Nov. 6, 1934. P. R. JOHNSON ET AL 1,980,138

LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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Fig. 1.

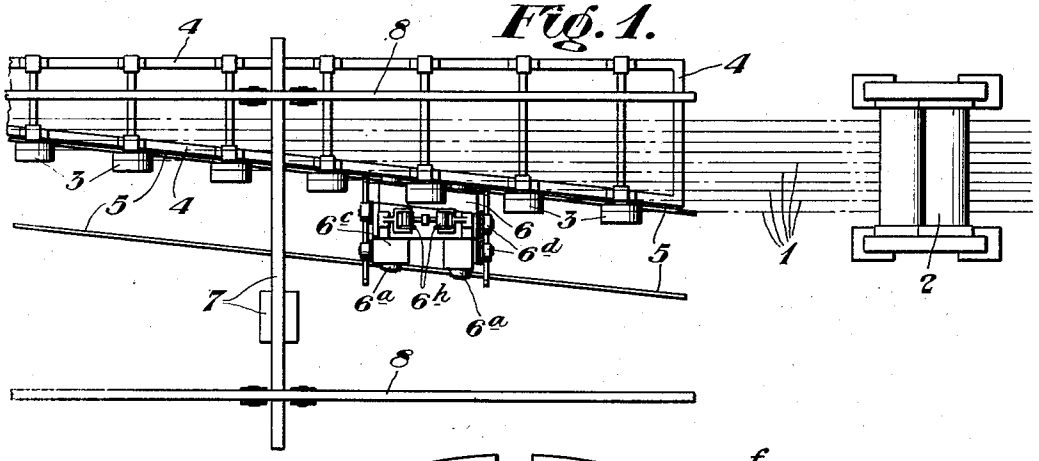
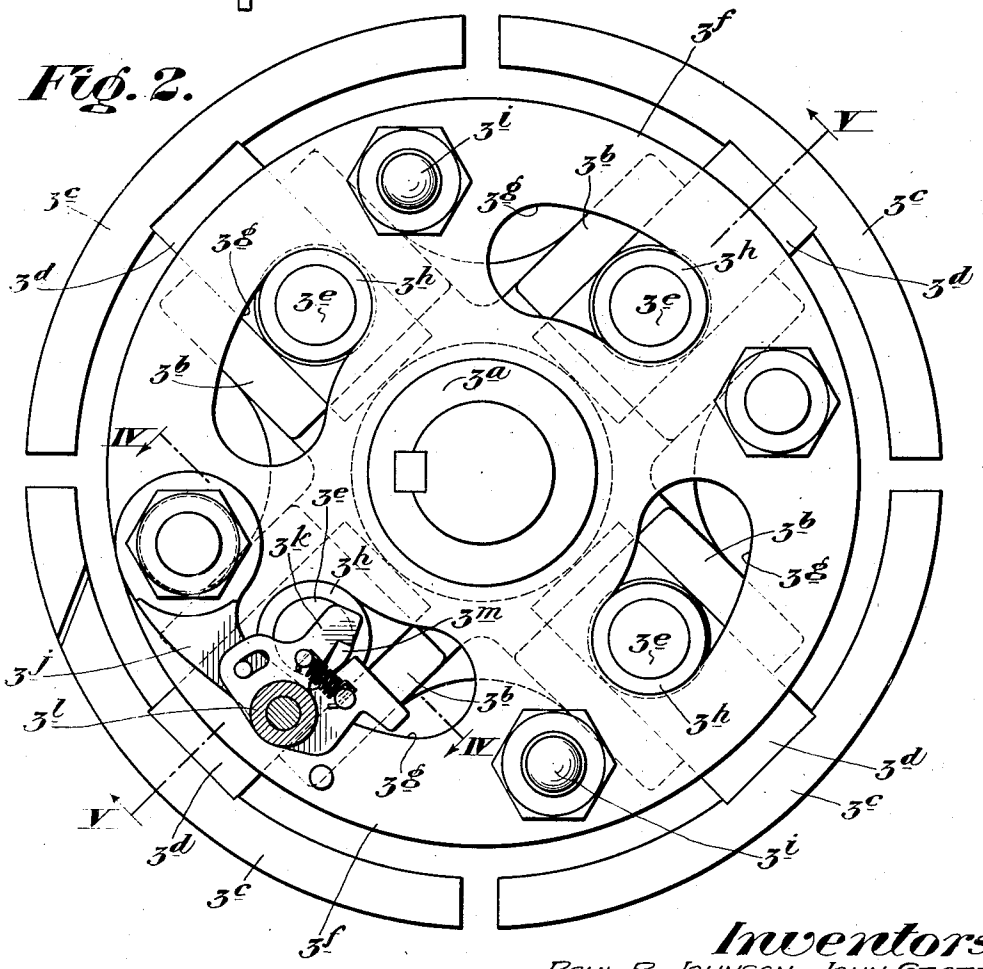


