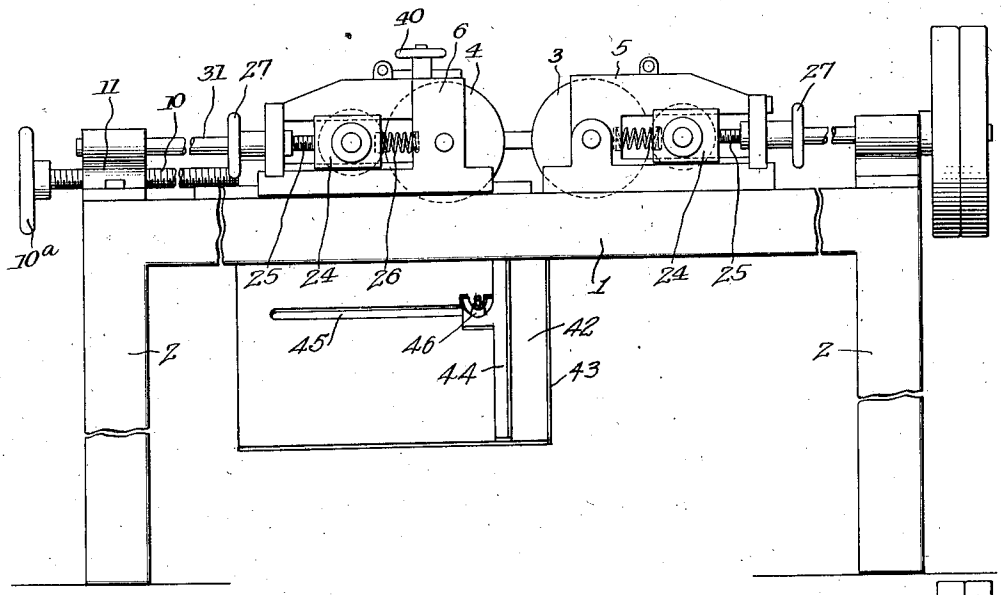
April 2, 1929. M. HAMBURGER ET AL 1,707,611

APPARATUS FOR PRODUCING ROLLS OF NONFRAYING MATERIAL

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Fig. 1.



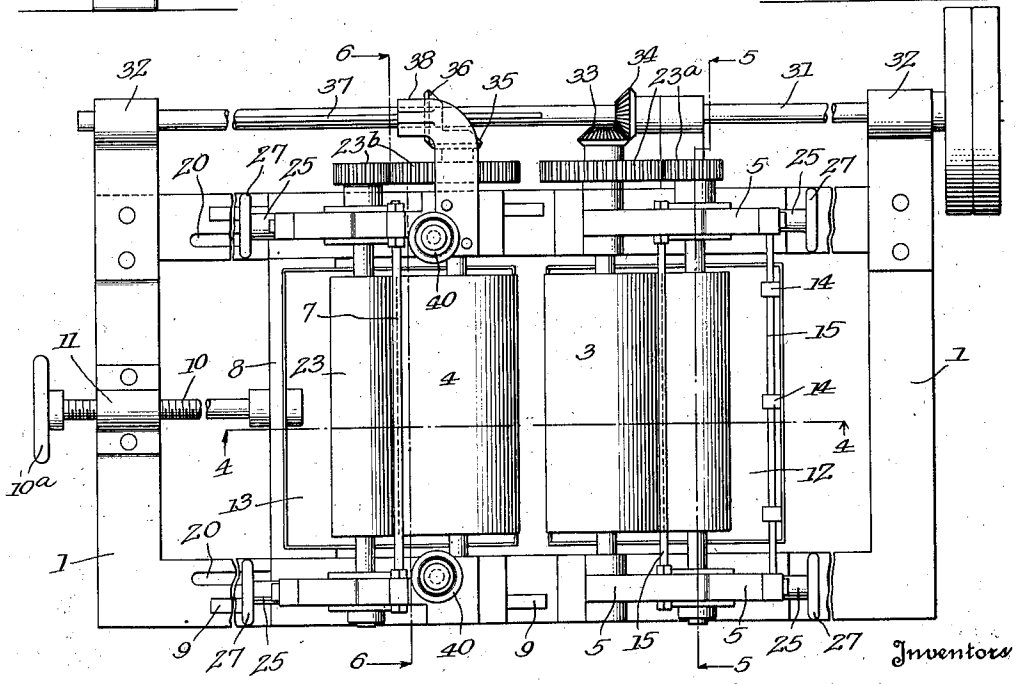


Fig. 2.

