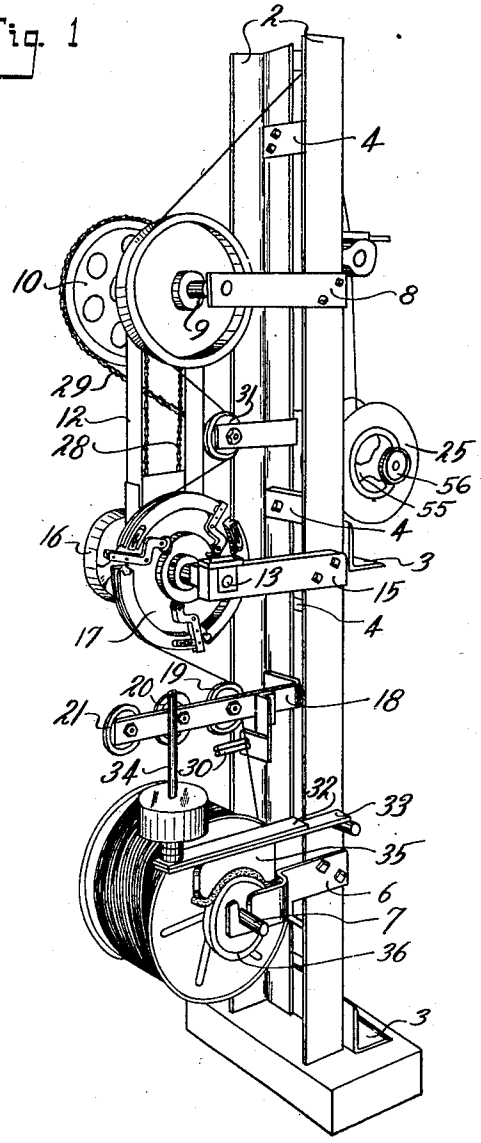
April 28, 1931. H. R. WRIGHT 1,802,453

WIRE SKINNING MACHINE

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Fig. 1



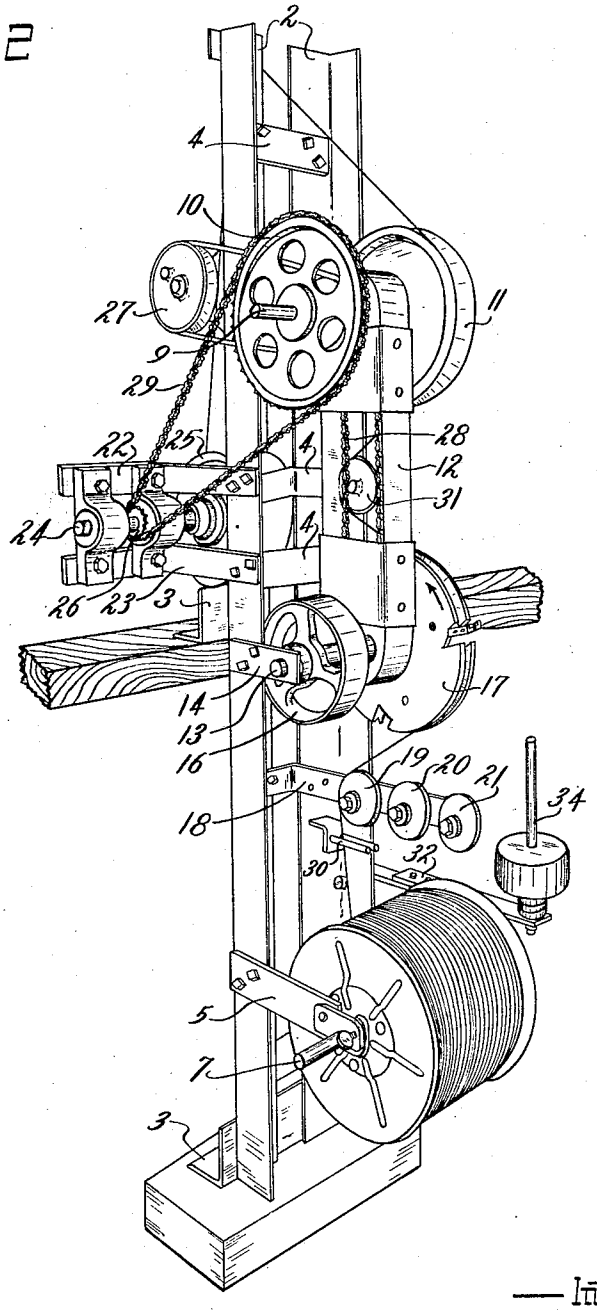
Inventor
Harry R. Wright
Wm. Watts Dawes Atty.

