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Oct. 25, 1949.

E. M. COSTELLO
ROLL WRAPPING MACHINE

2,485,865

Filed Jan. 2, 1947

4 Sheets-Sheet 1

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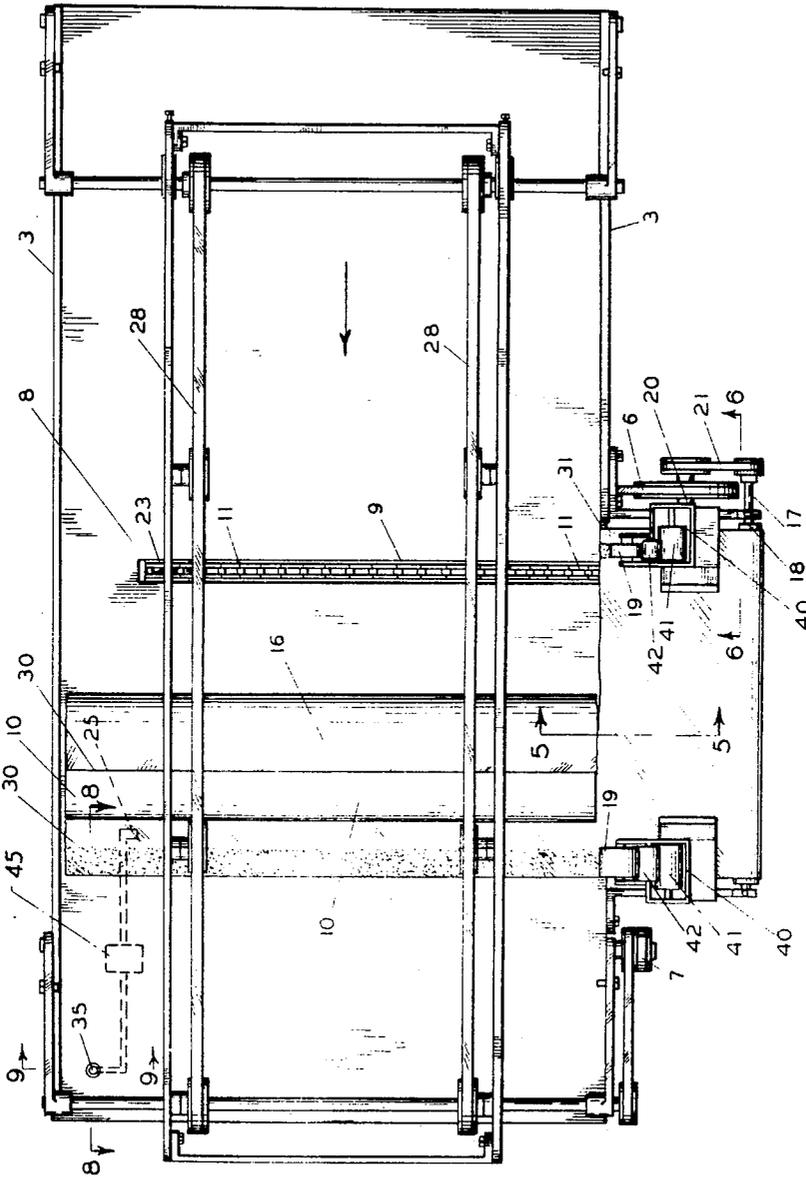


