

Aug. 2, 1949.

T. WILSON

2,477,843

BELT WRAPPER

Filed Sept. 12, 1944

5 Sheets-Sheet 1

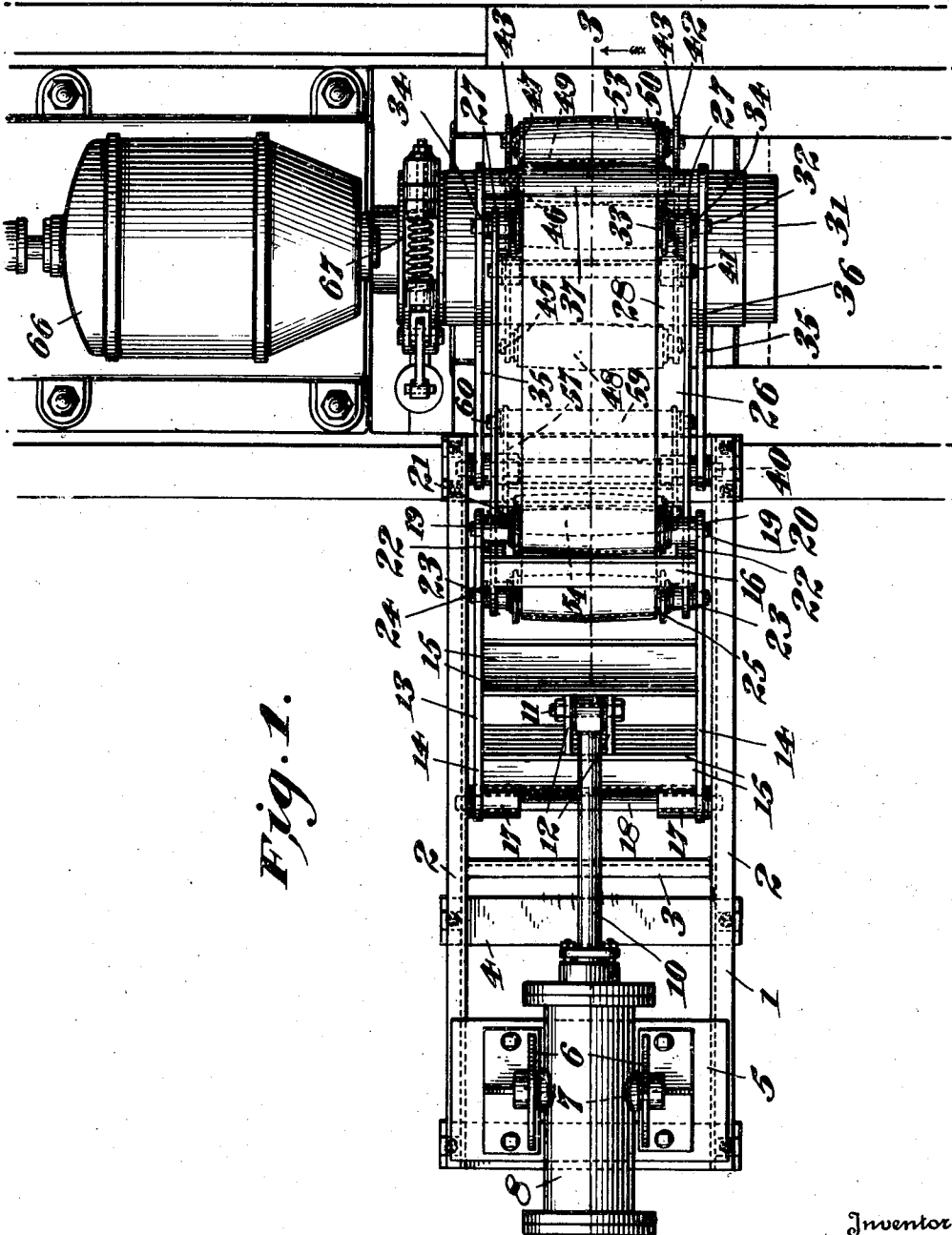


Fig. 1.

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Aug. 2, 1949.

