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A. W. CAPS

PAPER REEL

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Fig. 1.

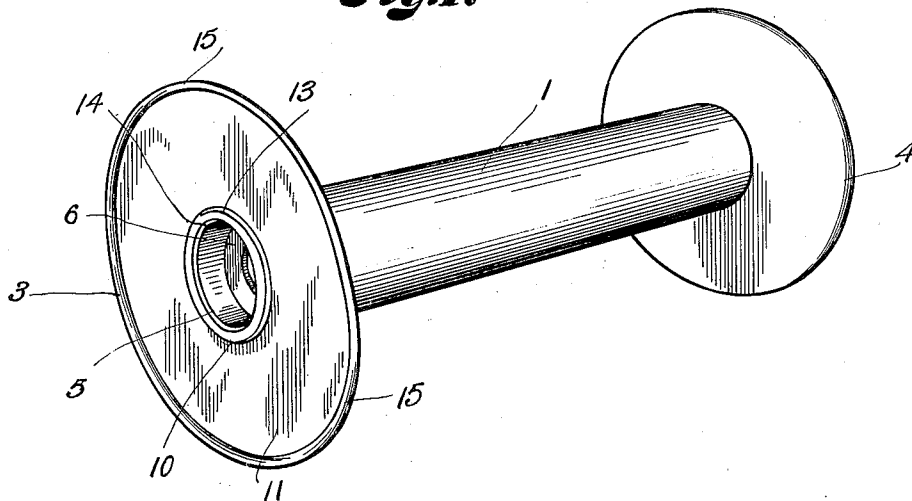


Fig. 2.

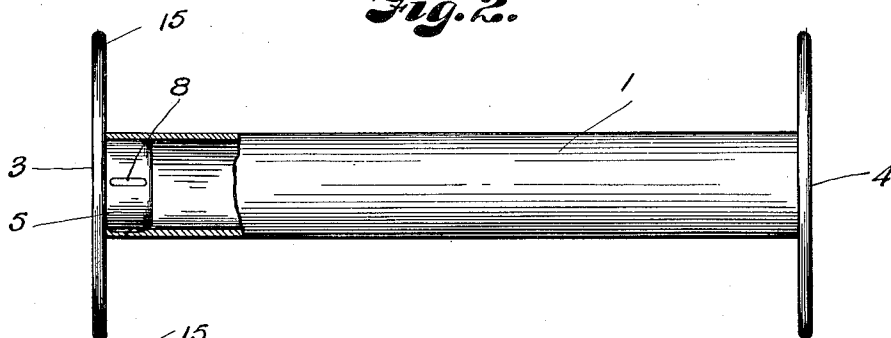


Fig. 5.

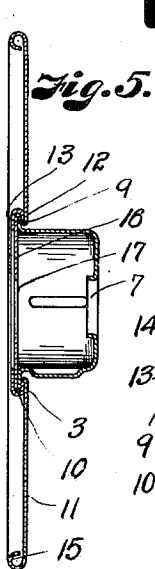


Fig. 3.

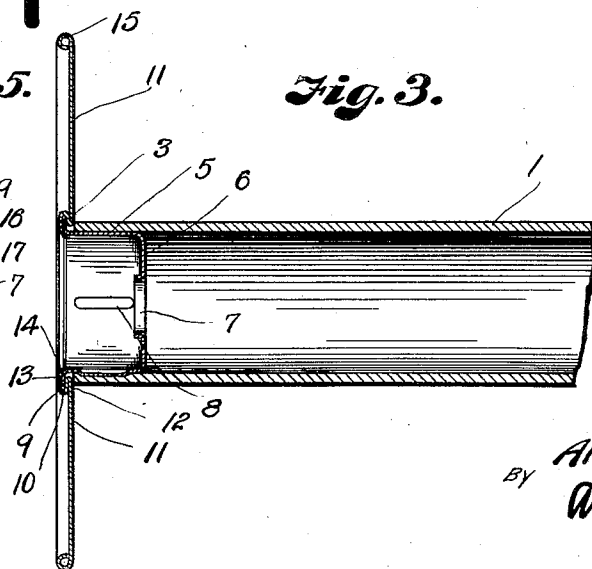
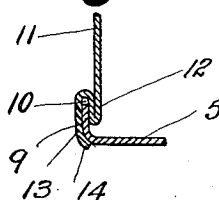


Fig. 4.



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PAPER REEL.

Application filed December 22, 1922. Serial No. 608,433.

To all whom it may concern:

Be it known that I, ARTHUR W. CAPS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Paper Reels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to paper reels and the primary object of the invention is to provide a hollow mandrel upon which paper may be wound so that the edges will not be marred or torn during the winding and so constructed that it can receive at its respective ends flanged heads for properly guiding the paper during the unwinding operation; the heads, of course, being removable when the paper is to be wound on the mandrel and receivable in the hollow mandrel when the paper is to be unwound.

The prime features of the invention reside in the means by which the flanged heads can be attached to and removed from the mandrel as well as in the peculiar construction of the heads themselves.

