

Jan. 6, 1953

A. D. VALIQUET

2,624,166

APPARATUS FOR WRAPPING FLEXIBLE BANDS

Filed Sept. 2, 1949

3 Sheets-Sheet 1

Fig. 1.

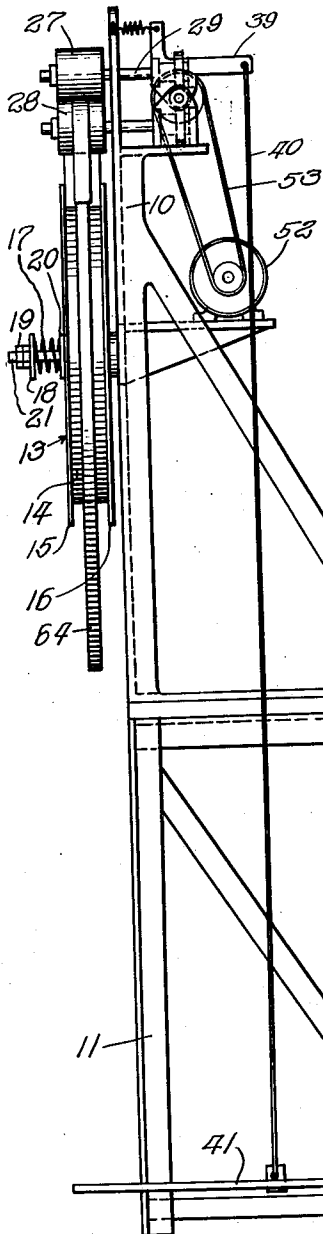
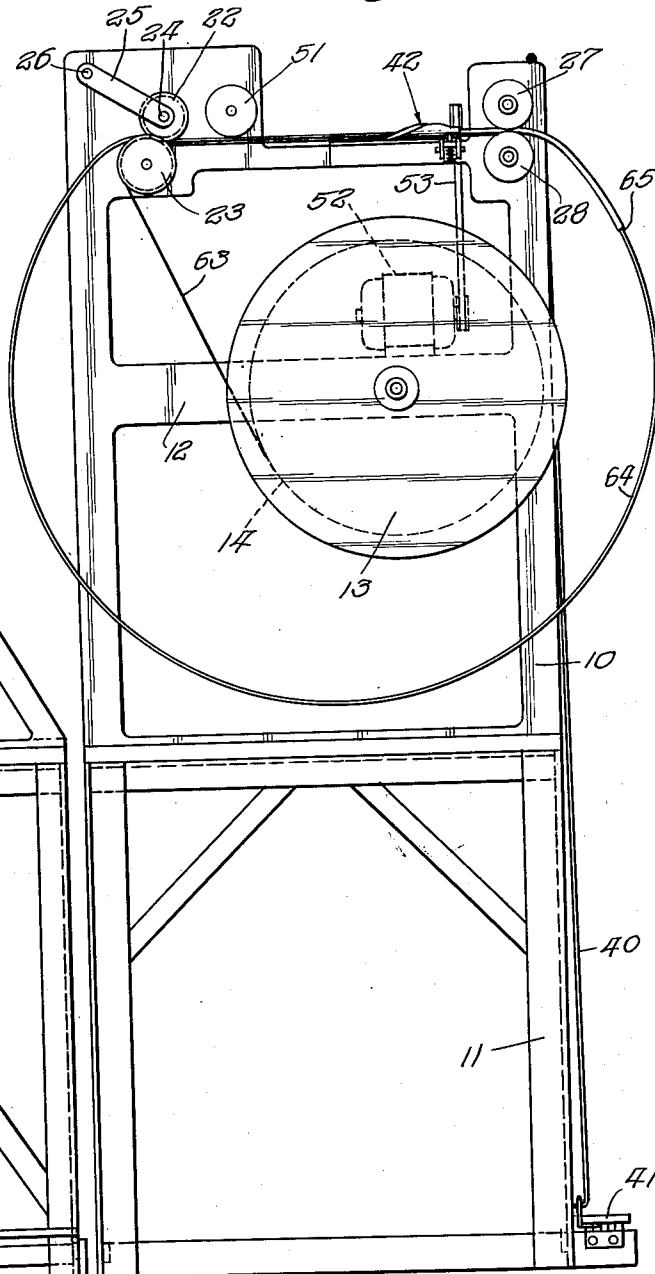


Fig. 2.