FIG. 1

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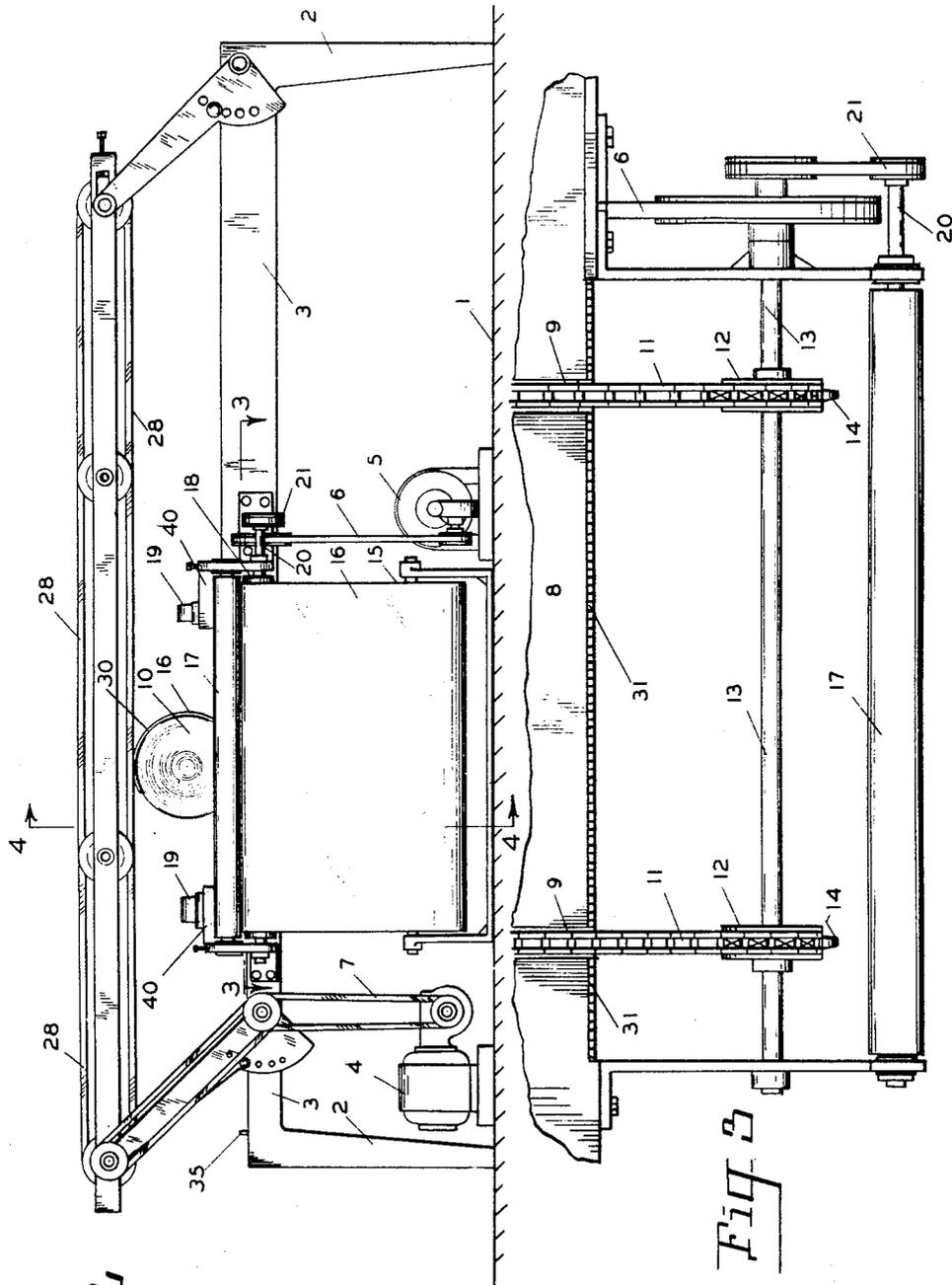


