Oct. 28, 1941. F. B. DOWNING, SR 2,260,443

WIRE ROPE NOZZLE

Filed May 29, 1940

Fig. 1.

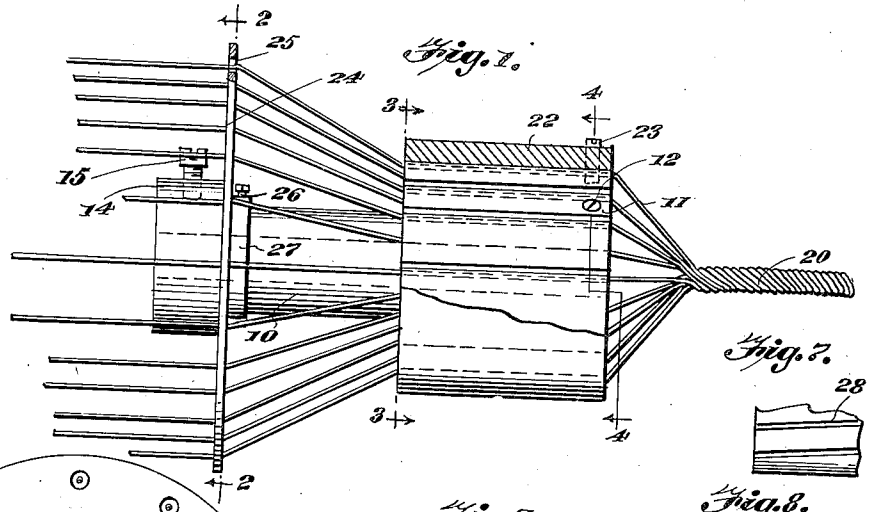


Fig. 2.

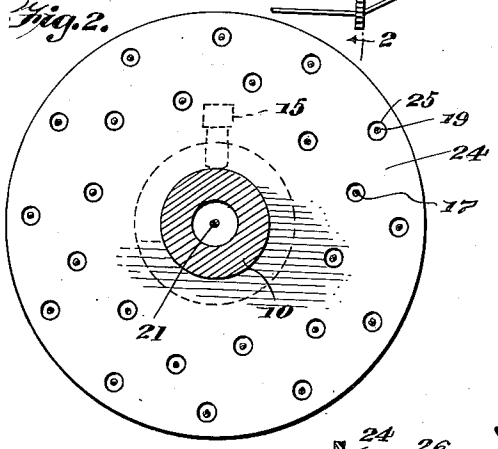


Fig. 3.

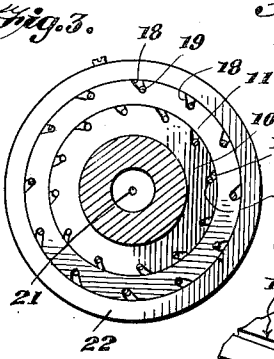


Fig. 7.

Fig. 8.

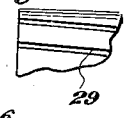


Fig. 6.

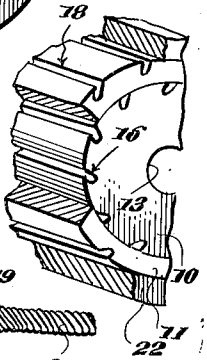


Fig. 5.

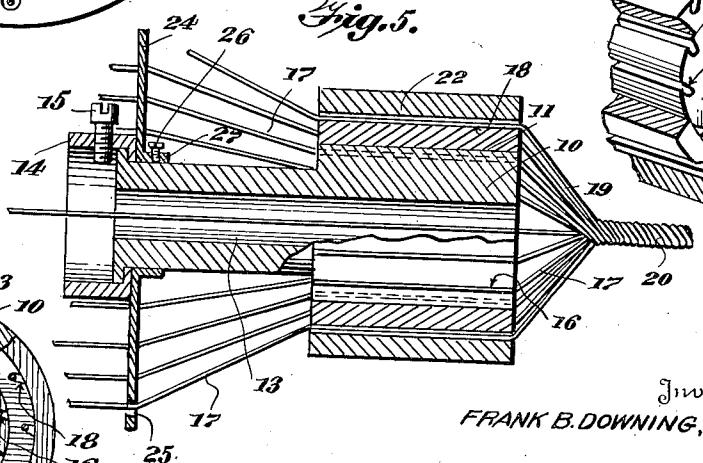
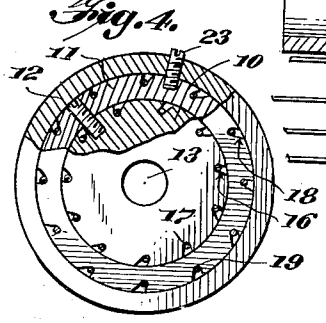


Fig. 4.



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UNITED STATES PATENT OFFICE

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WIRE ROPE NOZZLE

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Application May 29, 1940, Serial No. 337,923

2 Claims. (Cl. 57—138)

This invention relates to an improved nozzle or head for use in connection with a machine for making wire cables and ropes and has for one of its objects the production of a simple and efficient means for guiding the strands to a proper position for twisting the strands into a wire rope or cable.