April 28, 1931. H. R. WRIGHT 1,802,453

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Fig. 2



Inventor
Harry R. Wright
Wm Watts Dunn Atty.

April 28, 1931. H. R. WRIGHT 1,802,453

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Fig. 3

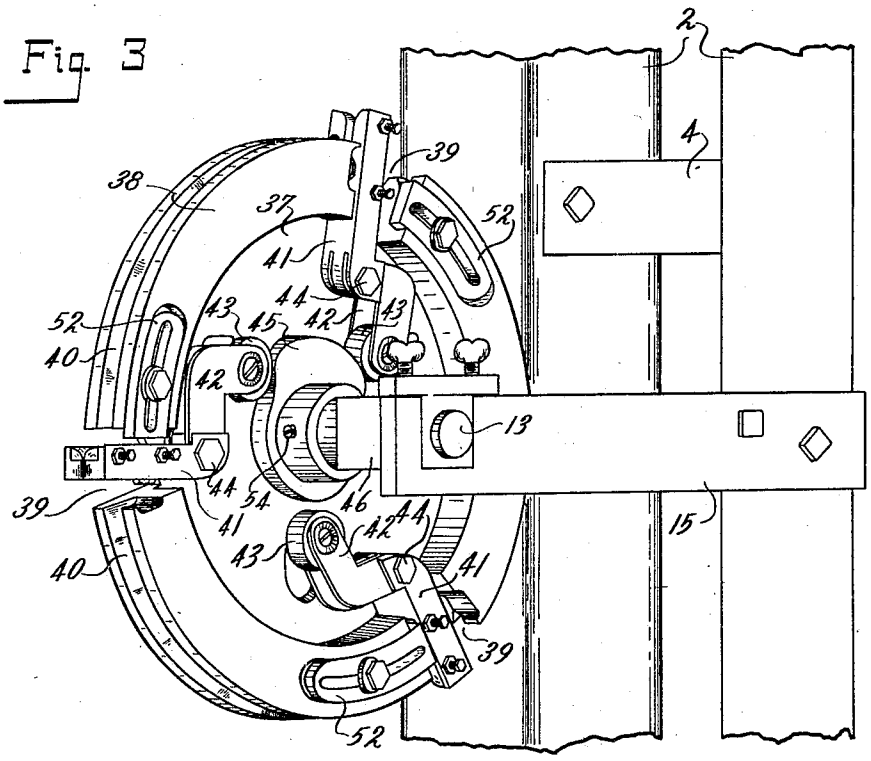


Fig. 5

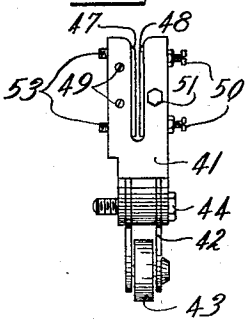
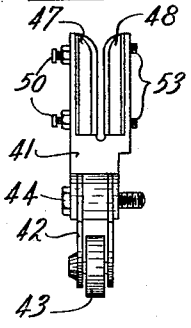


