June 17, 1969 M. VERSTRAETE 3,450,360

MACHINE FOR WINDING UP CHAIN LINK FENCING

Filed Sept. 19, 1966 Sheet 1 of 3

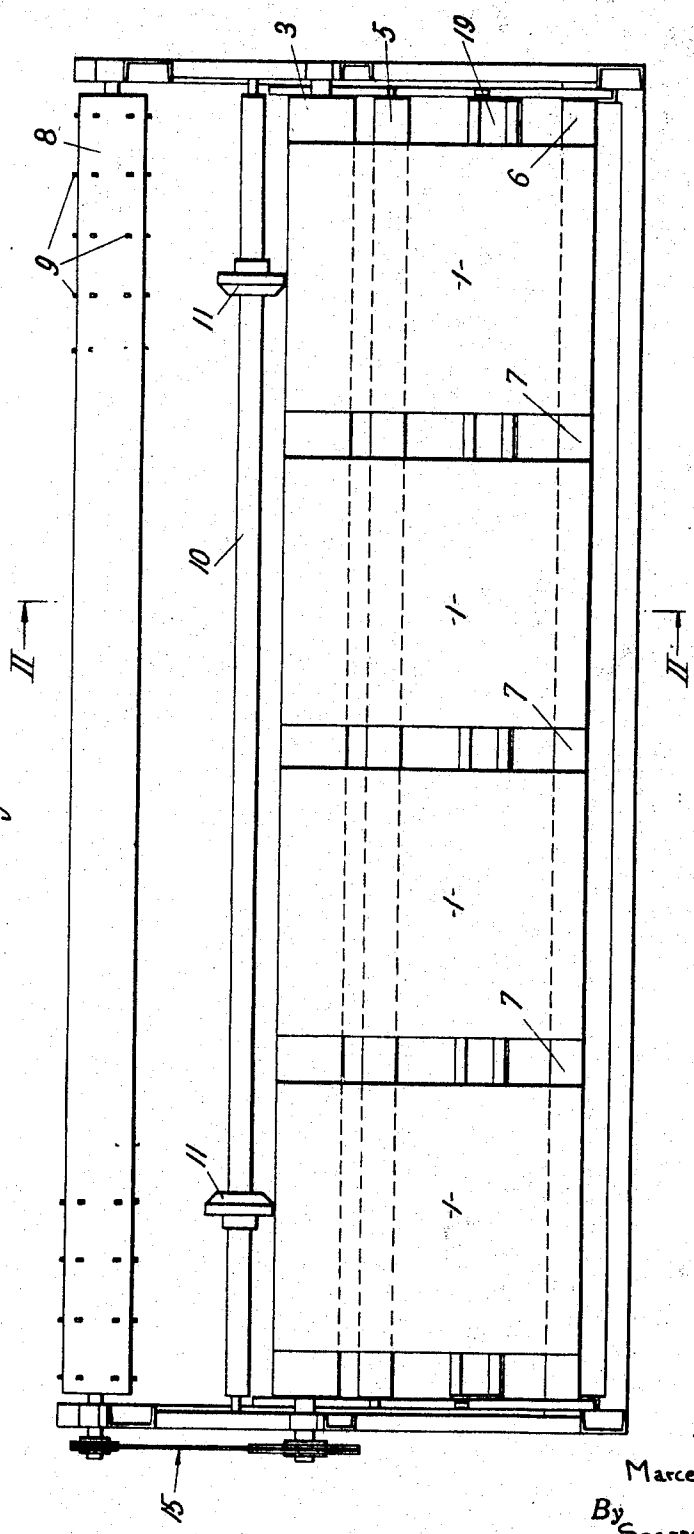

Fig. 1

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Fig 2.

