June 24, 1930. G. P. HEPPES 1,765,834

MACHINE FOR MAKING ROOFING

Filed Feb. 21, 1924

Fig. 1.

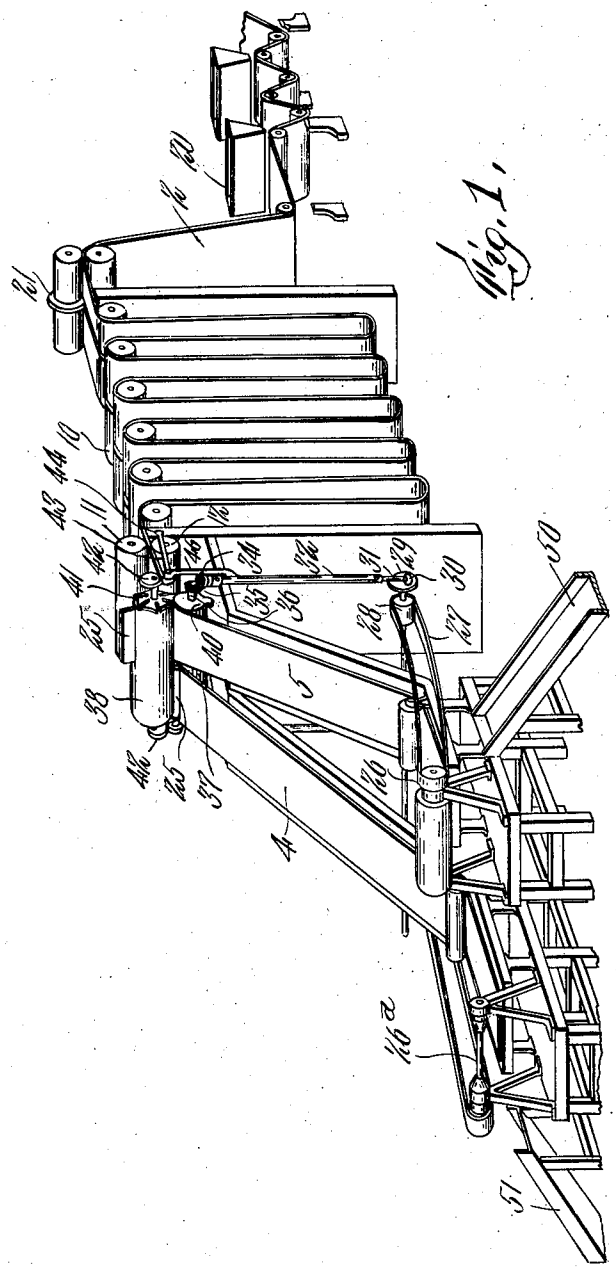
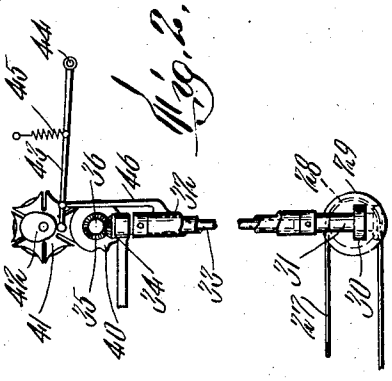


Fig. 2.



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# UNITED STATES PATENT OFFICE

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## MACHINE FOR MAKING ROOFING

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In the manufacture of roofing material such as that commonly composed of rag felt saturated with asphaltic or bituminous materials and suitably coated and finished, the felt commonly comes off the paper machine in either of two standard widths, i. e. 32 inches and 64 inches. As 32 inches is the standard length of the so called strip shingle it may be seen that this strip may be cut to advantage crosswise from sheets of both widths. It is found in practice, however, that when the wide strips are used the production of finished material is not twice as rapid as from the narrow material as might be expected. This is probably due to the greater difficulty of handling the wider material.

In order to increase the facility with which this wide material may be handled, this invention provides a machine wherein the wide material is sli[illegible]o form two narrow portions before the final finishing operations so that each narrow portion may be handled individually. These narrow portions or strips are preferably worked up into the completed product at stations offset from each other in the direction of progress of the material, and the finished material is conveyed away in opposite directions so that neither station interferes with or impedes the best operation of the other. By this means the facility with which the wide material may be handled is materially increased, being almost as great as that with which the narrow sheets may be handled.

Not only is the production of the wide sheet machine materially increased, but, particularly if the slitting of the wide sheet takes place prior to the slating or other surfacing operations, it makes possible the production of two colors of roofing or two different kinds of surfacing in a single machine simultaneously, one color slate or one surfacing material being applied to one of the narrow strips and the other color or surfacing material to the other strip. The product may be further diversified by the employment of different sets of cutters for the two strips or sheets whereby two patterns may be produced simultaneously, for example, strip shingles from one strip and individual or roll goods from the other, or any other desired combination which may utilize the same sheet of felt. This is often of great advantage since an assortment of different kinds of roofing may thus be produced expeditiously, considerable time being lost if it is necessary to change the cutters after short runs when the machine can produce only one kind at a time.

Provision is also made when roll goods are being produced from one or both strips for rolling them up at a more rapid rate than the normal feed of the material through the machine as soon as the material for each roll has been cut off from the sheet. By this means each roll may be completed and removed from the machine and the mandrel on which the material is wound prepared to receive the end of the next length by the time this reaches the mandrel at the normal rate of feed of the material. This renders it unnecessary to stop the feed of the work through the machine in order to remove the finished rolls as would otherwise be required at the completion of a roll from either of the narrow strips.