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APPARATUS FOR PRODUCING ROLLS OF NONFRAYING MATERIAL

Filed Feb. 16, 1924 3 Sheets-Sheet 2

Fig. 3.

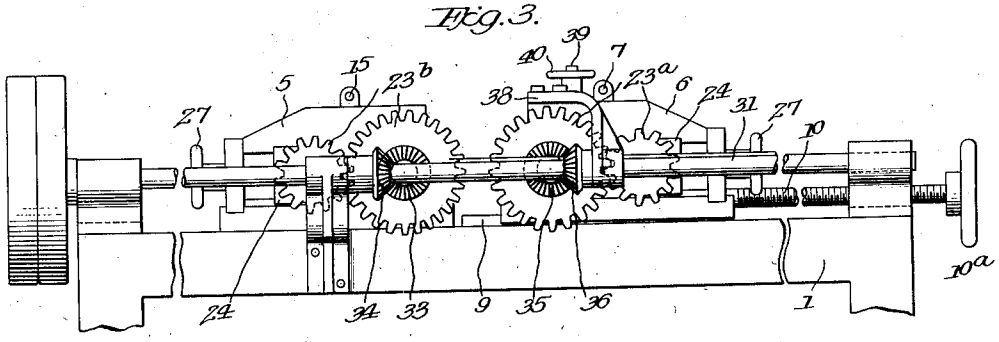


Fig. 8.

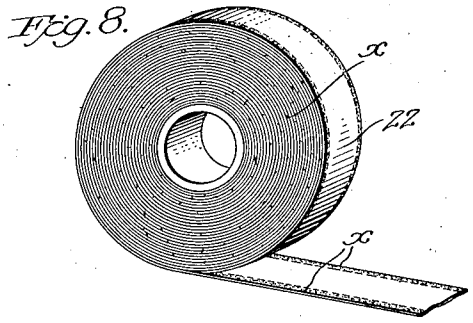


Fig. 7.

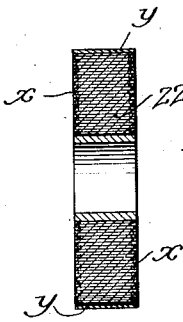
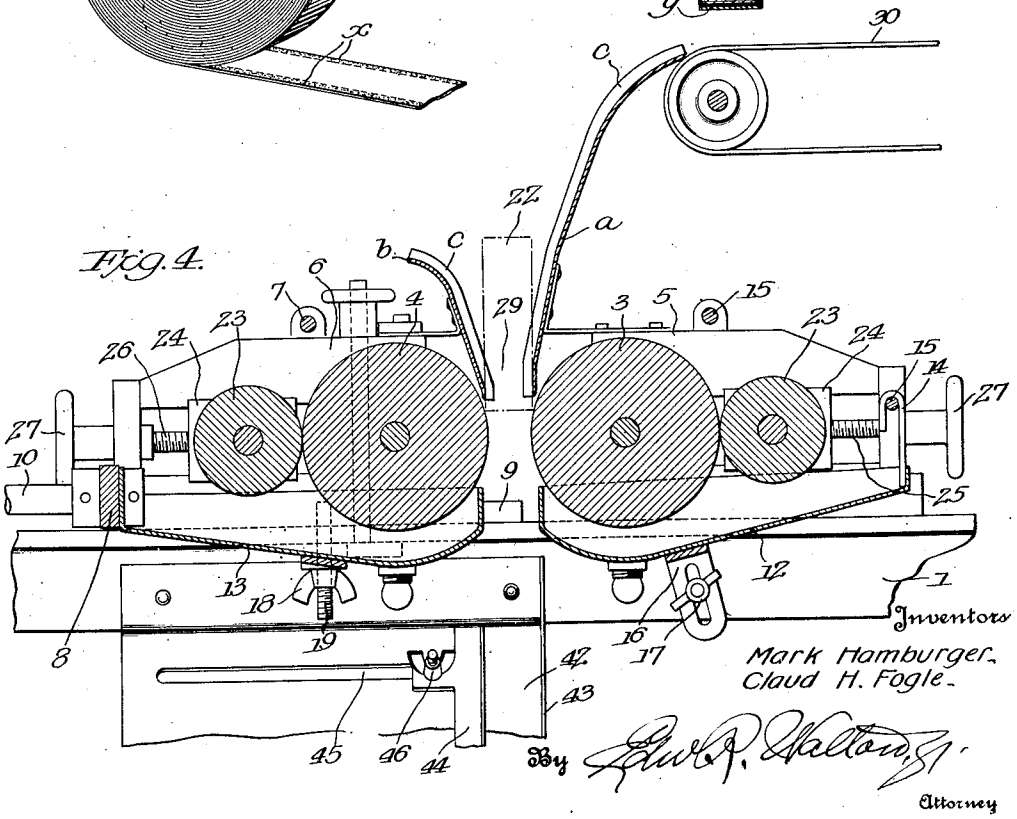