Fig. 2.



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LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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Fig. 3.

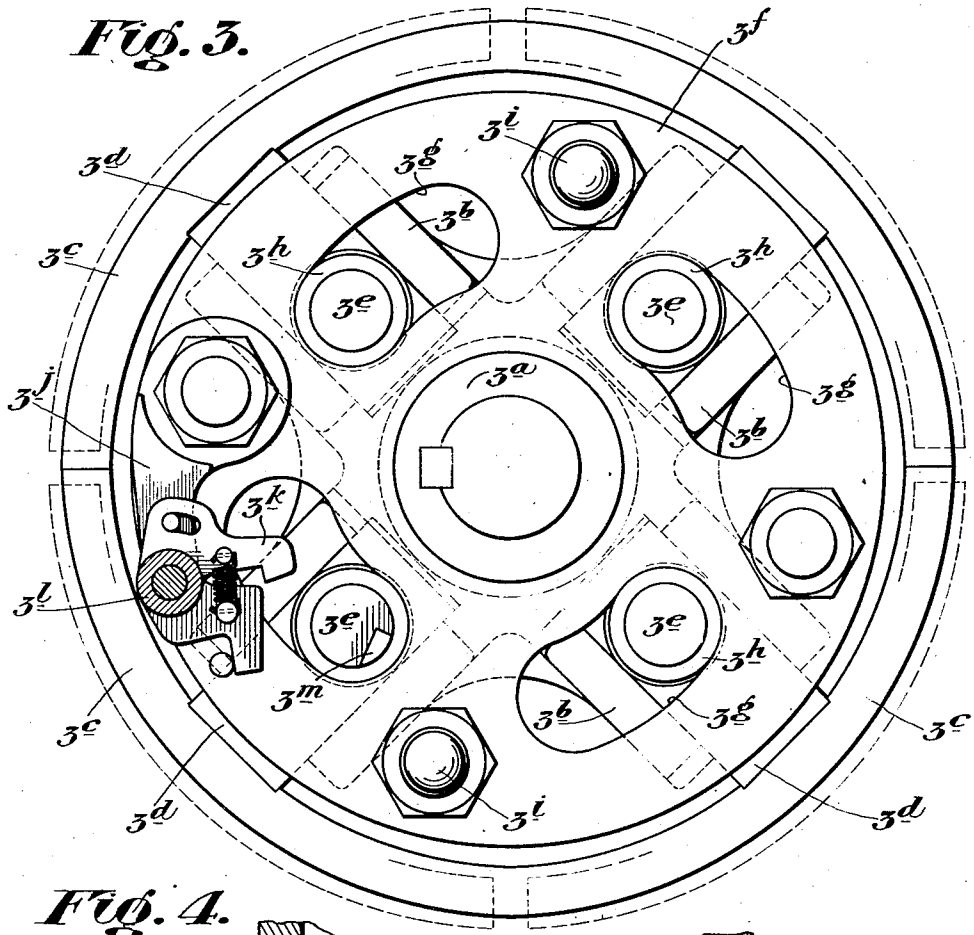
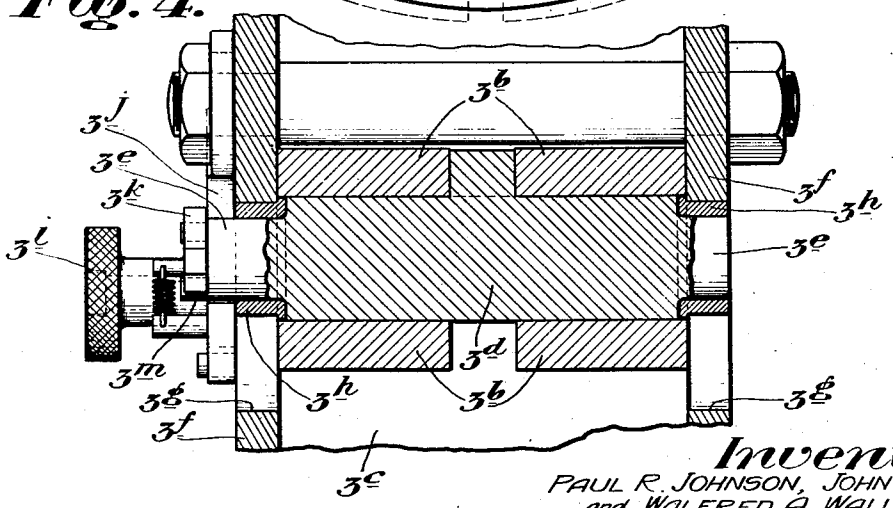


