(No Model.)

C. W. TAYLOR & A. M. WICKENS.

ADJUSTABLE EXPANSION SPOOL FOR PAPER ROLLS.

No. 390,719. Patented Oct. 9, 1888.

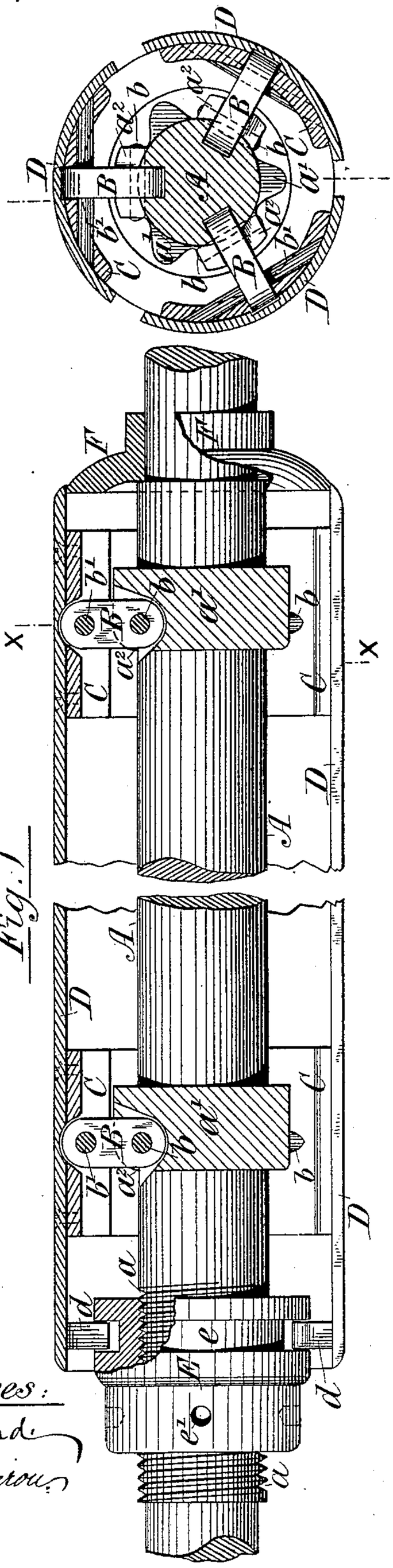

Fig. 1

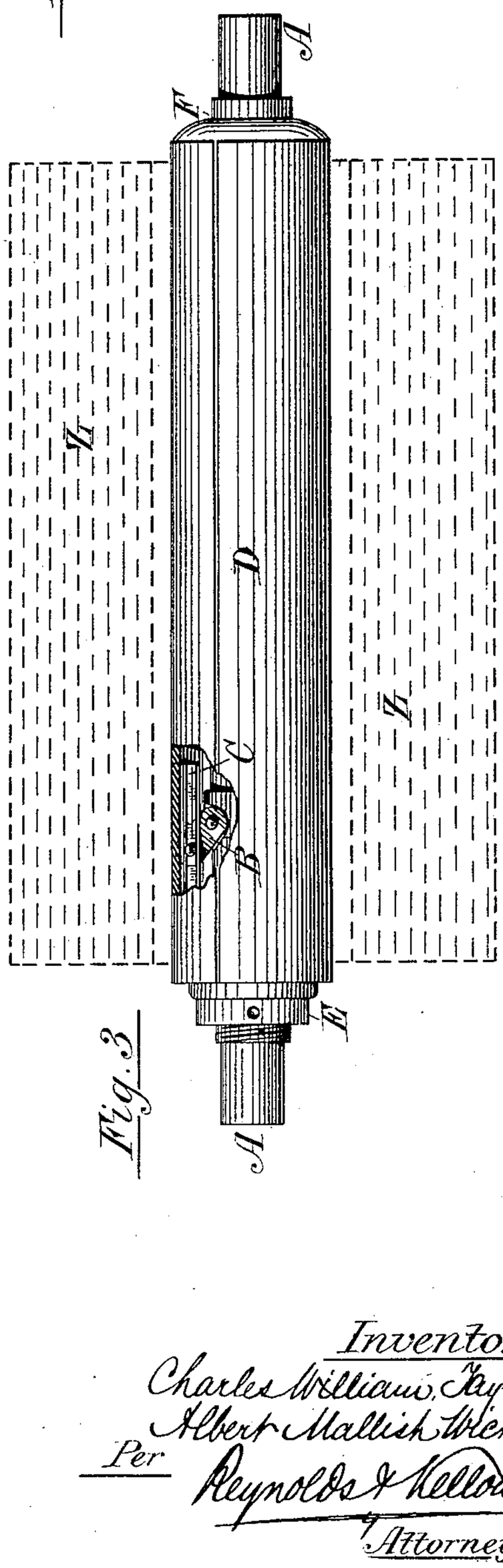

Fig. 3

Fig. 2

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UNITED STATES PATENT OFFICE.

