July 14, 1942. A. T. LEWIS ET AL 2,289,660

PAPER ROLL

Filed Nov. 4, 1939

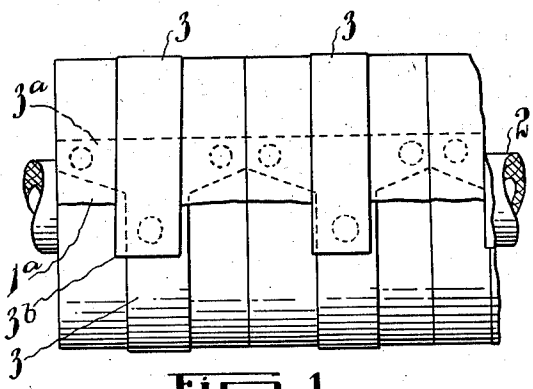


Fig. 1.

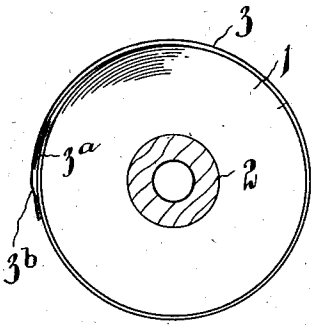


Fig. 2.

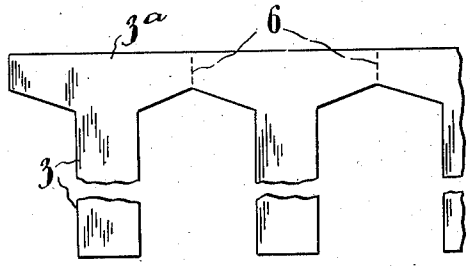


Fig. 3.

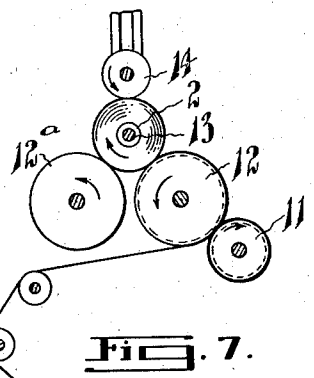


Fig. 7.

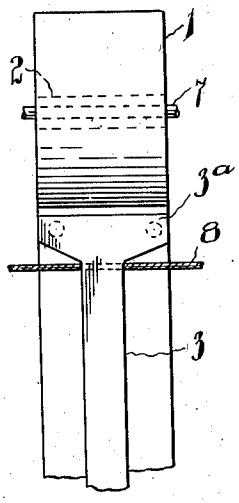


Fig. 4.

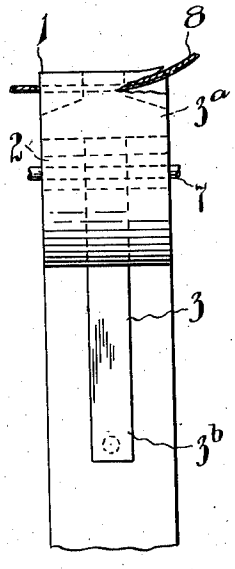
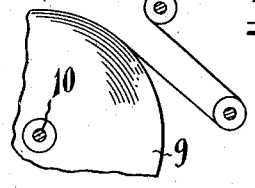


Fig. 5.



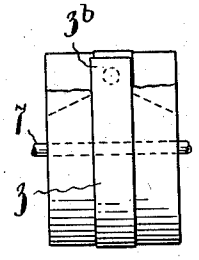


Fig. 6.

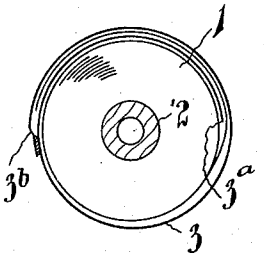


Fig. 8.

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PAPER ROLL

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Toronto, Ontario, Canada

Application November 4, 1939, Serial No. 302,866
In Canada November 12, 1938

5 Claims. (Cl. 206—59)

This invention relates to paper rolls, such as ticker tape rolls, cash register rolls and adding machine rolls, and more particularly to such paper rolls having means for preventing the same from unwinding.

