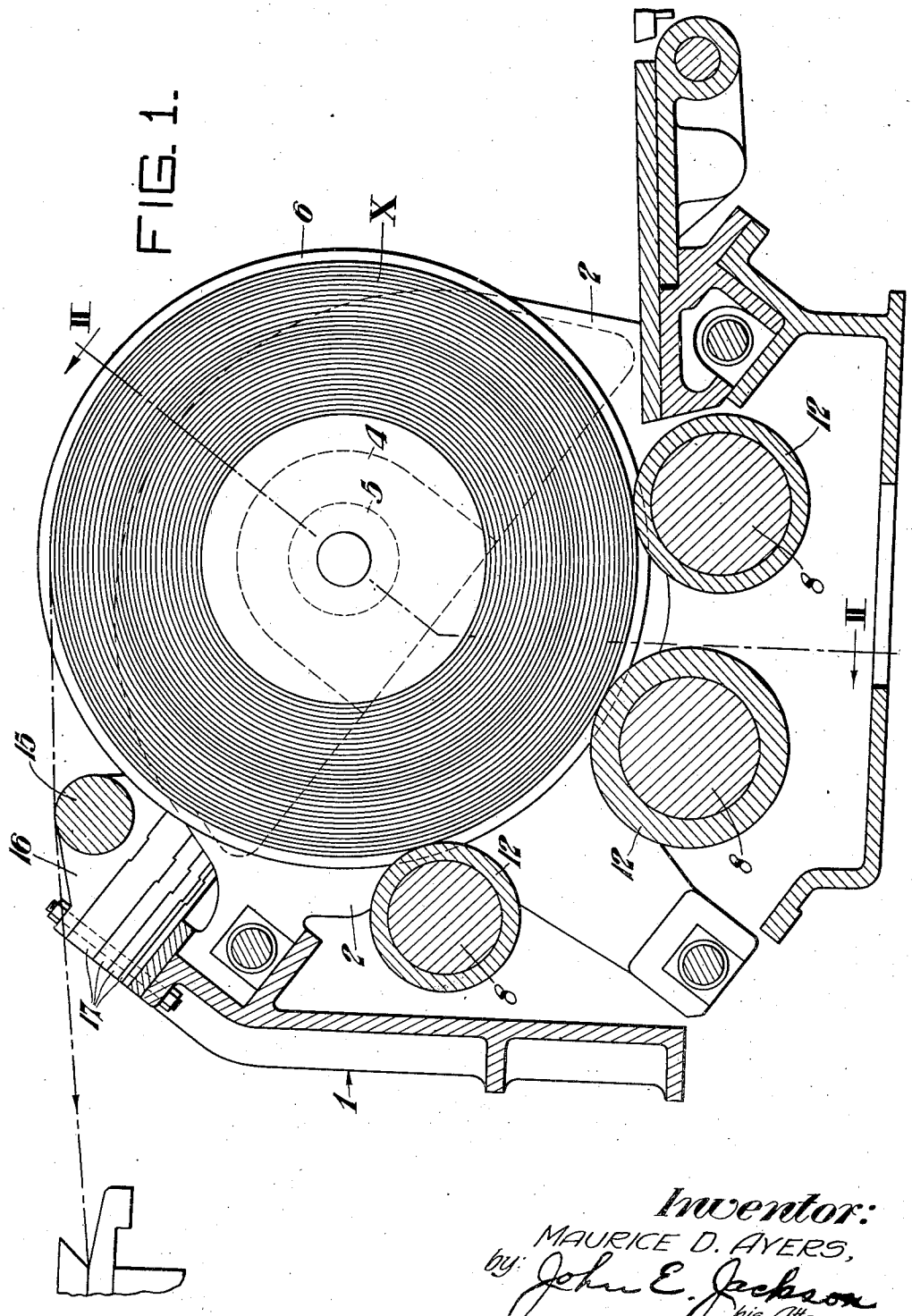
March 28, 1944. M. D. AYERS 2,345,373

UNCOILING APPARATUS

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FIG. 1.