Fig. 4.



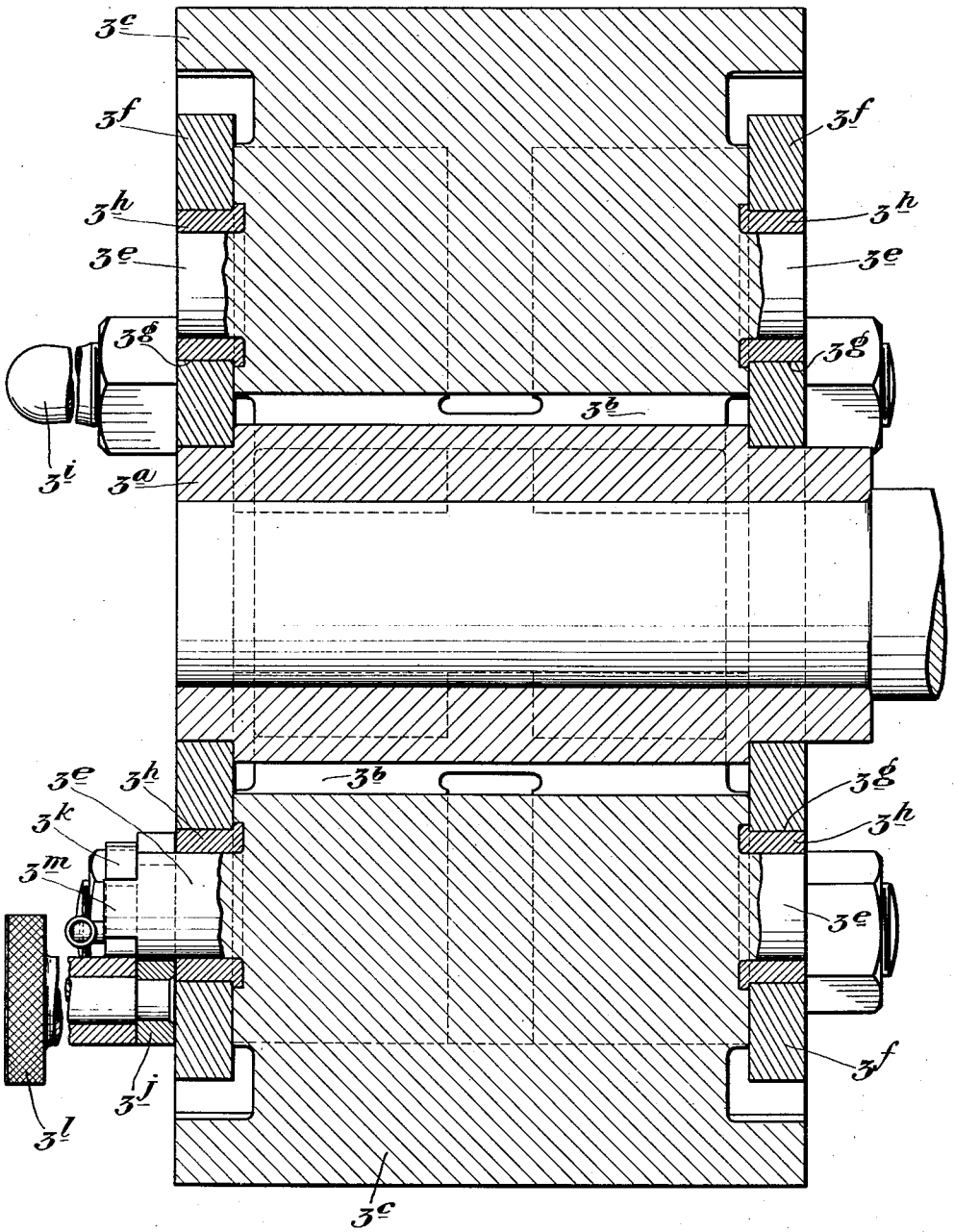
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LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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Fig. 5.



