

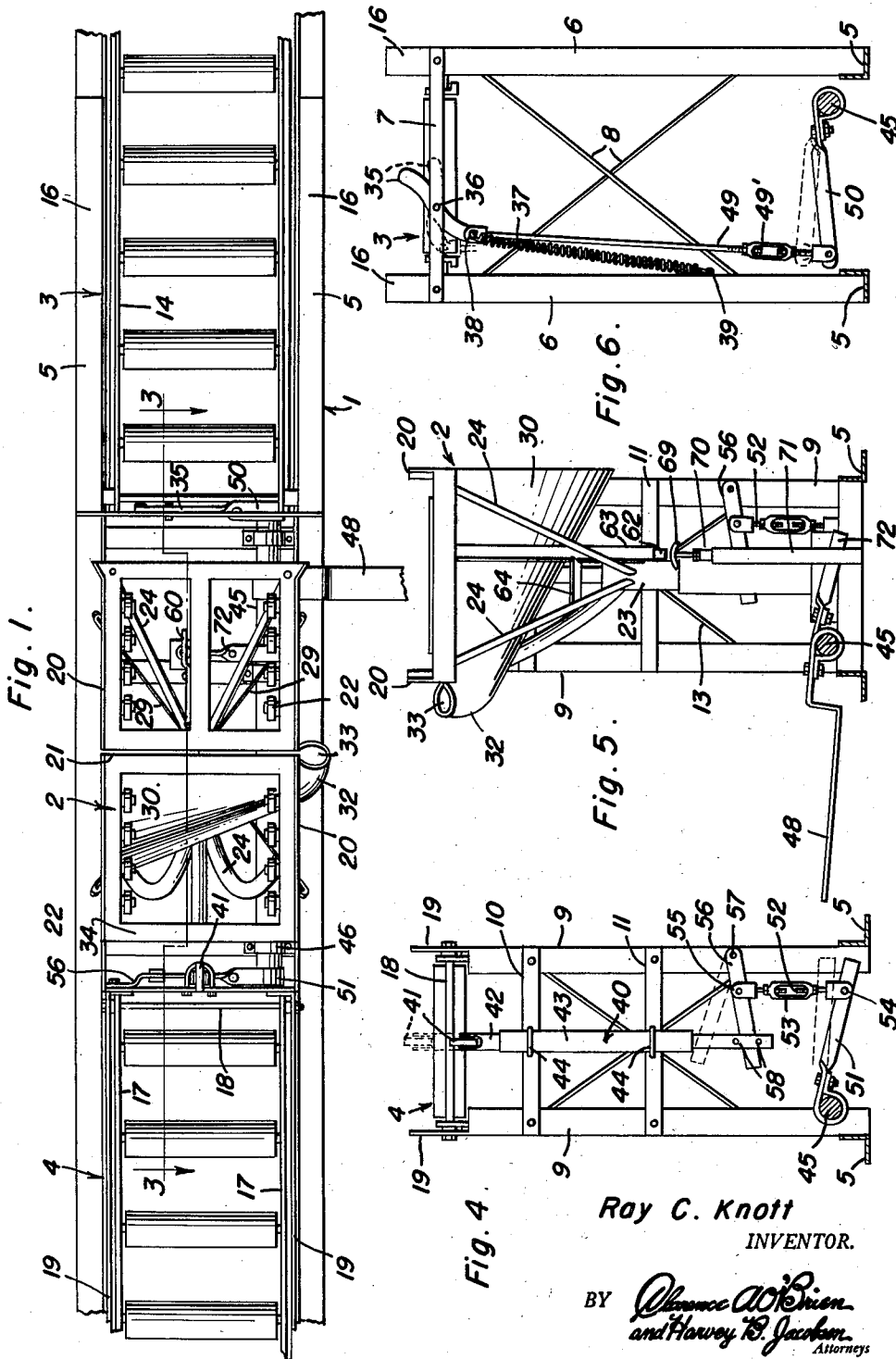
March 24, 1953

R. C. KNOTT
APPARATUS FOR SUPPORTING AND REVOLVING
PACKING CASES INTO POSITION FOR WIRING