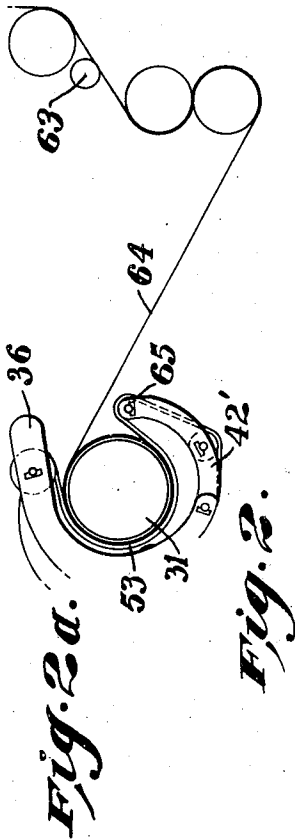
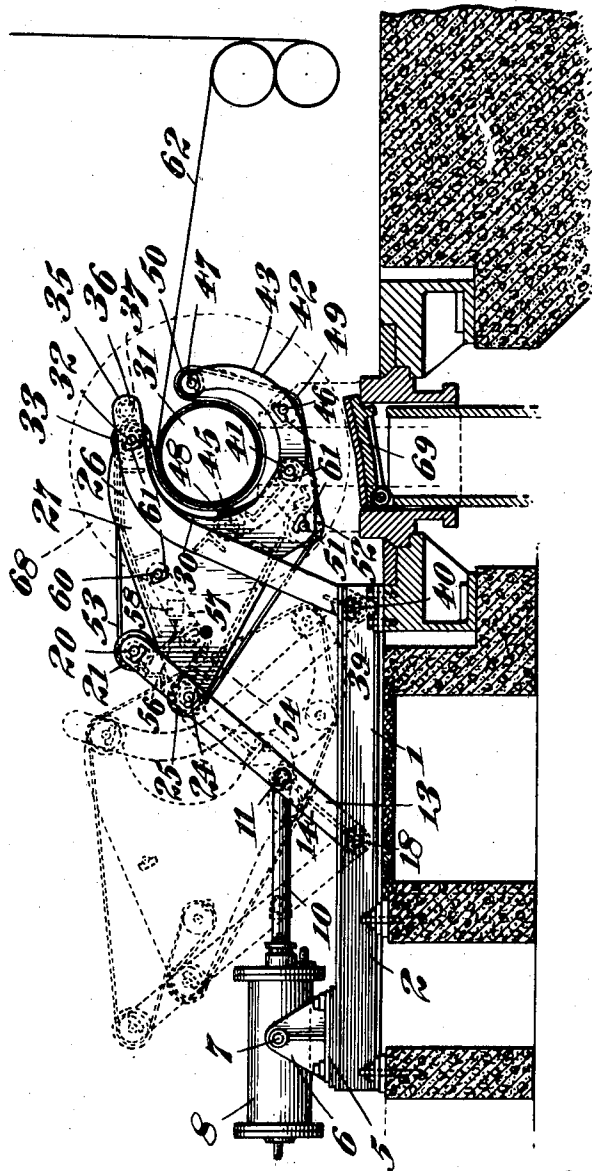
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BELT WRAPPER

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5 Sheets-Sheet 2



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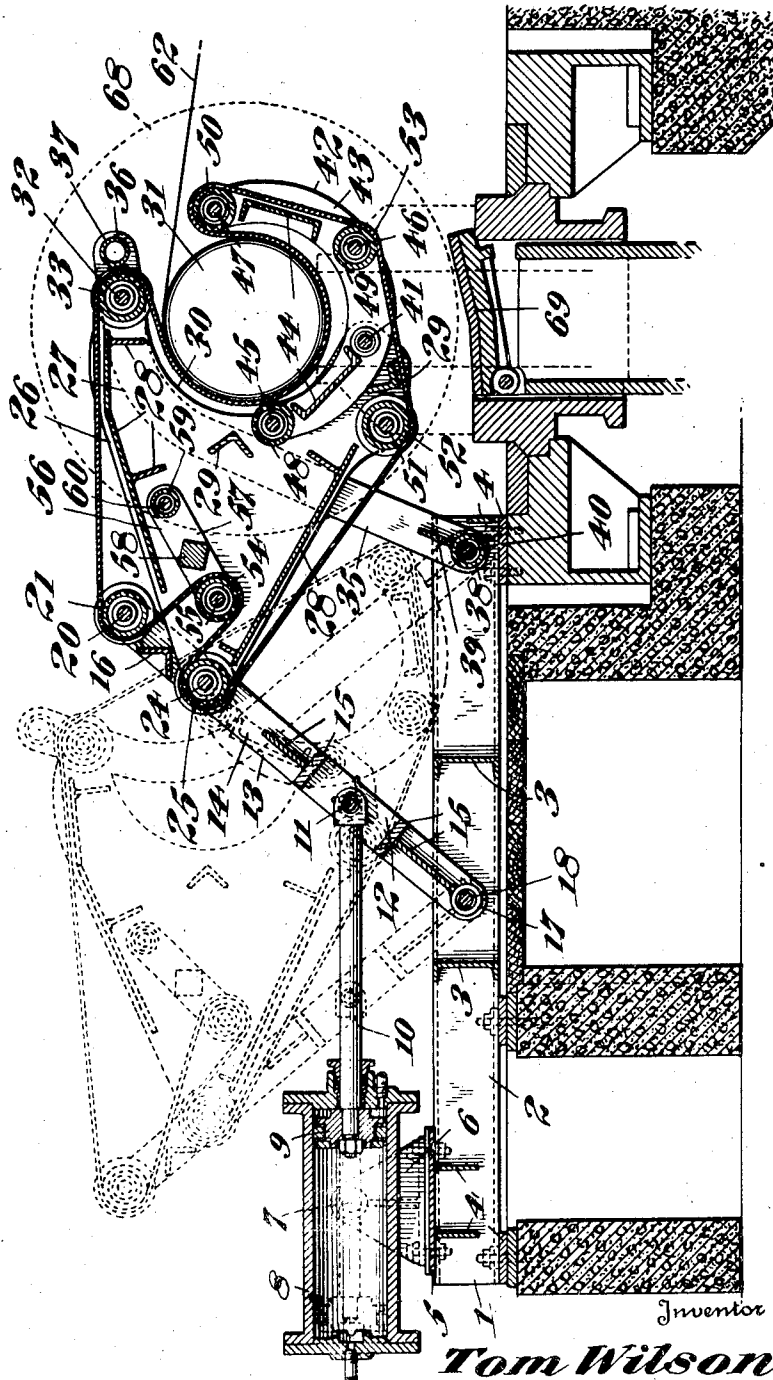
2,477,843

