No. 758,996. PATENTED MAY 3, 1904.

F. MEISEL.

COLLAPSIBLE SHAFT.

APPLICATION FILED SEPT. 10, 1903.

NO MODEL.

Fig. 1.

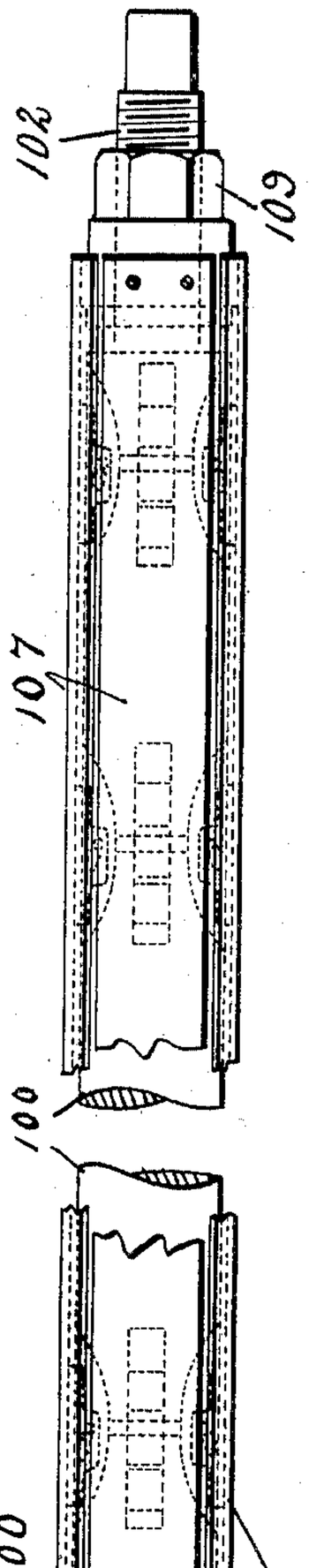

Fig. 4.

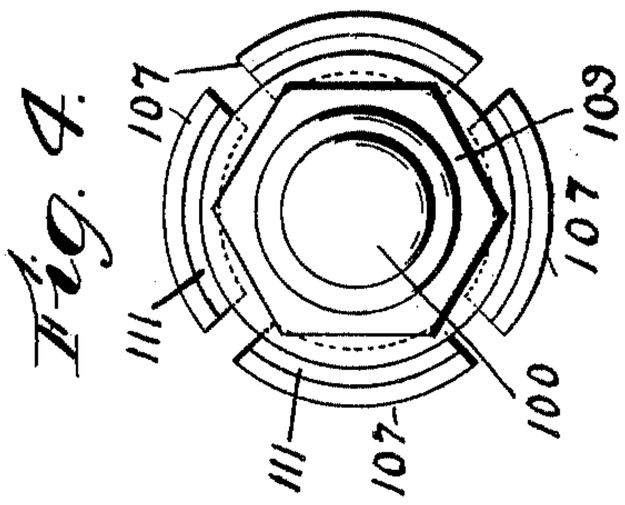

Fig. 2.

