May 26, 1931. S. D. DENNIS 1,806,844

ELECTRICIAN'S TAPE GRIPPER

Filed June 5, 1930

Fig. 1.

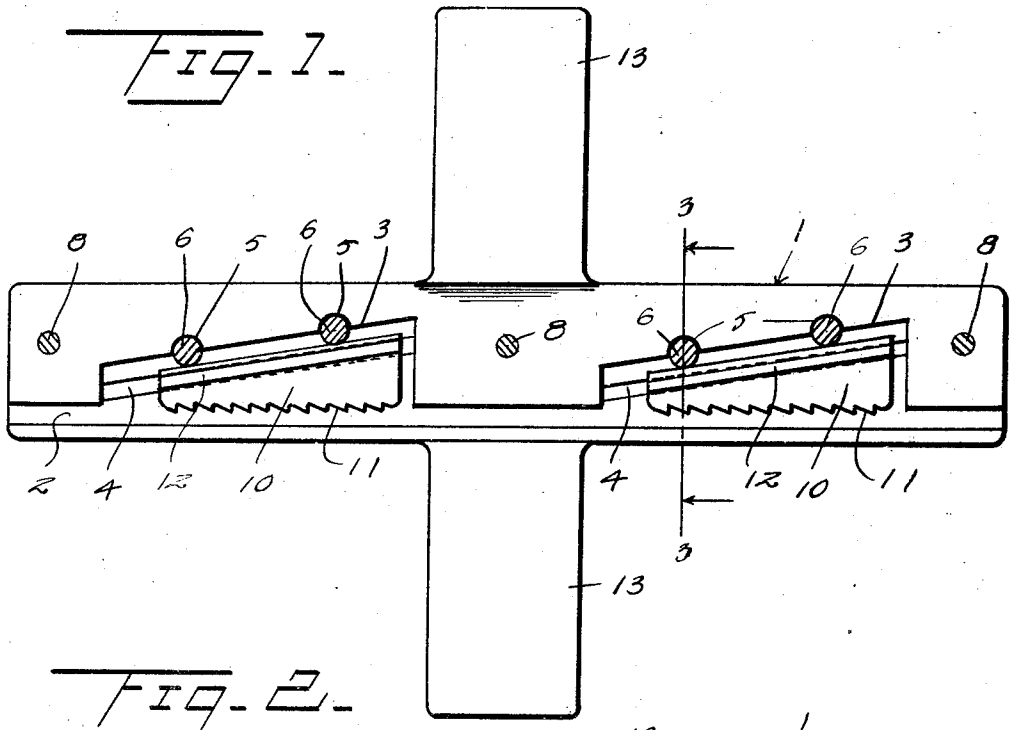


Fig. 2.

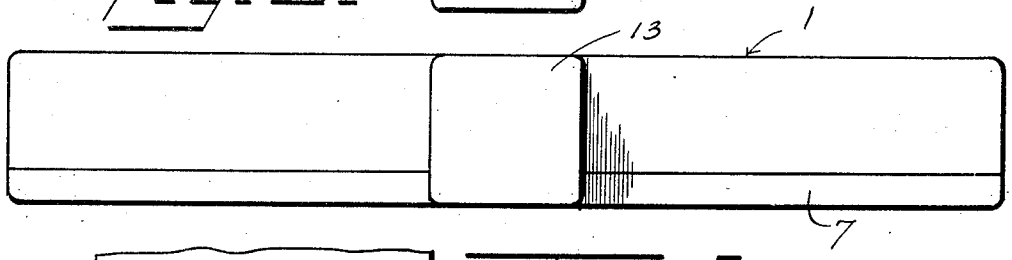
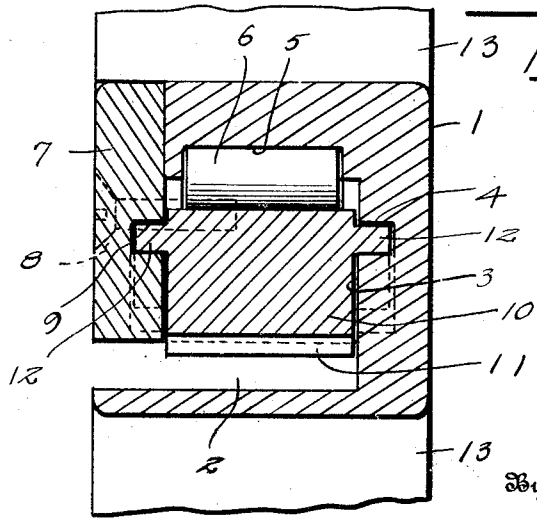


