Nov. 10, 1953 F. KOCH 2,658,694

STOCK REEL

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FIG. 1.

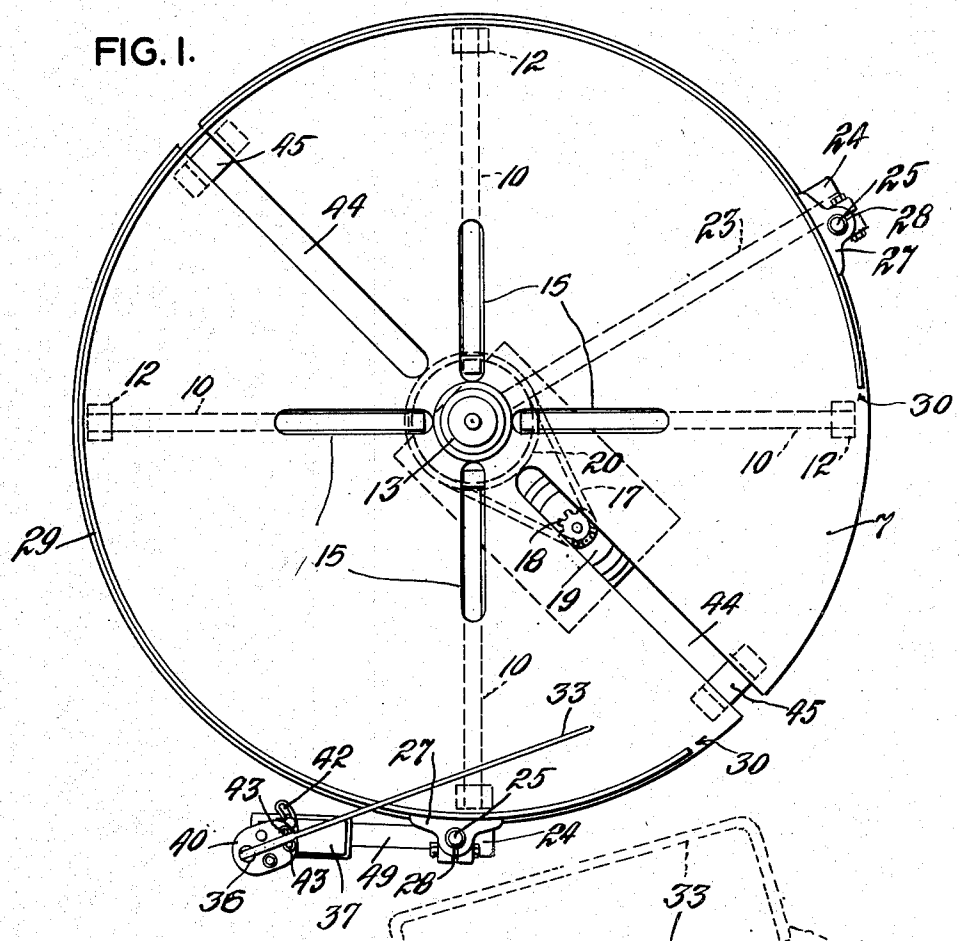


FIG. 3.

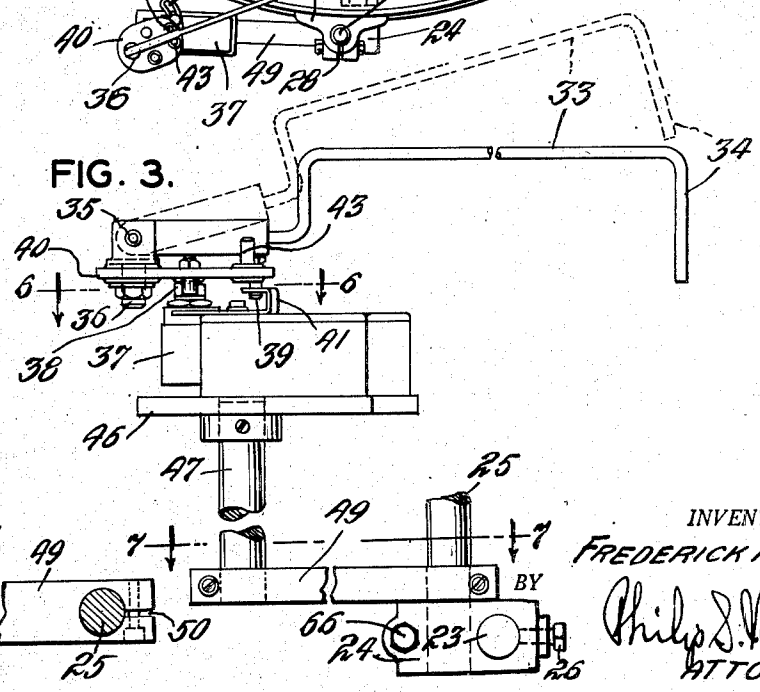


FIG. 7.