Inventor:
Albert D. Valiquet
By Schroeder, Herron,
Hofgren, Brady, Attys.

Jan. 6, 1953

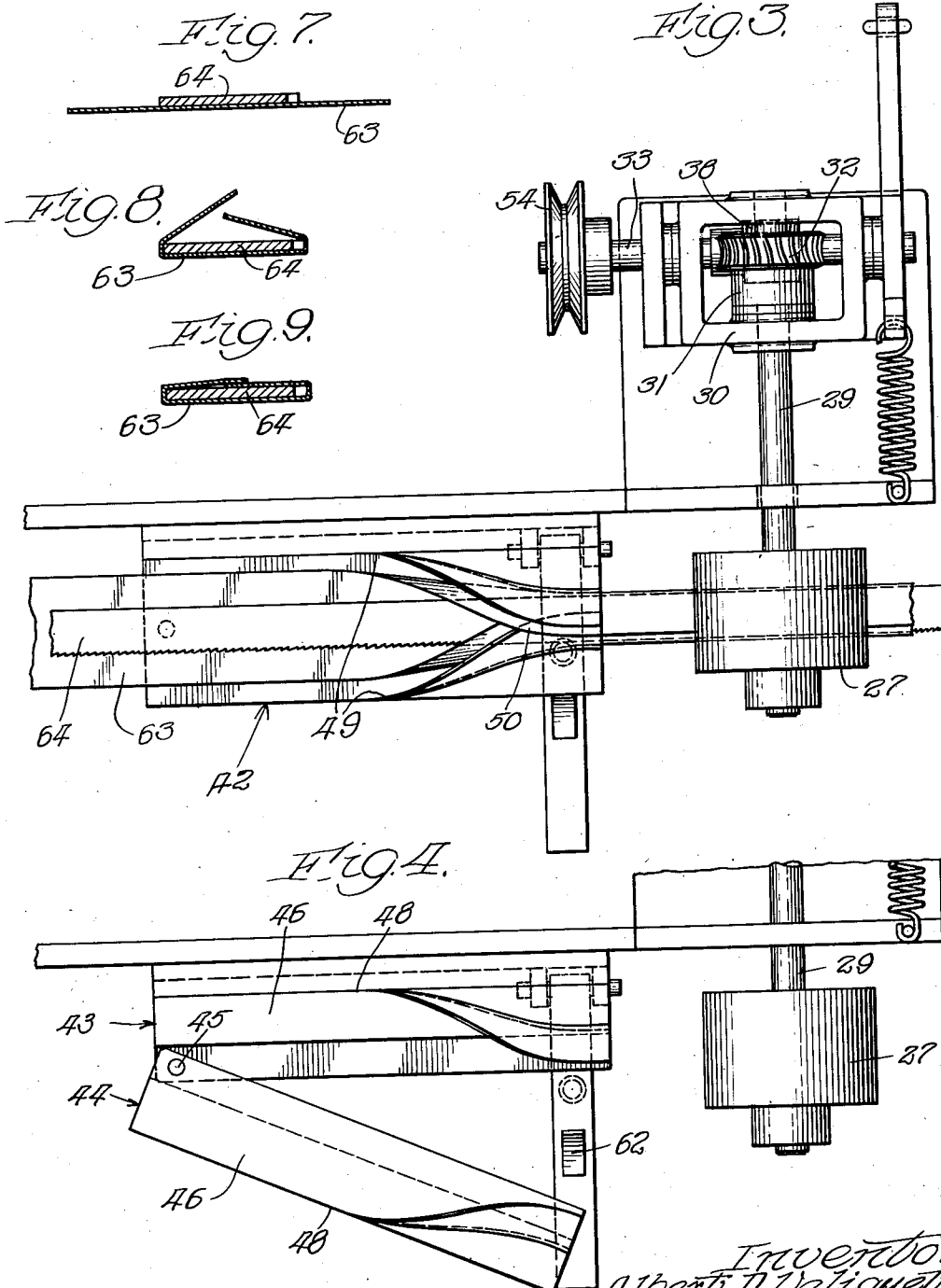
A. D. VALIQUET

2,624,166

APPARATUS FOR WRAPPING FLEXIBLE BANDS

Filed Sept. 2, 1949

3 Sheets-Sheet 2



Inventor:
Albert D. Valiquet,
