

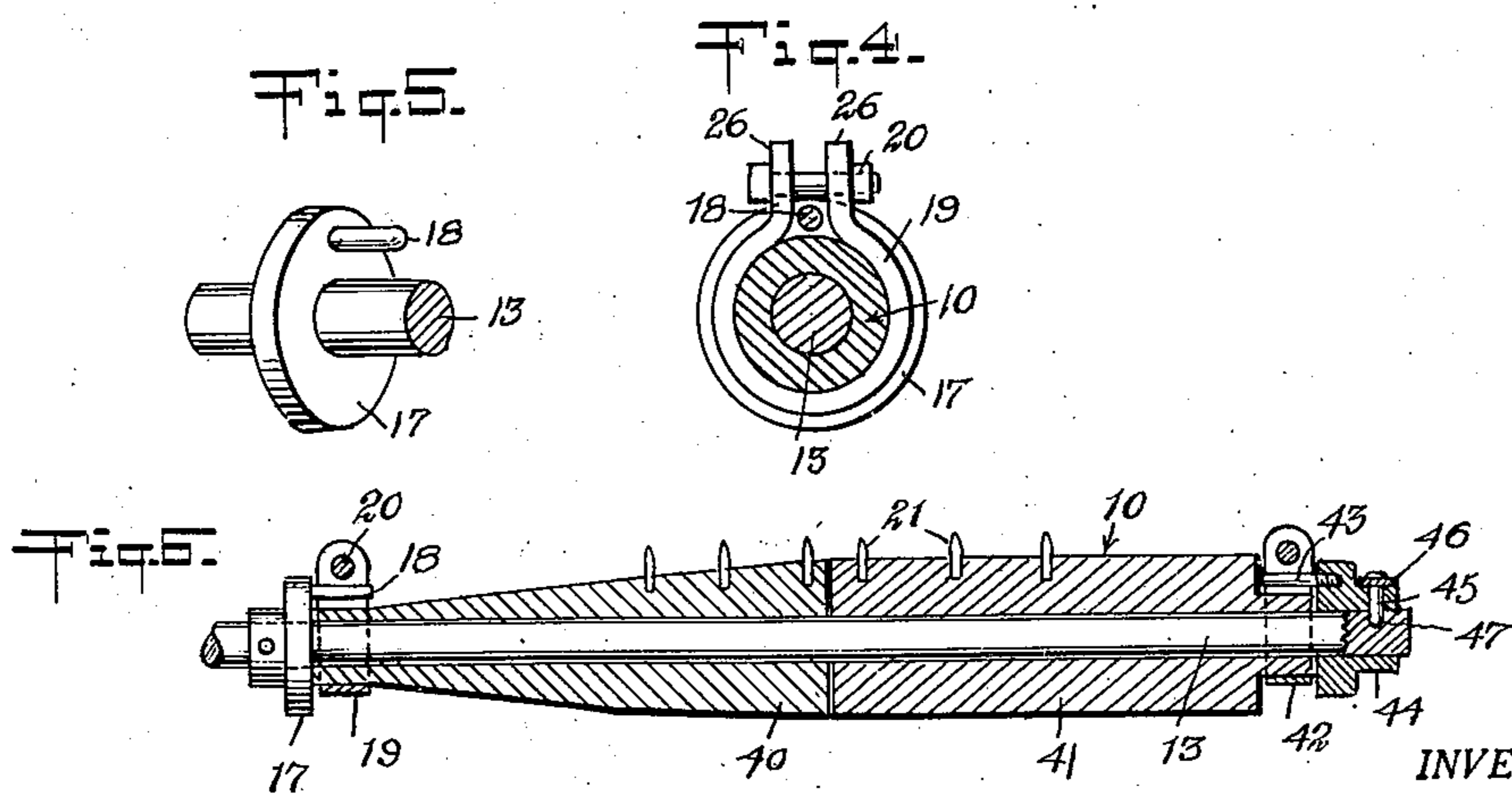
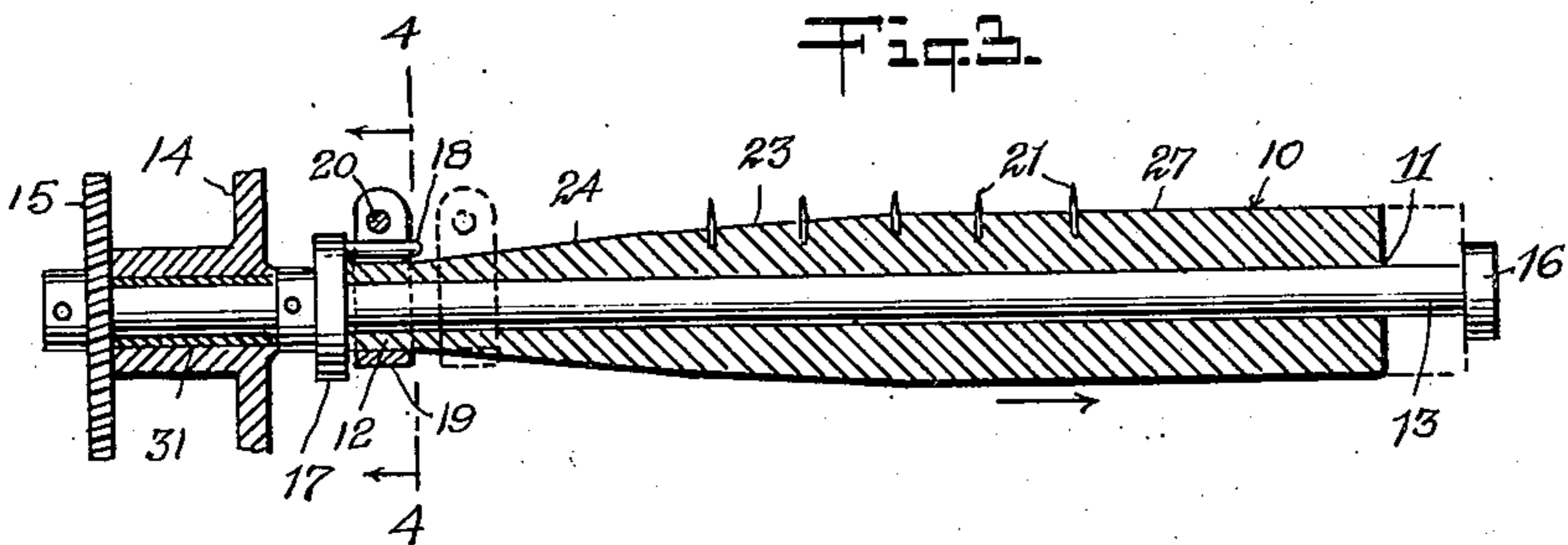
