Feb. 9, 1937. O. C. ROESEN 2,070,317

METHOD OF AND APPARATUS FOR SPLICING WEBS

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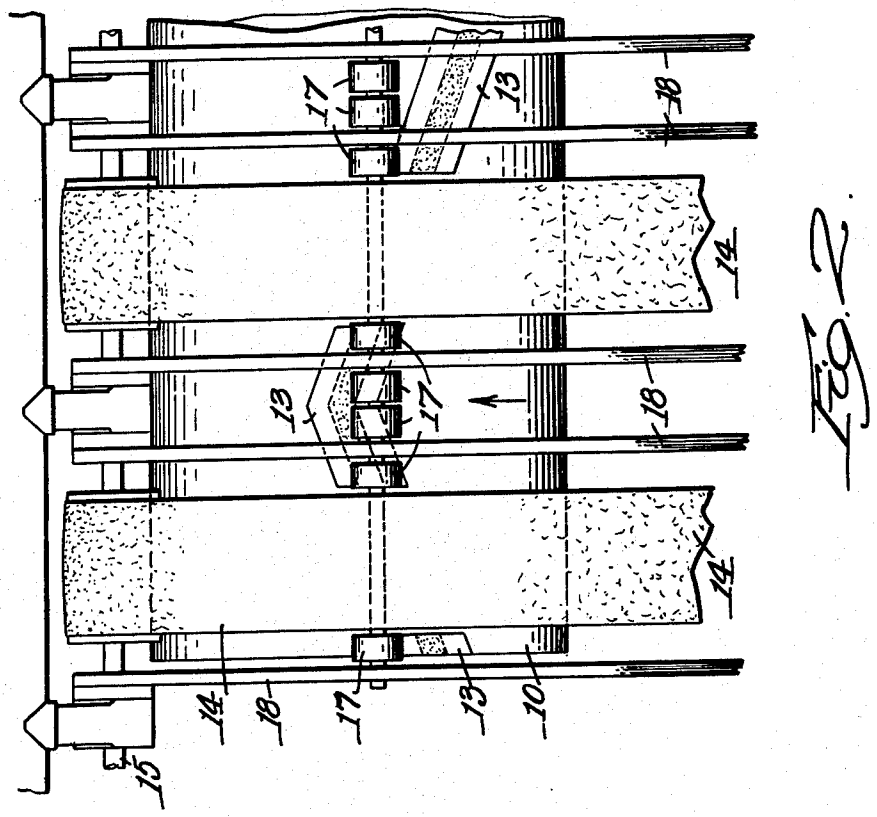


Fig. 2.