BELT WRAPPER

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5 Sheets-Sheet 3

Fig. 3.



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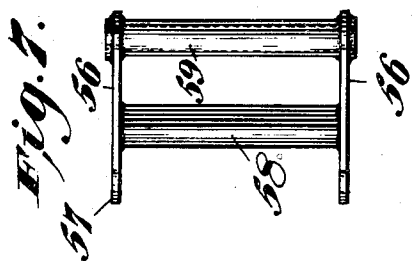
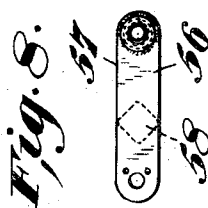
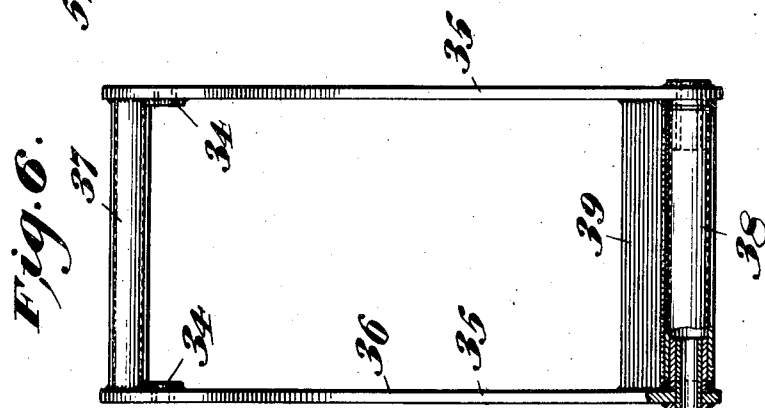
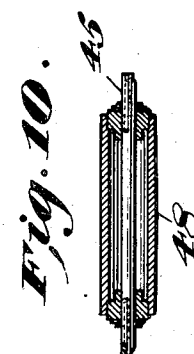
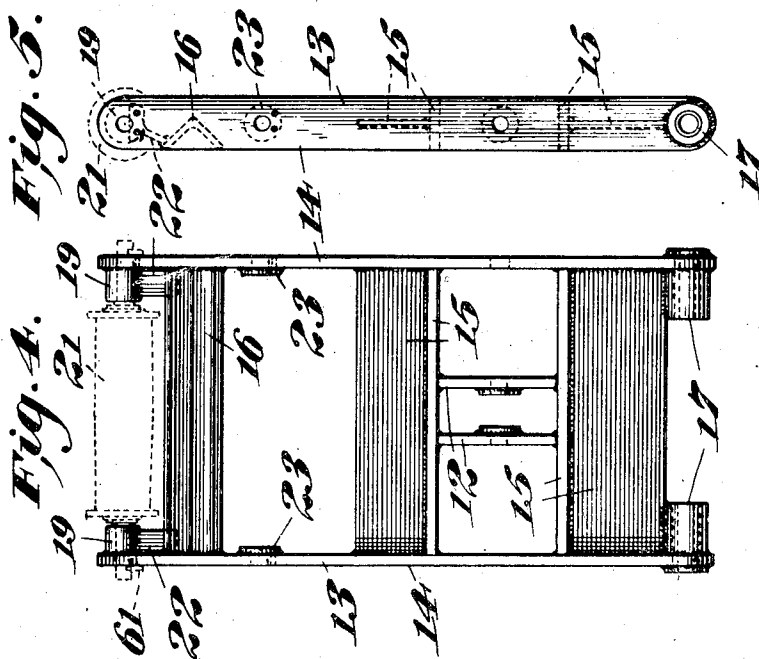
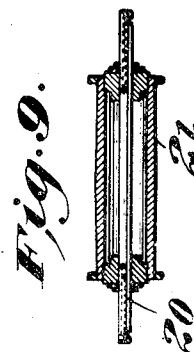
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BELT WRAPPER

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5 Sheets-Sheet 4



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BELT WRAPPER

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5 Sheets-Sheet 5

Fig. 13.

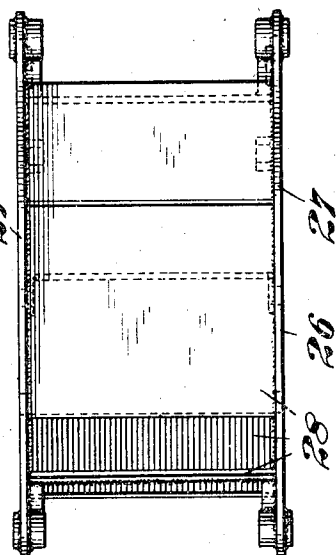


Fig. 12.