Fig. 4.



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Fig. 5.

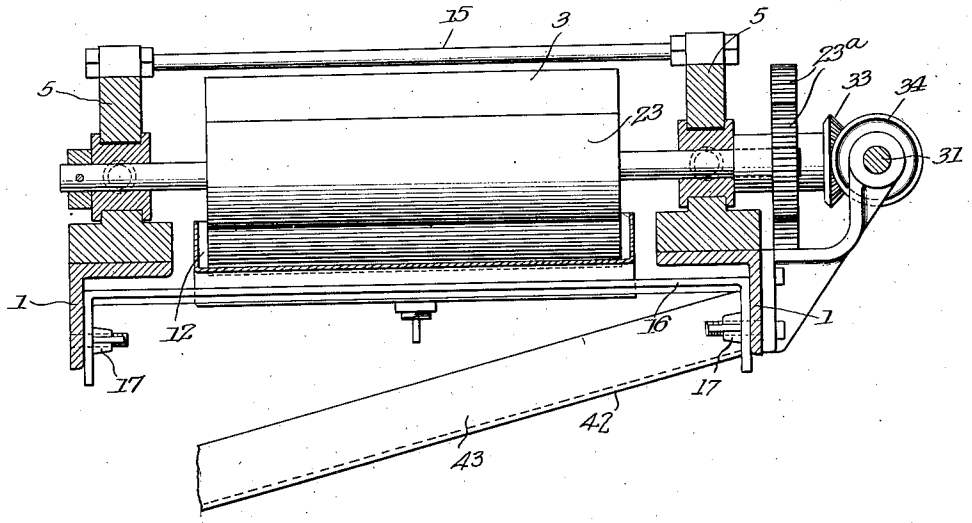
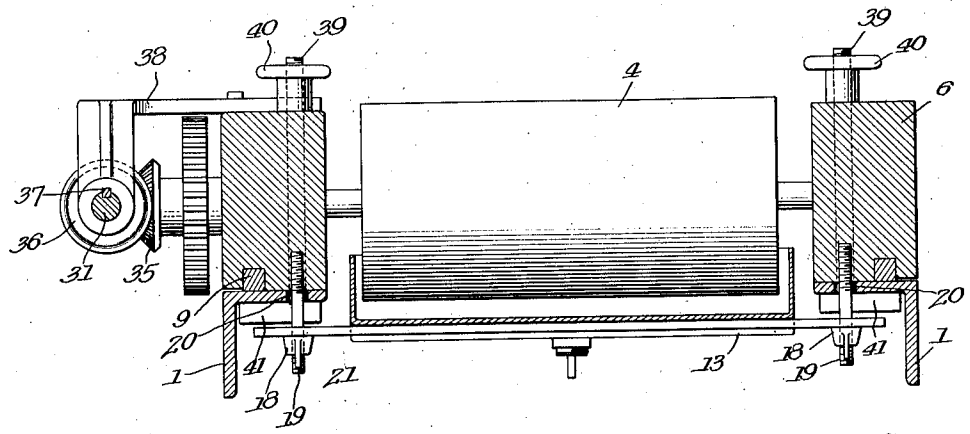


Fig. 6.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR PRODUCING ROLLS OF NONFRAYING MATERIAL.

Application filed February 16, 1924. Serial No. 693,337.

The present invention is a method and apparatus for the production of bolts or rolls of material having the longitudinal edges of the material treated with a liquid of adhesive material to prevent fraying or ravelling of the edges.