Another object of this invention is the production of a simple and efficient means for facilitating the unreeling of the strands in the event that the same should become irregularly twisted.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawing:

Figure 1 is a side elevational view of the head, a portion of the outer sleeve being shown in section;

Figure 2 is a vertical sectional view taken on line 2—2 of Figure 1;

Figure 3 is a vertical sectional view taken on line 3—3 of Figure 1;

Figure 4 is a vertical sectional view taken on line 4—4 of Figure 1, certain parts being shown in end elevation;

Figure 5 is a longitudinal sectional view of the head, certain parts being shown in elevation;

Figure 6 is a fragmentary perspective view of a portion of the wire guiding head;

Figure 7 is a fragmentary top plan view of a modified type of head; and

Figure 8 is a fragmentary top plan view of a still further modified type of head.

By referring to the drawing it will be seen that 10 designates the inner section of the head which comprises a tubular member over which fits the outer section 11, this outer section 11 constituting a tubular member. The outer section 11 is preferably secured to the inner section 10 by means of a set screw 12, as shown in detail in Figure 4. In this way, the inner and outer sections 10 and 11 may be locked together and held against independent rotation. The inner section 10 of the head is provided with an elongated longitudinally extending central bore 13, as shown in Figure 5, and this bore 13 is adapted to communicate with a channel formed in a machine upon which the head is adapted to be fitted. The section 10 may be secured in any suitable or desired manner to a collar 14 which may be carried by and secured in any desired way to the machine upon which the device is adapted to work, and this collar may be set or locked in position by means of a suitable set screw 15. Any suitable or desired means may be employed for attaching the section 10 of the head to the machine depending upon the nature of the machine upon which the head is adapted to be mounted.

The section 10 is provided upon the periphery thereof with a plurality of spaced longitudinally extending straight grooves 16 which are slightly undercut to retain the wires 17 within the grooves while the device is being assembled or while the wires are being adjusted. The outer section 11 is also provided with a plurality of straight spaced longitudinally extending undercut grooves 18 for receiving the wires 19. These grooves 16 and 18 will constitute a guide for the wire strands 17 and 19 and properly guide the strands longitudinally toward the outer edge of the head where they may be twisted into a cable or wire rope 20 about or around a central core wire 21 which passes through the bore 13.

As an additional precaution, I preferably provide an encasement sleeve 22 which fits over and encases the outer section 11 and is held in position by means of a set screw 23. It should be understood that any suitable number of sections may be employed without departing from the spirit of the invention to provide a rope or cable of the desired number of layers of wires.

In addition to the sections 10 and 11, I also provide a wire guiding disc 24 which is provided with a series of radially disposed enlarged guiding apertures 25 through which the wires 17 and 19 pass, as shown in Figures 1 and 2. This guiding disc 24 may be secured to the inner section 10 by means of a suitable set screw 26 which passes through the collar 27, the collar 27 fitting snugly over the shank of the section 10, as shown in Figure 1.

The disc 24 is preferably larger in diameter than the sections 10 and 11, and this disc 24 receives the wires 17 and 19 and the wires then converge centrally toward the sections 10 and 11 where they are guided longitudinally of these sections within the respective grooves 16 and 18 toward the outer end of the head where these wires converge centrally toward the coiled or twisted cable 20 where the wires 17 and 19 are twisted about the central core wire 21.

While these grooves 16 and 18 may be straight and extend parallel longitudinally of the sections 10 and 11 these grooves may be inclined toward the left as indicated by the numeral 28 in Figure 7, or they may be inclined toward the right as indicated by the numeral 29 in Figure 8.

The present invention is especially valuable in producing wire cable, wire rope, and the like, and

is especially advantageous should the wire for any reason become injured, improperly twisted, or should there be any reason requiring "reel back" necessitated by kinking in the filler wire which would cause the filler wire to jump out and be wound upon the outside.

By means of the present device, the encasement sleeve **22** may be loosened and moved outwardly over the finished strand and the inner section or sections may be pushed toward the machine freeing the inner and filler wires where the wires may be easily pulled back on the spool in the machine. This device therefore greatly facilitates the reeling back of the wire should it become necessary and avoids the necessity of cutting off the wire and destroying improperly wound portions. In this way considerable savings will be effected in the strand in the event of difficulty, and the reel back of the wires may be accomplished in a minimum length of time and with a minimum amount of effort.

It should be understood that certain detail changes in the mechanical construction may be employed without departing from the spirit of the invention, so long as such changes fall within the scope of the appended claims.

Having described the invention what I claim as new is:

1. A sectional nozzle for guiding wires during the formation of wire rope, cable and the like, comprising a head having longitudinally extending spaced channels upon the periphery thereof, means for retaining the wires within the channels, a guiding disc having a plurality of guiding apertures arranged radially of the center of the disc for supporting and guiding wires toward the grooves in the head, said grooves being undercut to facilitate the holding of the wires within the grooves, the head comprising a plurality of sections, each section containing grooves and the sections fitting one upon the other, and a retaining sleeve fitting over the outer section.

2. A sectional nozzle for guiding wire strands during the formation of wire rope, cable and the like, comprising a head having longitudinally extending spaced wire strand-receiving channels upon the periphery thereof, a removable section carried by said head and overlying the channels for retaining the strands within the channels, locking pins engaging the removable section and head for locking the removable section against independent rotation upon the head, a guiding disc placed in the rear of the removable section and having means for guiding wires therethrough, the outer end of the head and removable sections being unobstructed to permit the removal of the removable section forwardly of the head to permit the head and removable section to be taken apart thereby facilitating the repairing of broken strands and permitting easy access to the strands within the channels formed in the head.

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