2,632,382

Filed Jan. 9, 1950

3 Sheets-Sheet 1



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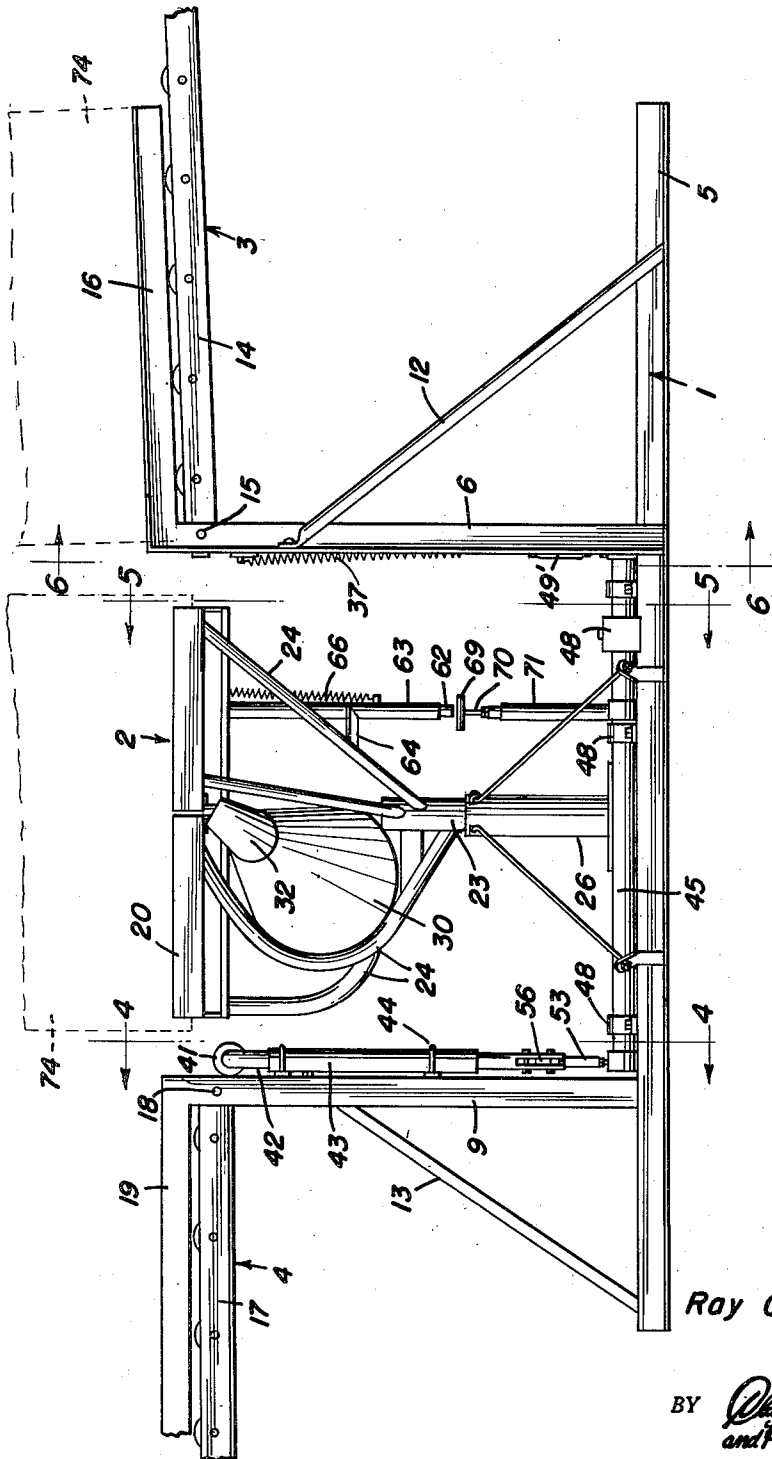


Fig. 2.