Fig. 3.



Inventor

S. D. Dennis

By Watson E. Coleman

Attorney

Patented May 26, 1931 1,806,844

UNITED STATES PATENT OFFICE

SAMUEL D. DENNIS, OF CHILLICOTHE, MISSOURI

ELECTRICIAN'S TAPE GRIPPER

Application filed June 5, 1930. Serial No. 459,381.

This invention relates to improvements in devices designed for the use of electricians and employed as a tape puller.

The primary object of the present invention is to provide an improved form of tape puller which is so constructed that the moving parts thereof will always work freely and smoothly and the greater the amount of strain put thereon when the device is in use, the greater will be the grip of the device upon the tape with which it is in engagement.

Still another object of the invention is to provide a tape pulling device which may be employed either for a pulling operation or for pushing tape into conduits.

A still further object of the invention is to provide a tape puller of such a character that, although the grip of the device will become firmer as the pull exerted thereon increases, the engagement of the device with the tape may be easily broken by a slight shove of the device in the direction opposite to that in which it was being pulled.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a view in side elevation of the tool embodying the present invention showing the side plate removed.

Figure 2 is a view in top plan.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Referring more particularly to the drawings wherein like numerals of reference indicate corresponding parts throughout the several views, the numeral 1 indicates the main body portion of the pulling device embodying the present invention. This body, as shown, consists of a bar which is here shown as of generally rectangular cross-sectional design. Formed longitudinally in one face of the bar 1 is a slot 2 which extends to and opens through the ends of the bar and also extends inwardly to a point in close proximity to the opposite face of the bar. The bar also has formed therein from the side in which the slot 2 is formed, two recesses each of which is indicated by the numeral 3. Each of these recesses as shown opens downwardly into the underlying slot and each is higher at one end than at the other thus making the top wall of each recess sloping. As shown, the slope of these top walls of the recesses is in the same direction.

The inner side wall of each of the recesses 3 has formed therein a groove 4 which extends the full length of the recess and which is substantially parallel with the sloping top wall. Formed in the top wall of each recess to extend transversely thereof is a semi-circular groove 5 and in the assembled wall each of these semi-circular recesses receives a roller bearing 6.

Provided to cover that face of the side wall of the bar portion 1 in which the recesses 3 are formed and to extend from the top to the upper edge of the slot 2, is an elongated plate 7, which plate is held firmly in place against this face of the bar 1 by a suitable number of screws 8. The inner face of the plate 7 has formed therein a pair of grooves 9 each of which, when the plate is in position, corresponds to and is substantially parallel with a groove 4.

Within each of the recesses 3 there is positioned a wedge shaped gripping element 10 the lower surface of which is provided with the transverse teeth 11 and is always maintained in parallel relation with the bottom wall of the slot 2. The top surface of each of these grippers 10 is inclined or angularly disposed with relation to the toothed bottom surface and when the gripping elements are in their respective recesses 3 the laterally projecting and longitudinally extending tongues 12 formed along the sides thereof are slidably positioned in the adjacent confronting grooves 4 and 9 thus maintaining the inclined top surfaces thereof in spaced parallel

relation to the top wall of the recess in which the gripper element is positioned.