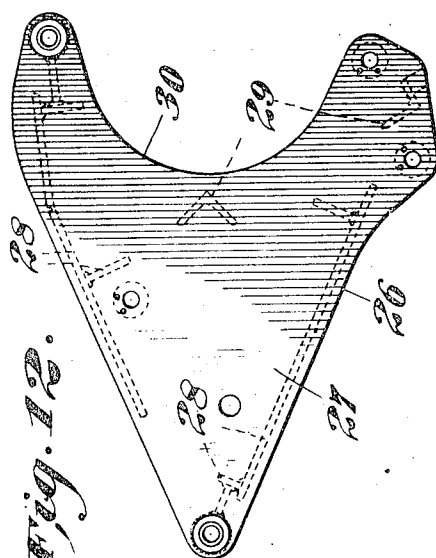


Fig. 16.

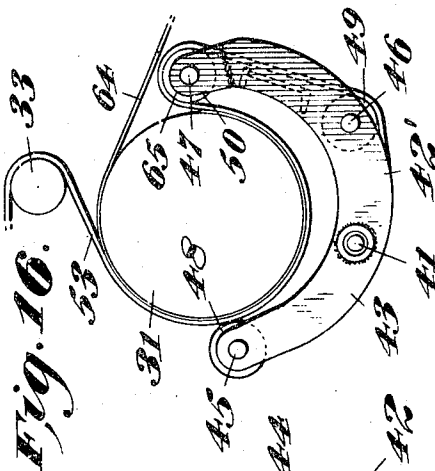


Fig. 15.

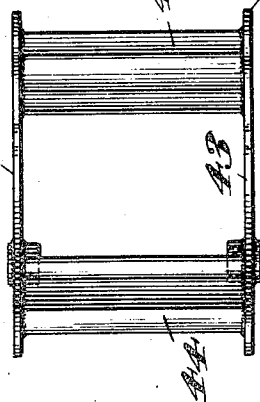
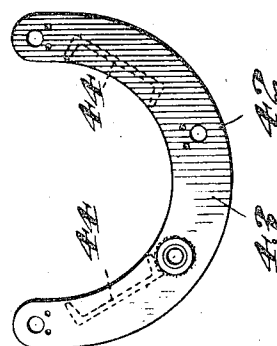


Fig. 14.



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UNITED STATES PATENT OFFICE

2,477,843

BELT WRAPPER

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Application September 12, 1944, Serial No. 553,726

14 Claims. (Cl. 242—78)

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My invention relates to a belt wrapper for strip material for the purpose of intercepting the lead end of oncoming travelling strip material and guiding it around a driven mandrel of a tension reel until the frictional engagement between the mandrel and strip is sufficient to permit the belt wrapper to be withdrawn from the reel during the remainder of the coiling operation, and is more especially adapted for use in forming coils of tin plated strip or the like after a continuous electrolytic tin plating operation.

In electrolytic tin plating units of this kind the operation is continuous, the rear end of a fed coil being welded to the front end of the next coil to be fed through the unit and this unit is usually arranged in the following sequence: a coil of strip mounted on a suitable holder is first fed through a welder which is adapted to weld the ends of the coils together at the proper time, thence over the entry looping tower having its upper rolls vertically movable to allow enough slack or loop in the strip during the welding operation, it then passes into an acid bath in a tank for cleaning the surface of the strip, from which it is advanced into a rinse tank and into the electrolytic bath, again through a rinse tank and between pinch rolls and a delivery looping tower to allow slack or loop in the strip when a finished coil is cut off, then around shifter rolls and finally it is wound on the mandrel of a tension reel which is adapted normally to pull the strip through the unit.

After a full coil has been formed on the mandrel of the tension reel the top rollers of the delivery looping tower are lowered to allow slack in the strip between the tension reel and the delivery looping tower and the strip is cut at this point. The coil is then by suitable mechanism ejected from the tension reel. All of the above-mentioned steps are well known in this art.

The cut end of the strip has been manually inserted and secured in a gripping groove usually associated with reels now in use and in so doing it is necessary that the end of the strip be sheared square to fit in the gripping groove or other fastening device used on the mandrel of the reel. In this manner the mandrel has to be stopped and even with experienced workmen several minutes are consumed before the end of the strip is securely fastened to the mandrel and the reel can be started and driven at commercially desirable speeds.

If the moving strip on the mandrel is not securely held it results in slipping of the coil

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which gives rise to scoring of the surface of the strip.

With my belt wrapper the lead end of the coil is securely held against the mandrel and insures tight first wraps around the same, after which the wrapping device may be backed away from the mandrel and the coil completed.

While my invention is described as applied to the coiling of tin plated strip material issuing from electrolytic tin plating units it is equally applicable to the coiling of strip delivered from a rolling mill or any equipment designed for processing strip material.

