

No. 789,788.

PATENTED MAY 16, 1905.

C. J. BELLAMY.
FABRIC HANDLING MECHANISM.
APPLICATION FILED FEB. 12, 1904.

2 SHEETS—SHEET 1.

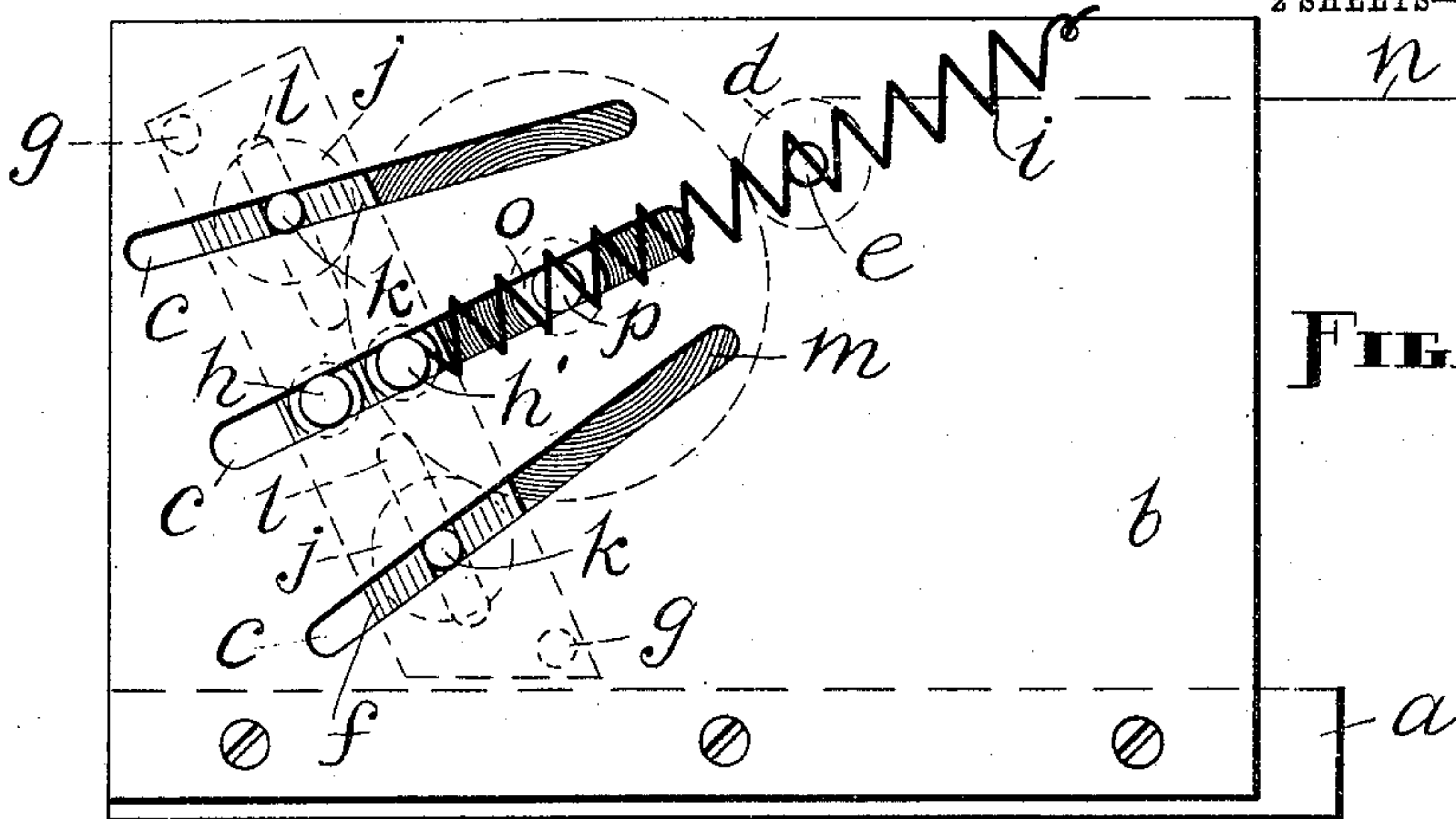


FIG. 1.