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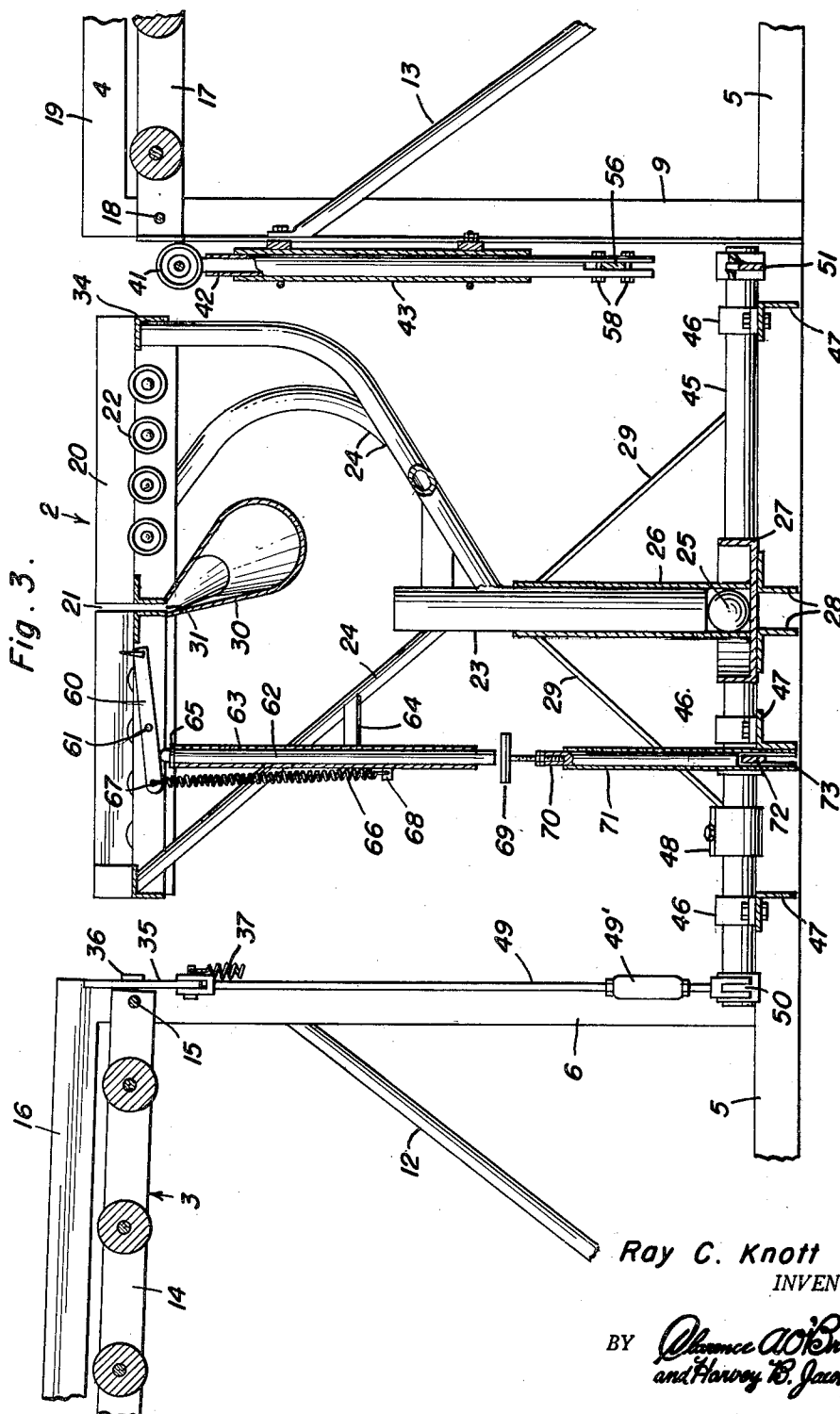
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UNITED STATES PATENT OFFICE

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APPARATUS FOR SUPPORTING AND REVOLVING PACKING CASES INTO POSITION FOR WIRING

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6 Claims. (Cl. 100—25)

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My invention relates to improvements in apparatus for supporting and revolving packing cases, and the like, into different positions for convenient wiring.