One object of my invention is to provide a means for rapidly engaging and disengaging a mandrel of a tension reel whereby the lead end portion of the strip may be held and rapidly and efficiently coiled with the least amount of effort on the part of the operator.

Another object of my invention is to provide a belt wrapper for producing the initial tight wraps around the coiling mandrel of a tension reel to prevent slipping and scoring of the strip being coiled.

A further object of my invention is to provide apparatus which will allow the strip to be immediately wrapped around the mandrel of the tension reel without preliminary shearing of the ends or using a gripping groove or the like usually associated with reels now in use, and without stopping the rotation of the reel so that a very short period of time is required to wrap a sufficient number of turns around a mandrel of the reel to securely hold the strip in winding contact therewith.

Another object of my invention is to provide means for causing the pivoted members of the belt wrapper to swing the belt into position for engaging the mandrel and for positively holding it in this position until the required number of turns of the strip around the mandrel is obtained frictional therewith to permit the belt wrapper to be withdrawn as a unit from the coiling to the non-coiling position.

Still another object of my invention relates to the belt take-up to give the required belt tension.

With these and other objects in view which will become more apparent in the following description and disclosure, this invention comprises the novel construction and combination herein-after described and more particularly pointed out and defined in the appended claims.

Having thus given a general description of the objects of my invention I will now in order to make the same more clear, refer to the annexed

five sheets of drawings forming a part of this specification and in which like characters of reference denote like parts.

Figure 1 is a top plan view of my improved belt wrapper embodying the invention.

Fig. 2 is a side elevation.

Fig. 2a illustrates the angle and manner of threading the strip to the mandrel when a shifter roll is used.

Fig. 3 is a vertical longitudinal section taken on the line 3—3 of Fig. 1.

Fig. 4 is an elevation of the swinging double arm.

Fig. 5 is a side elevation of the swinging double arm.

Fig. 6 is an elevation of the swinging double link.

Fig. 7 is an elevation of the take-up arm for giving the required belt tension.

Fig. 8 is a side elevation of the take-up arm.

Fig. 9 is a longitudinal section of one of the rollers having end flanges.

Fig. 10 is a longitudinal section of one of the rollers without end flanges.

Fig. 11 is a detail of one of the keeper plates.

Fig. 12 is a side elevation of the pivoted housing member detached.

Fig. 13 is a top plan view of the pivoted housing member shown in Fig. 12.

Fig. 14 is a top plan view of the crescent shaped arm which is adapted to be pivoted to the housing member.

Fig. 15 is a top plan view of the crescent shaped arm shown in Fig. 14, and

Fig. 16 is a modified form of a crescent shaped arm used with a shifter roll with an alternate threading.

Referring now to the various characters of reference on the drawings, the numeral 1 indicates the base frame of rectangular shape upon which the belt wrapper is mounted having longitudinally extending channel shaped side members 2 which are connected transversely by channels 3 and plate members 4. Mounted on top and connecting the channel shaped side members 2 at one end is a platform 5 upon which is mounted centrally spaced pedestal supports 6 having journal bearings for receiving trunnion extensions 7, of an air cylinder 8 having a piston 9, with a piston rod 10, the outer end of which is pivoted at 11 to a pair of webs 12 of a double arm 13. The double arm 13 has side plate members 14 which are connected together at the lower portions by means of transversely extending web plate members 15 and near the top by an angle 16. The side plate members 14 each have a bearing 17 secured to its lower end for receiving a shaft 18 having its ends extending through and supported in the channel shaped side members 2. A bearing 19 is secured to the upper end of each side plate member 14 for supporting the end portions of a shaft 20 on which is mounted a roller 21. Each bearing 19 is further reinforced by means of stiffening plates 22 which are welded thereto and the side plates 14 and the angle 16.

Just below the angle 16 a bearing 23 is formed on each side plate 14 adapted to receive and support the ends of a shaft 24 having a roller 25 mounted thereon. This shaft 24 is also adapted to support the rear end of a pivoted housing 26 having side plates 27 connected together by means of transversely extending web plates 28 and angles 29. The forward end of each of the side plates 27 of the pivoted housing 26 have an arc shaped recess 30 formed therein which is con-

centric with the mandrel 31 and is adapted to partially surround said mandrel 31 when the belt wrapper is in its forward position.

The upper forward end of the housing is supported by means of a shaft 32 having a roller 33 mounted thereon. Said shaft 32 has its ends mounted in bearings 34 near the upper offset ends of the side bars 35 of a double link 36 which are connected together at their upper and lower ends by tubular members 37 and 38 respectively, and the lower portion of the side bars 35 are further connected by means of a web plate 39.

A bearing is secured to the lower end of each side bar 35 for receiving a shaft 40 which has its end supported in the webs of the channel shaped side members 2 of the base frame 1.

A shaft 41 is supported in bearings in the lower forward ends of the side plates 27 and is adapted to support a crescent shaped arm 42 having spaced side members 43 connected together by means of channels 44 and shafts 45, 46 and 47 upon which are mounted rollers 48, 49 and 50 respectively. The lower forward end portions of the side plates 27 are also connected by means of a shaft 51 for supporting a roller 52.