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LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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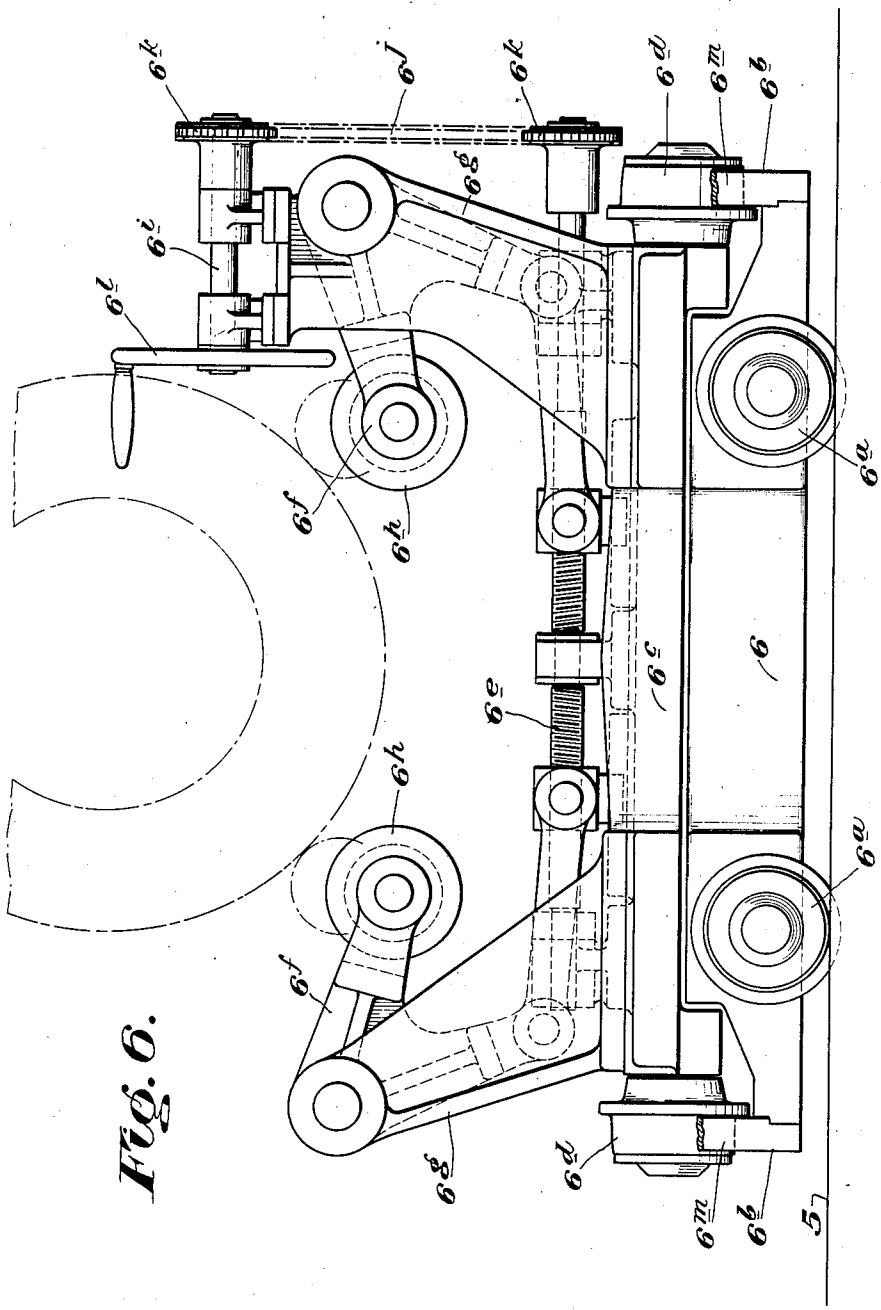