The primary object of the invention is to provide a time and labor-saving apparatus for holding packing cases and the like elevated for wiring around the ends and center thereof, and for revolving the cases into different positions, in which the placing of wire fasteners around the ends and middle of the cases is facilitated and may be accomplished by an operator standing in one position before the apparatus.

Another object is to provide a low cost apparatus for the purpose above specified which is safe to use and easy to install and operate.

Other and subordinate objects, within the purview of my invention, together with the precise nature of my improvements will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a fragmentary view in plan of my improved apparatus in the preferred embodiment thereof;

Figure 2 is a fragmentary view in side elevation of the same;

Figure 3 is a view in longitudinal vertical section taken on the line 3—3 of Figure 1 and drawn to a larger scale;

Figure 4 is a view in vertical transverse section taken on the line 4—4 of Figure 2;

Figure 5 is a similar view taken on the line 5—5 of Figure 2; and

Figure 6 is another similar view taken on the line 6—6 of Figure 2.

Referring to the drawings by numerals, my improved apparatus comprises, as its basic components, a base frame 1, a turntable 2, a gravity-fed loading conveyor 3, and a discharge conveyor 4, arranged in line, with the turntable 2 located between inner ends of said conveyors. The turntable 2 and the conveyors 3 and 4 are supported, as presently described, substantially knee high to an operator for convenient access to packing cases thereon.

Base frame 1 comprises a pair of side angle bars 5 from which rise side uprights 6 in opposite relation for supporting the inner end of the loading conveyor 3 and which are cross-connected by an upper cross-bar 7 and braced by diagonal truss rods 8. A similar pair of side uprights 9 rise from the side bars 5 in opposite relation for supporting the inner end of the dis-

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charge conveyor 4 and are cross-connected by a pair of upper and lower cross-bars 10, 11. Diagonal side braces 12 extend from the side uprights 6 to the side bars 5, and similar braces 13 extend from the uprights 9 to said side bars 5.

The loading conveyor 3 is of the roller type with sides 14 supported at the inner end of said conveyor on a cross-rod 15 connecting the uprights 6. The loading conveyor 3 inclines downwardly toward the turntable 2 for gravity feed of cases thereon to said turntable. Guard rails 16 at opposite sides of the loading conveyor 3 are supported by the uprights 6, and together with said sides 14 may be additionally supported in any suitable manner.

The discharge conveyor 4 is also of the roller type with sides 17 supported at the inner end of said conveyor by a cross-rod 18 connecting the uprights 9. Guard rails 19 extend along opposite sides of the discharge conveyor 4 from the uprights 9 which support said sides at inner ends thereof. The sides 17 of the discharge conveyor 4 may be additionally supported in any desired manner.

The turntable 2 is of oblong rectangular shape and skeleton form, shorter than the cases to be wired, with side guard rails 20 and is divided in its transverse center to provide a central transverse slot 21 therethrough for passing wire upwardly through said turntable for a purpose presently seen. Side rollers 22 on the turntable 2 provide for easy movement of the cases onto and off of said turntable.

A mounting for the turntable 2 supports the same on the base frame 1 for revolving from a normal loading position in which the same extends endwise between the inner ends of the loading and discharge conveyors 3, 4 with the ends of said turntable spaced from the inner ends of said conveyors sufficiently to permit revolving of the turntable 2 and positioning of cases on the same with the ends of the cases overhanging the ends of said turntable for wiring of said cases around the ends thereof.