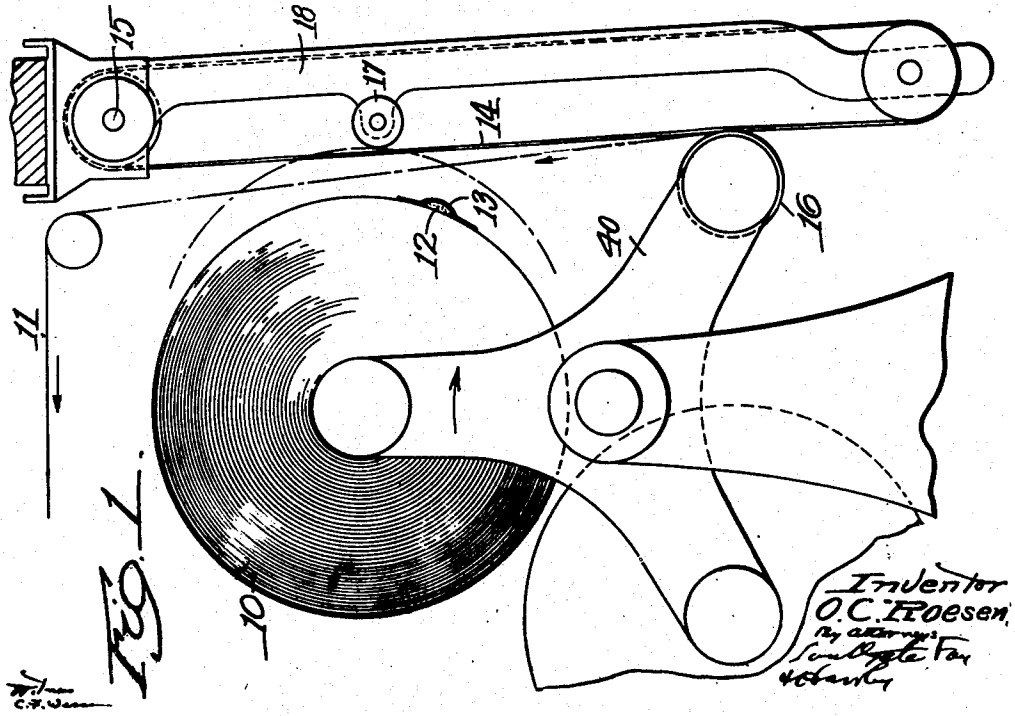


Fig. 1.

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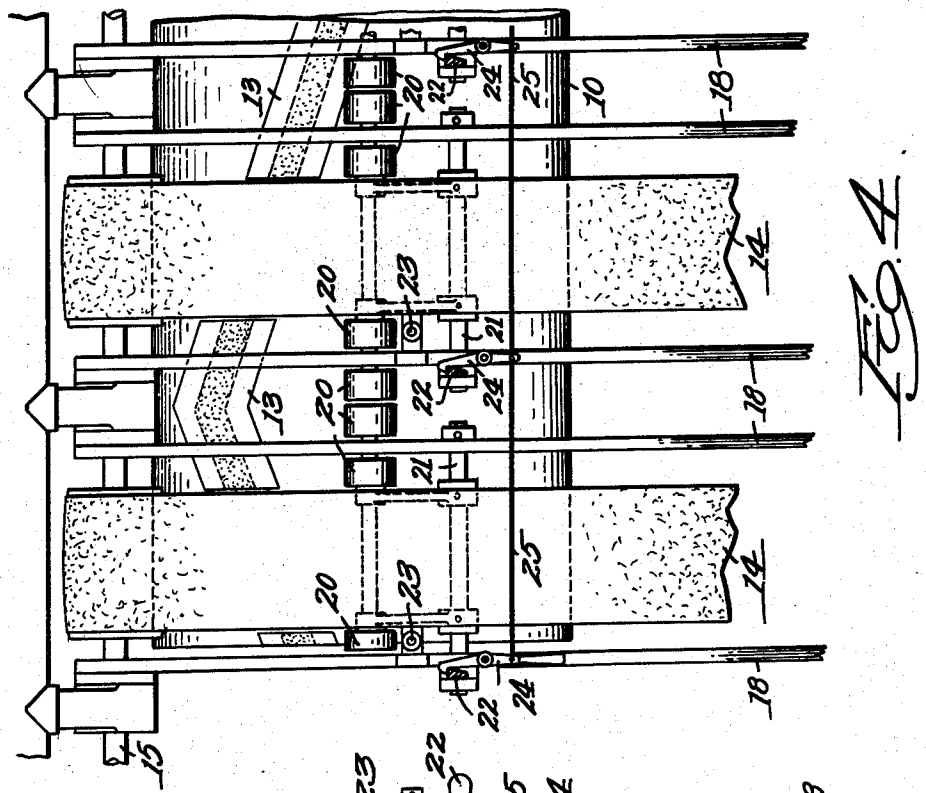