The rollers 21, 24, 48, 49, 50 and 52 are preferably slightly crowned as indicated and carry an endless belt 53 that is held taut at all times by means of a roller 54 mounted on a shaft 55 supported in the swinging end of the side bars 56 of a take-up arm 57 which is weighted as at 58 to produce tension on the belt. The opposite ends of said side bars are connected together by means of a tubular member 59 and are pivoted on a shaft 60 having its ends supported in the side plates 27 of the pivoted housing 26.

I prefer to make the rollers 21, 24, 33 and 52 with flanged ends and the rollers 48, 49 and 50 which are carried by the crescent shaped arm without flanges but they may all have flanged ends if desired.

As indicated in the drawings all the ends of the shafts for the rollers and pivoted arms are provided with keepers 61 to hold the shafts in a fixed position.

In Figs. 2 and 2a I have indicated threading the strip to the mandrel of the reel at two different angles. The usual angle is shown in full lines as at 62 in Fig. 2, and an alternate threading when a shifter roll 63 is used is indicated at 64 in Fig. 2a, in which case the outer end 65 of the crescent shaped arm 42 has to be shorter as more clearly illustrated in Fig. 16 of the drawings.

The mandrel 31 is a well known collapsible type and is rotated by means of a motor 66 having a brake mounted on the reel drum as at 67. The mandrel expands when the reel shaft is rotating in the coiling or winding up direction. To collapse the mandrel, the brake is applied to the reel drum, and the reel shaft is reversed. The coil 68 can then be removed from the mandrel and be supported on the cradle 69 and then transferred to any desired point.

Having thus given a detailed description of my invention I will now describe briefly its operation. Assuming that the parts are in the position shown in dotted lines in Figs. 2 and 3 with the mandrel 31 expanded and revolving slowly, the belt wrapper is then moved forward as a unit by means of the air cylinder 8 and connections from the non-operative to the reeling position as shown in full lines on the drawings. When the top roller 48 and endless belt 53 at one end of the crescent shaped arm 42 contacts the mandrel it causes the lower roller 50 at the other end of

the arm to swing upward and hold the endless belt 53 around the bottom half of the mandrel and by means of the roller 33 around the back portion of the mandrel in position to receive the strip. The end of the strip is then entered manually between the underside of the endless belt 53 and the top of the mandrel. After a few wraps sufficient to grip the strip on the mandrel, the belt wrapper must be moved back again as a unit to the non-operative position as indicated in dotted lines and the coil 68 completed.

Although I have shown and described my invention in considerable detail, I do not wish it to be limited to the exact construction shown and described, but may use such substitutions, modifications or equivalents thereof, as are embraced within the scope of my invention, or as pointed out in the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine for coiling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a base frame, a housing pivotally connected for swinging movement above the base frame having spaced vertical side plates, a double arm pivoted to the base frame and the rear end of the housing for supporting the rear end of the housing for swinging movement, a double link pivoted to the base frame and the forward end of the housing for supporting the forward end of the housing for swinging movement, a plurality of rollers mounted for swinging movement with the housing, an endless belt carried by the rollers, a weighted take-up arm pivoted at one end to the housing having a roller mounted for swinging movement at the opposite end for engaging the endless belt for maintaining the belt taut at all times with relation to the rollers, and fluid pressure actuated means pivotally connected to the double arm for swinging the housing and belt horizontally to and from cooperative relation to the mandrel.

2. A machine for coiling strip on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a base frame, a housing having spaced vertical side plates pivotally connected for swinging movement above the base frame, an arc shaped recess formed in the forward end of each vertical side plate of the housing for receiving the mandrel when the housing is moved into strip guiding position, a double arm pivoted at its lower end to the base frame and at its intermediate portion to the rear end of the housing for supporting the rear end of the housing for swinging movement, a double link pivoted at its lower end to the base frame and its upper portion to the upper forward end of the housing for supporting the forward end of the housing for swinging movement, a crescent shaped arm having spaced side members pivoted at an intermediate point to the lower forward end of the spaced vertical side plates of the housing, rollers mounted in the front and rear ends of the crescent shaped arm, a plurality of rollers mounted for swinging movement with the housing, an endless belt carried by the rollers mounted in the housing and the crescent shaped arm, a weighted take-up arm pivoted at one end to the housing having a roller mounted for swinging movement at the opposite end for engaging the endless belt for maintaining the belt taut at all times in contact with the rollers, means for engaging said rear roller of the crescent shaped arm to raise the roller and belt at the opposite end

of the crescent shaped arm for the belt to partially encircle the mandrel, and fluid pressure actuated means pivotally connected to the double arm for swinging the housing and belt laterally to and from cooperative relation to the mandrel.