The top surface of each of the gripper elements is in contact with the two or more roller bearings 6 housed in the top wall of the recess and since each of the gripper elements 10 is of considerably less length than the recess in which it is housed it will be readily seen that when shifting the grippers in one direction the toothed lower surfaces thereof will be projected into the slot 2. It will thus be seen that upon placing a tape in the slot 2 and then pulling upon the bar 1 in the proper direction these gripper elements 10 will be forced into firm engagement with the tape and will in turn force the tape firmly against the bottom wall of the slot in which it is placed. The lower portion of the bar 1 which forms the bottom wall for the slot 2 is of greater width than the rest of the bar so that the bottom of the bar is of a width equal to the combined width of the bar and the plate 7 above the slot 2.

In order to facilitate the gripping of the bar and the pulling of the same there is formed intermediate the ends the oppositely directed posts 13, one upon the top and the other upon the bottom of the bar as shown.

From the foregoing description it will be readily seen that with a tool of the character embodying the present invention a tape of the type commonly employed by electricians may be firmly grasped when necessary to draw it through a conduit or to force it into a conduit as desired. It will also be readily appreciated that while the device will grip the tape with an intensity proportional to the amount of pull applied thereto it can be made to readily release its grip upon the tape by forcing it in the opposite direction. This is due chiefly to the provision of the roller elements 6 which make the movement of the gripping blocks 10 comparatively easy.

Having thus described my invention, what I claim is:

1. A tape gripping device of the character described, comprising an elongated body having a longitudinally extending slot formed therein from one side thereof, said body further having a recess formed therein of less length than and opening downwardly into said slot and further having its ends terminating inwardly of the ends of the slot, a gripping element disposed in said recess, and means supporting the gripping element upon each side thereof whereby longitudinal movement of the same in the recess will cause its projection into said slot.

2. A tape pulling device of the character described, comprising an elongated body having a slot formed in one face thereof and extending longitudinally of the same, a recess formed in the body intermediate the ends thereof and extending longitudinally thereof and having the top wall disposed at an angle with respect to said slot, a gripping element housed in said recess and having a lower face toothed and overlying the slot, supporting means between the sides of said gripping element and the adjacent walls of the recess permitting longitudinal movement of the element and causing the same to be extended into the slot when moved in one direction, and anti-friction elements interposed between the inclined wall of the recess and the adjacent face of the gripper element.

3. A tape pulling device of the character described, comprising an elongated body having a slot formed in one face thereof and extending longitudinally of the same, a recess formed in the body and extending longitudinally thereof and having the top wall disposed at an angle with respect to said slot, a gripping element within said recess having a lower face toothed and overlying the slot, supporting means between the sides of said gripping element and the adjacent walls of the recess permitting longitudinal movement of the element and causing the same to be extended into the slot when moved in one direction, anti-friction elements interposed between the inclined wall of the recess and the adjacent face of the gripper element, and arms projecting from opposite sides of the body intermediate the ends thereof, forming hand grips for the body.

4. A tape puller, comprising an elongated body having a longitudinally extending slot formed therein from one face thereof, a pair of recesses formed in the body from the face through which said slot opens, each of said recesses having a top wall disposed at an angle to the slot and further having the inner wall thereof provided with a longitudinally extending groove parallel with the inclined top wall, a plate adapted to be positioned over the face of the body in which the recesses are formed to cover the same, said plate adjacent each recess having a groove formed therein and disposed parallel with the groove in the wall of the adjacent recess, a gripper block in each recess having a top wall inclined and substantially parallel with the top wall of the recess, a tongue extending longitudinally of each face of each gripper block and slidably positioned in an adjacent groove, and anti-friction elements disposed between the inclined top of each gripper block and the inclined top wall of the recess, said gripper block having the lower face toothed.

In testimony whereof I hereunto affix my signature.

SAMUEL D. DENNIS.