Fig. 4

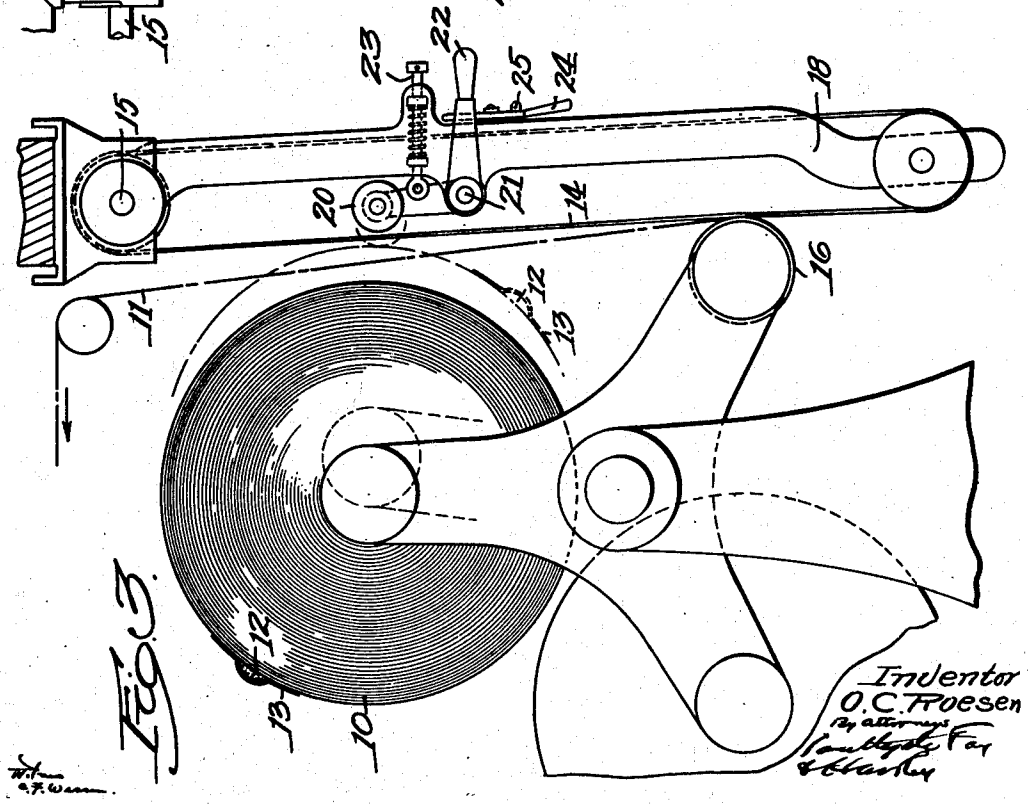


Fig. 3

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UNITED STATES PATENT OFFICE

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METHOD OF AND APPARATUS FOR SPLICING WEBS

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Application March 2, 1932, Serial No. 596,236

7 Claims. (Cl. 242—58)

This invention relates to the splicing of a roll of paper to a running web, and is particularly applicable to the replenishing of the web of a newspaper printing press. The invention is applicable to a device of the above mentioned type in which the splice is made while the web is running at full speed.

The principal object of the invention is to provide a convenient means by which the glue or adhesive is carried by the fresh roll but in an inactive condition to enable the roll to be brought up to web speed before the adhesive is brought into an active condition, and then to provide means for bringing the glue into play so as to effect the splicing.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a side view of a web splicing device showing the preferred embodiment of this invention;

Fig. 2 is an elevation of the same;

Fig. 3 is a view similar to Fig. 1, showing a modification, and

Fig. 4 is an elevation of the modification shown in Fig. 3.

This invention relates to the act of splicing a rotating roll to a running web, and is concerned with the form in which the adhesive is employed, and the way in which the adhesive is applied so as to splice together these two elements.

In accordance with this invention the adhesive in one way or another is left inactive until the last rotation of the new roll before splicing is about to take place. Then the adhesive is rendered active so that the next time it comes around to registration with the running web it will unite that to the web on the roll. Means also is provided in accordance with some of the forms shown for actively forcing the adhesive from a protective covering on the surface of the roll to effect the splice.

In the form shown in Figs. 1 and 2, the fresh web roll 10 is shown as mounted in any ordinary way and as movable toward the running web 11 for the completion of the splice. On the roll 10 is provided the adhesive 12 in the form of a spot or a plurality of spots of material thickness and containing an excess of adhesive in a soft state, each covered by a protecting shield 13 of frangible paper. These shields 13 are shown as of angular formation, that is, they do not extend parallel with the axis of the roll, but either extend in one position at an angle to the axis, or have their opposite ends slanting at opposite angles to the axis for the purpose of easier rupture of the shield when the time comes for the splicing.

This form of the invention is shown as provided with running belts 14 operated from a shaft 15 which is operated by the press and in proportion to web speed, so that these belts 14 move practically at the same rate of speed as the web 11. The spots of adhesive 12 are spaced apart at intervals along the roll from one end to the other, and the belts 14 are located at points between these spots.