INVENTOR.
FREDERICK KOCH
BY
Philip S. Mahan
ATTORNEY

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FIG. 2.

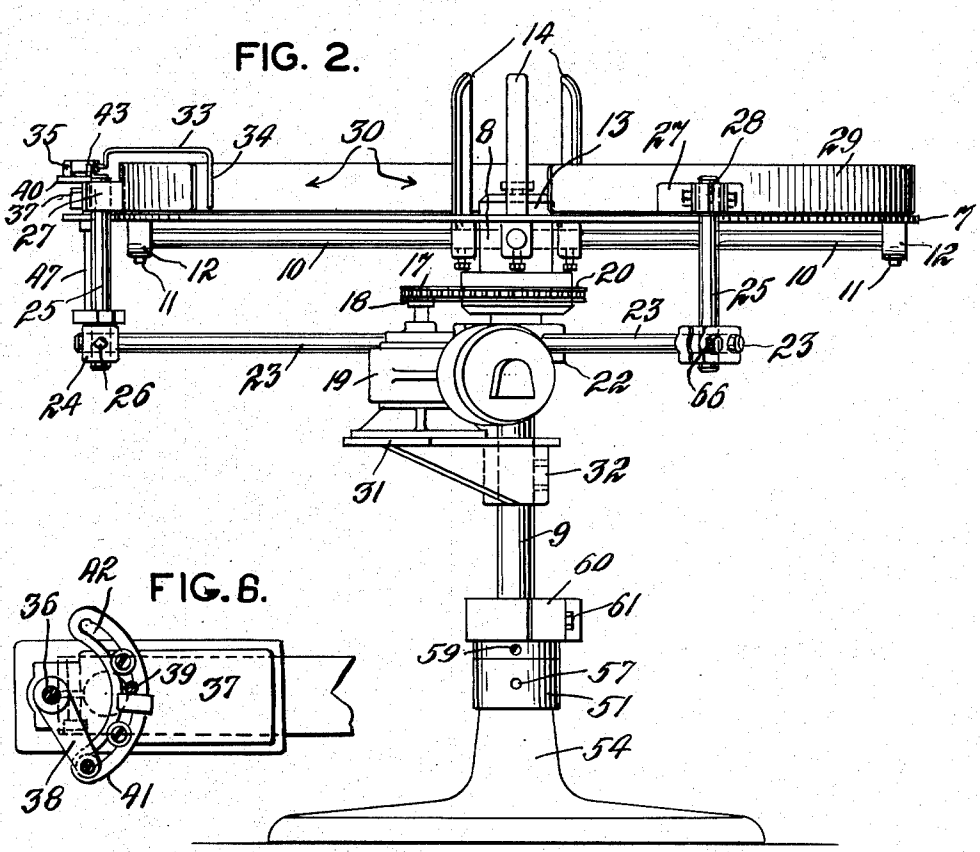


FIG. 6.

FIG. 4.

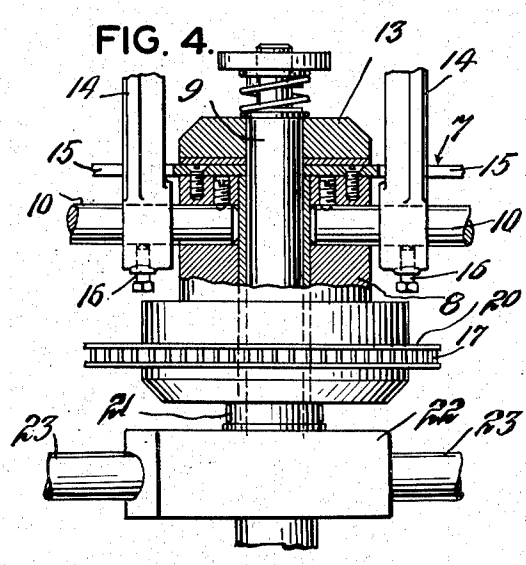
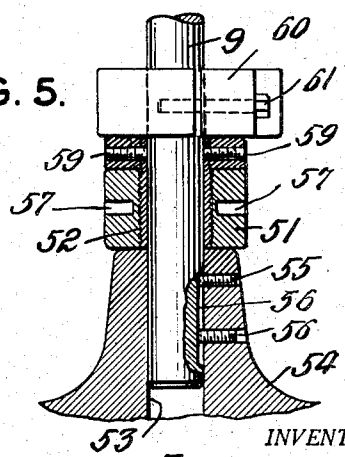


FIG. 5.