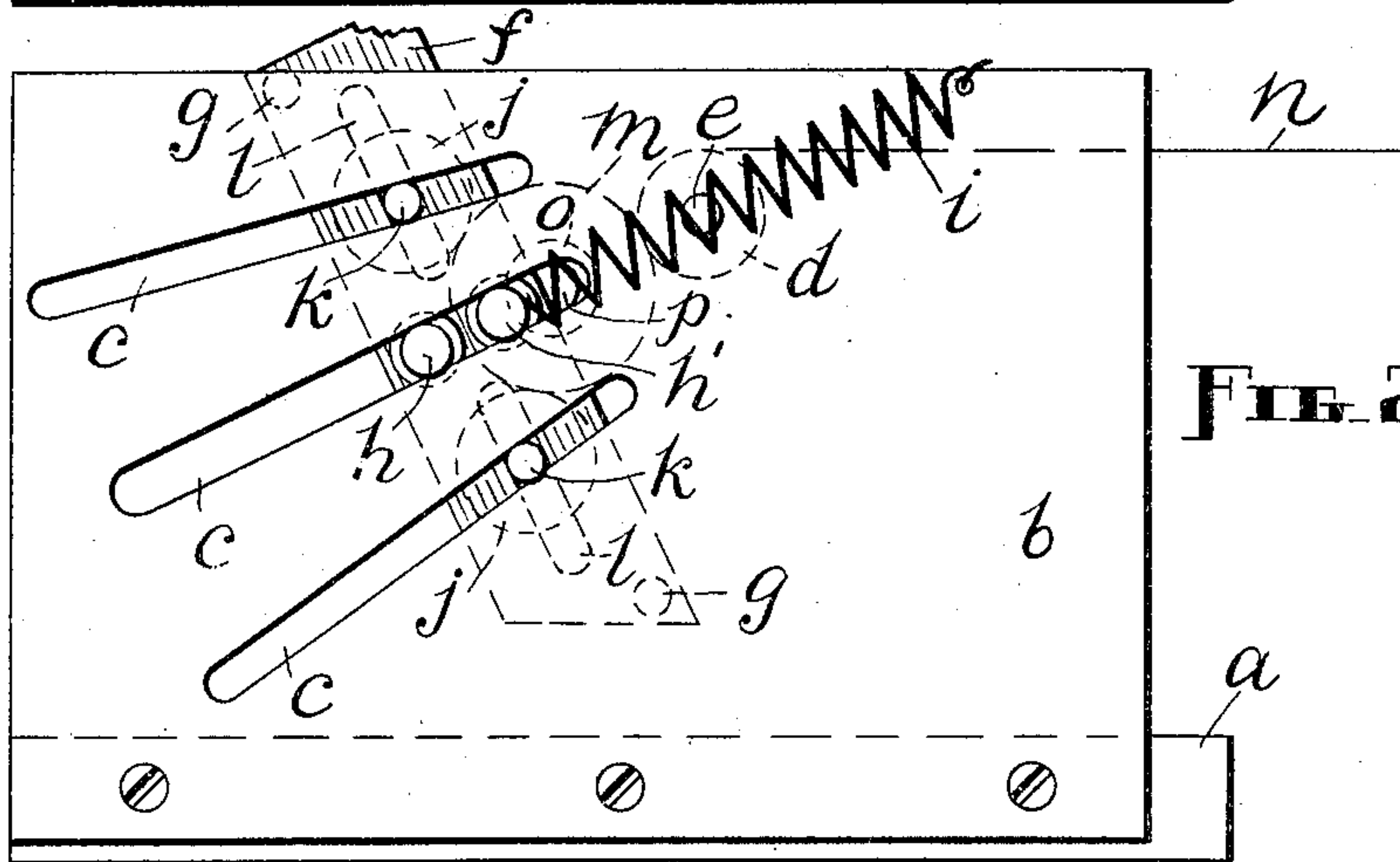


FIG. 2.