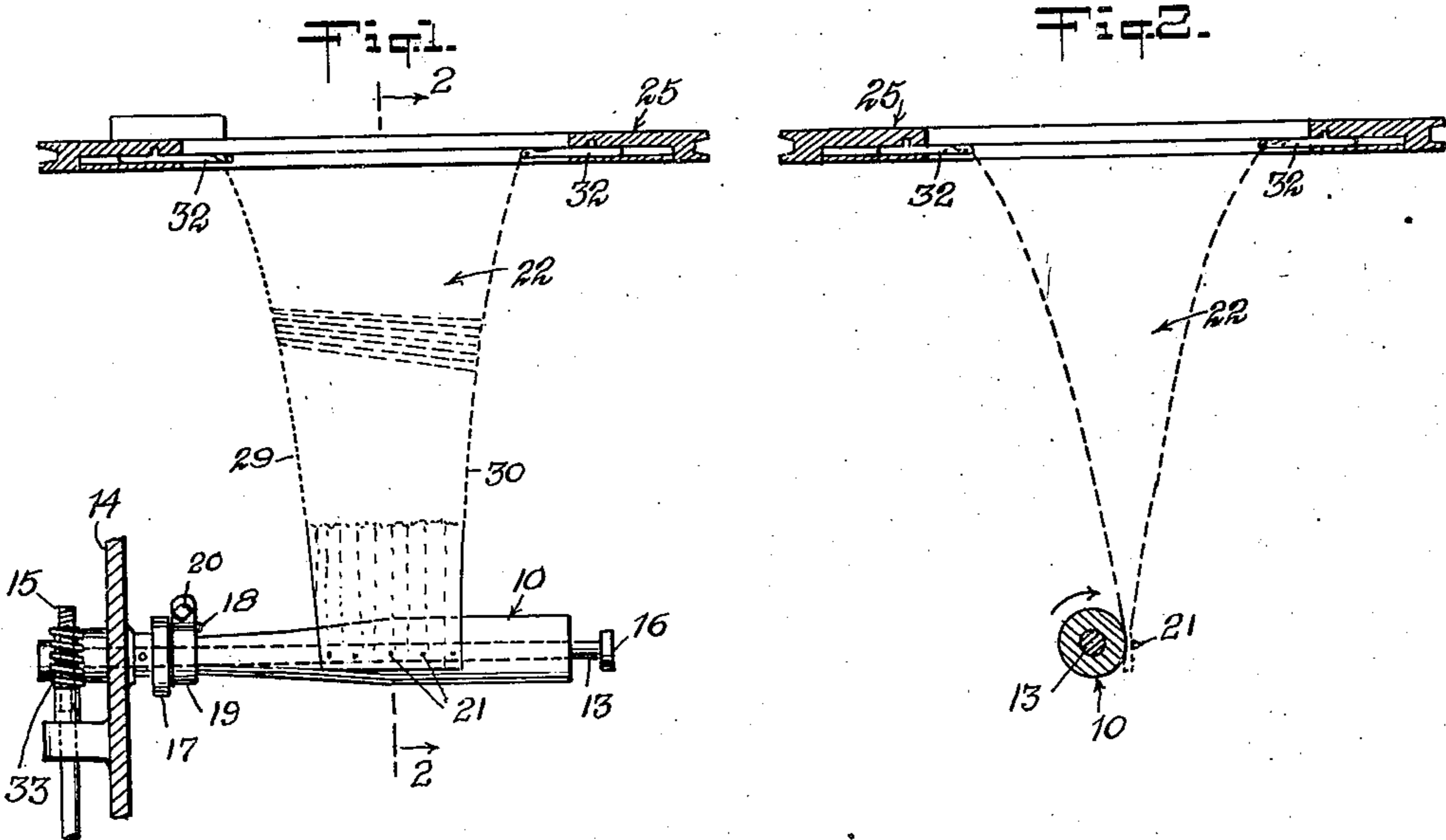
Oct. 25, 1949.