By Schrader, Merriam,
Hefgen, Brady, & Fitts,

Jan. 6, 1953

A. D. VALIQUET

2,624,166

APPARATUS FOR WRAPPING FLEXIBLE BANDS

3 Sheets-Sheet 3

Filed Sept. 2, 1949

Fig. 5.

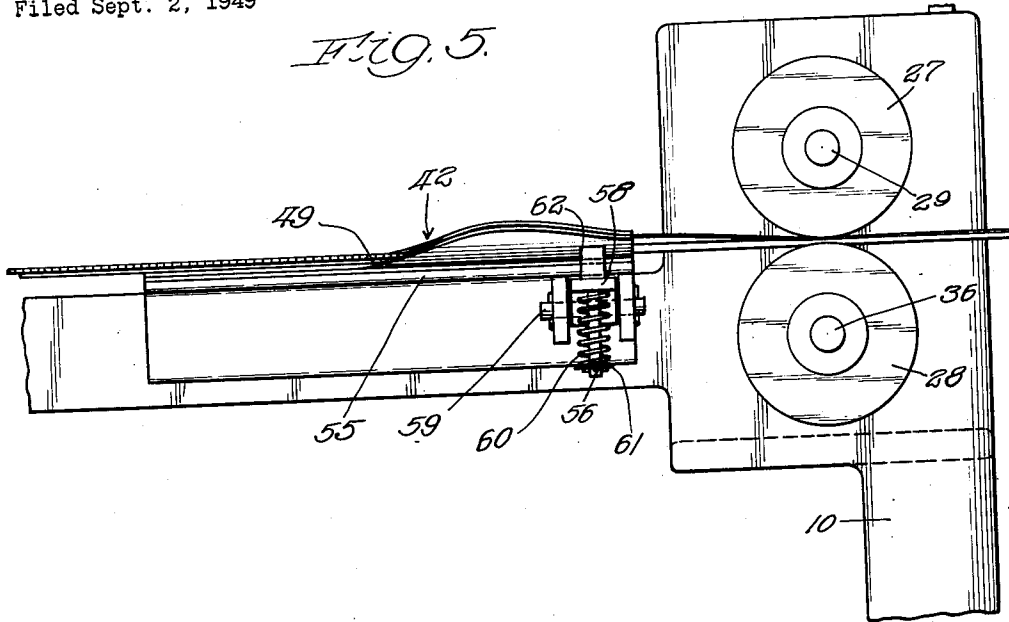
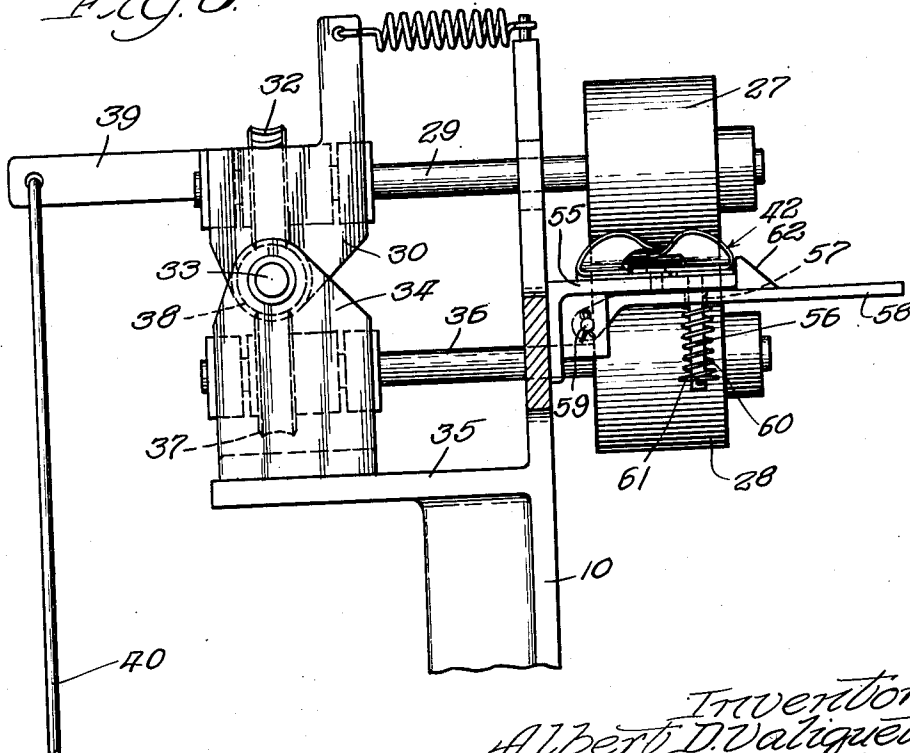