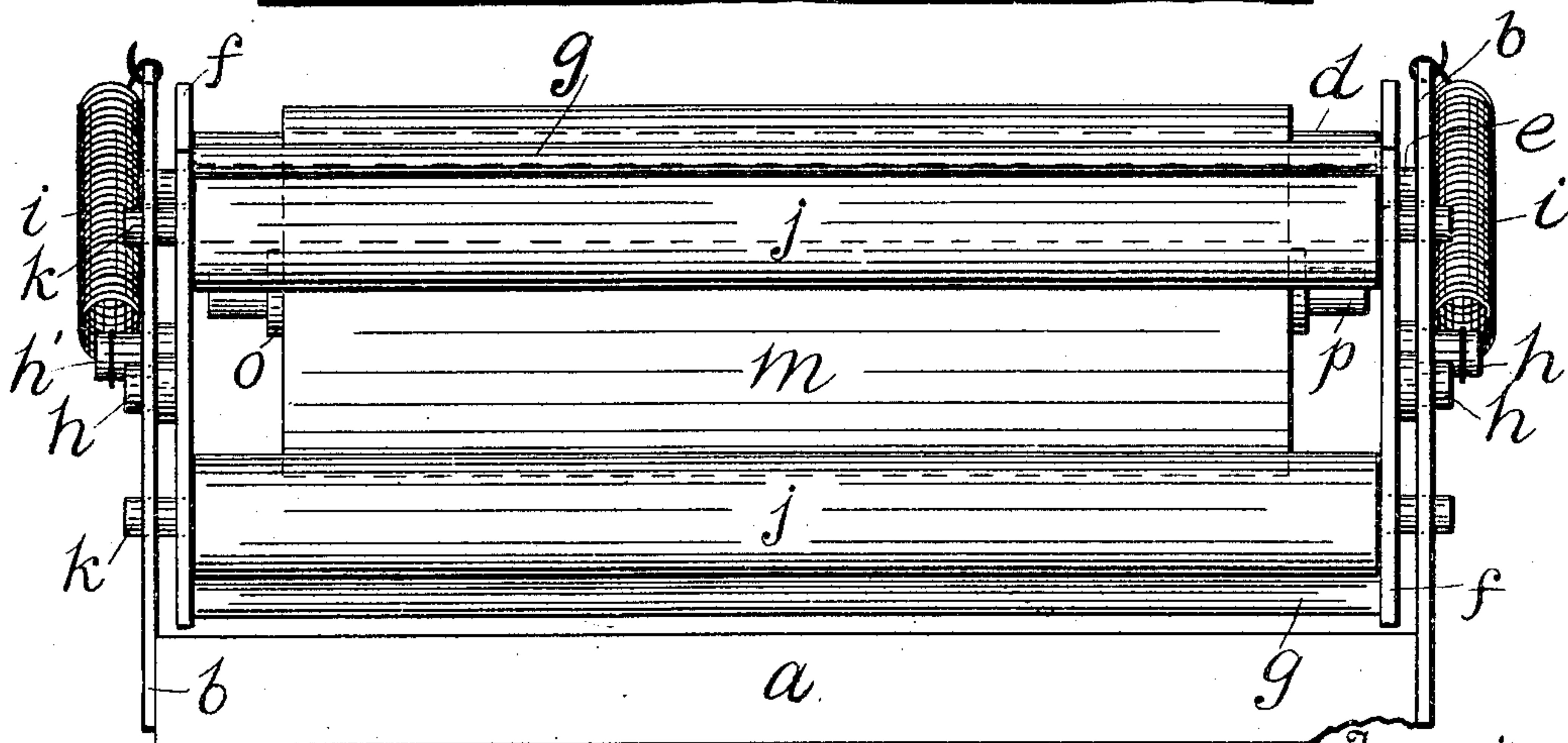


FIG. 3.