INVENTOR.
FREDERICK KOCH
BY
Philip S. McLean.
ATTORNEY

Patented Nov. 10, 1953

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UNITED STATES PATENT OFFICE

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STOCK REEL

Frederick Koch, Sparta, N. J., assignor to C. Todd, Rutherford, N. J., as trustee

Application April 6, 1951, Serial No. 219,558

3 Claims. (Cl. 242—75)

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The invention herein disclosed relates to reels for handling coils of strip stock and for automatically feeding the strip from these coils into power presses, forming and shaping machines, and the like.

Special objects of the invention are to facilitate the loading of these reels with the heavy coil stock which they handle and to properly support and control the feeding of such stock.

Other important objects of the invention are to control the unwinding of the coil material, to prevent the coil from springing open to too great an extent, and on the other hand, to unwind at a proper rate to prevent binding or dragging of the outer convolutions on the body of the coil.

Further special objects of the invention are to enable adjustments to be quickly and easily made to fit the reel to the particular machine it may be feeding and to accomplish this and the foregoing at reasonable cost in a simple, practical, structural form.

Other desirable objects attained by the invention are set forth or will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate a present commercial embodiment of the invention. Structure, however, may be modified and changed, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawings is a top plan view of one of the new reels;

Fig. 2 is a side elevation of the same;

Fig. 3 is a broken side elevation on a larger scale, of the adjustable starting and stopping switch mechanism;

Fig. 4 is a broken part sectional view of the upper, rotatable head structure of the reel;

Fig. 5 is a broken sectional detail of the lower base portion showing particularly the means for vertical adjustment of the reel;

Figs. 6 and 7 are broken sectional views on lines 6—6 and 7—7, respectively, of Fig. 3.

In the embodiment of the invention shown the coil stock is supported in flat, horizontal relation on a disc or turntable 7 carried by a hub 8 rotatably engaged on the upper end of a stationary vertical shaft or spindle 9.

The plate 7 may be of large diameter to support rolls of large size, and it is therefore shown as braced by radially extending rods 10 secured in the sides of the hub by set screws 11 and carrying at their outer ends the blocks or rests 12 for the outer, peripheral portions of the plate or disc.

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A spring tensioned clamp 13, Fig. 4, operates as a brake on the central portion of the disc to control the coil unwinding movement and to prevent coasting.

Upstanding arms 14, projecting up through slots 15 in the disc are adjustably secured at 16 on the radial rods 10 to provide a centering core for the coil laid on the table.

Rotation is imparted to the hub and hence to the turntable structure described by means of a sprocket chain 17 running from a gear 18 on the shaft of motor 19 to a gear 20 on the hub.

A thrust bearing 21 capable of supporting the turntable and its load is shown in Fig. 4 interposed between the lower end of the hub 8 and the stationary head or collar 22 which is fixed on the upper portion of the post or column 9.

The stationary head or collar 22 carries a series of radially projecting rods or arms 23. Sleeves 24 are adjustably bolted on the outer ends of these radial arms at 26 and these sleeves carry upright posts 25 adjustably secured in vertical relation by bolts 66.

The upper ends of posts 25 have brackets 27 adjustably secured thereto at 28 and these brackets have attached to them the upstanding arcuate guard flange or rim 29.

This guard flange, as shown in Fig. 1, is open at the front of the machine to leave a gap at 30 for the strip passing off the turntable to the press or other machine being fed.

The motor is shown carried by a stationary bracket 31 secured at 32, Fig. 2, in vertically adjustable relation on the column 9. This mounting of the motor enables accurate line-up of the drive gearing from the motor to the rotary hub of the turntable.

Control of the motor is effected by a feeler or follower shown in the form of a rod 33 extending in over the table and having a downwardly projected, inner end 34 engageable inside the outer convolution of the unwinding stock. This feeler lever is shown pivoted on a horizontal axis, at 35, at its outer end, Fig. 3, so that it may be swung upwardly out of the way of the stock, and as pivoted on a vertical axis, at 36, so that it may swing inwardly to close the motor circuit, or outwardly to open that circuit.

The controlling switch 37 for the motor may be a normally-open microswitch having a circuit closing control lever 38 engageable by a stud 39 dependent from the pivotally supported base portion 40 of the control lever.