The mounting for the turntable 2 comprises a vertical post 23 in the vertical center of said turntable, spaced below the same, with arms 24 extending upwardly and outwardly from the upper end thereof and suitably fixed to said turntable. The post 23 is rotatably mounted, on an anti-friction ball 25, in a vertical sleeve 26 having a base flange 27 suitably fixed on a pair of angle bars 28 cross-connecting the side bars 5. Diagonal rods 29 brace the sleeve 26 to the side bars 5. A funnel-shaped wire guide 30 extends end-

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wise across and is suitably fixed to the bottom of the turntable 2 in the transverse center thereof. The wire guide 30 has a longitudinal top slot 31 therein communicating with the slot 21 in the turntable 2. Further, the wire guide 30 has a smaller upturned open end at what constitutes the front side of the turntable 2, when said turntable is in loading position, said upturned end 32 opening into the slot 31 and forming a restricted throat 33 at one end of the slots 21 and 31. The larger end of the wire guide 30 terminates at the rear side of the turntable 2. The wire guide 30 inclines laterally toward what constitutes the front end 34 of the turntable 2. The purpose of the wire guide 30 will presently be explained.

A case feed stop dog 35 at the inner end of the loading conveyor 3 is pivoted intermediate its ends, as at 36, on the cross-bar 7. A coil spring 37 fixed, as at 38, to one end of said dog 35, with its other end fixed, as at 39, to one upright 6, normally swings said dog 35 into upstanding effective position to block the feed cases off the loading conveyor 3 onto the turntable 2. The case feed stop dog 35 is swingable out of effective position into ineffective position by means presently described.

A case positioning stop 40 is provided at the inner end of the discharge conveyor 4 for centering a case on the turntable 2 with its ends overhanging the ends of said turntable. The case positioning stop 40 comprises a stop roller 41 on the upper end of a shaft 42 vertically slidable in a sleeve 43 fastened by U-bolts 44 to the cross-bars 10 and 11. The shaft 42 is movable upwardly from a normal ineffective position to project the stop roller 41 above the turntable 2 into effective position.

Pedal operated means provides for swinging the case feed stop dog 35 into ineffective position and for moving the case positioning stop dog 41 into effective position. The pedal operated means comprises a longitudinal rock shaft 45, beneath the turntable 2, at what constitutes the front side of the machine and which is journaled in bearings 46 on cross-bars 47 of the base frame 1. A foot pedal 48 extends forwardly from the rock shaft 45 in front of the turntable 2. A pivoted push rod 49 with a turnbuckle 49' therein for adjusting the length of said rod connects the case feed stop dog 35 with a crank arm 50 fast on one end of said rock shaft, so that rocking of said shaft by depression of the foot pedal 48 swings said dog 35 into ineffective position in opposition to the coil spring 37, and as shown in dotted lines in Figure 6. A crank arm 51 fast on the other end of the rock shaft 45 is operatively connected to the shaft 42 to move the latter upwardly, and hence the stop roller 41, into effective position, during rocking of said rock shaft 45 to swing the case feed stop dog 35 into ineffective position. For this purpose, a push rod 52, with a turnbuckle 53 therein for adjustment purposes, is pivotally connected, as at 54, to said crank arm 51 and pivoted, as at 55, to a rocker arm 56 pivoted, as at 57, on one upright 9 and pivoting and sliding between a pair of pins 58 on the shaft 42.

A case locking, sharp pronged dog 60 is pivoted, as at 61, on the turntable 2 for vertical rocking in one direction to bite into the bottom of a case positioned on the turntable 2 and hold said case against endwise play on said turntable. The case locking dog 60 is rockable in the opposite direction into ineffective, release position by the following means.