3. A machine for coiling strip or the like, a belt wrapper adapted to cooperate with a mandrel to form a guide for the strip, comprising a housing pivotally mounted for swinging movement, a plurality of rollers carried by the housing, a crescent shaped arm pivoted centrally to the lower forward end of the housing, rollers mounted in each end of the crescent shaped arm, an endless belt mounted on the rollers carried by the housing and the crescent shaped arm, means for maintaining the belt taut at all times in contact with the rollers and adapted to swing the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, and means for engaging said rear roller of the crescent shaped arm to raise the roller and belt at the opposite end of the crescent shaped arm for the belt to partially encircle the mandrel.

4. A machine for coiling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with said mandrel to form a guide for the strip, comprising a base frame, a housing pivotally mounted above the base frame, a plurality of rollers carried by the housing, a crescent shaped arm pivoted centrally to the housing, rollers mounted in each end of the crescent shaped arm, an endless belt mounted on the rollers carried by the housing and the crescent shaped arm, means for swinging the housing and belt to and from cooperative relation to the mandrel, means for swinging the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, said roller at the rear end of the crescent shaped arm engaging the mandrel to raise the roller and belt at the opposite end of the crescent shaped arm for the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel.

5. A machine for coiling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with said mandrel to form a guide for the strip, comprising a base frame, a housing having spaced vertical side plates joined together by interconnecting cross members, pivotal connections between the base frame and the housing, means for moving said housing toward and away from the mandrel, a recess formed in the front end of each side plate of the housing adjacent to the mandrel adapted to receive the mandrel when the housing is moved into strip guiding position, a crescent shaped arm pivoted at an intermediate point to the lower portions of the front ends of the side plates of the housing adjacent to the recesses, rollers mounted in the front and rear ends and at an intermediate point of the crescent shaped arm, a plurality of rollers rotatably mounted in the housing and movable therewith, an endless belt carried by the rollers, means for swinging the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, said roller at the rear end of the crescent shaped arm adapted to engage the belt when actuated by the mandrel to raise the roller and belt at the front end of the crescent shaped arm for the belt to partially encircle the mandrel when the belt wrapper is moved forward into strip guiding position, and means for maintaining a constant tension on the belt.

6. A machine for coiling strip or the like on a

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mandrel of a reel, a belt wrapper adapted to cooperate therewith, comprising a base frame, a housing pivotally connected to the base frame for swinging movement having spaced vertical side plates joined together by interconnecting cross members, a plurality of rollers mounted on and movable with the housing, a crescent shaped arm pivoted at an intermediate point to the housing, rollers mounted on the inner and outer ends of the crescent shaped arm, an endless belt carried by the rollers, means for swinging the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, said roller at the rear end of the crescent shaped arm adapted to be actuated by the mandrel to raise the roller and belt at the opposite end of the crescent shaped arm for the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel, and means for swinging the belt wrapper to and from cooperative relation to said mandrel.

7. A machine for starting the coiling of strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a base frame, a housing pivotally connected to the base frame for swinging movement having spaced vertical side plates joined together by interconnecting cross members, a plurality of rollers mounted between the vertical side plates and movable with the housing, a crescent shaped arm pivoted at an intermediate point to the vertical side plates of the housing, rollers mounted on the inner and outer ends of the crescent shaped arm, an endless belt carried by the rollers actuated by contact with the mandrel, for engaging the outer roller for raising the inner end of the crescent shaped arm when the belt wrapper is withdrawn from cooperative relation to the mandrel and for engaging the inner roller to raise the roller on the outer end of the crescent shaped arm to cause the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel, and means for swinging the belt wrapper to and from cooperative relation to said mandrel.

8. A machine for starting the coiling of strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate therewith, comprising a base frame, a housing pivotally connected to the base frame adapted for swinging movement having spaced vertical side plates joined together by interconnecting cross members, a plurality of rollers mounted between the vertical side plates and movable with the housing, a crescent shaped arm pivoted at an intermediate point to the vertical side plates of the housing, rollers mounted on the inner and outer ends of the crescent shaped arm, an endless belt carried by the rollers, means engaging the belt to maintain said belt taut at all times in relation to the rollers and adapted to raise the inner end of the crescent shaped arm when the belt wrapper is withdrawn from cooperative relation to the mandrel, said inner roller actuated by the mandrel to raise the roller on the outer end of the crescent shaped arm to cause the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel, and means for swinging the belt wrapper to and from cooperative relation to said mandrel.

9. A machine for initially starting the coiling of strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate therewith, comprising a base frame, a housing pivotally connected to the base frame and adapted for swing-

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ing movement having spaced vertical side plates joined together by interconnecting cross members, a plurality of rollers mounted between the vertical side plates and movable with the housing, a crescent shaped arm pivoted at an intermediate point to the housing between the side plates, rollers mounted at each end and at an intermediate point of the crescent shaped arm, an endless belt carried by said rollers having a portion between them adapted to partially encircle the mandrel, the portion of the belt leading to the mandrel from the adjacent roller being adapted to guide the front end of oncoming metal strip into contact with the mandrel, means for swinging the belt wrapper to and from cooperative relation to said mandrel, means for raising the roller and rear end of the crescent shaped arm when the belt wrapper is withdrawn from the mandrel, and means actuated by the mandrel for engaging said rear roller of the crescent shaped arm to raise the roller and belt at the outer end of the crescent shaped arm to cause the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel.