Fig. 6



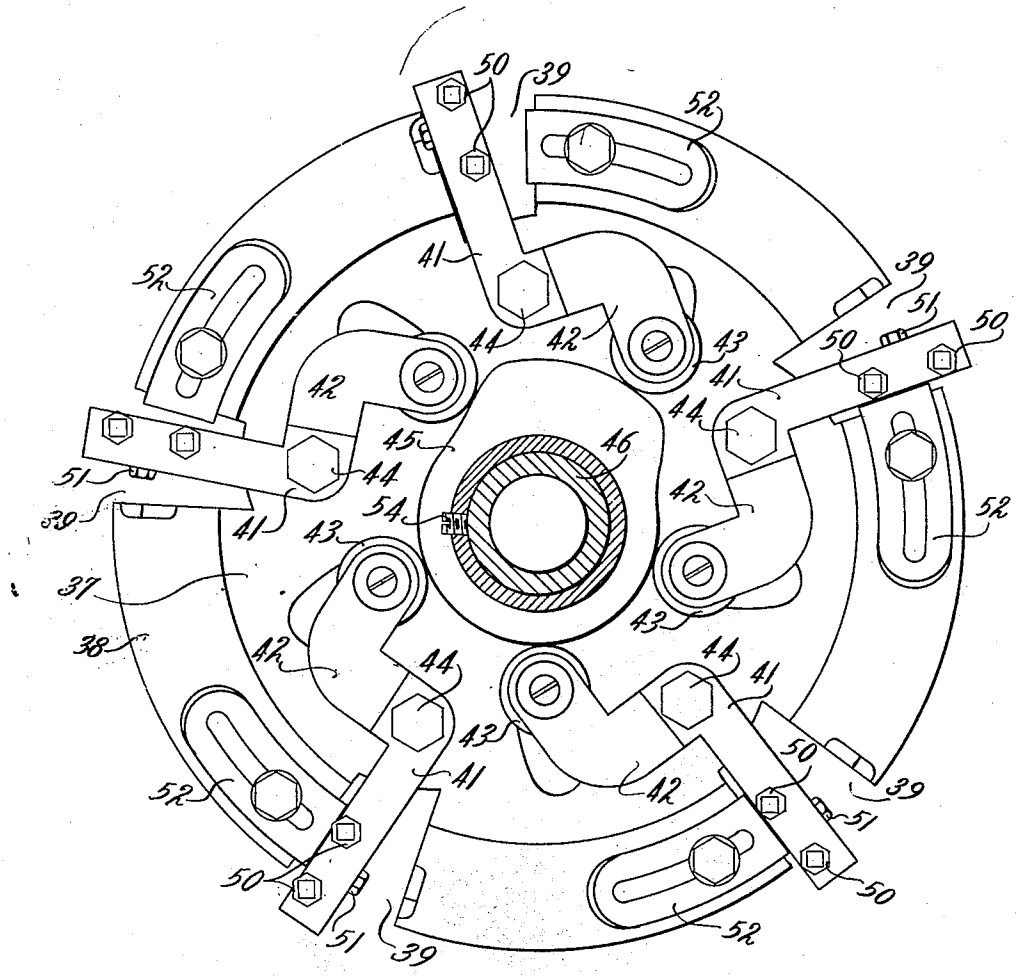
Inventor
Harry R. Wright
Wm. Watts Dunn Atty.

April 28, 1931. H. R. WRIGHT 1,802,453

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Fig. 4



Inventor
Harry R. Wright
Wm Watts Owen Atty.

Patented Apr. 28, 1931

1,802,453

UNITED STATES PATENT OFFICE

HARRY R. WRIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR TO RESERVE HOLDING COMPANY, OF KANSAS CITY, MISSOURI, A CORPORATION OF DELAWARE

WIRE-SKINNING MACHINE

Application filed October 31, 1927. Serial No. 229,980.

This invention relates in general to wire skinning machines and more particularly to such machines which are mechanical in their operations of skinning wire for use in connecting together terminals of switch banks.

As is known to those familiar with the construction and manufacture of multipled switch banks, it is necessary that the wire which is used to multiply connect the individual banks be skinned at equal intervals along its length. Heretofore, it has been the practice to skin the wire either by means of a hand tool or by a burning process, both of which methods are much too slow.

My invention has for its principal object the provision of a machine which will skin wire properly and which will have an output which is many times greater than that of either the hand method or the burning method.

Other objects and features of my invention together with the main object will be apparent from the explanation which is to follow and from reference to the drawings which comprise Figs. 1–6, inclusive.

In the drawings, Fig. 1 is a perspective view of the complete skinning machine assembly, looking from the right side; Fig. 2 is a perspective view of the complete assembly, looking from the left side; Fig. 3 is a perspective view of the skinning wheel assembly, Fig. 4 is a side view of the skinning wheel assembly; Figs. 5 and 6 are front and rear views, respectively, of the skinning blade assembly.