Fig. 6.



Inventor:
Albert D. Valiquet
By Schraeder, Cherram,
Hagman & Brady, Attys.

UNITED STATES PATENT OFFICE

2,624,166

APPARATUS FOR WRAPPING
FLEXIBLE BANDS

Albert D. Valiquet, Chicago, Ill., assignor to Pittsburgh-Erie Saw Corporation, Pittsburgh, Pa., a corporation of Delaware

Application September 2, 1949, Serial No. 113,751

2 Claims. (Cl. 53—105)

1

This invention relates to a machine for wrapping a flexible band and more particularly to a machine for folding a ribbon of wrapping material about an endless flexible band.

While the machine of this invention is adapted to wrap many types of bands, it is particularly adapted to apply a ribbon of protective material, such as wrapping paper, about an endless flexible blade, for example, a band saw blade.

It has been common practice in the past to ship band saw blades unwrapped and coiled. Where a number of coiled blades are shipped in a single container, jostling and vibration during shipment causes the teeth of the blade to become dulled. Even where coiled blades are shipped singly the teeth on portions of the blade become dulled due to the fact that in coiling the back of the blade crosses the teeth. A band saw blade, because of its character, is a difficult object to wrap, and it is quite uneconomical to employ expensive machinery or tedious hand operations to perform the task.

It is the general object of this invention to produce a machine by means of which a ribbon of wrapping material may be quickly and economically applied longitudinally of the blade effectively to cover and protect the teeth thereof. The machine of this invention is capable of so applying a ribbon with a minimum of operating steps and at a high rate of speed.

Other details, objects and advantages of the invention will become apparent as the following description of a present preferred embodiment thereof proceeds.

In the accompanying drawings I have shown a present preferred embodiment of the invention in which

Fig. 1 is a side elevation of the apparatus illustrated;

Fig. 2 is a front elevation of the apparatus of Fig. 1;

Fig. 3 is a top plan view of the right hand portion of Fig. 2;

Fig. 4 is a view like Fig. 3 with the folder in open position;

Fig. 5 is a side elevation of the upper right hand portion of Fig. 2;

Fig. 6 is a sectional view taken from a position 90° from Fig. 5; and

Figs. 7, 8 and 9 are views showing the progres-

2

sive folding of a ribbon of wrapping material about a band saw blade in the operation of the apparatus.

Referring now to the drawings, I show a substantially vertical bed comprising an open framework 10 supported upon a base 11. Rotatably mounted on a crossbar 12 of the framework is a wheel 13 adapted to carry a roll 14 of wrapping material. The wheel 13 is made up of two sides 15 and 16 urged together and against the roll 14 by a spring 17 located between a washer 18 held in position by a nut 19 and a second washer 20 pressing against the side 15. By removing the nut 19 from the shaft 21 to which it is threaded the washers and spring may be removed, thus releasing the side 15 for insertion of the roll of wrapping material.