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A vertical plunger rod 62 is movable upwardly against said dog 60 and is slidably fitted in a guide sleeve 63 fixed to a bracket arm 64 on one of the arms 24. A stop collar 65 on said rod 62 seating on the upper end of the sleeve 63 suspends the plunger rod 62 in said sleeve 63 in engagement with said dog. A coil spring 66 fixed at its ends to said dog 62 and sleeve 63 as at 67, 68, respectively, yieldingly holds said dog 60 in effective position and engaged with the plunger rod 62. As will be seen, the plunger rod 62 and sleeve 63 provide means on the turntable 2 for rocking the case locking dog 60 into ineffective position. In the normal loading position of the turntable 2, the plunger rod 62 is vertically aligned with the head 69 of a vertical push rod 70 slidable in a sleeve 71 fixed to one of the cross-bars 47. A crank arm 72 on the rock shaft 45 works in a vertical slot 73 in the sleeve 71 to lift the push rod 70 so that, with the turntable 2 in normal loading position, as shown in the drawings, the plunger rod 62 will be moved upwardly to rock the case locking dog 60 into ineffective position if the foot pedal 48 is depressed. The crank arm 72 is arranged on the rock shaft 45 so that the case locking dog 60 may be rocked into ineffective position by depression of the foot pedal 48 through substantially half its downstroke and whereby said dog may be rocked into ineffective position prior to swinging of the case feed stop dog 35 into ineffective position and prior to movement of the case-positioning stop roller 41 into effective position.

Referring now to the use and operation of the invention, with the turntable 2 in normal loading position, a packing case 74 is placed on the loading conveyor 3 to feed by gravity endwise against the case feed stop dog 35. An operator standing in front of the apparatus and opposite the turntable 2 then depresses the foot pedal 48 fully to swing said dog 35 into ineffective position, the case locking dog 60 into ineffective position, and to move the case positioning stop roller 41 into effective position. With the foot pedal 48 held depressed, the case 74 is shoved and guided off the loading conveyor 3 onto the turntable 2 against the case positioning stop 40, whereby it is centered on the turntable 2 with its ends overhanging the ends of said turntable.

The foot pedal 48 is next released to permit the case feed stop dog to return to effective position under the influence of the coil spring 37 which rocks the rock shaft 45 to return the same and the foot pedal 48 to normal position. Return of the rock shaft 45 to normal position moves the case positioning stop roller 41 into ineffective position and permits the case locking dog 60 to be swung by the coil spring 66 into effective position for biting into the bottom of the case 74 and locking said case on the turntable 2 against endwise play thereon.

The operator next revolves the turntable and case 73 by hand a quarter turn, counter-clockwise as viewed in Figure 1, to position the turntable 2 crosswise of the machine with its front end 34 before the operator and the larger end of the wire guide 30 within convenient reach of the left hand of the operator. The operator now passes and secures a wire, not shown, around the end of the case 74 at the front end of the turntable 2 which is now in front of the operator. The operator next threads a wire, not shown, through the wire guide 30 from the larger end of said guide until the leading end of the wire projects upwardly out of the throat 33 of said guide, whereupon he

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grasps both ends of this wire, pulls the wire upwardly through the slots 21 and 31 against the bottom of the case 74, and fastens the ends together to wire the case 74 around the transverse center thereof. The turntable 2 and case 74 are then given a half turn, counter-clockwise, to position the other end of the turntable and case 74 before the operator, who then wires that end in the same manner as described with reference to the other end of the case. The turntable is then given another quarter turn, counter-clockwise, to revolve the same back into normal loading position. The foot pedal 48 is now depressed through half its downstroke, whereupon, in the manner previously described, the case locking dog 59 will be swung into ineffective position so that the wired case 74 may be shoved off the turntable 2 onto the discharge conveyor 4 for movement by hand along said conveyor 4 to any required position for removing from said conveyor. The operations described in the foregoing are repeated for each case to be wired, but, as will be seen, may be accomplished quickly and easily so that packing cases may be wired expeditiously with a minimum amount of labor.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. Apparatus for supporting packing cases for wiring comprising a gravity feed conveyor for feeding a case to one end thereof, a normally effective case feed stop at said end of the conveyor for holding a case against feeding off said end and movable into ineffective position, a rectangular turntable at said end of the conveyor rotatable into longitudinal alignment therewith for receiving the case when moved off said conveyor endwise onto said turntable, said turntable being shorter than said case to provide for the ends of the case overhanging the ends of the turntable when centered thereon whereby to facilitate fastening wires around said ends of the case, and said turntable being rotatable out of such alignment for access to both ends of the case in fastening the wires, a normally ineffective case centering stop for establishing the centered position of the case on said turntable, and movable into effective position, and manipulative means for moving said case feed stop into ineffective position and said case centering stop into effective position in unison.