It is an old and well known practice in the art to cut rolls or bolts of piece goods, of relatively large width, by appropriate apparatus into a plurality of wound bolts or rolls of material. These goods or strips are used for various purposes, such as piping and trimming of garments, typewriter ribbons, and the like, and an adhesive or other liquid is applied to the edges of the material or strips while in its wound or rolled condition to prevent fraying or ravelling of the edges. It is also old in the art to cut these goods or tape from straight laid material or from material on the bias, accordingly as the use and requirements to which the goods or tape are put necessitate. In both cases, however, the unselvaged edges of the material or tape will fray if not made fast in some appropriate manner. It has long been the practice to apply a suitable liquid or adhesive to the edges of the material while in wound or roll form with a hand brush, but this process is slow as only one side of the roll can be treated at a time, and the liquid is not uniformly spread.

It is the object of the present invention to overcome these drawbacks and to apply an even coating or film of unravelling liquid to both sides of the roll simultaneously.

The invention resides in the method employed in producing rolls of non-ravelling material or strips, and in the novel structure of one form of apparatus specifically adapted for carrying out the method.

The process for carrying out the invention consists briefly in cutting piece goods, either straight laid or on the bias, transversely, to produce a plurality of rolls or bolts of material 22 (Figs. 7 and 8), then treating the sides of the bolts or rolls of material with an edge-binding material, such as a liquid or suitable coating, by passing the bolts or rolls edgewise between rollers or other suitable applicator (Fig. 4), which will apply the edging material to the sides of the roll on the exposed edges of the material, whereby simultaneously the opposite side edges of the material are treated with the edge-binding material. The rolls are then permitted to dry and subsequently ready for packing or use, thus producing non-ravelling edges x on the tape or strip as shown in Fig. 8. This method contemplates wrapping or applying about the circumferential surface of each individual roll, a protecting covering, y (Fig. 7) such as paper or the like, to protect the face of the material from soiling or from excess amounts of non-ravelling binding material during the treating steps of the process, or in applying the covering about the bolt or roll before the smaller rolls are cut therefrom.

Obviously this invention permits the utilization of a great variety of instrumentalities for producing the desired results and it will therefore be understood that, by disclosing herein certain particular forms of structure, we confine ourselves thereto and to the operation to be performed, only in so far as they carry into effect the principles of the invention.

The accompanying drawings illustrate the preferred form of the construction, as at present devised, for carrying out the steps of the novel method of producing rolls or bolts of material or tape having a rough edge treated to prevent ravelling, but it is to be understood that the apparatus is susceptible to many changes in construction and arrangements of parts without departing from the spirit of the invention.

In the drawings:

Figure 1 is a side elevation of the machine.

Fig. 2 is a plan view of the machine.

Fig. 3 is an elevation of the machine looking at the opposite side thereof.

Fig. 4 is a longitudinal sectional view taken through the machine, substantially on line 4—4 of Fig. 2.

Fig. 5 is a transverse sectional view taken substantially on line 5—5 of Fig. 2.

Fig. 6 is a similar view to Fig. 5 taken substantially on line 6—6 of Fig. 2.

Fig. 7 is a cross section through a roll or rolls of material or tape after it has passed through the edging material and surrounded by an outer protecting covering, and

Fig. 8 is a prespective view of a roll of material or tape after having been subjected to the edging treatment and dried, and with the protecting cover removed.

Referring particularly to the drawings, 1 designates a frame upon which the operating

parts of the machine are mounted, said frame being supported, in the present instance, by the legs 2.

Arranged transversely upon the frame is a pair of rollers 3 and 4 journaled respectively in bearings 5 and 6. The bearings 5 are stationarily mounted on the frame while the bearings 6 are slidably mounted, whereby the rollers may be adjusted relatively to each other to vary the openings or passage between them. The two bearings 6, on opposite sides of the frame, are connected by a rod 7 and a bar 8 which will permit the bearings to be shifted in unison, the under face of the bearings being grooved to receive a rib 9 on the frame. However, any other suitable construction may be provided. The adjustment of the bearings 6 is effected by a rod 10 threadingly mounted in one end of the frame, as at 11, and having a swivel connection with the bar 8.