Fig 2

Fig 3

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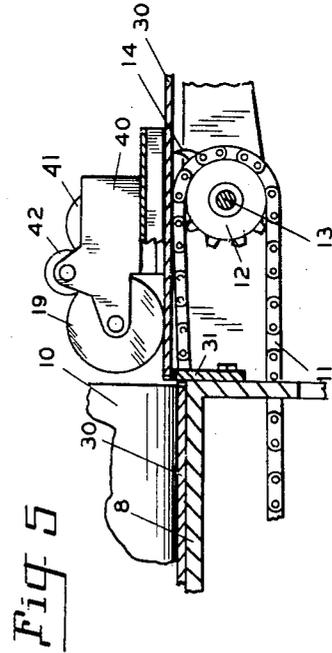
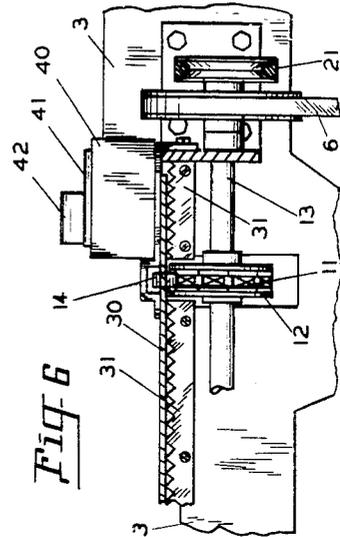
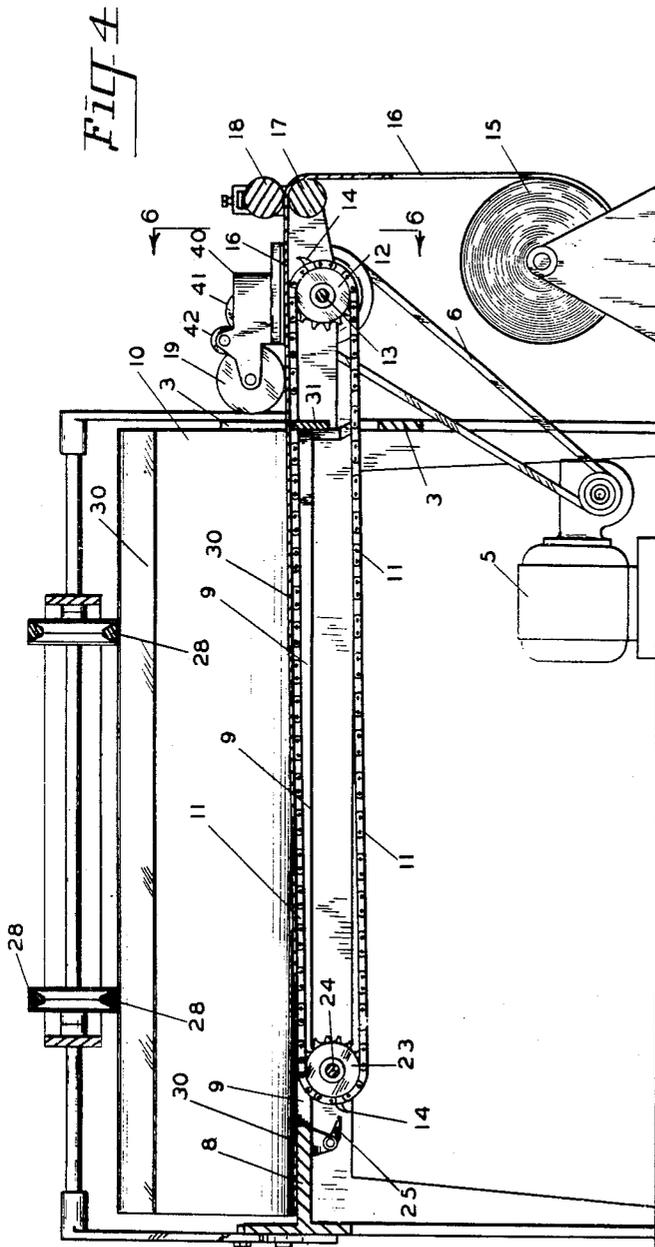
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Fig 7