The novel construction of the invention will be specifically referred to hereinafter, reference being had to the accompanying drawings, in which

Fig. 1 is a perspective view of a complete reel constructed in accordance with my invention.

Fig. 2 is an elevational view of the reel, part of the mandrel being broken away to show the location of one head.

Fig. 3 is a vertical, longitudinal, sectional view through a portion of the mandrel and through one head.

Fig. 4 is an enlarged detail view of the joint for connecting the flange to the head, and

Fig. 5 is a vertical, longitudinal, sectional view through a slightly modified form of head.

Referring now to the drawings by numerals of reference:

1 designates a hollow mandrel or tube which preferably consists of paper board but which may consist of other material. The mandrel 1 is adapted to be received on a

spindle for winding the paper. The heads 3 and 4 are then received in the ends of the tubular mandrel 1, as will be explained hereinafter.

Each head consists of a cup-shaped member comprising a tubular body 5, having at its inner end an inturned wall or flange 6, at the edge of which is a circular collar or laterally projecting flange 7 to give strength to the cup-shaped head. The head 5 in each instance is provided with an elongated rib or protuberance 8, which may be struck-up from the metal of which the cup-shaped member consists, and as many of these protuberances may be formed in each head as are considered adequate to engage the inner wall of the tube 1 so that the head will be held in place.

The outstanding protuberances or ribs 8 will embed themselves in the soft inner wall of the tubular member 1 when the head is put in place.

Each head has at its outer end an outstanding circumferential flange 9 adapted to be received in a groove 10 in the circumferential flange 11. Each flange 11 has a central opening, the edge of which is bent back upon itself to form a reinforcing fold 12 and then bent around to form a spaced parallel wall 13 which provides the groove 10 receiving the flange 9.

The wall 13 may be bent over the tubular portion of the head 5, as at 14, to form a lock so that the flange 9 cannot become detached from the head to which it is secured. The periphery of the flange 11 is bent over to form a bead 15 to give strength to the flange. The flanged head thus formed will be rugged and have considerable stability and strength so it will be adapted to resist endwise play of the paper when it is wound upon the reel.

If desired a reinforcing disk 16 may be received between the flange 9 and the wall 13 so as to further strengthen the head, the disk 16 being provided with an opening 17 in line with the opening surrounded by the collar 7 so that the reel may be positioned onto a spindle about which the reel may turn.

The head and flange may be constructed of relatively thin metal because the construction is such that the head and flange will have considerable rigidity and resistance to distortion. Such a reel is easy to construct. The heads may be easily applied to and detached from the hollow man-

drel or tube 1 and by winding the paper upon the mandrel or tube 1 prior to placing the heads in position, it is obvious that there will be no frictional wear against the edges of the paper, which would cause them to tear or rub. This is important in certain types of paper, particularly that used for photographic purposes where the photographic or sensitized paper is wound upon a reel preparatory to passing it through a so-called photographic printing machine and it is for this purpose that I have particularly designed the reel although I do not wish to be limited in all respects to its use in any particular place.

What I claim and desire to secure by Letters Patent is:

1. A removable head for reels comprising a cylindrical member having one end turned inwardly to provide an inwardly projecting flange surrounding an opening, and the other end having an outwardly projecting flange, and a separate, ring-shaped flange member having a central opening, the metal of the flange member surrounding the central opening being bent back upon itself to form a reinforcing fold and then again bent in to form a wall in spaced relation to the fold whereby a groove is provided to receive the outwardly projecting flange on the end of the cylindrical member, the cylindrical member being adapted to be received in one end of a tubular mandrel upon which the material to be wound is received.

2. A removable head for reels comprising a cylindrical member having one end turned inwardly to provide an inwardly projecting flange surrounding an opening, the other end having an outwardly projecting flange,

a separate, ring-shaped flange member having a central opening, the metal of the flange member surrounding the central opening being bent back upon itself to form a reinforcing fold and then again bent in to form a wall in spaced relation to the fold whereby a groove is provided to receive the outwardly projecting flange on the end of the cylindrical member, the cylindrical member being adapted to be received in one end of a tubular mandrel upon which material to be wound is received, and a reinforcing disk at the end of the cylindrical member, the outer edge of the reinforcing disk being received in the groove.

3. A removable head for reels comprising a cylindrical member having one end turned inwardly to provide an inwardly projecting flange surrounding an opening, the other end having an outwardly projecting flange and the body of the cylinder having longitudinal, elongated ribs projecting from its outer face, and a separate, ring-shaped flange member having a central opening, the metal of the flange member surrounding the central opening being bent back upon itself to form a reinforcing fold and then again bent in to form a wall in spaced relation to the fold whereby a groove is provided to receive the outwardly projecting flange on the end of the cylindrical member, the cylindrical member being adapted to be received in one end of a tubular mandrel upon which material to be wound is received.

In testimony whereof I affix my signature.

ARTHUR W. CAPS.