Rotatably mounted in the upper left hand portion of the bed is a pair of guide rolls 22 and 23. The guide roll 22 is mounted upon a shaft 24 which in turn is mounted upon an arm 25 pivotally connected at 26 to the bed. By this arrangement it is possible to rotate the arm 25 about its point of pivot to lift the roll 22 out of contact with the roll 23.

At the upper right hand portion of the bed there is located a pair of pinch rolls 27 and 28. The upper pinch roll 27 is fixed to a shaft 29 rotatably mounted in a housing 30. An enlarged portion 31 of the shaft 29 is located within the housing and carries a gear 32. The housing 30 is pivotally mounted on a shaft 33 rotatably mounted in a second housing 34 fixed to a platform 35 on the framework 10. A shaft 36 is rotatably mounted in the housing 34 and carries the pinch roll 28 and also carries a second gear 37 mounted thereon and located within the housing 34. Fixed to the shaft 33 is a worm 38 engaging the gears 32 and 37. A motor 52 is connected by a belt 53 to a drive wheel 54 mounted upon the shaft 33 to drive the pinch rolls.

Means are provided for rocking the housing 30 about the shaft 33 to raise the pinch roll 27 out of contact with the roll 28. In the preferred embodiment shown, the means consists of a lever arm 39 connected to and extending rearwardly from the housing 30 and carrying a rod 40 pivotally connected to a foot pedal 41. From an examination of Figs. 1 and 6 it is clear that depressing the foot pedal 41 serves, through the

mechanism just described, to rock the pinch roll 27 upwardly, separating it from the roll 23.

Located between the guide rolls and the pinch rolls is a folder 42 comprising two substantially identical sheet metal portions 43 and 44. The portions 43 and 44 are pivotally connected together at 45 and are each formed as to have an initial flat surface 46. The sides 48 of the portions are curved upwardly to form a channel at 49 and continue to curve upwardly and inwardly until they overlap at 50.

The folder 42 is mounted upon a bracket 55 fixed to the upper portion of the bed. A rod 56 extends downwardly from the bracket through an opening 57 in an arm 58 pivotally connected at 59 to the bracket. A compression spring 60 surrounds the rod 56 and has one end bearing against a washer 61 mounted on the end of the rod and has the other end bearing against the arm 58. A catch 62 is mounted upon the arm 58 and serves to retain the folder portions 43 and 44 in the closed position shown in Fig. 3. By moving the arm 58 downwardly against the tension of the spring 60, the catch 62 is lowered beneath the outer edge of the portion 44 to permit that portion to be swung outwardly about the point 45 to the position shown in Fig. 4.

Located between the folder and the pinch rolls is an intermediate roll 51 rotatably mounted upon the upper left hand portion of the bed.

The operation of my invention when employed for wrapping band saw blades is as follows:

A ribbon 63 of wrapping material is led from the roll 14 over the guide roll 23 through the opened folder 42 and between the pinch rolls 27 and 28 which may be separated by depression of the pedal 41. A band saw blade 64 is then placed in position between the pinch rolls and guide rolls and over the ribbon whereupon the guide roll 22 may be lowered, the folder closed, and the pinch rolls brought together by release of the foot pedal. As can be seen in Fig. 3 the blade 64 overlies the ribbon 63 which is folded thereabout by means of the folder 42. The rolls and the folder constitute the sole means for supporting the blade 64 in a generally vertical closed loop. When the motor 52 is started, the pinch rolls are driven in opposite direction, but with their contacting faces traveling in the same direction to pull the ribbon and blade therethrough. As the blade is moved by the pinch rolls a continuous ribbon of wrapping material is fed from the roll 14 and the edges of the ribbon are folded upwardly and inwardly about the blade as illustrated in Figs. 7, 8, and 9. The ribbon and blade occupy the relationship shown in Fig. 7 in the portion 46 of the folder. After entering the channel portion 49 of the folder the edges of the ribbon are folded inwardly about the blade as shown in Fig. 8 and as the ribbon and blade leave the folder the edges have been folded downwardly to the position illustrated in Fig. 9. After leaving the folder, the ribbon is creased in position by operation of the pinch rolls 27 and 28. As the leading edge 65 of the ribbon is moved clockwise (as shown in Fig. 2) around to the guide rolls, the motor may be halted and the ribbon 63 coming from the roll 14 may be cut. As the motor is restarted, folding will continue until the cut end is reached and thus the blade may be wrapped about its entire circumference.