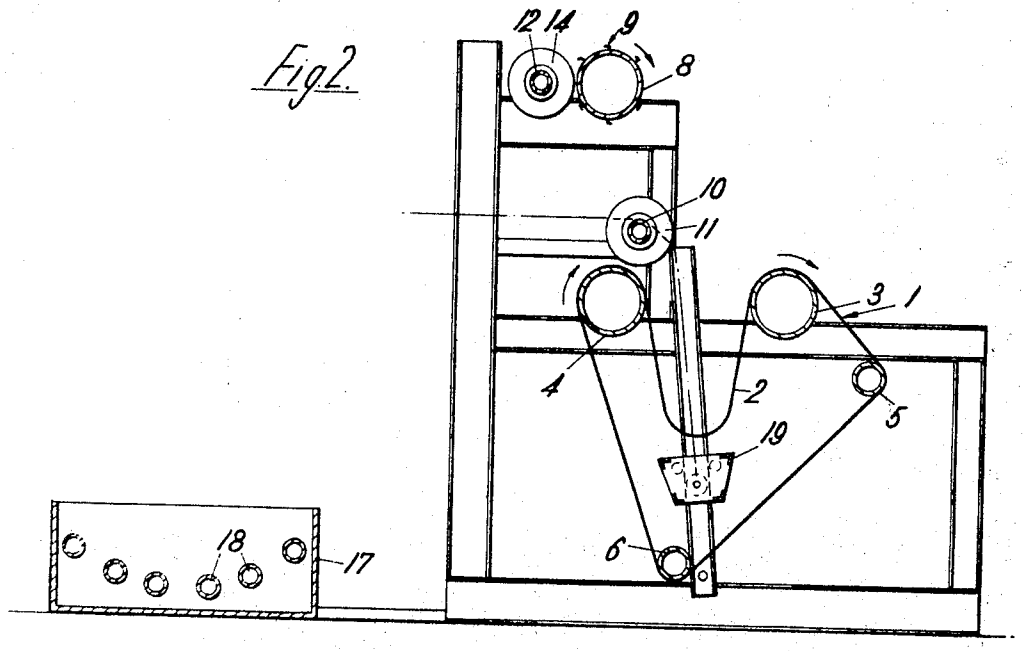

Fig 3.

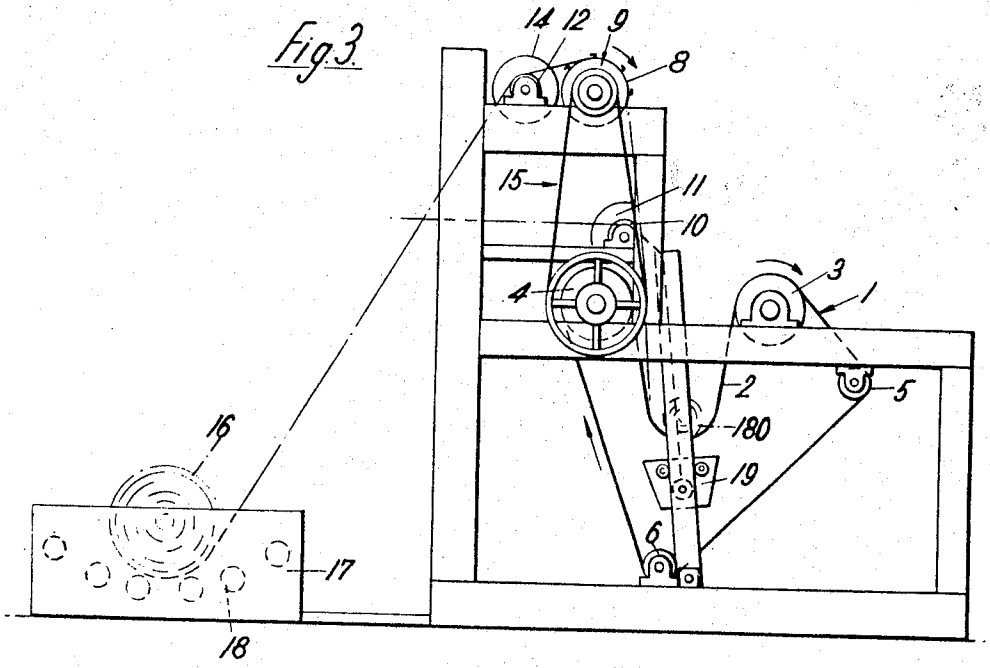

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Fig.4

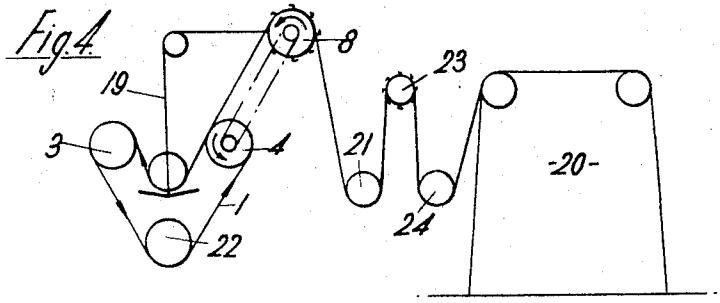


Fig.5.