The invention is illustrated in the accompanying drawing in which

Fig. 1 is a plan view, broken away, of a series of rolls made in accordance with the invention;

Fig. 2 a side elevation of a roll;

Fig. 3 a plan view, broken away, of a securing tab as used in Fig. 1;

Fig. 4 a plan view of a single roll before being cut, showing the tab and cutting or rip cord in position;

Fig. 5 a similar view showing the tab wound on the roll and the cutting operation commenced;

Fig. 6 a similar view after cutting showing the tab wound around the roll and the outer end of the tab adhesively secured to the outer face of the inner end thereof beyond the cut end of the roll;

Fig. 7 a diagrammatic side elevation of the winding and cutting rolls; and

Fig. 8 a side view of a slightly modified form of roll.

The roll 1 consists of a plurality of windings or convolutions, the number of which depend upon the purpose for which the roll is intended. The width of the roll may also vary depending upon the purpose to which the roll is put. The roll is usually provided with a wooden or cardboard core 2 as illustrated in Figure 2.

Referring to Figs. 1 and 2, the tab 3 extends around the outside of the roll, with an enlarged inner end 3^a located beneath the end 1^a of the outer winding of the paper and adhesively secured thereto. The outer end 3^b of the tab extends right around the roll and overlaps the inner end 3^a and is adhesively secured to the outer surface of the inner end of the tab 3 beyond the end of the outer winding of the roll 1. In Figure 1, the overlapping outer end is shown as not accurately registering with the overlapped portion of the roll, in order that the construction may be more readily understood. Theoretically there should be accurate register, but it will be understood that commercially this will not always be the case. By tearing the tab between the point at which its outer end is secured to the overlapped portion and the end of the outer winding of the roll, the tab may be broken thus releasing the roll, and all that is necessary before using the roll is to tear off a short portion of the end 1^a of the outer winding in order to remove the tab therefrom. It will be observed that the tab may be broken readily by means of a finger nail or a sharp instrument without damaging the paper of the roll, and this is made possible by the fact that the main body of the tab is of less width than the roll so that the finger nail or sharp instrument may be pressed against the flat surface of the outer convolution of the roll and engaged beneath the tab in order to tear it.

Figure 8 illustrates a modified construction, differing only from the construction illustrated in Figs. 1 and 2 by the fact that the enlarged end 3^a of the tab beneath the outer convolution of the roll is much longer and extends more than half way around the periphery of the roll, and is not adhesively secured in any way to the roll. The purpose of this is to firmly clamp or frictionally hold the end of the tab between two windings of the roll, while the outer end of the tab is being wound around the roll, and secured to the overlapped part of the tab after the strip of paper has been cut, by the method hereinafter described.

In commercial practice such rolls of paper are cut and wound from a large roll or web of paper, the individual rolls being formed in groups or gangs on a long spindle and subsequently separated. It is therefore desirable to apply the tab to the group or gang of rolls simultaneously, and for this purpose the tabs are formed in strips as illustrated in Figure 3 and are applied in the manner shown in Figures 4 to 6. As illustrated in Figure 3 the enlarged ends of each tab are connected to the adjacent tab, but are perforated, creased or otherwise provided with a line of weakness at 6 so that they may be readily broken apart when the rolls are separated.

In Figure 4 the method of inserting the tab is illustrated on a single roll for the sake of simplicity. Paper comes from a large roll and is wound on the core 2 on a shaft or spindle 7. When a roll of the proper size has been formed the shaft 7 is stopped from rotation and a rip cord 8 is laid across the paper. Over the rip cord is laid the tab 3, or in the case of a series or gang of rolls, a strip of connected tabs such as shown in Figure 3. The roll is then wound around on the spindle to the position shown in Figure 5, the end 3^a of the tab being then beneath the outer convolution of the paper. The rip cord 8 is then pulled as illustrated in Fig. 5, thus cutting the paper on the roll. The roll is then wound further to the position illustrated in Figure 6 and the end 3^b of the tab is lifted up and glued to the outer surface of the tab adjacent the inner end

and beyond or spaced from the end of the roll, as illustrated in Fig. 6. Of course, the winding of the tab 3 may be completed by applying adhesive to the end 3^b thereof and then turning the roll around further until the end 3^b of the tab comes in contact with the outer surface of the other end of the tab and is adhesively secured thereto.