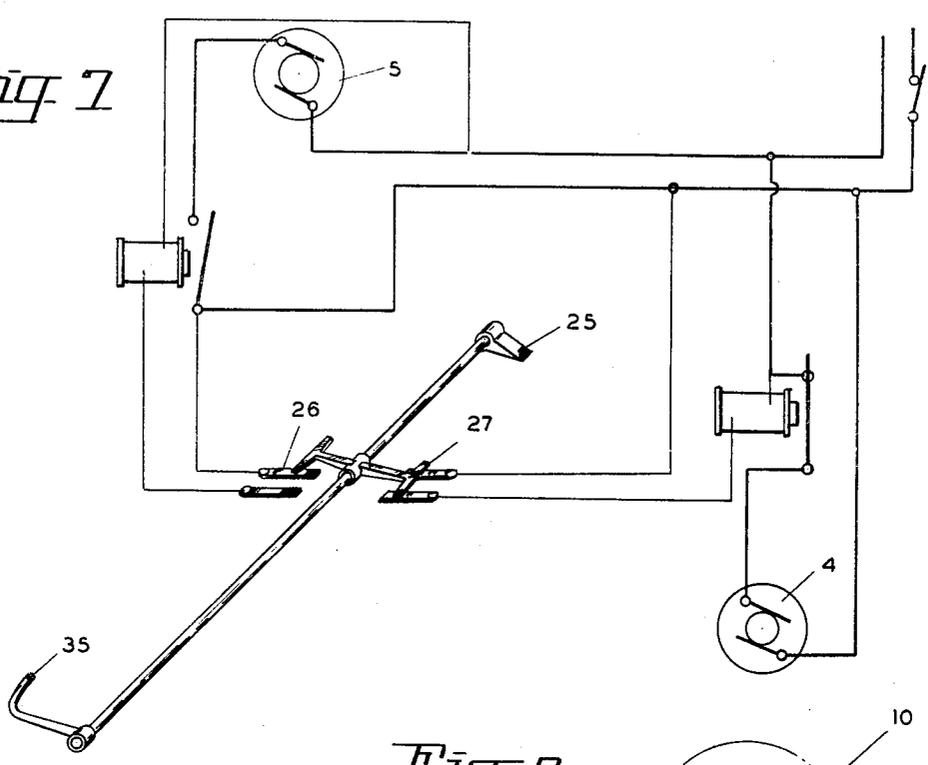


Fig 8

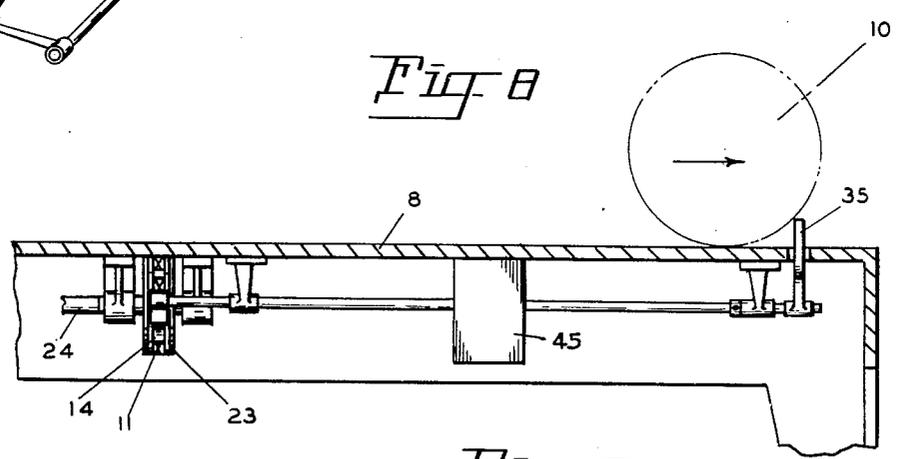
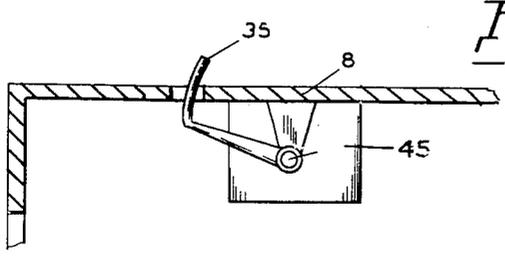


Fig 9



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UNITED STATES PATENT OFFICE

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ROLL WRAPPING MACHINE

Edward M. Costello, Portland, Oreg.

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9 Claims. (Cl. 216—21)

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This invention relates to a machine for wrapping paper covers around rolls of composition roofing, building paper, wrapping paper, or in fact any product where a wrapper will cover a roll of material, the material being more costly than the wrapper, so that soilage accumulated in handling from factory to place of use may be discarded with the wrapper when it is torn off.

It is no new idea to cover rolls after the manner stated but it is an object to substitute machine work and motor power for manual labor to reduce the cost. Another object is to reduce wastage of wrapper paper to a minimum. Other objects that will be apparent to those who are interested in such a machine will be apparent from the following specification and are clearly pointed out in the claims.

Drawings accompany and form a part hereof, in which:

Fig. 1 is a plan view of the invention;

Fig. 2 is a side view of the structure shown in Fig. 1;

Fig. 3 is a plan view taken on the line 3—3 of Fig. 2;

Fig. 4 is a section taken on the plane 4—4, Fig. 2;

Fig. 5 is a side view of the glue distributing setup shown in Fig. 6; and

Fig. 6 is a section taken on the plane 6—6, Fig. 4; and

Fig. 7 is a wiring diagram.

Fig. 8 is a section on line 8—8 of Fig. 1.

Fig. 9 is a section on line 9—9 of Fig. 1.

The operative principle of the machine is to provide a table, over which rolls to be wrapped are made to pass by machine means, in timed relationship to other mechanical means which stretch a wrapper across the table, with wet glue on its upper surface, along an edge, so that the oncoming roll will pick up the wrapper. The wrapper paper is pulled across the table, between passages of rolls, drawing a length of wrapper from a stock roll, which passes over a paper cutting knife spaced from one end of the roll to be wrapped and with its cutting edge above the level of the table, hence the downward thrust of the roll being wrapped severs the length of wrapper, the width of which is sufficient to cover the circumference of the roll being wrapped. The wrapper is carried across the table by a belt, the belt carrying hooks that penetrate the end of the wrapper that will extend beyond the roll being wrapped. This extending of lengths of wrapper transverse to the direction of travel of the roll being wrapped, alternates so that there is a

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wrapper ready for each roll as it arrives at the wrapping point on the table.