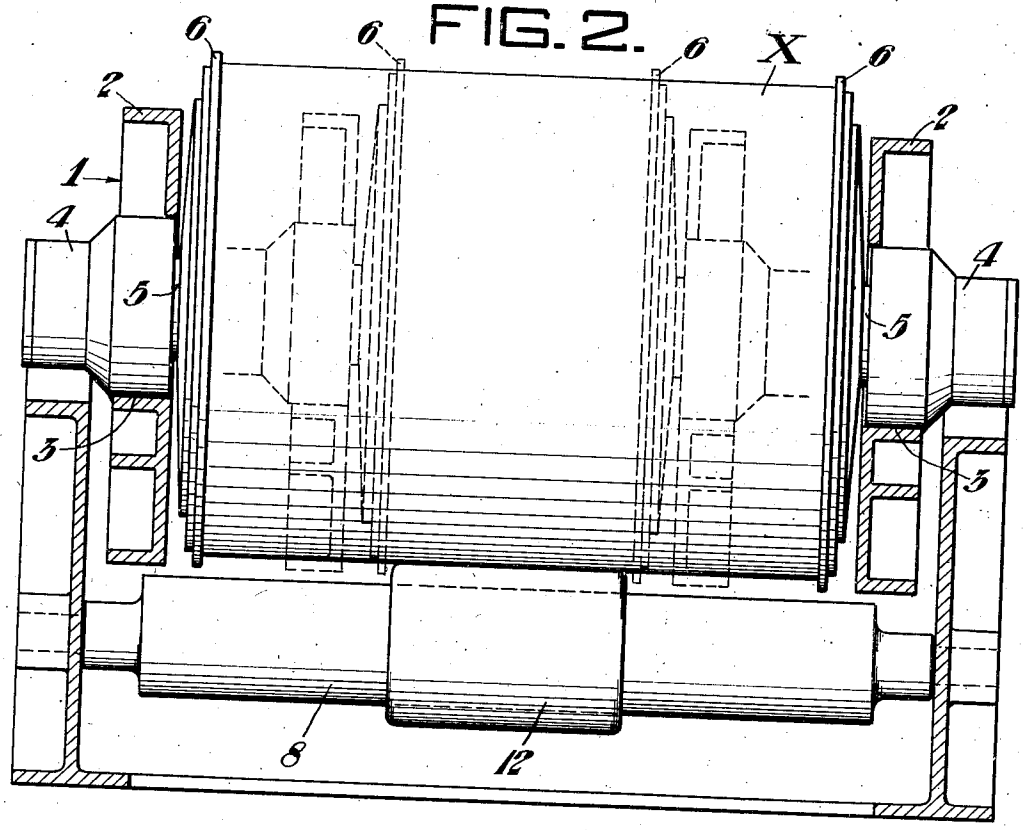

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FIG. 2.



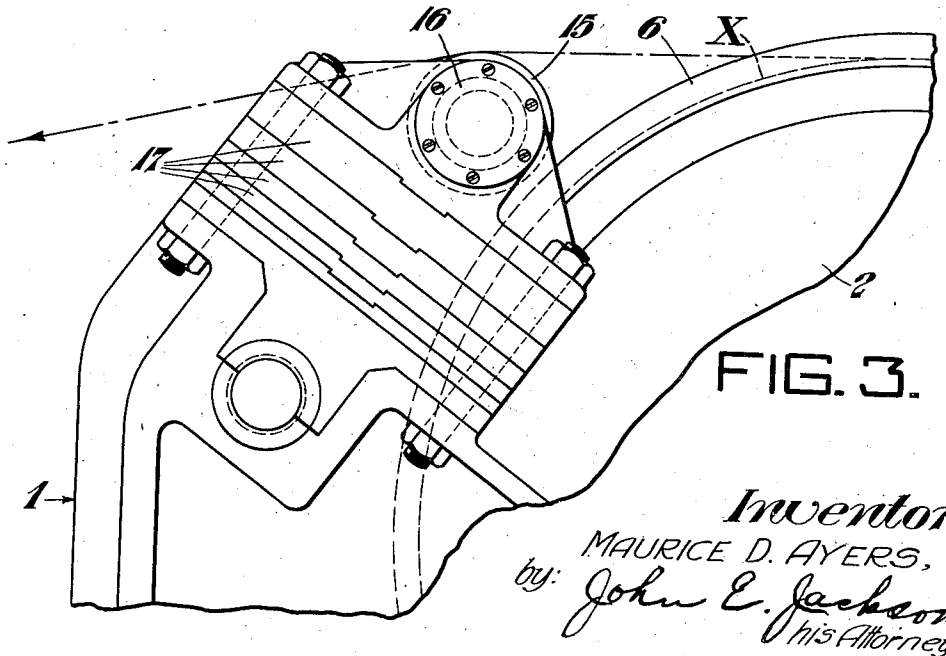




FIG. 3.

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Patented Mar. 28, 1944 2,345,373

# UNITED STATES PATENT OFFICE

2,345,373

## UNCOILING APPARATUS

Maurice D. Ayers, Pittsburgh, Pa.

Application October 24, 1941, Serial No. 416,413

2 Claims. (Cl. 242—78)

This invention relates relates to uncoiling apparatus, and more particularly to those which are used in the uncoiling of loosely convoluted strip such as strip steel, although not limited thereto.