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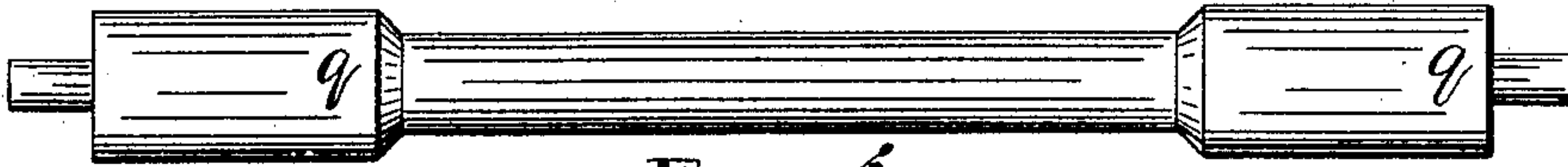


FIG. 4.

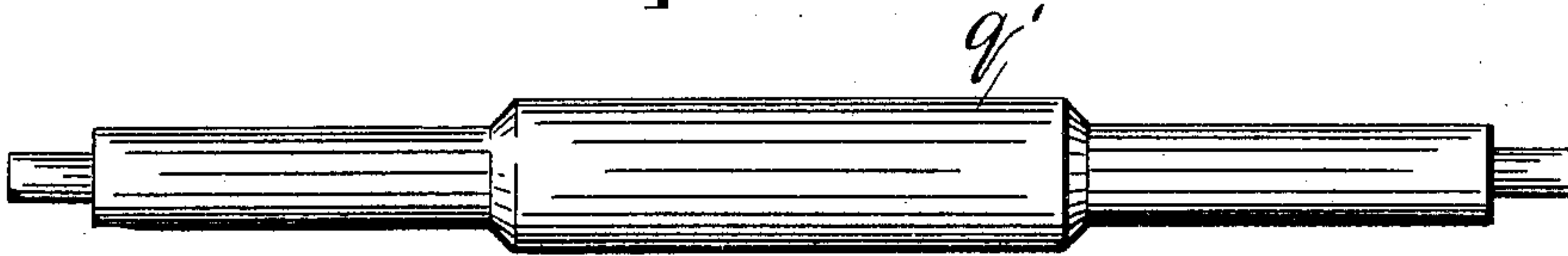


FIG. 5.

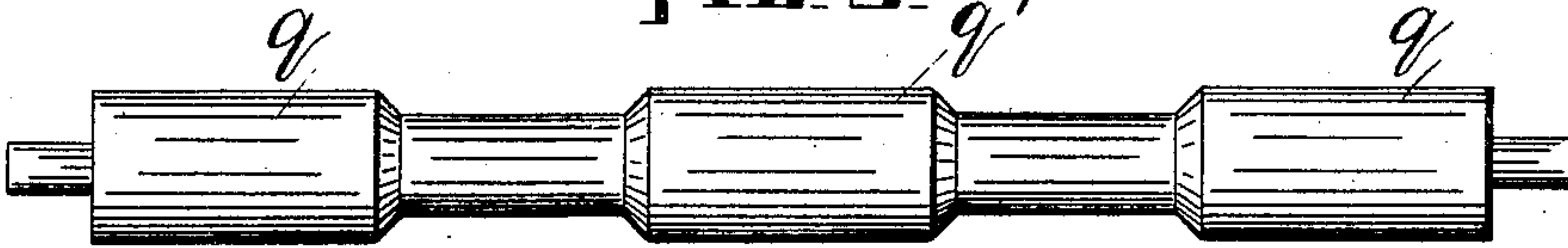


FIG. 6.