Fig. 6.

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LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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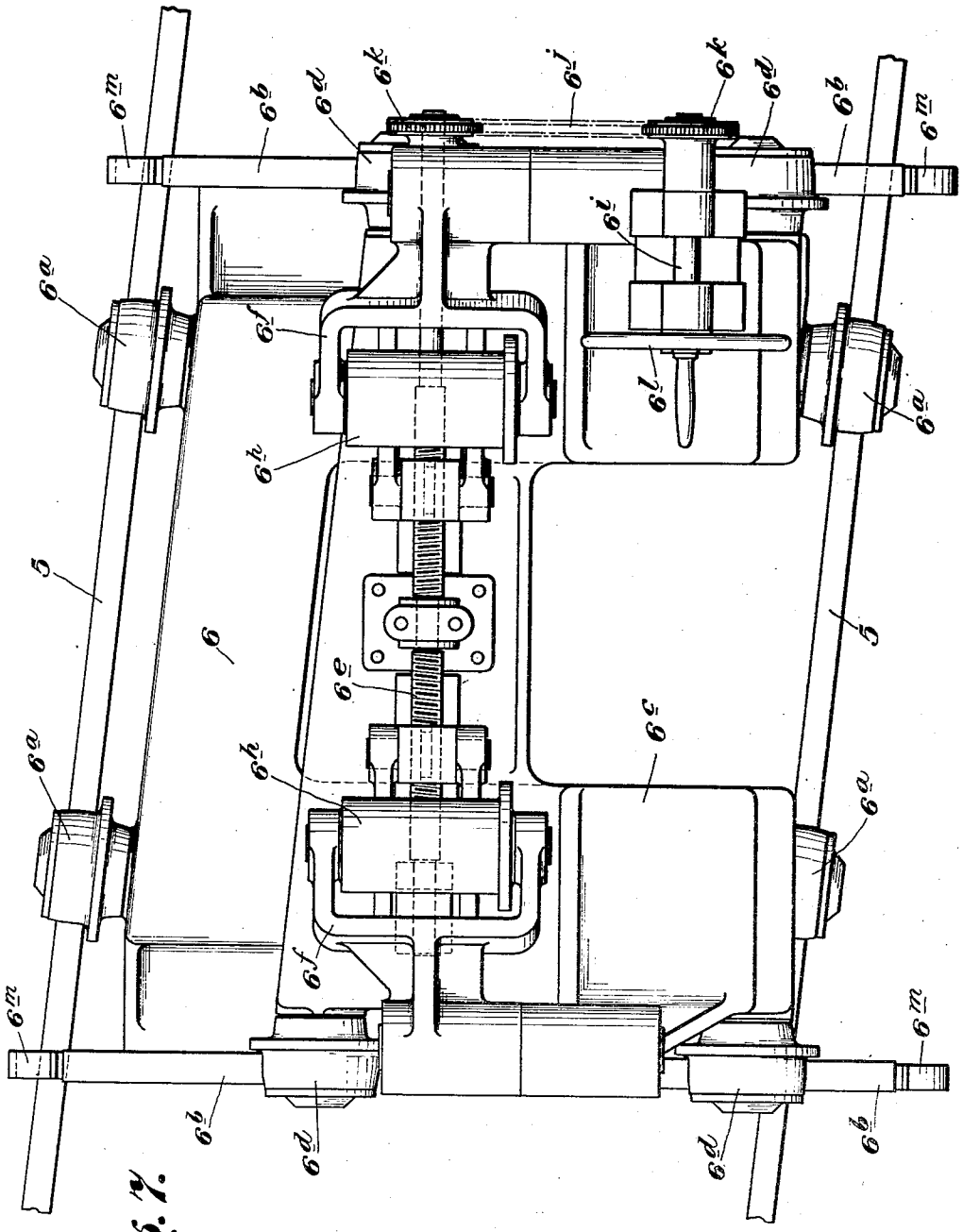