Arranged under each of the rollers 3 and 4 and between their respective bearings are pans 12 and 13 respectively, which are shown as substantially identical in construction, and are designed to contain a suitable quantity of the edge binding material, such as a suitable liquid or adhesive. The pan 12 is suspended at one end by hooks 14 engaging one of the cross rods 15, connecting the stationary brackets 5, the other end portion of the pan resting upon a support 16, which is adjustable through the slot and thumb screw connection 17 on the frame 1 to permit the pan to be adjusted with relation to the roller 3 in order that the roller may enter the liquid therein, and so that its circumferential surface will be covered or coated therewith.

The pan 13 is substantially identical with the pan 12 except for its manner of support and specific manner of adjustability with respect to the roller 4. In this case the pan 13 is adjusted by the thumb nuts 18 on the bolts 19 which extend from the bearings 6 through slots 20 in the frame 1, and through a supporting bar 21 upon which the pan rests, see Fig. 6. By this construction the pan 13 is adjustable with the bearings and moves therewith.

It will thus be seen that the rollers 3 and 4 are readily adjustable to be separated sufficiently to correspond with the width of the roll of material or tape to be passed through the machine, and to properly feed the rolls edgewise therethrough as indicated in Figs. 1 and 4. By reason of the rollers 3 and 4 dipping into the adhesive in the pans 12 and 13, their circumferential surfaces will be coated with a film of the edging material and the thickness of this film may be manually regulated by the wiping rolls 23. These rolls are identical in construction and are journaled in blocks 24 slidably mounted in the respective bearings 5 and 6. The blocks 24 are manually adjustable toward their respective rollers 3 and 4 by bolts 25 threaded in the bearings and bearing thereagainst.

Springs 26 are interposed between the bearings 5 and 6 and the block 24 to act in opposition to the adjusting bolts 25, whereby the wiping rollers 23 are moved away from the rollers 3 and 4 after the bolts 25 are correspondingly adjusted, there being suitable hand wheels or grips 27 on the adjusting bolts 25.

The wiping rollers 23 are each rotated from their respective roller 3 or 4 by gearing 23^a and 23^b respectively, the depth of the teeth between meshing gears being sufficient to permit the required adjustment therebetween. In lieu of this drive connection any other may be substituted which will perform the same results.

It will thus be seen that as the rolls 22 are dropped between the rollers 3 and 4, they will feed the same therethrough and at the same time apply to the opposite sides of the roll, and therefore to the opposite side edges of the material or tape composing the roll, a film or coating of suitable edging material which will be partially absorbed by the edges of the material or tape, and which when dry will hold the threads at the raw edges thereof intact against fraying or ravelling as shown at x in Figs. 7 and 8. It will be also observed that the amount of adhesive to be applied to the sides of the rolls can be regulated by reducing or increasing the film on the rollers 3 and 4.

The rolls 22 may be fed through the rollers 3 and 4 as many times as is found sufficient to effectively treat the side edges thereof, and it will be obvious that by this method and apparatus the work can be done efficiently with a greater saving of time and labor than by the present method of applying the adhesive by hand to each roll.

A number of rolls can be fed through the machine at the same time, according to the length of the rollers 3 and 4. To this end a suitable feeding means is provided which may take any suitable form, however, in the present instance consists of an endless conveyor 30 having the rolls arranged thereon in rows of three or four to the row. These rolls are fed from the conveyor to a guiding throat 29 through which they gravitate to a point between the rollers. After passing through the rollers they are discharged upon a suitable chute conveyor 42, down which they roll to a drier.

The means for operating the applying rollers 3 and 4 consists of a shaft 31 suitably journaled on the frame 1, as at 32, and being driven from any suitable source of power.

The throat 29 consists of two operable parts a and b, the former being stationarily mounted and the latter being supported from the bearing block 6 and movable therewith, so as to increase or decrease the interior area of the throat to accommodate the size of rolls to be fed through the machine. The side edges

of the throat are formed with flanges *c*, which substantially close the sides thereof, and insure the delivery of the rolls between the rollers

The roll 3 has on one end of its axis a beveled gear 33 meshing with beveled gear 34 fast on the shaft 31. The roller 4 has a beveled gear 35 on one end of its axis meshing with a beveled gear 36 slidably keyed on the shaft by means of the key 37. The gears 35 and 36 are maintained in mesh by a bracket arm 38 secured to the slidable bearings 6, the outer end of the bracket 38 having a fixed bearing in which the gear 36 is journaled so that it will at all times mesh with the gear 35 irrespectively of its position on the shaft.

