Jan. 1, 1935. E. T. LORIG 1,986,734

STRIP COILER

Filed March 21, 1933

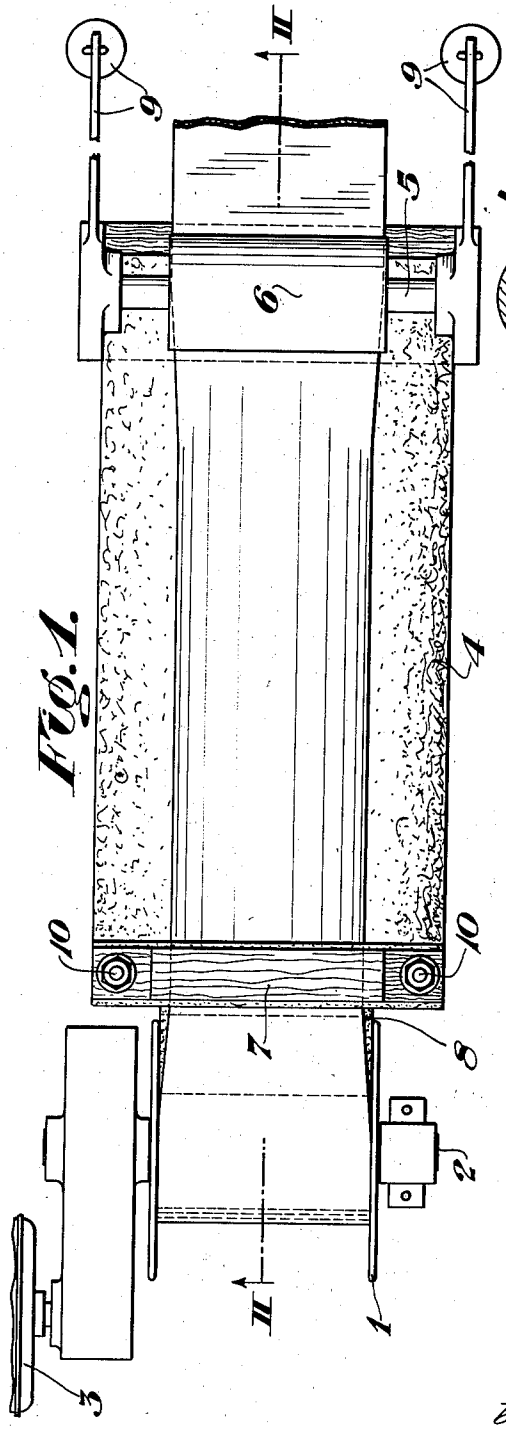


Fig. 1.

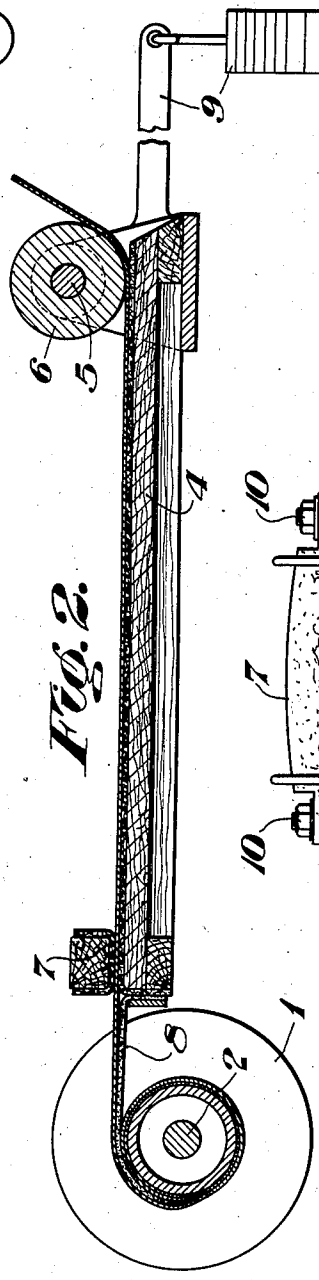


Fig. 2.

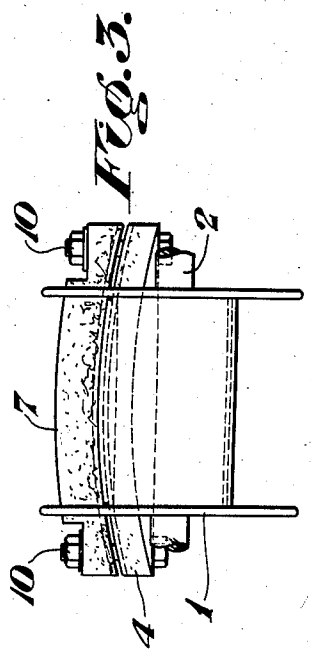


Fig. 3.

Inventor:
EDWIN T. LORIG,
by: Ulsina & Ranter
his Attorneys.

Patented Jan. 1, 1935 1,986,734

UNITED STATES PATENT OFFICE

1,986,734

STRIP COILER

Edwin T. Lorig, Gary, Ind., assignor to American Sheet and Tin Plate Company, a corporation of New Jersey

Application March 21, 1933, Serial No. 661,971

7 Claims. (Cl. 242—78)

This invention relates to a machine for coiling strip and particularly relatively wide metal strip having an uncoated surface. Such material lacks the low frictional coefficient of one that has been coated and is therefore quite difficult to wind into tight coils. For instance, tin plated strip may be relatively easily coiled because of its rather slippery surface, while plain cold rolled strip is rather difficult to coil because of the friction between the surfaces of successive convolutions. Consequently, one of the objects is to tightly coil plain metal strip.