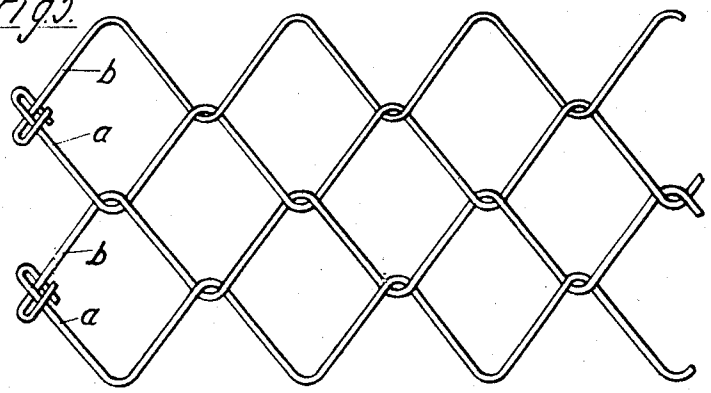


Fig.6.

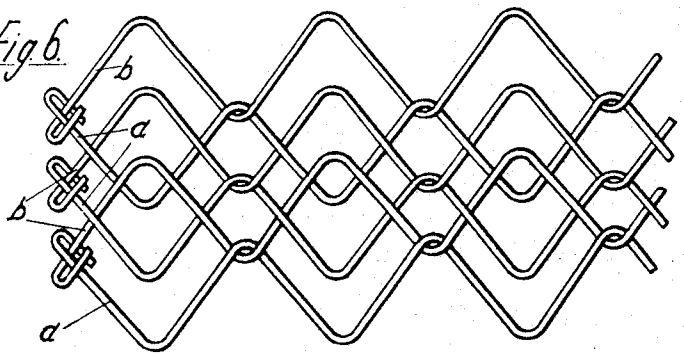
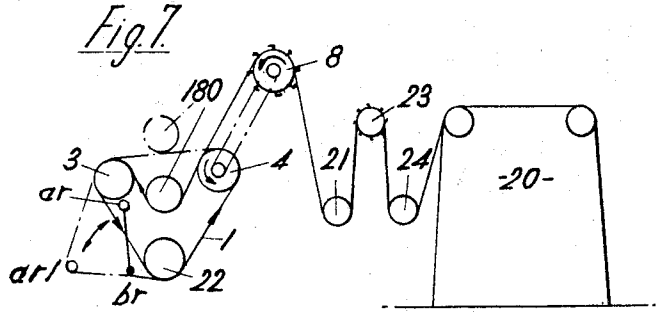


Fig.7.



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3,450,360

MACHINE FOR WINDING UP CHAIN LINK FENCING

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U.S. Cl. 242—55 3 Claims

ABSTRACT OF THE DISCLOSURE

A machine for winding a chain link fencing to a coreless roll. Feeding and roll supporting mechanism for crowding the chain links together during the winding operation for obtaining a condensed roll.

This invention relates to a method of and machine for winding up chain link fencing so as to form it into rolls in which the chain links are compressed in the longitudinal direction so as to condense the roll.

The longitudinal compression above referred to is made possible by the fact that each successive row of links in a chain link fence can be pushed closer to an adjacent row so as to reduce the length of the fencing without increasing its thickness. This compression can be effected by hand manipulation in the process of winding up, but such hand manipulation is difficult and produces imperfect results.

The present invention consists in an improved method of and machine for winding up chain link fencing which compresses the fencing by a simple mechanical action instead of by hand manipulation. This is effected according to the invention by mechanically feeding the fencing onto a travelling support and to controlling the speed of the support in relation to the speed at which the fencing is fed towards the support as to compress the fencing in the longitudinal direction and so wind it up into a condensed roll.

It is an object of the present invention to provide method and means of winding up chain link fencing.

It is a further object of the present invention to provide for winding up chain link fencing by mechanically feeding the fencing onto a travelling support and so controlling the speed of the support in relation to the speed at which the fencing is fed towards the support as to compress the fencing in longitudinal direction and so wind it up into a condensed roll.