The operation is as follows:

When the running roll 16 gets quite small the tapes 14, of course, are running against the surface in the usual way. Now the incoming roll 10 is moved over into contact with the web which is in contact with the belts 14 with the web between them and the roll. This position of the parts is kept up until the roll 10 is running at web speed. When it is judged by the operator that it is time to make the splice, the roll 10 is moved harder up against the belts 14, so much so that they yield and allow the roll 10 to come against squeezing rolls 17 carried by the frame 18 on which the belts are carried. These rolls 17 are located in the path of the spots 12 and their shields 13. Therefore the first time these shields come against the roll 17 the pressure of the rolls will disrupt the shields and force the adhesive material out on the surface of the roll 10 where, of course, it will also come into contact with the running web 11. This is as much of the splicing operation as need be described because this invention does not relate to the other features, such as severing of the web, etc.

In the form of the invention shown in Figs. 3 and 4, everything is the same as shown in Figs. 1 and 2, except that the squeeze rolls 20, which take the place of the rolls 17, are mounted on arms carried by shafts 21, each shaft having a handle 22. Spring-pressed rods 23 normally tend to force the rolls 20 outwardly into splicing position to have the same effect on the spots of adhesive 12 as in the other case. A latch 24 is provided for each one of the shafts 21 and holds them back against the resistance of the springs on the rods 23 until the operator releases the latches. The latches are all connected by a rod 25 to allow them to be released simultaneously.

In each of these cases the invention is shown as applied to an ordinary reel 40 which carries three web rolls, but of course the invention is not limited to any particular means for supporting the web rolls.

Although I have illustrated and described only two forms of the invention, I am aware of the fact that other changes can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to any of the forms shown, but what I do claim is:—

1. The method of splicing a running web to a rotating web roll, which consists in providing the web roll with adhesive having a temporary covering over it and, at a time just before the splice is to be made, displacing said covering to enable the adhesive to spread on the surface of the roll to unite the surface of the web roll to the running web.

2. In a mechanism for splicing a running web to a rotating web roll, the combination of an area of adhesive material, means on the roll for keeping the said adhesive material from acting on the running web until it is desired to make the splice, and means for then disrupting said means on the roll to expose the adhesive material on the surface of the running roll so that it may join the said surface to the running web.

3. In an apparatus for splicing a running web to a rotating web roll, the combination of a shield applied to the surface of the rotating roll and having under it a supply of adhesive, whereby the adhesive is kept in an inactive condition, and means for applying pressure to the shield to squeeze the adhesive from beneath it on the surface of the roll, whereby the said adhesive will be in condition to cause the roll and web to adhere when they come into contact.

4. The combination, in a device for splicing a running web to a rotating roll, of an area of adhesive on the surface of the roll, a temporary shield for protecting the adhesive from coming into contact with the web, and means whereby the movement of the rotating roll bodily toward the running web will cause the adhesive to be spread on the surface of the roll in a position to engage the running web when the roll has moved into contact therewith.

5. In a device for splicing a running web to the surface of a rotating web roll, the combination with a body of adhesive on the web roll and means for protecting said adhesive, of means located in position to act upon the surface of the web roll when the latter is moved to splicing position to release the protecting means and spread the adhesive material on the surface of the roll in an exposed condition for the purpose described.

6. In a web splicing device, the combination of a support for movably mounting a web roll, running belts for acting on the running web at substantially the speed of the web, and also for rotating the web roll when it moves up into contact with the web, spots of adhesive on the surface of the web roll out of registration with said belts, and rollers carried in such position that when the rotating web roll moves up to a certain point, said rollers located in the paths of said spots will spread the adhesive on the surface of the web roll in a position to engage the surface of the running web.

7. In a web splicing device, the combination of a support for movably mounting a web roll, running belts for acting on the running web at substantially the speed of the web, and also for rotating the web roll when it moves up into contact with the web, spots of adhesive on the surface of the web roll out of registration with said belts, a frame carrying the running belts, a shaft on said frame, arms carried by the shaft, rollers mounted on said arms, yielding means for forcing the arms forward into active position, a latch for holding them back so that the rollers will be inactive, and means for releasing the latch to allow the spring to operate the rollers.

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