CHARLES WILLIAM TAYLOR AND ALBERT MALLISH WICKENS, OF TORONTO, ONTARIO, CANADA, ASSIGNORS OF ONE-THIRD TO JAMES WATT, OF SAME PLACE.

ADJUSTABLE EXPANSION-SPOOL FOR PAPER ROLLS.

SPECIFICATION forming part of Letters Patent No. 390,719, dated October 9, 1888.

Application filed September 8, 1887. Serial No 249,154. (No model.) Patented in Canada November 14, 1887, No. 28,009.

To all whom it may concern:

Be it known that we, CHARLES WILLIAM TAYLOR and ALBERT MALLISH WICKENS, both of the city of Toronto, in the county of York and Province of Ontario, in the Dominion of Canada, have jointly invented a certain new and useful Improved Adjustable Expansion-Spool for Paper Rolls; and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to that class of spools, cores, or shafts used for rolls of paper—such as are employed in printing newspapers and the like—and where it is intended to remove and replace the spool after the paper is wound thereupon.

Our object is to produce a spool capable of being expanded and contracted, which shall be simple and cheap in construction, by reason of fewness of parts and fittings, and at the same time efficient, positive, and easy in operation.

Our improved core, shaft, or spool consists of a central shaft screwed at one end with a movable screwed collar or nut working thereon, a sectional shell having projections engaging with and adapted to be expanded and contracted by the movement of said collar or nut, and toggles or links connecting the shell-sections to the central shaft, all as hereinafter fully described, and pointed out in the claims.

Our said invention has been patented in Canada under No. 28,009, and dated November 14, 1887.

For full comprehension of our invention reference must be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate like parts.

In said drawings, Figure 1 represents a longitudinal sectional elevation of our expanding-spool; Fig. 2, a cross section of same taken on the line X X, the sectional shell being shown expanded to its greatest extent; and Fig. 3, a view, partly in section, of the spool placed inside of a paper roll and ready for expansion therein or for removal.

A is the shaft, having a screw-thread, *a*, at one end and two enlargements or collars, *a' a'*, shrunk upon same or made in one therewith, said collars being situated a short distance from the ends of the shaft, as shown, and each of these collars is cut away so as to form lugs a^2 a^2, between each pair of which are inserted the ends of a short link or toggle, B, the same being pivoted therein by pins *b*, there being three toggles thus connected to each collar, and these toggles are pivoted by pins *b'* to curved castings C, one of which is screwed to the inside of each of the three segments or sections of a circular shell, D, at points opposite each collar, thus forming an expansive exterior for the spool.

At or near one end of each of the shell segments we arrange a flange, *d*, which fits into an annular groove, *e*, in a screwed collar or nut, E, which works upon the screw-thread *a* on the shaft A, this nut or collar being also provided with holes *e'*, or equivalent means, whereby it may be screwed up. Upon the opposite end of the shaft is firmly mounted a collar, F, preferably curved on its outer face, and of such diameter as will correspond with the diameter of the shell D when it is retracted. In this position the ends of the shell-segments and the rim of the collar are flush, so as to present a smooth end for easy insertion into the roll of paper.

The operation of our invention will be readily understood from the foregoing and from the drawings; but we may say that when the parts are in the position shown in Fig. 1, by unscrewing the nut E the shell-segments are drawn in an endwise direction, and the toggles B B, working upon a radius from their pivot-pins *b*, follow the motion, as will be easily comprehended, and thus retract the segments and thus reduce the diameter of the external shell, D, to the condition shown in Fig. 3, when our spool can be quickly withdrawn from the paper roll Z or expanded again to the desired extent.

The number of collars on the shaft, toggles, and shell-segments may be varied according to circumstances, and we may modify the various details of construction of our spool without departing from the essential principle of our invention.

What we claim, and desire to secure by Letters Patent, is as follows:

1. In an expansible core, the combination of

a central shaft screw-threaded near one end, a nut or collar working thereon and having an annular groove, a shell made up of sections, each having a projection fitting into said groove so as to be moved by said collar, and pivoted links or toggles for connecting the shell-sections to the central shaft, substantially as and for the purpose described.

2. In an adjustable expansion-spool for paper rolls, the combination, with the shaft A, having collars *a'*, of the sectional shell D, having flanges *d* and castings C, toggles B, pivoted to said collars and castings, and nut E, screwed upon the shaft and having the annular groove *e*, substantially as and for the purpose specified.

CHARLES WILLIAM TAYLOR.
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In presence of—
R. A. KELLOND,
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