2. Apparatus for supporting packing cases for wiring comprising a gravity feed conveyor for feeding a case to one end thereof, a normally effective case feed stop at said end of the conveyor for holding a case against feeding off said end and movable into ineffective position, a rectangular turntable at said end of the conveyor rotatable into longitudinal alignment therewith for receiving the case when moved off said conveyor endwise onto said turntable, said turntable being shorter than said case to provide for the ends of the case overhanging the ends of the turntable when centered thereon whereby to facilitate fastening wires around said ends of the case, and said turntable being rotatable out of such alignment for access to both ends of the case in fastening the wires, a normally ineffective case center-

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ing stop for establishing the centered position of the case on said turntable and movable into effective position, manipulative means for moving said case feed stop into ineffective position and said centering stop into effective position in unison, and a case locking dog on the turntable normally positioned to engage the case for preventing end play of the case and movable into ineffective position by operation of said means prior to movement of the case feed stop into ineffective position.

3. Apparatus for supporting packing cases for wiring comprising a gravity feed conveyor for feeding a case to one end thereof, a normally effective case feed stop at said end of the conveyor for holding a case against feeding off said end and movable into ineffective position, a rectangular turntable at said end of the conveyor rotatable into longitudinal alignment therewith for receiving the case when moved off said conveyor endwise onto said turntable, said turntable being shorter than said case to provide for the ends of the case overhanging the ends of the turntable when centered thereon whereby to facilitate fastening wires around said ends of the case, and said turntable being rotatable out of such alignment for access to both ends of the case in fastening the wires, a normally ineffective case centering stop for establishing the centered position of the case on said turntable, and movable into effective position, and manipulative means for moving said case feed stop into ineffective position and said case centering stop into effective position in unison, said turntable being split in the transverse center thereof for passing a wire upwardly therethrough for fastening around the center of the case.

4. Apparatus for supporting packing cases for wiring comprising a gravity feed conveyor for feeding a case to one end thereof, a normally effective case feed stop at said end of the conveyor for holding a case against feeding off said end and movable into ineffective position, a rectangular turntable at said end of the conveyor rotatable into longitudinal alignment therewith for receiving the case when moved off said conveyor endwise onto said turntable, said turntable being shorter than said case to provide for the ends of the case overhanging the ends of the turntable when centered thereon whereby to facilitate fastening wires around said ends of the case, and said turntable being rotatable out of such alignment for access to both ends of the case in fastening the wires, a normally ineffective case centering stop for establishing the centered position of the case on said turntable, and movable into effective position, manipulative means for moving said case feed stop into ineffective position and said case centering stop into effective position in unison, comprising half sections with confronting spaced apart ends forming a transverse central split in the turntable, means supporting said sections with said split accessible from the bottom of the turntable for passing of a case fastening wire extended beneath the turntable upwardly through said split, and wire guide means on the bottom of said turntable bridging said split for guiding the wire into the split.

5. Apparatus for supporting a packing case for wiring comprising a rectangular turntable for receiving a case loaded thereon to facilitate placing wires around the case, said turntable being rotatable from a loading position to position the ends of the case opposite an operator for wiring while the operator stands in one position, said

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turntable being transversely split centrally for passing a wire upwardly therethrough for fastening around the center of the case, a releasable pronged case locking dog on said turntable spring tensioned for normally biting into said case to hold the same centered on the turntable, and pedal operated means for releasing said dog operative in the loading position of said turntable and rendered inoperative when said turntable is rotated out of loading position.

6. Apparatus according to claim 5 wherein said last-named means includes a stationarily mounted push rod operative by said pedal, and a dog engaging push rod carried by said turntable and revolved into and out of operative relation to the first-named push rod by rotation of said turntable.

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