W. J. KUEHNEL

2,486,179

TAKE-UP ROLLER

Filed July 31, 1947



INVENTOR.

William J. Kuehnle

BY

Munn, Liddy & Glacum
Attorneys

UNITED STATES PATENT OFFICE

2,486,179

TAKE-UP ROLLER

William J. Kuehnel, Bridgehampton, N. Y., assignor of one-half to John G. G. Merrow, New York, N. Y.

Application July 31, 1947, Serial No. 765,045

2 Claims. (Cl. 66—150)

1

My device relates to a fabric take up roller and, more particularly, to a roller that is to be used in conjunction with a circular knitting machine.

My principal objective was to design a roller that may be utilized in the drawing off of a knitted form fitting sleeve as it is produced by the needles. Specifically, this roller may be utilized in conjunction with the type sleeve that is manufactured in accordance with the specifications and claims as set forth in my co-pending application Serial No. 739,064, filed April 3, 1947, and entitled "Sweater construction." Heretofore, either weights or other similar devices have been used to perform the functions of a take up device. Due to the fact that the form fitting sleeve which I manufacture has one side shorter than the other, a weight would be unsatisfactory for a take up device. Likewise, a cylindrical roller could not be used in view of the fact that it would take up both sides of the sleeve at the same speed causing the shorter side to become distorted. Through my tapered roller, it is possible to draw off the sleeve as it is produced by the needles with the long side being wound up on the large circumference of the roller while the shorter side of the sleeve is being wound up on the reduced or tapered part of the roller. In this way, even though the sides of the sleeve are of unequal length, there is always the same tension on both sides and such a device prevents any distortion of the form fitted sleeve.

A further advantage of my device is that it has a friction collar which automatically adjusts the tension between the take up roller and the knitted fabric and operates in such a manner that it maintains a steady pressure and prevents the take up roller from placing an excessive pull on the fabric.

A further advantage is that my device is extremely simple in its construction and operation and does not require the services of a skilled laborer. It also features a simple method of attaching the fabric to the roller and, in addition, by a slight movement in a horizontal direction, the roller may be disconnected from its driving mechanism.

Further advantages and unique features of my device will be apparent as I proceed with the specification.

With reference to the drawings—

Fig. 1 shows a face view of my device being used with a circular knitting machine;

Fig. 2 shows a sectional view on line 2—2 of Fig. 1;

2

Fig. 3 shows a detailed sectional view of the roller;

Fig. 4 shows a sectional view on line 4—4 of Fig. 3;

Fig. 5 shows a perspective view of the disc crank pin; and

Fig. 6 shows a detailed sectional view of a modification of my invention.

As shown in Fig. 3, my take up roller 10 is partially tapered at one end and has a hollow shaftway 11 extending centrally throughout the length thereof. The roller 10 is cylindrical in shape for approximately half its length tapering down in two steps 23 and 24, respectively, to a narrow neck portion 12 at its inner end. The steps or sections 23 and 24 have different angles of inclination; step 24 having a greater angle of inclination than step 23. A shaft 13, which extends through the shaftway 11 of the roller 10, is connected at its inner end to the worm 33 of the driving mechanism of the circular knitting machine 25 through a worm wheel 15. The inner end of the shaft 13 is supported by a bearing 31 that it mounted in the frame 14 of the knitting machine 25. The shaft 13, which furnishes the driving means for the roller 10, as indicated, is connected directly to the mechanism of the knitting machine 25 and is constantly rotating in the shaftway 11. Affixed to the outer end of the shaft 13 is a collar 16 that keeps the roller 10 on the shaft 13. Secured to the inner end of the shaft 13 is a disc 17 to which is affixed a crank pin 18. Positioned around the narrow neck 12 of the roller 10 is a friction strap 19. The open ends 26 of the friction strap 19 are connected through a nut and bolt arrangement 20. The crank pin 18 on the disc 17 is normally positioned between the ends 26 of the friction strap 19 when the roller 10 is in operation. In addition, the roller 10 is provided with a plurality of needle points or projections 21 on its outer periphery by which the fabric or sleeve 22 may be attached to the roller 10.