A still further object of the present invention is to provide a machine for winding up chain link fencing in which a feed device is arranged to feed the fencing onto a travelling support, the latter being designed to wind up the fencing and being arranged to be driven at a speed so controlled in relation to the speed at which the fencing is fed towards the feed device as to compress the fencing in the longitudinal direction and so cause it to be wound up onto a condensed roll, a further object being to provide a travelling support consisting of an endless band or a number of endless bands mounted side by side and each of which having an upper run extending between front and rear rollers, each band having a considerable amount of slack so that it bangs down between said front and rear rollers.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form part of this specification and illustrate merely by way of example one embodiment of the device of the invention.

In the following description and the claims, parts will

be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawing, in which:

FIG. 1 is a front view of a machine embodying the invention;

FIG. 2 is a section taken on the line II—II of FIG. 1;

FIG. 3 is a side view showing a method of feeding chain link fencing to the machine from a supply roll;

FIG. 4 is a diagrammatic side view drawn to a smaller scale than FIG. 3, looking at the machine from the opposite side and showing a method of feeding chain link fencing to the winding up machine straight from a machine in which the chain link fencing is made;

FIG. 5 is a representation of a portion of chain link fencing in its normal expanded state;

FIG. 6 is a corresponding representation showing the result of compressing the chain link fencing in the longitudinal direction; and

FIG. 7 is a view corresponding to FIG. 4 but showing a modified discharging arrangement.

As shown in FIGS. 1, 2 and 3, the machine comprises a number of endless bands **1** mounted side by side and each having an upper run **2** extending between front and rear supporting rollers **3** and **4**, each band having a considerable amount of slack so that its upper run **2** can sag downwards between the rollers **3** and **4** as shown in FIGS. 2 and 3. The location of roller **3** is adjustable according to the diameter required in the formally compressed roll. Each band passes over the front and rear supporting rollers **3** and **4** and also passes round guide rollers **5** and **6** which keep the return or lower run of the band out of the way of the upper run **2** however far down the upper run sags. Roll **5** is also adjustable to increase or decrease the slack of bands **1** according to the diameter required for the compressed roll. The bands **1** are made of very flexible but inextensible, strong and hard-wearing material such as canvas. It is not necessary to have more than one band **1** if the width of the fencing to be rolled up is not too great. For wider fencing of different widths it is advantageous to have a number of bands which may be of different widths, mounted side by side as shown so as to leave gaps **7** (FIG. 1) at each end of the roll to accommodate guides for controlling the ends of the compressed roll.

As an alternative for accommodating wider fencing the machine may be constructed in a manner such that the bands are readily interchangeable, the chosen band width being that appropriate to the fence width.

A feed roller **8** mounted above the rear supporting roller **4** is provided for feeding the chain link fencing onto the upper runs of the bands **1**. This feed roller is provided with projecting pins or teeth **9** designed to engage the links of the chain link fencing so as to drive it positively as the roller **8** rotates, each pin being bent in the backward direction as shown in FIGS. 2 and 3 so as to facilitate disengagement of the pins as the fencing leaves the roller. A further guide roller **10** is arranged in the path of the fencing as it moves from the feed roller **8** into the trough formed by the upper runs **2** of the endless bands **1**. The roller **10** is provided with collars **11** for guiding the edges of the chain link fencing. The collars **11** are adjustable along the length of the roller **10** so that they can be set to suit the width and number of rolls of chain link. Another guide roller **12** similar to the guide roller **10** and having similar collars **14** is arranged to guide the chain link fencing onto the feed roller **8**.

The front supporting roller **3** and the guide rollers **5**, **6**, **10** and **12** are all freely rotatable, but the feed roller **8** and rear supporting roller **4** are both mechanically driven, the supporting roller **4** being driven at a smaller periph-

eral speed than the feed roller **8** by transmitting the rotation of the feed roller to the supporting roller through a speed-reducing transmission gearing **15**. The speed reduction due to the gearing **15** is chosen so as to obtain a desired degree of longitudinal compression of the fencing without unduly crowding the links together. For normal chain link fencing a speed reduction of somewhat less than 50% is suitable.