Referring now to Figs. 1 and 2, the construction of the complete machine assembly will be described in detail. The mounting frame is made up of vertical angles 2 held in fixed relation with each other by cross angles 3 and cross bars 4. The frame may be secured rigidly in a vertical position in the best suitable manner. Bolted to the sides of the upright angles near their lower extremities are the horizontal side arms 5 and 6. These arms carry the shaft 7 upon which a spool of wire is carried. This spool carries the wire which is to be skinned.

Bolted to the frame near the upper extremity are two horizontal side arms similar to arms 5 and 6. Only one of these arms, 8, is visible in the drawings. These arms carry the shaft 9 to which are rigidly fastened the drive gear 10, capstan 11, and two other drive gears which are not visible but are hidden from view by chain guard 12. Centrally located with respect to shafts 7 and 9 is shaft 13 which is carried by horizontal side arms 14 and 15 which are similar to those side arms carrying shafts 7 and 9. Shaft 13 carries drive pulley 16, skinning mechanism 17, and a drive pulley not visible because of chain guard 12. The three shafts, 7, 9, and 13, are located in front of the frame.

Located between the skinning mechanism and the spool carrying the wire to be skinned is another horizontal side arm 18 which carries the three idlers 19, 20 and 21. The purpose of the different idlers will be explained later.

On the reverse side of the frame, carried by means of side arms 22 and 23, is a shaft 24 whose purpose is to carry spool 25 upon which the wire is to be wound. The spool is frictionally held on this shaft by means of a spring holding member 55 and a nut 56 threaded onto the end of the shaft. The purpose of so mounting spool 25 will also be explained later. Shaft 24 also carries drive gear 26.

Directly above the shaft 24 and spool 25 is mounted the level-winder assembly. This assembly represented by drive pulley 27, since the rest of the mechanism is not visible, merely guides the wire as it is being wound upon spool 25 so that the wire will be wound evenly over the length of the spool.

The operation of the complete assembly as just described, will now be explained. The driving power may be furnished by any suitable means. In this case, it will be assumed that a small electric motor is being used. By means of a belt around drive pulley 16 and the pulley of the motor, the shaft 13 is revolved. The revolution of shaft 13, rotates skinning mechanism 17 in the direction indicated by the arrow. The rotation of shaft 13 will be translated to shaft 9 by means of driving gears, which are of equal size but which are not visible, and chain 28. Therefore, the

gears and capstan attached to shaft 9 will be revolved in the same direction as shaft 13, while both shafts will be revolved at the same rate. By means of gears 10 and 26 and chain 29, the motion of shaft 9 is translated to shaft 24. Thus spool 25 is rotated in the same direction as skinning mechanism 17.

The wire from the supply spool on shaft 7 is led between guide pins 30, over one of idlers 19, 20 or 21, over skinning mechanism 17, over idler 31, around capstan 11 three or four times, over another idler, not shown, through the level winder, and thence onto spool 25. Thus, when the motor is started, the wire is unwound from the supply spool by the pull of capstan 11 and wound onto spool 25. Spool 25 is revolved at a faster rate than is capstan 11. Thus the wire between these two is always taut. The spring member 55 allows the spool 25 to slip on the shaft 24, for as the size of roll of wire upon spool 25 increases the spool can not be revolved as fast since the wire is unwound from the supply spool at a uniform rate by capstan 11.

The brake arm 32 is pivoted at its extremity 33 by a pin mounted in the frame. At its opposite extremity, the brake arm 32 has fastened to it the upright, weight-carrying rod 34. On the underside of arm 32 is fastened the brake shoe 35. This brake shoe rides upon the surface of brake drum 36. Brake drum 36 is rigidly fastened to shaft 7. This breaking arrangement performs as a drag upon the supply spool so that the wire unwound from it will always be under a strong tension.

The amount of drag desired may be secured by putting the proper weight on weight-carrying rod 34.

The construction and operation of the complete machine assembly, having been explained in sufficient detail to enable one familiar in the art to understand it, the construction and operation of the skinning mechanism 17 will now be explained in detail, reference being had to Figs. 3, 4, 5, and 6.