Describing the drawings in greater detail: No special foundation being required, a floor 1 represents a base upon which legs 2 rest, to support a generally rectangular frame 3, in horizontal position a convenient distance above the floor. A table portion 8 is supported above and upon the frame 3. A plurality of cross-slots 9, are used as containers for a plurality of belts 11. The belts 11 are illustrated as being chains, but a V belt may be substituted according to choice. The upper reaches of the belts 11 will be not higher than the upper surface of the table 8 and normal to its longest dimension, over which rolls to be wrapped are caused to roll.

Wrapper stock 16 is taken from a roll 15. A free end will first be pulled off and taken up to the cutter knife 31, Fig. 1, and the paper perforated by the paper hooks 14, mounted on the belts 11, and will be timed so that they are opposite each other; that is, that the hooks are in line, though this is not very critical. The paper feed is intermittently operated by the motor 5, driving the belt 6, to revolve the shaft 12, in a counter-clockwise direction.

As the paper is fed forward by the belts 11, the hooks 14 will travel with the belts 11 nearly across the table 8, taking the wrapper with them, finally leaving the wrapper as at the left hand side view in Fig. 1, and by contacting the limit switch lever 25, will stop the wrapper feed.

As the wrapper was pulled from the roll 15 and its free end was passed between the guide rollers 17 and 18, one edge of it was glued with glue taken from the glue pot 40, containing a pick-up roller 41, a roller 42 that takes glue by contact from roller 41, and transfers it to the gluing wheel 19, from whence a part of it is deposited on the wrapper 16.

The rolls to be wrapped are indicated by numeral 10 and one of them is shown in Fig. 1, with the wrapper 16, a small bit more than half way around it.

As a sheet of wrapper 16, is drawn by the hooks 14, to be wrapped around roll 10, it passes over the knife 31, shown in section in Fig. 4 with a serrated edge projecting above the level of the table 8, and in plan in Fig. 3, where its teeth are shown. It will be notched like a handsaw, except that the bevels of the teeth will all be in the same direction, though a sharp knife can be substituted. It should project far enough above the level of the table 8, to act positively as a cutter for the wrapper, the cutting pressure being ap-

plied by the adjacent end of the roll 10, as it passes over and picks up the wrapper, glued and spread in its path.

The end view of the roll 10, is shown in Fig. 2, the spread glue being indicated by numeral 30 in both figures, though only the extreme edge of glue can be seen in either figure as the greater part is holding the wrapper 16 to the roll 10.

A device for feeding the rolls as 10, to be wrapped, will be located at the right hand end of the machine in these two figures, but is not here shown as it is intended to be the subject of another application. It will be remembered that as the hooks 14 completed the job of taking a wrapper across the table 8, one hit the limit switch lever 25, which stopped the wrapper feed mechanism; which it accomplished by opening the switch 26, and at the same time closing switch 27, as shown diagrammatically in Fig. 7. Switch 27, being closed, caused motor 4, to be energized. Motor 4 drives the belt 7, and indirectly drives the traverse belt 28, which, bearing against the top of rolls such as 10, causes them to traverse table 8, pick up the wrapper 16, be encased in it and finally reach limit switch operator 35, stopping traverse belt 28 and starting motor 5, to repeat the cycle indefinitely as long as rolls as 10, are ready for wrapping.

A box 45, in Figs. 1, 8 and 9, indicates a container for the double throw switches 26 and 27. As mentioned hereinbefore, a complete power feed for the wrapper is shown in Fig. 3, but power drive of the shaft 20, by the belt 21, to roller shaft 17, may be omitted if desired. As mentioned, if a V belt or other type is substituted for the chain 11, then sprockets 12 and 13 will be pulleys to suit. The power requirement is small and the chief requirement is that the belt will stand tension.

The glue distributor, a well known apparatus, comprises a pot 40, containing a roller 41, with its lower part submerged in adhesive, an idler roll 42, in frictional contact with 41, and also the spreader roll 43, which is in direct contact with the wrapper to receive glue striping. These rolls may be directly power driven in time with the speed of the paper to be striped with glue or may depend on the drive afforded by frictional contact with the wrapper sheet, which frictional contact is promoted by the adhesive qualities of the glue. "Glue" as used here is meant as a general term, covering a suitable adhesive.