The chain link fencing may be supplied to the feed roller **8** from a roll **16** supported on a roller cradle **17** having freely rotatable rollers **18** which allow the roll **16** to rotate freely while supported thereon. The fencing is passed over the guide roller **12** and onto the feed roller **8** which thereupon feeds it towards the upper runs of the bands **1** where they sag downward between the supporting rollers **3** and **4**. On leaving the feed roller **8**, the chain link fencing passes downwards in front of the guide roller **10** and between the collars **11** and is received by the upper runs **2** of the endless bands **1** which automatically wind it into a roll thereon as indicated at **180** in FIG. 3.

When the fencing leaves the feed roller **8** it is in the normal expanded condition depicted in FIG. 5. When it is received by the endless bands **1** it suffers a reduction in speed which compresses it in the direction of its length so that adjacent rows of links *a* and *b* (FIGS. 5 and 6) are pushed together as shown in FIG. 6 and the material is thus condensed. At the same time, it is rolled up by the action of the sagging upper runs of the endless bands **1** which adapt themselves to the increasing diameter of the roll **180** up to a limit which depends upon the capacity of the machine.

To finish the roll, the last layer is stretched to its normal expanded length and tied with wire so that it forms a tight "skin" round the roll. The roll is lifted from the endless bands **1** and discharged from the machine by means of mechanical hoists such as that shown at **19** in FIGS. 1 and 2. Alternatively the roll can be lifted by an overhead pulley block.

Instead of being supplied from a roll **16** as shown in FIGS. 2 and 3, the chain link fencing may be fed direct from a chain link fence-making machine. This is illustrated in FIG. 4 in which the structure shown at **20** represents the chain link fence-making machine and **8** is a feed-roller corresponding to the feed-roller **8** of FIGS. 1, 2 and 3.

The machine **20** incorporates a pin roller **23** which is similar to feed roller **8** and by means of which the fencing is drawn from the machine. The machine also incorporates another roller **24** having an automatic device for causing the starting and stopping of pin roller **23**. To regulate the feeding action of the feed roller **8** in accordance with the rate of operation of the fence-making machine **20**, a tensioning roller **21** is arranged so that it moves under the control of a spring or weight to whatever extent is necessary to take up slack in the length of fencing extending from the delivery end of the machine **20** to the feed roller **8**. The movement of the tensioning roller **21** operates an automatic control mechanism which drives the feed roller **8** intermittently so that it starts to operate whenever the amount of slack taken up reaches a predetermined maximum and to stop the feed roller when the amount of slack falls to a predetermined minimum.

The winding up machine of FIG. 4 is generally similar to that shown in FIGS. 1 to 3 but in most cases has only

one guide roller **22** instead of the two guide rollers **5** and **6** shown in FIGS. 1 to 3. The finished roll of chain link fencing **180** is tied with wire and lifted off the travelling bands **1** by means of hoists **19** or an overhead pulley block in the same way as has been described with reference to FIG. 1.

The machine can be used to wind more than one roll at once for example, by feeding separate rolls onto each band of a multiband type of machine.

FIG. 7 shows an alternative arrangement in which a tensioning roller is arranged so that it can be moved from an inoperative position *ar* to an operative position *ar*1 in which it tensions the bands **1** and thereby lifts the finished roll **180** to a position from which it can easily be rolled onto a truck without any further lifting.

It will be apparent that the modes of application of the improvements as hereinabove described and as illustrated in the accompanying drawings have been given solely by way of non-limitative example and that any and all detail modifications can be made therein without consequently departing either from the scope or the spirit of the invention.

What is claimed is:

1. A machine for winding up chain link fencing comprising a feed device, a travelling support having a sagging upper run, and a reducing gearing having a driving member directly coupled to said feed device and a driven member directly coupled to said travelling support, said feed device being arranged to feed said fencing onto said support, said support being adapted to wind up said fencing and being driven by said reducing gearing at a speed so controlled in relation to the speed at which said fencing is fed towards said device as to compress said fencing in the longitudinal direction by crowding said chain links together and so cause it to be wound up into a condensed roll.

2. A machine according to claim **1**, wherein said travelling support comprises at least one endless band having an upper run extending between front and rear rollers, said band having a considerable amount of slack so that it hangs down between said front and rear rollers.

3. A machine according to claim **1**, wherein said travelling support comprises a plurality of endless bands mounted side by side and each having an upper run extending between front and rear rollers, each of said bands having a sufficient slack so that it hangs down between said front and rear rollers.

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U.S. Cl. X.R.

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