Fig. 7.

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Patented Nov. 6, 1934 1,980,138

UNITED STATES PATENT OFFICE

1,980,138

LAYOUT AND APPARATUS FOR HANDLING WIRES OR STRIPS

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Application September 21, 1933, Serial No. 690,470

3 Claims. (Cl. 242—79)

This invention is a layout and apparatus for handling a plurality of wires or strips. It is particularly applicable in connection with the various finishing departments of a wire mill, for instance, in the handling of a plurality of galvanized strips leaving the processing equipment and ready for storage or delivery to the customers. These strips are customarily formed into coils having a certain lay, which makes them more attractive to the customer's eye, by means of a plurality of rotary blocks which receive them and form these coils, the latter then being manually stripped therefrom. As the coils are rather heavy they are quite frequently deformed, this naturally detracting from their appearance. Recoiling is the only remedy.

Now the new layout and apparatus is intended to provide a means for mechanically stripping such coils from their forming blocks. This relieves the workmen of much labor and at the same time insures the preservation of the coil's form. Also, there are advantages in the way of safety, serious accidents having been known to result from manually handling the heavy coils. Other advantages may be inferred from a study of the following disclosure.

The accompanying drawings illustrate one possible form of the layout and also specific forms of the apparatus units included thereby, the various figures being as follows:

Figure 1 is a plan of the layout.

Figure 2 is a side view of one of the rotary blocks shown in the plan.

Figure 3 is a side view of this block when collapsed.

Figures 4 and 5 are cross-sections from the lines IV—IV and V—V in Figure 2.

Figure 6 is a side view of the mechanical stripping means shown by the plan.

Figure 7 is a top view of this stripping means.

The above drawings show a plurality of strips 1 being delivered by a stand of powered pinch-rolls 2. The strip is being presumably drawn through some processing equipment, which may be for annealing and galvanizing in the case of galvanized strips. These strips go from the pinch-rolls 2 to a row of coiling blocks 3 arranged so that each may receive one of the strips. The axles for these blocks are journaled in a frame 4 and are ordinarily intergeared and driven by a single motor. Also, reciprocative guides are usually supplied the blocks, these guides moving in a certain sequence which produces the attractive coils desired. These last mentioned features are not illustarted because they do not form a part of the present invention and would only tend to obscure the disclosure. As stated, when these blocks have formed complete coils the latter are removed manually.

According to the present invention, tracks 5 are arranged parallel and adjacent the row of blocks 3, and a carriage 6 runs on these tracks. This carriage mounts a coil support for movement toward any one of the blocks with which it may be registered. The blocks 3 differ from the usual construction in that they are fully collapsible. That is to say, their entire peripheral surfaces may be retracted, resulting in an equiaxilar reduction of their overall diameters. Ordinarily, they are provided with collapsible segments only. Further, the support on the carriage 6 is arranged for vertical movement.