In the manufacture of metallic strip, and particularly strip steel, the strip at several stages of its manuafcture is in the form of a coil which may be either tightly or loosely convoluted. It is frequently necessary to subject the coiled strip to a processing operation which requires its uncoiling.

If the coil is tightly convoluted, it is usually mounted on an arbor which is permitted to slowly rotate during the unwinding operation. Thus, the uncoiling operation is accomplished when the strip is under tension, and without difficulty.

In those cases wherein the coil is loosely convoluted, the uncoiling operation is rendered difficult by the tendency of the convolutions to expand and the tendency of the edges thereof to move laterally due to the fact that the coil as a unit is not under tension.

It is among the objects of the present invention to provide an apparatus which permits the efficient uncoiling of loosely convoluted strip.

Another object is the provision of an apparatus of the class described which is easy and inexpensive to install, operate, and maintain.

The invention, then, comprises the features hereinafter fully described and as particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail a certain illustrative embodiment of the invention, this being indicative of one of the number of ways in which the principles of the invention may be employed.

In the drawings:

Figure 1 is a sectional elevation of the apparatus of the present invention.

Figure 2 is a view on the line II—II of Figure 1.

Figure 3 is a fragmentary elevation illustrating a detail.

Referring more particularly to the drawings, the numeral 1 generally designates a coil box frame wherein coiled material may be disposed preparatory to uncoiling. More specifically, the coil box frame comprises a pair of side frame members 2 having a pair of opposed and aligned bearing apertures 3. In each of the bearing apertures 3 there is disposed a bearing 4 which rotatably carries a rotatable arbor 5. On the inner end of each of the arbors 5 there is mounted a circular guide plate 6.

The diameter of each of these circular guide plates 6 is at least as great as the diameter of the coil to be unwound, whereby it will be seen that a coil disposed between them with its side edges in contact therewith will be afforded effective longitudinal guidance during the uncoiling of the coil and the free rotation of the circular guide plates therewith.

Also carried by the coil box frame is a series of three rotatable rollers 8 each of which is disposed below the horizontal center line of, and in axial parallelism with, the coil, the latter being designated hereinafter at X. Each of these freely rotatable rollers 8 carries a centrally disposed collar 12 which is adapted to contact the center portion of the periphery of the coil.

Referring more particualrly to Figure 1, it will be perceived that the peripheries of the freely rotatable rollers 8 are spaced a slightly greater distance from the periphery of the coil X than the peripheries of the circular guide plates 6. This permits the said circular guide plates 6 to rotate out of contact with the rotatable rollers 8.

While the peripheries of the collars 12 on the rotatable rollers 8 are closer to the axis of the coil X than the peripheral portions of the circular guide plates 6, the said collars are sufficiently short to be completely within the minimum opening afforded between the said guide plates.

In order to facilitate the movement of the strip material from the coil X and in a direction substantially tangential thereto, there is provided adjacent the upper end of the coil box 1 a rotatable roller 15. This rotatable roller 15 is mounted in a pair of aligned supports 16 which are superposed on adjustable shims 17. According to this construction and arrangement the adjustability of the shims 17 permits the roll bearings 16 to assume various vertical elevations and to thus change the position of the rotatable roller 15. This rotatable roller 15 serves as a guide and overlies the forward portion of the coil, thus preventing it from raising out of the coil box as material is drawn therefrom. The last few convolutions of the coil X are held by the rotatable roller 15 and the end of the coil is straightened thereby. This is particularly important when the material of the coil is of heavy gauge.

By moving the side frame members 2 toward and away from each other, coils of different widths may be accommodated.

While I have shown and described a specific embodiment of the present invention, it will be seen that I do not wish to be limited exactly thereto, since various modifications may be made

without departing from the scope of the invention as defined in the appended claims.

I claim:

1. Apparatus for uncoiling coiled material, comprising, in combination, a pair of freely rotatable side guiding members for contact with the edges of the coil, at least one rotatable element for supporting the coil, and a rotatable guide over which the material passes, said guide being mounted on an axis fixed with respect to the axis of the said guiding members and positioned so as to overlie the forward portion of the coil, said guide retaining at least the last convolution of the material beneath said guide whereby the said convolution is substantially straightened.

2. Apparatus for uncoiling coiled material, comprising, in combination, a pair of freely rotatable side guiding members for contact with the edges of the coil, at least one rotatable element for supporting the coil, means for restraining movement of the coil in the direction of unwinding, and a rotatable guide over which the material passes, said guide being mounted on an axis fixed with respect to the axis of the said guiding members and positioned so as to overlie the forward portion of the coil, said guide retaining at least the last convolution of the material beneath said guide whereby the said convolution is substantially straightened.

MAURICE D. AYERS.