As an auxiliary lock to maintain the bearings 6 in their adjusted positions, bolts 39 extend through the bearings 6 and through the slots 20 in the frame 1, and have an anchor plate 41 at their lower ends, the upper ends of the bolts 39 being threaded and receiving lock-nuts 40 which will bear against the top surface of the bearings 6 and bind the parts in their properly adjusted positions.

After the rolls 22 have passed through the coating members or rollers 3 and 4 they are discharged edgewise onto an inclined chute or platform 42, down which they will roll to a suitable drier, or collecting devices, not shown, in order that rolls 22 may not fall over sidewise after being discharged on the chute 42, guides 43 and 44 are provided, the guide 44 being adjustable to increase or decrease the width between the guide to accommodate the width of the rolls 22 being treated. The guide 44 is shown as being adjustable through the set-screw 46 movable in the slot 45.

Having thus described the invention, and the manner in which the same is to be performed, what we claim as new and desire to secure by Letters Patent is:

1. An apparatus for applying a coating to opposite sides of a roll of material comprising: a pair of rollers, a drive shaft, gears on said shaft operatively connected with each roller respectively, one of said rollers being adjustable relative to the other, and the said gear connected therewith being slidably keyed on said shaft and adjustable with said adjustable roller, and means associated with said rollers whereby a coating material is applied on the circumferential surface of said rollers.

2. An apparatus for applying a coat to the opposite side edges of a roll of material as set forth in claim 1, being further characterized by pans for the coating material underlying each of said rollers, means for adjusting said pans radially with respect to said rollers, the pan under said adjustable roller being movable therewith.

3. An apparatus for applying coating to opposite sides of a roll of material comprising a frame, a pair of parallel rollers, one of said rollers being journaled in stationary bearings on the frame; a sliding carriage mounted on the frame in which the other of said rollers is journalled; adjusting means mounted on the frame and connected to said carriage varying the relative distances between said rollers; a drive shaft mounted on the frame and extending at substantially right angles to said rollers; gears on said shaft operatively connected to each of said rollers, respectively, one of said gears being slidably keyed to said shaft, a rigid connection between said carriage and slidable gear for maintaining the operative connection between said gear and its roller, and means whereby the coating material may be applied to said rollers.

4. An apparatus for applying a coating to opposite sides of a roll of material, as set forth in claim 3, further characterized by slidable bearing blocks mounted adjacent the journals of each of said rollers, wiping rollers one mounted adjacent of each feed roller for co-operation therewith and normally urged to move away from its respective feed roller, and means for adjusting said wiping rollers relatively to said feed rollers for varying the film of coating material on the surface of said feed rollers.

5. An apparatus for applying the coating to opposite sides of rolls of material, comprising a pair of rollers, means associated with said rolls whereby a coating of material is carried on the surface of the rolls, one of said rolls being adjustable relative to the other to accommodate rolls of material of various widths, spacing guide members for delivering rolls of material to said rolls in edgewise position to said rollers, one of said guide means being adjustable with the movement of said adjustable roller.

6. An apparatus for applying a coating to the opposite side edges of a roll of material to prevent fraying of the edge of the material comprising a pair of spaced rotary rollers between which a roll of material is bodily fed edgewise, means associated with said rollers whereby a coating material is carried on a circumferential surface of the rollers, guide means for delivering rolls of material to said coating rollers and presenting said rolls to the rollers in edgewise position, said rollers being adjustable relative to each other to accommodate rolls of material of varying axial width, and said guide means being adjustable in unison with the adjustable roller to accommodate the size of rollers being passed through the machine.

7. An apparatus for applying a coating to the opposite sides of a roll of material to prevent fraying the edge of the material comprising a pair of spaced rotary rollers be-

tween which said roll of material is fed edgewise, means associated with said rollers whereby a coating mateiral is carried on the circumferential surfaces of the rollers, a guide chute upon which the rolls of coated material are discharged in endwise position from said rollers and over which they may roll, said chute having guide side walls, one of which, at least, is adjustable to guide rollers varying in width between said walls.

In testimony whereof we have hereunto set our hands.

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CLAUD H. FOGLE.