heretofore used, I have invented a protector which comprehends two end-caps and a connecting rod, one end of which, in practice the lower end has an extended bearing portion and is preferably shaped in the general form of a loop the members of which may have any desired contour, and for purpose of illustration only they are shown as occupying an angle with respect to the rod and to the plane of the bottom of the cap, until the nut which I apply as heretofore to the other end of the rod, is screwed down upon the other, in practice the upper cap, so as to exert such tension upon the rod as will result in the positive drawing of the caps together,—the loop acting as a spring upon the rod to retain a tension upon the nut and no dependence being, as heretofore, placed upon the strength of the metal of the lower cap between its apertures to resist the pull of the rod upon both caps when the nut is turned and the tendency to bend or break through the bottom of the lower cap.

The tie rod is bent to pass through the central hole of the upper cap, and is pro-

vided, as heretofore, with a nut to exert the usual tension or pull upon the rod.

The formation of the bearing portion of the tie rod is not of the essence of the invention, but I prefer to adopt such form that a substantial bearing area is provided.

In the accompanying drawings I have illustrated a preferred embodiment of my invention in which Figure 1 represents a perspective of a roll protector illustrating the upper inclosing cap in place.

Figure 2 represents a central, vertical section through a roll illustrating the application of both caps and my connecting rod.

Figure 3 represents a bottom plan of the lower cap removed from the roll, illustrating in dotted lines the loop of the rod in place, and the cap being of circular formation.

Figure 4 represents a plan view of another embodiment of a cap which can be employed where a full cap is not needed, thereby effecting a saving of metal.

Figure 5 represents a plan of two caps as seen in Figure 4, each of elliptical outline and disposed, referably to the roll, at right angles to each other to provide additional reinforcement and also substantially a circular contour.

Figure 6 represents an elevation of my rod removed from the caps and roll, and illustrating the form of my loop in the normally angular position of its members before the tension of the nut is exerted upon it.

Figure 7 represents a fragmentary view, similar to that of Figure 6, except that the members of the loop are shown flattened or in the position into which they are drawn by the nut when tightened.

Similar numerals of reference indicate corresponding parts.

In the drawings, 1 designates a roll of roofing, flooring or other material, wrapped into hollow cylindric form, and 2 an inclosing band to retain the roll wrapped, which may be of metal or other usual material, and which may be dispensed with. A roll of roofing material is usually wrapped with paper and turned in at the ends before the roll protector is applied.

3 represents the flat bottoms, 4 the side walls, and 5 the outwardly-extending flanges, of the end caps or roll protectors proper considered each as an entirety.

6 designates the tie rod, the upper end of which is threaded as at 7, and the lower end of which is bent outwardly and, in the form illustrated, so as to form a loop 8, the members of which in their normal positions are inclined at a relatively acute angle to the rod, as shown in Figure 6, and which, when the tension of the nut 9 is exerted upon them, assume a relatively flat position, or one in which all three members considered as a whole, occupy a plane in sub-

stantial parallelism with the plane of the bottom of the lower cap. The free end of the rod is deflected against or around the juxtaposed member.

10 designates a central hole in the upper cap through which the upper end of the connecting rod passes, as shown in Figure 2.

11 designates a peripherally disposed hole in the lower cap through which the lower end of the rod above the loop passes.

12 designates a hollow center of the roll. If desired, instead of making the protector caps with a circular flange, I can cheapen the construction and still provide the necessary strength by forming the cap from a strip of material in such a manner that when finished it will have an inwardly deflected central portion which is preferably circular, as seen in Figures 4 and 5, and with outwardly extending oppositely disposed flanges which may have any desired formation, and in the majority of cases would preferably be curved at their outer ends. A cap of this kind can be used to advantage in many cases and with less expense than is involved in the use of a cup such as seen in Figure 3. Furthermore, if it is desired to use a stronger cap, two of these caps can be employed, one nested within the other, and if they are arranged with their flanges at substantially right angles to each other a substantially circular contour at the peripheral edge will be provided having apertures 10 and 11, and when two cap sections are assembled in this manner for the purpose of additional reinforcement, their corresponding apertures register with each other and thus provide for passing the tie rod through them.

Special attention is directed to the novel construction and arrangement of the tension device having the bearing portion which bears against or engages one cap and is disposed at an acute angle to the longitudinal axis of the body portion of the tie rod, since, when assembled and the nut is tightened, a tension is placed on the nut which securely holds it in position on the threaded end of the tie rod, so that the likelihood of the nut becoming loosened due to vibration in transit or the disengagement of the caps from the roll, or the loss of the packages therein is eliminated.

A package of cement and one of nails which is to go with the roll and which is to be shipped with it as a unit of structure is also retained in assembled relationship with respect to the roll, since the caps are always held securely in place after once being assembled. The assembling of the several devices which together constitute the roll protector, with relation to the roll, has already been explained, and illustrated in the drawings, and it will, of course, be understood that while I have described and

illustrated a preferred embodiment of my invention, such embodiment is susceptible to modification particularly in the form of the various components and in other obvious particulars, without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A tie rod for roll protectors, comprising a tie rod threaded at one end and provided with a body portion, and having at its opposite end an extended bearing area of greater width than the diameter of the rod and disposed at an acute angle to the longitudinal axis of the body portion of the rod, said bearing area extending substantially around the central portion of the end cap of the roll protector with which it is adapted to co-operate.

2. In a roll protector, the combination with apertured end caps, of a tie rod to pass through cap apertures, having one end threaded, and having at its opposite end an extended bearing surface of greater width than the diameter of the rod and

disposed at an acute angle to the axis of the tie rod to form a tension device adapted to bear against one of said caps, and a nut engaging the threaded portion of said tie rod and bearing against the other of said caps, said tension device preventing the loosening of said nut.

3. In a roll protector, the combination with the apertured end caps, of a tie rod to pass through said caps, having one end threaded and having its opposite end deflected laterally to form a laterally extending loop disposed at an acute angle to the body portion of the tie rod to form a tension member having a bearing area against a juxtaposed cap, which surrounds the central portion of said juxtaposed cap, and a nut for said threaded end to engage the other of said caps, said tension member serving to prevent the loosening of said nut and thus preventing the end caps from becoming disengaged from the roll.

CURTIS J. ROTHERMEL.

Witnesses:

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F. A. NEWTON.