It will be expedient to use motors with brakes controlled by the energizing current in order to gain speed of operation of the machine by quick stops and concurrent start of the opposite half of the sequence in wrapping a roll. Factory equipped motors of this general character can be bought from practically all motor makers. The preferred variety has an extended motor shaft opposite the power drive shaft, a brake drum on the extended shaft, opposite brake shoes and a spring that sets the brakes tightly when no current is being received by the motor. A solenoid that receives energy from the motor operating circuit overcomes the spring and releases the brake so that brake drag is not possible. These are so well known and so many different sorts are available that none have been illustrated. They are described in every standard mechanical and electrical handbook.

Having fully disclosed my invention so that those familiar with the art to which it appertains can make and use it, what I claim as new and desire to secure by Letters Patent, is:

1. A wrapping machine for rolls of roofing or the like, comprising a horizontal table, means for causing rolls laid on the table at one end to roll by intermittent steps lengthwise thereover, means laterally arranged with respect to said table to timely project wrappers across the said table, in the path of each advancing roll, by intermittent steps that alternate with the steps of the rolls, and means for gluing said wrappers as they are projected so that each roll will pick up its wrapper and roll up in it as it passes over said table.

2. The combination as claimed in claim 1 characterized by a knife that is positioned parallel to the path of the rolls and transversely to the axis of projection of the wrappers, said knife being supported in raised cutting edge position so that the roll cuts off its wrapper as it rolls into it.

3. In a wrapping machine for rolls of sheet stock, a wrapper table, a belt means positioned to frictionally revolve rolls over the said table, a wrapper paper supply supported at one side of said table, means operable to draw a roll wrapper from said paper supply, means for putting soft glue on said wrapper as it is drawn and a concurrently operating belt means for stretching said wrapper across the table in the path of a roll to be wrapped, severing means operable to separate the individual wrappers from the paper supply and electrically operated timing means effective to operate the wrapper stretching means and the rolls revolving means alternately.

4. A roll wrapping machine, comprising a table, belt operated means for timing the passage of rolls over said table, means lateral to said table for projecting a wrapper paper across the path of each roll ahead of such roll, means concurrently operating with said projecting means for placing a strip of glue on said wrapper paper, and electrically operated timing means controlled by rolling said roll and projecting said wrapper paper, in sequence that depends for operation on the placement of a wrapper and the subsequent passage of a roll to be wrapped, thereover.

5. In a roll wrapping machine for individually wrapping rolls of merchandise, a table, means for revolving rolls over said table in spaced series, means timed for alternate operation with said roll rolling means for stretching individual glue bearing wrappers in the path of said rolls, said means including a stock of wrapper material, a glue applying means, a belt, wrapper stretching means and a raised edge knife severing means effective to sever each wrapper from said stock by pressure of the roll while it is picking up its wrapper by the glue.

6. The combination as claimed in claim 5 in which the raised edge knife is serrated on its cutting edge.

7. A wrapping machine for rolls of merchandise, comprising a table, means for rolling rolls of merchandise thereover, in time spaced sequence, other means at one side of said table effective to draw wrappers from a stock and thrust them across said table one at a time in time spaced sequence, alternately with the movement of the rolls, said wrapper drawing and thrusting means including means for spreading adhesive lengthwise of said wrapper on its roll contacting surface, a raised wrapper cutting knife over which each wrapper is thrust as a free end from said stock, said knife effective to sever each wrapper as the roll passes close to it in wrapping itself up.

8. A roll wrapping machine comprising a table, means for rolling rolls thereover, in spaced timed

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sequence, means for thrusting glue striped wrappers across said table alternately, ahead of each roll, a raised edge paper cutter over which the wrapper is passed as the free end from a stock of wrapper paper, said paper so spaced with respect to the path of the end of a roll to be wrapped, that bearing of said roll on said paper stock severs each wrapper from stock as the roll passes over it.

9. In a roll wrapping machine, a table, means for rolling rolls to be wrapped in time spaced sequence over said table, means for thrusting a glue striped wrapper across said table in time for a roll to wrap itself up in said wrapper by glue adhering to the roll, said wrapper thrusting means comprising a plurality of belts, slots across the

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table within which the upper reaches of said belts run substantially flush with the top of the table, wrapper engaging hooks in spaced position on said belts, and timing means settable to carry a wrapper across the said table and halt it there until it is picked up by a roll.

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REFERENCES CITED

The following references are of record in the file of this patent:

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