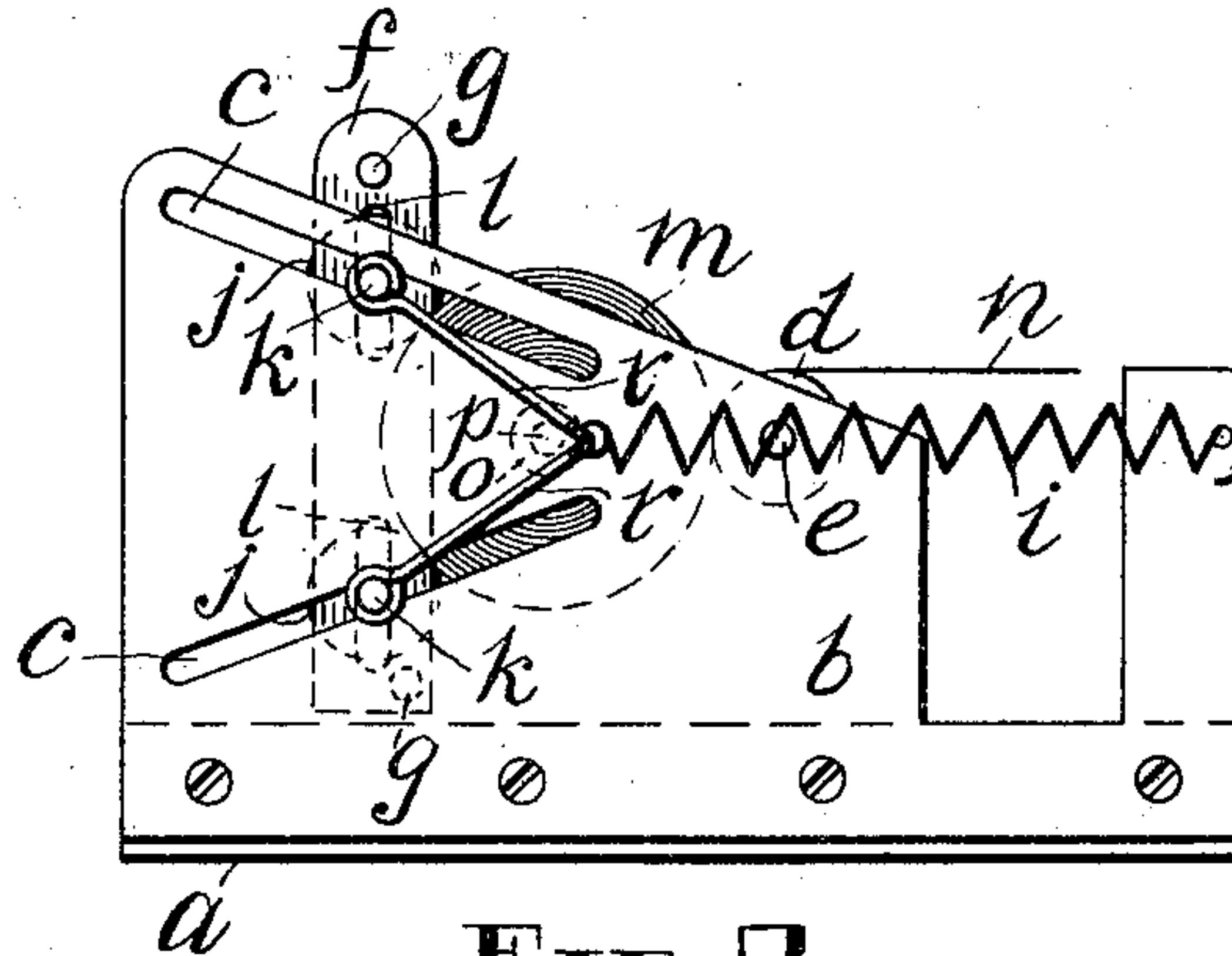


FIG. 7.