The switch actuating pin 39 is shown as adjustably secured by fastenings 41 in an arcuate

slot 42 in the base portion of the lever, said slot having a center corresponding to the center of rotation 36, enabling the switch actuating pin to be set in different angular relations, permitting the lever to trip the switch in different zones of travel and hence to be effective to control feeding of stock off coils of different diameter.

In its up and down swinging movements about the horizontal center 35, the trip lever is guided and positioned on the base plate by fitting in between the upstanding, spaced, parallel pins 43.

The disc or table 7 is shown as slotted inwardly from opposite edges at 44, Fig. 1, to admit and permit the release of the chain or the like which may be used in lowering a coil of stock from a hoist down onto the table. To brace the separated portions of the table these slots may be bridged by brackets 45 arched downwardly to clear any hoisting chain that may be used with the coils.

Additionally, the open ended slots 44 enable binding wire or other fastenings that may be wrapped about the coil, to be easily removed.

To afford a maximum range of adjustment, the switch and control lever are shown supported on a bracket 46 mounted on top of a post 47 adjustably clamped in the split end 48 of a bar 49 having its opposite end split and clamped at 50 over one of the posts 25 which carry the guard ring 29.

Lateral swinging adjustments of the bar 49 on the supporting post 25 enable the control lever and switch to be swung outwardly or inwardly through a wide angle, and vertical adjustments at 48 and 50 permit the control lever and switch to be raised and lowered to best cooperate with stock of different width.

Vertical adjustments of the reel to the feeding-in level of different machines are readily effected in the machine illustrated by a nut 51 on the lower, screw threaded sleeve portion 52 of the center post or pedestal 9, this portion of the post being guided for vertical movement in the socket 53 in the supporting base 54, Fig. 5.

The post is held against turning in the base by screws 55 extending into a key groove 56.

The nut 51 bearing on top of the base 54 may be turned by a lever inserted in sockets 57 in the side of the nut, to raise or lower the post.

Set screws 59 hold the screw sleeve 52 in adjusted position on the post 9.

A split supporting clamp 60 is shown releasably and adjustably secured by screws 61 above the screw sleeve 52, to carry the main load after vertical adjustments have been made.

What is claimed is:

1. A stock reel of the character disclosed comprising a substantially horizontal turntable for supporting a coil of stock on edge, means for rotating said turntable to unwind a coil of stock supported thereon, a circular guard supported in stationary relation in position for limiting the expansion of a coil of stock supported on said turntable, a follower supported at the outside of said guard and having a leverage portion reaching over the top of said guard into position for engagement by the outer convolution of a coil of stock on the turntable, control means operable by said follower and a horizontal pivotal mounting for said follower enabling the same to be swung vertically up out of position over said turntable.

2. A horizontal stock reel comprising a stationary upright post, a rotary hub journaled on the upper end of said post, a flat horizontal rotary stock coil supporting disc carried by said hub, said disc having substantially radially extending slots near the central portion of the same, radially extending rods projecting from the hub beneath said disc and supporting the outer edge portion of the disc, said rods being in alignment with the slots in the disc, coil centering arms radially adjustable on said rods and projecting up through said slots in the disc, a stationary supporting bracket mounted on the post below the rotary hub, radially projecting stationary arms carried by said stationary supporting bracket, uprights at the outer ends of said stationary rods and a stationary circular guard on the upper ends of said uprights above said disc for confining the outer convolution of a coil of stock centered on the rotary disc.

3. A horizontal stock reel comprising a stationary upright post, a rotary hub journaled on the upper end of said post, a flat horizontal rotary stock coil supporting disc carried by said hub, said disc having substantially radially extending slots near the central portion of the same, radially extending rods projecting from the hub beneath said disc and supporting the outer edge portion of the disc, said rods being in alignment with the slots in the disc, coil centering arms radially adjustable on said rods and projecting up through said slots in the disc, a stationary supporting bracket mounted on the post below the rotary hub, radially projecting stationary arms carried by said stationary supporting bracket, uprights at the outer ends of said stationary rods and a stationary circular guard on the upper ends of said uprights above said disc for confining the outer convolution of a coil of stock centered on the rotary disc, a motor for driving the rotary hub supported on the stationary post, a bracket adjustably mounted on one of said uprights, a switch for controlling operation of the motor supported by said adjustably mounted bracket, a follower for actuating said switch, said follower extending into position over the rotary disc for engagement with a convolution of the coil stock supported on the disc, said follower being pivoted on a vertical axis for lateral swinging movement and a horizontal pivotal mounting for said follower for enabling the same to be swung vertically up out of position over the turn table.

FREDERICK KOCH.

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