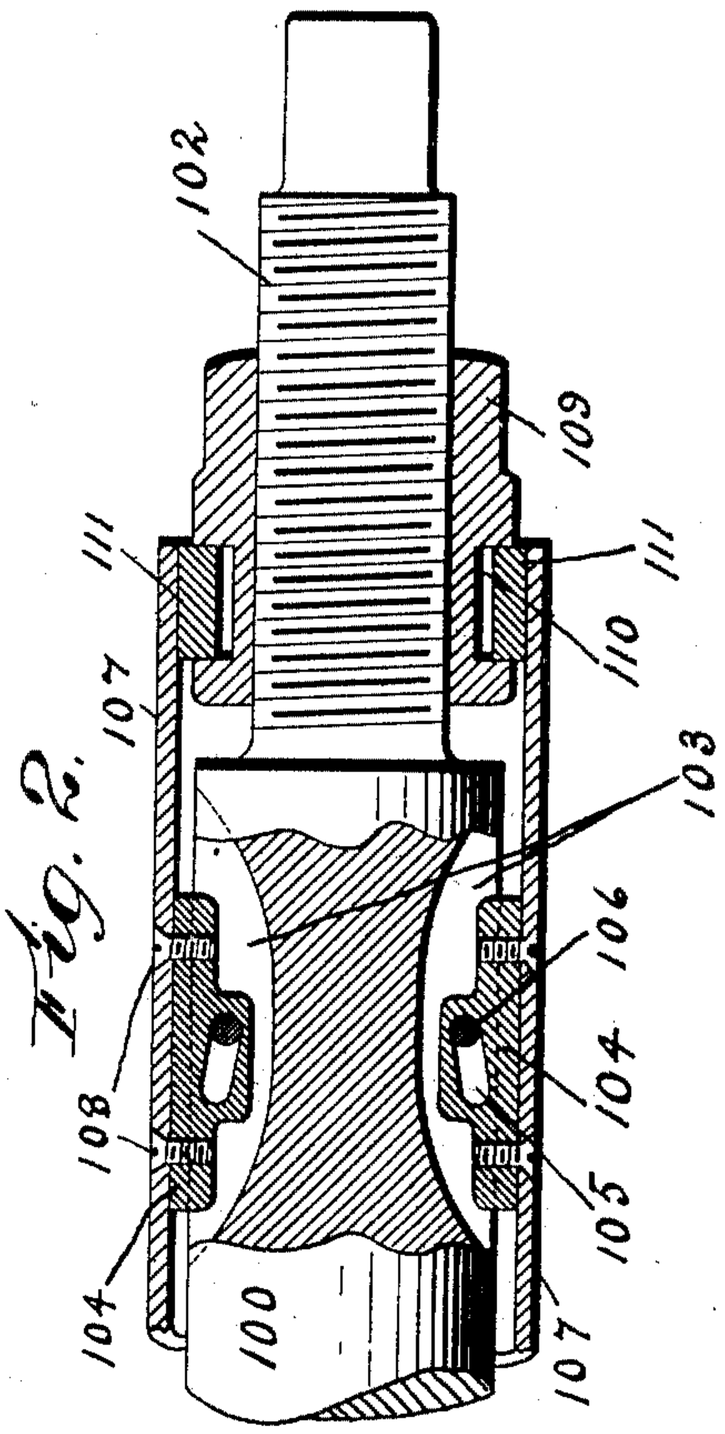

Fig. 3.

Witnesses:
M. E. Regan.
C. F. Wilson

Inventor:
F. Meisel.
By his Attorneys.
Southgate and Southgate

No. 758,996. Patented May 3, 1904.

UNITED STATES PATENT OFFICE.

FRANCIS MEISEL, OF DORCHESTER, MASSACHUSETTS.

COLLAPSIBLE SHAFT.

SPECIFICATION forming part of Letters Patent No. 758,996, dated May 3, 1904.

Application filed September 10, 1903. Serial No. 172,697. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS MEISEL, a citizen of the United States, residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented a new and useful Collapsible Shaft, of which the following is a specification.

The object of this invention is to provide a new and improved collapsible shaft or arbor which can be employed for winding rolls of paper or other material and which can be closed up, so that it can be withdrawn from the roll.

To this end the invention consists of the parts and the arrangements of parts described in this specification and illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a side elevation of a collapsible shaft constructed according to my invention. Fig. 2 is a sectional end elevation through one end thereof, illustrating the adjusting mechanism. Fig. 3 is a cross-sectional view through one set of guide-pieces, and Fig. 4 is an end view thereof.

A collapsible shaft constructed to embody my invention comprises a main shaft having a number of recesses milled therein peripherally and along its length. A guide-piece is fitted in each of these recesses. Each guide-piece has a cam connection with the main shaft, comprising an inclined slot engaging a pin which is driven through the side walls of the shaft adjacent to the recess. These guide-pieces support and carry pipe-segments. An adjusting mechanism is provided to move the pipe-segments axially. By this arrangement the pipe-segments are also moved radially to the shaft by said adjusting mechanism, the guide-pieces moving radially on said pins by reason of the inclined slots. By this construction a very simple and efficient device for the purpose is provided.

The guide-pieces are made to fit the sides of the recesses, so as to provide a strong structure.

Referring to the drawings, and in detail, 100 designates a main shaft, which has a center plug 101 at one end, and which has its other end reduced and screw-threaded, as at 102. Slots 103 are milled in said shaft. As shown, these slots are arranged in series of four peripherally around the shaft, and a plurality of such series are cut longitudinally of the shaft, A guide-piece 104 is fitted in each of said slots. Each guide-piece has an inclined slot 105 engaging a pin or stud 106, which is driven through the walls of the shaft adjacent to the slot. Pipe-segments 107 are fastened by screws 108 to said guide-pieces 104. A nut 109 is threaded on the screw-threaded end 102 of the shaft. This nut has a recess or groove 110, engaging which are pieces 111, secured to the ends of the pipe-segments.

In this construction by turning the nut in one direction the pipe-segments will be moved axially of the shaft, and thereby radially thereof, and when moved in one direction this radial movement will be away from the shaft, and when moved in the other direction this radial movement will be in the opposite direction.

By this construction a very simple, strong, and accurately-operating device for the purpose mentioned is provided.

The details and arrangements herein described may be greatly varied by a skilled mechanic without departing from the scope of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A collapsible shaft comprising a main shaft having recesses cut therein, guide-pieces fitting in said recesses, cam connections between said guide-pieces and said shaft, pipe-segments secured to said guide-pieces, and means for moving the pipe-segments axially.

2. A collapsible shaft comprising a main shaft having a series of recesses formed therein, slotted guide-pieces fitting said recesses, pins secured in said shaft and engaging the slots in said guide-pieces, pipe-segments secured to said guide-pieces, and means for moving said pipe-segments axially.

3. A collapsible shaft comprising a main shaft having recesses cut therein, guide-pieces fitted laterally in said recesses, cam connections between said guide-pieces and said main

shaft, pipe-segments secured to said guide-pieces, and means for moving said pipe-segments axially.

4. A collapsible shaft comprising a main shaft having a plurality of series of recesses formed therein, slotted guide-pieces fitted in said recesses, pins engaging the slots in said guide-pieces, pipe-segments secured to said guide-pieces, a grooved nut threaded on the end of said main shaft, and pieces secured on the end of said pipe-segments engaging said grooved nut.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANCIS MEISEL.

Witnesses:
LOUISE HAND,
HARRY E. MILLIKEN.