Whereas the roller has been designed to take up fabric whose edges are of unequal length, it has been more particularly designed to take up a form fitted sleeve 22 in which the inner edge 29 of the sleeve is shorter than the outer edge 30. In placing the roller 10 in operation, a weight is usually affixed to the wrist portion of the sleeve 22 and the fabric is knitted by the machine until there is sufficient length of fabric so that it may be attached to the points 21 on the roller 10. The weight is then removed and the fabric is attached to the roller so that the shorter side 29 of

3

the sleeve 22 will be wound up on the tapered steps 23 and 24 while the outer portion 30 of the sleeve 22 which is longer in length will be wound up on the outside or cylindrical portion 27 of the roller 10. In this way, even though the sides of the sleeve 22 are of unequal length, the fabric will be taken up at the same speed thereby preventing any distortion of the form fitted sleeve. Through the nut and bolt arrangement 20 the tension between the friction strap 19 and the roller 10 may be adjusted so that in the event the pull on the fabric becomes too great, the roller 10 will be held stationary and allowed to slip on the shaft 13. As soon as the pull on the fabric is relaxed, the tension applied to the roller 10 by the friction collar 19 will be overcome and the roller 10 will again start to rotate at a pre-determined speed to wind up the fabric as it is being knitted. In this manner the take up or take off speed between the roller 10 and the continually rotating shaft 13 is automatically regulated.

As shown in Fig. 2, one edge of the roller 10 is positioned directly on the center line of the dial knitting machine 25 so that the fabric will be taken off in a normal manner. To disengage the roller as shown in Fig. 3, it is merely necessary to pull the roller towards the collar 16. This will disengage the friction strap 19 from the crank pin 18 and the roller will be in an inoperable position. When the sleeve has been knitted to the desired length, the fabric may be disconnected from the points 21 and the roller may then be moved to its inoperative position from which the sleeve may be readily unwound from the roller. In normal practice, on a conventional machine, the roller is positioned approximately eight to ten inches below the needles 32.

In Fig. 6 I have shown a modification of my roller 10 in which the same numerical designations have been given to identical parts of both forms of my invention. The modification features a split roller which is composed of two members 40 and 41 which are free to rotate independently of each other. The inner end of the member 40 is driven by the method described in the preferred form of the invention while connected to the outer end of member 41 is a similar strap 42 that is contacted by pin 43. The pin 43 is mounted in collar 44 that is attached to the driving shaft 13 through a spring 46 and pin 45 arrangement, the pin 45 being engaged in hole 47 of shaft 13. To provide a space for the strap 42, the outer end of member 41 has been reduced as illustrated in Fig. 6. The main purpose of having the roller in two sections is to enable the operator to independently adjust the take up speed

4

of the outer and inner portions of the roller by adjusting the tension on the straps 19 and 42.

While the invention has been described in detail with respect to a present preferred form which it may assume, it is not to be limited to such details and form since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence, it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

I claim:

1. A take up device for a fabric having sides of unequal length comprising a substantially cylindrical roller having a tapered portion at one end thereof, said roller having a hollow shaftway, driving means comprising a continually rotating shaft positioned in said shaftway, a friction collar on said roller, means operatively connecting said collar to said shaft whereby the take up speed between said shaft and said roller may be regulated and means to attach the fabric to said roller whereby the shorter side of said fabric will be affixed to said tapered portion and the longer side will be affixed to the opposite end of said roller.

2. A take up device for a circular knitting machine comprising a substantially cylindrical roller having a tapered portion at one end thereof, said roller having a hollow shaftway extending centrally through its length, driving means positioned in said shaftway, a friction collar secured to one end of said roller and operatively connected to said driving means, said collar being capable of regulating the take up speed between said roller and driving means, and points attached to the outer periphery of said roller to engage the fabric from said machine.

WILLIAM J. KUEHNEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
195,917	Crane	Oct. 9, 1877
345,130	Godshalk	July 6, 1886
356,764	Harley et al.	Feb. 1, 1887
781,253	Whitcomb	Jan. 31, 1905
988,091	Hammersley	Mar. 28, 1911
1,132,440	Chomier et al.	Mar. 16, 1915
1,346,136	Schwab	July 13, 1920