Referring particularly to Figs. 3 and 4, it will be seen that the skinning mechanism 17 consists primarily of a disc 37 keyed firmly to the shaft 13. Disc 37 has a flanged edge 38 in which are the openings 39. In the periphery of the flange is a deep groove 40 in which runs the wire. The openings 39 in the flange 38 have been made to receive the skinning blade assemblies. These assemblies consist of the blade carrying members 41 and roller carrying members 42. Members 41 and 42 are made integral with each other. The rollers 43 are carried by members 42 at their extremities and the complete assemblies are each pivoted at 44. The cam 45 is provided to operate the skinning blade assemblies. The hub of cam 45 is hollow so as to receive the rounded extremity of block 46. Block 46 is made hollow so as to act as a journal for shaft 13. The extremity of block 46 is clamped in the right angled groove in side arm 15 so as to prevent it from being turned by the revolution of shaft 13. Cam 45 is held stationary by securing it firmly to block 46 by means of a set screw 54.

Now, when shaft 13 is revolved as previously explained, the disc 37 will also be revolved in the same direction, that indicated by the arrow. The cam 45 is so designed that when disc 37 revolves, the rollers 43 will roll up its surface. Since the cam is stationary, the revolution of disc 37 will cause the cam to rotate the blade assemblies about their pivot points 44. This will cause the outer extremities of members 41 to be rotated about points 44 in a direction opposite to the direction of rotation of disc 37. It is this movement which performs the skinning operation.

The skinning operation will be better understood by understanding the construction of the skinning blades, as will now be explained, reference being had particularly to Figs. 5 and 6. Fig. 5 is a front view of blade assembly while Fig. 6 is a rear view. The blade carrying member 41 has a deep, narrow slot cut in its top side. The rear side of member 41 is beveled to receive the blades 47 and 48. Blade 47 is rigidly fastened to 41 by means of screws 49 and 53. Blade 48 is adjustable, being set and held in place by set screws 50 and 51. The beveling of 41 is such that with the blades in place, the edges of the blades will line up parallel with the sides of the deep slot but closer together than the edges of the slot so that when wire is inserted between the two blades, it will not come in contact with the member 41. The complete blade assembly is so mounted on disc 37 that the slot in 41 will be in exact line with deep groove in the periphery of the flange 38 on disc 37. Thus the wire running in the groove will pass between the skinning blades 47 and 48. The blades are so spaced that when the skinning operation is performed as previously explained, the blades will skin the insulation from the wire without injuring the wire itself.

The length of the skin depends upon the design of the cam, the cam being designed in this case to skin the wire for a distance of about three-fourths of an inch. The adjustable backstops 52, inserted in the flange 38, allows the length of skin to be varied slightly without necessitating the use of a different cam. The distance between skins on a length of wire may be varied by increasing or decreasing the number of blade assemblies on disc 37. The number of blade assemblies on disc 37 determines which one of idlers 19, 20 or 21 shall be used. These idlers are so situated that they guide the wire, which runs in the groove of 38, in such a way that that

wire will be in only one skinning blade assembly at a time. The idler situated nearest to the frame will be used with a disc having the smallest number of blade assemblies, the next nearest with more blade assemblies, and the farthest with still more blade assemblies.

Restoring springs fastened to the reverse sides of the blade assemblies and disc 37 are used to return the assemblies to their normal positions after the skinning operations have been performed. The springs are not visible in the drawings.

While I have chosen to show my invention in this one particular use, and as there are modifications and adaptations which can be made by one skilled in the art without departing from the scope of the invention, I do not choose to be limited to the exact disclosure.

Having thus described my invention what I consider new and desire to have protected by Letters Patent will be pointed out in the appended claim.

What is claimed is:—

In a wire skinning machine, a rotating drum, a plurality of slotted skinning knives pivoted on the drum, means for feeding insulated wire over the drum and through the slots in said knives, a stationary cam, rollers on one end of each knife successively engaging said cam, each knife moved independently of the others by the engagement of its roller with the cam, said knives moved along the wire in a direction opposite to the direction of movement of the wire, and means for adjusting the extent of movement of the knives relative to the wire whereby strips of insulation of varying lengths may be removed from the wire at predetermined intervals.

In witness whereof, I hereunto subscribe my name this 28th day of October, A. D. 1927.

HARRY R. WRIGHT.