When it is desired to remove a coil, the carriage 6 is rolled into registration with the block carrying the same, the support mounted by this carriage moved transversely and then vertically brought to bear against the coil, the carrying block collapsed and the support again moved transversely over the carriage to withdraw the coil. This eliminates the usual struggle which results when a workman manually effects this removal. An overhead crane 7 running on elevated tracks 8 may be used to lift the coil from the support on the carriage 6 and carry it to storage or otherwise.

Each of the collapsible blocks 3 includes a hub 3^a from which four guideways 3^b radiate. Coil carrying segments 3^c having extending mountings 3^d, which slide in these guideways, provide for the carriage of the coil. These segments form a complete circle and are all retractive. Pins 3^e project from the mountains 3^d and are operated by plates 3^f which have eccentric openings 3^g through which these pins project. Preferably, the pins are provided with hardened rollers 3^h which function as wearing members. There are two of these plates provided, and each of the mountings has oppositely projecting pins which cooperate therewith. The plates are interconnected in any manner for simultaneous rotation. The outer plate is provided with a pair of handles 3^i which enable rotation effecting the collapse of the block.

A lever 3^j is pivoted to the outer plate and has a latch mechanism 3^k operated by a knurled knob 3^l. This latch engages a lug 3^m projecting from one of the pine 3^e and serves to lock the plates against inadvertent rotation.

In the operation of this block, the knob 3^l is

rotated and the lever 3^j swung up. The handles 3^i are then used to turn the plates 3^f so that collapse of the segments 3^c results.

The carriage 6 rolls on flanged wheels 6^a along the tracks 5. The carriage itself has track sections 6^b which support a superimposed carriage 6^c by way of flanged wheels 6^d. This provides for transverse motion of the coil support, the carriage 6^c functioning as a transversely movable mounting. The support includes a horizontal oppositely-threaded shaft 6^e which is journaled by the mounting carriage 6^c. Bell-cranks 6^f are positioned by brackets 6^g, extending from the mounting carriage 6^c, so that each has an arm extending towards one of the other. Their other arms are in threaded engagement with the shaft 6^e. Coil carrying rollers 6^h are on the ends of the arms of the bell-cranks which extend towards each other. The shaft 6^e is geared to an elevated shaft 6^i by way of a chain 6^j and sprockets 6^k. The shaft 6^i is provided with a hand-wheel 6^l. Stops 6^m limit the motion of the superimposed mounting carriage 6^c. The transverse motion of the carriage 6^c is not at right angles to the motion of the carriage 6 because of the angularlity of the tracks respecting the blocks.

Assuming a coil is formed on one of the blocks 3, the carriage 6 is registered therewith, the mounting carriage 6^c is moved toward the block, the hand-wheel 6^l turned to bring the rollers 6^h into light engagement with the coil and the block then collapsed so that the coil is supported only by the rollers. Then the carriage 6^c is moved away from the block and the coil gently withdrawn without deformation of its lay.

While specific examples of this invention have been shown in accordance with the patent statutes, it is not to be limited exactly thereto, except as defined in the following claims.

We claim:

1. A lay-out for handling a plurality of wires or strips, including the combination of a row of coiling blocks arranged so that each may receive one of said wires or strips, tracks arranged parallel and adjacent said row of blocks, and a carriage running on said tracks with a coil support mounted thereon for movement towards any one of the blocks in said row of same.

2. A lay-out for handling a plurality of wires or strips, including the combination of a row of collapsible coiling blocks arranged so that each may receive one of said wires or strips, tracks arranged parallel and adjacent said row of blocks, and a carriage running on said tracks with a transversely and vertically movable coil support mounted thereon.

3. The combination of a carriage, a transversely movable mounting on said carriage, a horizontal oppositely threaded shaft journaled by said mounting, bell-cranks positioned by said mounting so each has an arm extending towards one or the other and having their other arms in threaded engagement with said shaft, coil carrying rollers on the ends of the arms of said bell-cranks which extend towards each other and means for rotating said shaft.

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