It is desirable to coil this strip on flanged spools, and this presents a further difficulty in that the edges of the material tend to rub against the flanges and become damaged. In view of this, another object is to coil metal strip, particularly rather wide strip, on flanged spools without damaging its edges by such rubbing contact.

Other objects than the above may be inferred from the following illustrative disclosure of the invention in a specific form.

Referring to the drawing:

Figure 1 is a top plan.

Figure 2 is a cross-section from the line II—II in Figure 1.

Figure 3 is an end elevation.

The above diagrammatically illustrate the invention, an effort having been made to include only the essentials needed for illustrative purposes.

This machine includes a flanged spool 1 mounted on a spindle 2 driven by a motor 3 through a suitable gear reduction. This spool might be substituted by a spindle if the strip is not to be wound to include the protection of a flange. A table 4, having a convex surface, is arranged at right angles to the axis of the spool 1 and has an end swinging adjacent thereto.

The end of this table remote from the spool is pivoted on a shaft 5 which also mounts a roller 6. The strip is fed under this roller onto the table and is thus held thereon. The swinging end of the table carries a wood clamping block 7 having a form matching that of the table's surface. This clamps the strip on the table and frictionally prevents it from running thereover too freely. Preferably, the clamp and table are covered with carpet or other soft material to prevent undue scratching of the strip.

The swinging end of the table 4 also carries a length of canvas, leather, brass sheeting or other flexible material 8 which is suitably fixed thereto and extends partially round the strip coiled on the spool 1 beneath the outer or feeding convolutions thereof. This flexible material is substantially of the same width as that of the strip and may be fixed in place in any suitable manner. The table 4 is preferably provided with a counterbalance 9 which either entirely or partially balances it.

The strip is fed beneath the roller 6 onto the table 4 and beneath the clamp 7. This causes it to assume a crowned shape which decreases its width sufficiently to withdraw its edges from any possible contact with the flanges of the spool, except where the strip being reeled tangentially comes in contact with the convolutions of that portion already reeled. The table 4 might obviously be concave and the same effect obtained. The clamp 7 is preferably held to the table by bolts 10 so that its frictional restraint of the strip may be varied.

The length of canvas 8 being beneath the strip separates a part of the outer or feeding convolution thereof from that coiled. This changes the frictional coefficient between the surfaces from static to sliding, thus reducing the frictional effect sufficiently to permit the material being coiled to slide easily into position between the rotating flanges allowing the application of sufficient tension on the strip to insure obtaining a tight coil. The strip, on sliding easily into position, eliminates the possibility of damaging the edges. Other material might be substituted for the canvas provided it is relatively flexible and can function to separate the feeding strip convolution from those of the coil and thus obtain the desired results.

It will be seen that a tight coil free of damaged edges results essentially from the constant withdrawal of a strip of material from beneath the outermost convolution. The length which the canvas 8 extends between the circumferential surfaces of the strip's convolutions can be varied by the operator to secure the best possible results.

As the convolutions on the spool 1 increase, the table 4 will swing so that the strip is always substantially tangentially fed onto the spool. Experiments might also indicate other materials preferable to carpet for surfacing the table 4 and clamp 7.

Although a specific form of this invention has been shown and described in accordance with the patent statutes, it is not intended to limit the scope of the invention exactly thereto, except as defined in the following claims.

I claim:

1. A machine for coiling strip including the combination of a rotary carrier, means for turn-

ing sad carrier, means for feeding the strip substantially tangentially onto said carrier and means for separating the feeding or outer strip convolutions from the coiled ones for a portion of the circumferential surfaces thereof.

2. A machine for coiling strip including the combination of a rotary carrier, means for turning said carrier, means for feeding the strip substantially tangentially onto said carrier and a length of flexible material of a width substantially equal to that of the strip and fixedly arranged between the feeding or outer convolution and the coiled ones thereof for a portion of their circumferential surfaces.

3. A machine for feeding strip including the combination of a fixedly positioned rotary carrier, means for turning said carrier, a table having a laterally curved surface and arranged at a right angle to the axis of said carrier with an end swinging adjacent thereto and means for holding the strip on said table for feeding onto said carrier.

4. A machine for coiling strip including the combination of a rotary carrier, means for turning said carrier, a table having a laterally curved surface and arranged at a right angle to the axis of said carrier with an end swinging adjacent thereto, means for holding the strip on said table for feeding onto said carrier and a length of flexible material of a width substantially equal to that of the strip and fixed to the swinging end of said table beneath the feeding strip and terminating part way around the coil thereof.

5. A machine for coiling strip including the combination of a rotary carrier, means for turning said carrier, a table having a laterally curved carpeted surface and arranged at a right angle to the axis of said carrier with an end swinging adjacent thereto, means for holding the strip longitudinally on said table for feeding onto said carrier, a carpeted clamp on the swinging end of said table for applying frictional restraint to the feeding strip, and a length of flexible material of a width substantially equal to that of the strip and fixed to the swinging end of said table beneath the feeding strip and terminating part way around the coil thereof.

6. The method of coiling metal strip on a spool or spindle consisting in turning the spool or spindle while tensionally feeding the strip thereonto and keeping the outer of feeding strip convolution separated from the coiled ones for a portion of their mutually opposed circumferential surfaces.

7. A machine for coiling strip, including the combination of a flanged rotary carrier, means for turning said carrier and means for feeding strip substantially tangentially onto said carrier while bending it to a sufficiently distorted form to cause its edges to clear the flanges of the latter, the last named means being constructed and arranged to effect said bending solely by the application of bending forces laterally to the faces of said strip while leaving the latter's edges entirely free to be drawn together only because of said distorted form resulting from said bending.

EDWIN T. LORIG.