For a more complete understanding of this invention reference may be had to the accompanying drawings in which

Figure 1 is a similar view illustrating the production of roll roofing from both strips.

Figure 2 is a detail elevation of a portion of the winding mechanism of Figure 1.

In Figure 1 the machine is shown particularly designed for making roll roofing. In this machine the slitting of the wide web 2 is done after the surfacing has been applied, the surfacing hopper being indicated at 20. It might, however, be done before the surfacing, and would be if it is desired to produce roll roofing having two different colors of surfacing material or two different materials for surfacing. As herein indicated, however, the slitting is effected by means of a slitting knife 21, after which the material is passed to the festooning mechanism 10. After the material is sufficiently cold it is passed between the rollers 11 and 12 and then to cutting off mechanism which cuts

the rolls into lengths before they are wound.

In order that the rolls from the two webs may be wound up without interfering with the operation of the machine, provision is made by which, as soon as a length of web sufficient to make one roll has been cut off, this material is wound up rapidly so that it may be removed from the machine and provision made for receiving the end of the next succeeding length by the time it reaches the winding mechanism in its normal speed of progress through the machine. For this purpose a pair of fly knives 25 have been indicated for cutting off the lengths of the split portions 4 and 5 of the original web, these knives being preferably positioned offset from each other so as to be operative on their respective webs alternately to sever the webs of material into the required lengths for rolled goods. At 26 and 26ª are indicated power driven mandrels on which the finished roll goods may be wound, each roll when completed being removed from its respective mandrel and the forward end of the succeeding length presented thereto so that the succeeding length may be wound thereon.

As shown the mandrel 26 is driven by power through a belt 27 from a pulley 28 and fixed to rotate with this pulley 28 is a friction wheel 29. Adjustable radially of the face of this friction wheel is a driving edge friction wheel 30 fixed to rotate with a shaft 31 which is carried at the lower end of a hollow shaft 32. This hollow shaft 32 is longitudinally but nonrotatably slidable on a shaft 33 therein, on the upper end of which is fixed a beveled gear 34. This beveled gear meshes with a similar bevel gear 35 on a shaft 36 of a roller 37 which is formed complemental to a roll 38 which carries the fly knives 25. Fixed to rotate with the roll 37 is a driving member 40 of a Geneva motion, the driven member 41 of which is fixed to rotate with the roll 38. The roll 38 is driven by any suitable source of power in time with the feeding of the web and the driven Geneva wheel 41 is so proportioned relative to the driving wheel 40 that the fly knives 25 are brought into cutting relation after the desired lengths of web have been fed between the rolls 36 and 38.

Fixed to rotate with the opposite ends of the roll 38 are a pair of cams 42, each cam 42 acting at certain times to depress the free end of a lever 43 fulcrumed at 44 to the machine frame and held up against its respective cam 42 by means of a spring 45. The lever 43 has pivoted thereto an arm 46 the lower end of which is fixed to the hollow shaft or sleeve 32. These parts are so related that when the fly knife 25 is caused to sever either of the webs 4 or 5, the corresponding cam 42 acts to permit the lever 43 to rise, thus raising the sleeve 32 and causing the friction wheel 30 to move radially toward the axis of the friction wheel 29. As the friction wheel 30 drives friction wheel 29, this causes the rotation of the wheel 29 to be materially speeded, thus acting through the belt 27 to increase the speed of revolution of the mandrel winding up the respective cut section of the web. The cut section is thus caused to wind up on the mandrel before the advancing end of the uncut material reaches the mandrel so that sufficient time is given for the operator to remove the completed roll from the mandrel and properly present the approaching edge of the uncut sheet thereto by the time it has arrived in position. As soon as this length has then been cut off the rotation of the mandrel is again speeded up so that the cut section is wound and removed from the machine prior to the presentation of the edge next presented. By causing the fly knives 25 to be positioned at different circumferential portions of the roll 38 the cutting and winding of the goods on the two mandrels is alternated so that one man may attend both without difficulty.

In place of the variable speed mechanism hereinbefore described, the winding mandrel might be driven at a constant speed with a peripheral velocity greater than the feed of the material thereto. In this case it would, of course, be necessary to cut off the length to be wound before the beginning of the winding operation. As the roll increases in size also the rate of winding increases correspondingly for the same angular velocity of the mandrel.

Inclined chutes 50 and 51 may be employed to facilitate the removal of the finished material from the machine. While as shown in Figure 1 both webs 4 and 5 are cut to form roll goods, either one of the fly knives might be omitted and a different mechanism substituted for the winding mechanism in order to permit the simultaneous production of roll goods and individual or strip shingles, and of course many other combinations of two types of roofing material might be made as might be desired by following out the general method of procedure above outlined.

Having thus described certain embodiments of this invention it should be evident to those skilled in the art that various other modifications and changes might be made without departing from the spirit or scope of this invention as defined by the appended claim.

I claim:

A machine of the class described comprising means for feeding a continuous web of sheet material, means for slitting the web, means for cutting the slit sections into lengths, means for winding each length into

a roll, and means acting to increase the speed of each winding mechanism after a length to be wound has been cut, whereby said length may be wound and removed before the forward end of the succeeding length shall have reached the winding mechanism.

In testimony whereof I have affixed my signature.

GEORGE P. HEPPES.