It will be understood that in the operation above described and illustrated the roll will be suitably supported so as to press the tab against the outside of the roll as it is turned. Figure 7 illustrates diagrammatically in side elevation how the roll is wound. The main roll 9 is mounted on a spindle 10 which freely rotates. The web of paper is carried through a number of guide rolls and between a cutting roller 11 which has annular blades and a roll supporting roller 12 which has corresponding grooves, which do not show in the drawing. This cuts the web into a plurality of narrow strips of the required width, and these are carried over the supporting roll 12 and the supporting roll 12^a and around a spindle 13 on which is mounted the core 2. A vertically movable pressure roll 14 bears down on the roll as it is being wound. The cutting roller 10, the supporting rollers 11 and 12, the spindle 13 and the pressure roller 14 are all positively driven by suitably timed gearing from the same source of power. Each individual roll 1 has a separate core 2, all of which are contiguously mounted on the spindle 13. When it is desired to insert the strip of tabs the various drive rollers are stopped and the pressure roller 14 is raised. The spindle 13 may then be turned by hand for the operation of applying the tabs and cutting the end of the roll.

The tab illustrated in Fig. 8 is applied in a similar manner to the tab shown in the other views except that it is not adhesively secured to the roll at its enlarged end 3^a. The enlarged end is placed in the bite between the roll and the unwound portion of the strip. The tearing strip is placed between the tab and the unwound portion of the strip of paper. The roll is then turned carrying the end of the tab and cutting strip with it for one complete rotation until the extreme end of the tab comes between the roll of paper and the supporting roller 12. This clamps the tab in position while the roll strip is cut and the end 3^b of the tab is adhesively secured to the body of the tab beyond the cut edge of the roll.

When the gang of rolls have been wound and the tabs applied thereto, they are removed from the spindle and may be readily broken apart, the tabs tearing along the line 6.

It will be observed that the enlarged end 3^a of the tab extends to and is flush with the edges of the roll. This is an important feature of the invention for two reasons. In the first place, it serves to position the tab relative to the sides of the roll, so that the narrower portion of the tab, the edges of which are parallel with the edges of the enlarged portion of the tab, will, when wound around the roll, accurately overlap the other end of the tab in order that it may be secured to the outer portion thereof.

A further reason why this construction is important is that in the case of applying a strip of tabs to a gang of rolls, the individual tabs may be connected between each roll, and may be applied in a strip instead of individually.

What we claim as our invention is:

1. The combination with a roll of paper, of an elongated paper tab having an enlarged inner end of the same width as the roll, said inner end of the tab being adhesively secured to the under face of the end of the roll with its edges substantially flush with the edges of the roll, the main portion of the tab being of less width than the roll with edges substantially parallel with the edges of the enlarged inner end, said main portion of the tab extending around the outermost winding of the roll and the outer end of said tab overlapping the inner end and being adhesively secured to the outer surface of the overlapped portion of the tab.

2. The combination with a plurality of tightly wound rolls of paper arranged end to end, of a plurality of elongated paper tabs each having an enlarged inner end of the same width as a roll, each inner end being secured to the roll and having its edges flush with the edges of the roll and joined to the adjacent edge of the adjoining tab, the main portion of each tab being of less width than the roll and extending around the outermost winding of the roll, the inner end of the tab being frictionally held beneath the end of the said outermost winding of the roll, and the outer end of each tab overlapping the inner end thereof and secured to the outer surface thereof beyond the end of the roll.

3. The combination with a plurality of tightly wound rolls of paper arranged end to end, of a plurality of elongated paper tabs each having an enlarged inner end of the same width as a roll, each inner end being adhesively secured to the roll and having its edges flush with the edges of the roll and joined to the adjacent edge of the adjoining tab, the main portion of each tab being of less width than the roll and extending around the outermost winding of the roll, and the outer end of each tab overlapping the inner end thereof and secured to the outer surface thereof beyond the end of the roll.

4. The combination with a plurality of tightly wound rolls of paper arranged end to end, of a plurality of elongated paper tabs having their inner ends secured to the rolls, the inner end of each of which is the same width as a roll and joined to the adjacent edge of the adjoining tab, and the outer end of each tab overlapping the inner end thereof and secured to the outer surface thereof.

5. The combination with a plurality of tightly wound rolls of paper arranged end to end, of a plurality of elongated paper tabs, having their inner ends adhesively secured to the outermost windings of the rolls, the inner end of each of which is the same width as a roll and joined to the adjacent edge of the adjoining tab, and the outer end of each tab overlapping the inner end thereof and secured to the outer surface thereof.

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