10. A machine for coiling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate therewith, comprising a base frame, a housing pivotally mounted for swinging movement on the base frame having spaced vertical side plates joined together by interconnecting cross members, a crescent shaped arm having a roller at each end pivoted centrally to the side plates of the housing, a plurality of rollers mounted on and movable with the housing, an endless belt carried by the rollers mounted on the housing and crescent shaped arm, said endless belt having a portion between them adapted to partially encircle the mandrel, the portion of the belt leading to the mandrel from the adjacent roller being adapted to guide the front end of the oncoming metal strip into contact with the mandrel, means for maintaining the belt on the rollers taut at all times, fluid pressure means pivotally mounted on the base frame and connected to the housing for swinging the belt wrapper to and from cooperative relation to said mandrel, means for swinging the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, and means actuated by the mandrel for engaging said roller at the rear end of the crescent shaped arm to raise the roller and belt at the outer end of the crescent shaped arm for the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel.

11. A machine for coiling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, a base frame, a housing pivotally connected for swinging movement on the base frame having spaced vertical side plates joined together by interconnecting cross members, a recess formed in the front end of each side plate of the housing adjacent to the mandrel adapted to receive the mandrel when the housing is moved into strip guiding position, a crescent shaped arm pivoted at an intermediate point to the lower front end portions of the side plates of the housing adjacent to the recesses, rollers rotatably mounted in each end and at an intermediate point of the crescent shaped arm, a plurality of rollers rotatably mounted in the housing and movable therewith, an endless belt carried by the rollers, means for maintaining a constant tension on the belt in relation to the

rollers and adapted to swing the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, said roller at the rear end of the crescent shaped arm being adapted to be actuated by the mandrel to raise the roller and belt at the front end of the crescent shaped arm to cause the belt to partially encircle the mandrel when the belt wrapper is moved forward into strip guiding position.

12. A machine for colling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a base frame, a housing pivotally mounted for swinging movement on the base frame, a plurality of rollers rotatably mounted on the housing, a crescent shaped arm pivoted to the housing, rollers mounted in each end of the crescent shaped arm, an endless belt carried by the rollers adapted to be actuated by the mandrel for engaging the rollers in the ends of the crescent shaped arm to cause the belt to partially surround the mandrel to guide the strip thereon or to withdraw the belt from the mandrel, means for engaging the endless belt for maintaining the belt taut at all times in contact with the rollers, and fluid pressure means pivotally mounted on the base frame and connected to the housing for swinging the belt wrapper to and from cooperative relation to said mandrel.

13. A machine for colling strip or the like on a mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a housing pivotally mounted for swinging movement, a plurality of rollers rotatably mounted on the housing, a crescent shaped arm pivoted centrally to the housing, rollers mounted in each end and at an intermediate point in the crescent shaped arm, an endless belt carried by the rollers, a weighted take-up arm pivoted to the housing at one end, a roller mounted for swinging movement in the other end of the take-up arm for engaging the endless belt for maintaining the belt taut at all times in contact with the rollers, said endless belt adapted to be actuated by the mandrel for engaging the rollers in the ends of the crescent shaped arm to cause the belt to partially surround the mandrel to guide the strip thereon or to withdraw the belt from the mandrel, said endless belt having a portion between said rollers in the crescent shaped arm adapted to partially encircle the mandrel, the portion of the belt leading to the mandrel from the adjacent roller being adapted to guide the front end of the oncoming metal strip into contact with the mandrel, and fluid pressure actuated means pivotally connected to the housing for swinging the belt wrapper to

and from cooperative relation to said mandrel.

14. A machine for colling strip or the like on the mandrel of a reel, a belt wrapper adapted to cooperate with the mandrel, comprising a base frame, a housing having spaced vertical side plates joined together by interconnecting cross members, a double arm having side plate members with their lower ends pivoted to the base frame and their intermediate portions pivoted by means of a shaft to the inner end of the housing, a shaft having a roller mounted thereon connecting the upper ends of the double arm, a double link having side bars with their lower ends pivoted to the base frame and their upper ends pivoted on a shaft for supporting a roller and the front end of the housing, a recess formed in the front end of each side plate of the housing adjacent to the mandrel adapted to receive the mandrel when the housing is moved into strip guiding position, a crescent shaped arm pivoted centrally to the lower front end portions of the side plates of the housing adjacent to the recesses having side bars joined together by interconnecting cross members, a roller mounted between the side bars at each end and at an intermediate point, a plurality of rollers mounted between the side plates of the housing, an endless belt carried by the rollers, means for maintaining the belt taut in contact with the rollers at all times, means for swinging the rollers and belt to and from cooperative relation to said mandrel, means for swinging the rear end of the crescent shaped arm upward when the belt wrapper is withdrawn from the mandrel, and means actuated by the mandrel for engaging the roller at the rear end of the crescent shaped arm to raise the roller and belt at the front end of said crescent shaped arm for the belt to partially encircle the mandrel when the belt wrapper is advanced to engage the mandrel.

TOM WILSON.

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