By arranging my saw-wrapping apparatus in a vertical position I have discovered that not only does the machine occupy considerably less space than is required were it horizontal but in

addition the weight of the blade as it hangs from the rolls involved aid in maintaining the blade in proper alignment for wrapping. A further advantage of the vertical arrangement is the fact that a series of blades may be wrapped, one after the other, with a minimum amount of time being lost in removing a wrapped blade and placing a blade to be wrapped on the machine. Thus, it can be seen that the operator with his right hand may open the folder and grasp the blade, with his left hand grasp the blade to the left of the folder and pivot the roll 22 upwardly while simultaneously depressing the foot pedal 41. Thus, with practically one motion the wrapped blade may be removed. The left hand then feeds a fresh ribbon of material up and over the roll 23 while the right hand picks up a new blade to be wrapped. Both hands may then be employed for placing the new blade over the ribbon of wrapping material, closing the folder and manually starting the initial fold of the ribbon about the blade therein. With this accomplished, starting of the motor 52 will accomplish the wrapping operation on the new blade.

In the actual practice of my invention I have found that the ribbon of wrapping material shows no tendency to separate itself from the blade although by coiling the blade in the usual manner, that is, into three sections, the wrapping seems to be tightened about the blade and to be held thereon more securely. However, in no event is an adhesive of any nature required in order to maintain the wrapping on the blade.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. A machine for folding a ribbon of wrapping material about a flexible band comprising a pair of guide rolls mounted for rotation about substantially horizontal axes and adapted to align a band and a ribbon passing therebetween, a folder having a channel portion adapted to receive the aligned band and ribbon and having progressively incurving sides to fold the edges of the ribbon about the band so as to substantially enclose the band, a pair of pinch rolls mounted for rotation about substantially horizontal axes and having generally flat face portions adapted to crease the folded ribbon and means for driving the pinch rolls to pull the band and ribbon through the guide rolls and folder, said rolls and folder constituting the sole means for supporting the band in a generally vertical closed loop.

2. A machine for folding a ribbon of wrapping material about an endless saw blade comprising a vertical bed, a pair of guide rolls mounted for rotation on the bed about substantially horizontal axes, means for separating the guide rolls to permit insertion of a ribbon and a blade, means for rotatably mounting a roll of said material on the bed, a folder mounted on the bed and having a channel portion and having vertically upstanding and progressively inwardly and downwardly curving sides with one of said sides being movable outwardly to open the folder, a pair of pinch rolls rotatably mounted on the bed about substantially horizontal vertically aligned shafts, said rolls and folder constituting the sole support for the blade, the upper shaft being pivotally connected to the bed, a motor for driving the pinch rolls, a foot

pedal for pivoting the last mentioned shaft to separate the pinch rolls whereby the ribbon may be led from the coil and between the separated pairs of rolls and through the open folder and a blade passed over the ribbon, and whereby the pairs of rolls may be brought together and the folder closed to fold the edges of the ribbon inwardly and downwardly about the entire blade with operation of the motor.

ALBERT D. VALIQUET. 10

REFERENCES CITED

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

Number
516,186
1,545,022
2,276,282
2,362,819
2,435,347
2,440,749
2,458,971

5

Number
327,229

UNITED STATES PATENTS

Name	Date
Crowell -----	Mar. 13, 1894
Wheildon -----	July 7, 1925
Bindszus -----	Mar. 17, 1942
Hinchey -----	Nov. 14, 1944
Gilman -----	Feb. 3, 1948
Klock -----	May 4, 1948
Wilson et al. -----	Jan. 11, 1949

FOREIGN PATENTS

Country	Date
Great Britain -----	Apr. 3, 1930