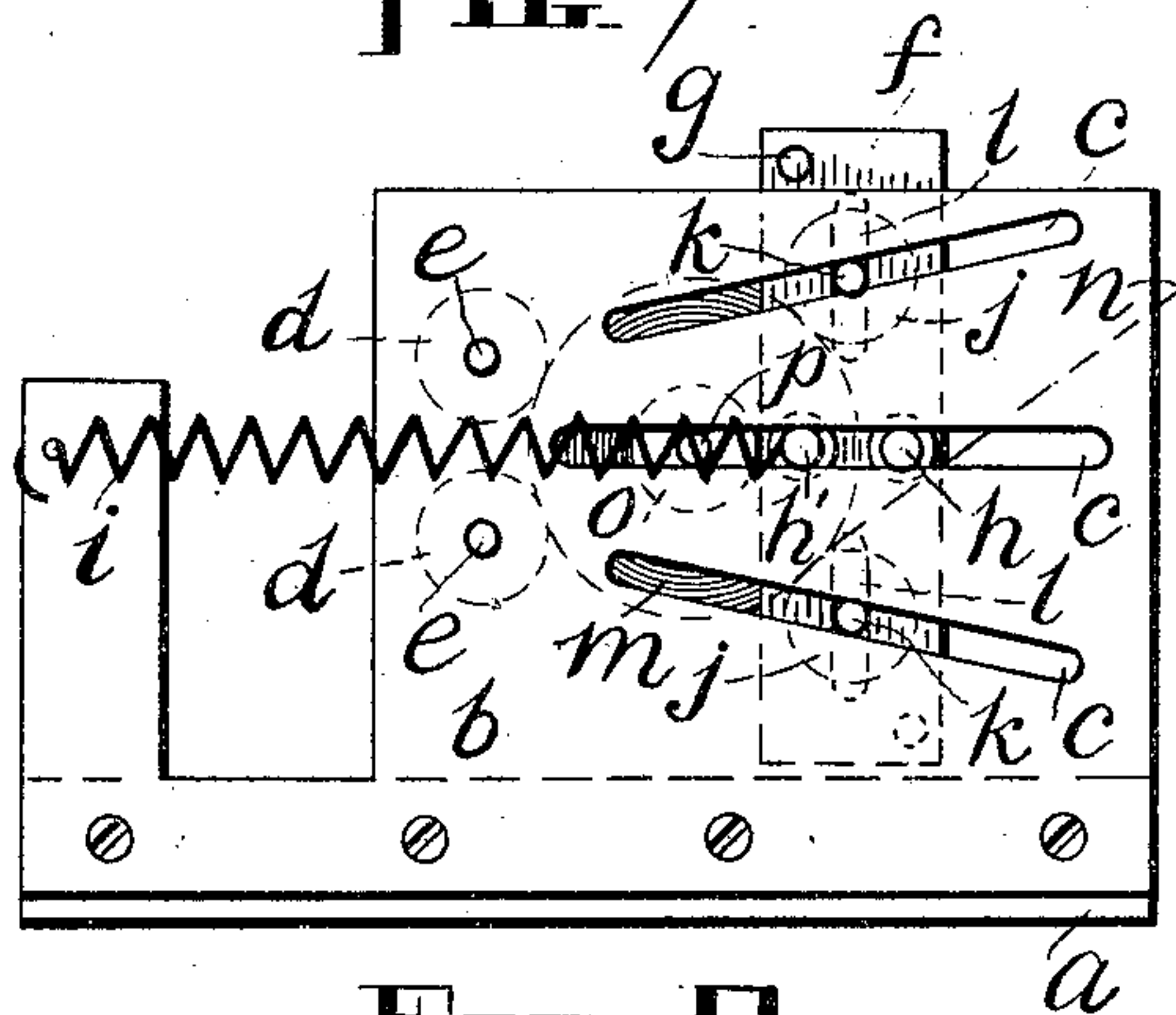


FIG. 8.

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UNITED STATES PATENT OFFICE.

CHARLES J. BELLAMY, OF SPRINGFIELD, MASSACHUSETTS.

FABRIC-HANDLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 789,788, dated May 16, 1905.

Application filed February 12, 1904. Serial No. 193,306.

To all whom it may concern:

Be it known that I, CHARLES J. BELLAMY, a citizen of the United States of America, residing at Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented new and useful Fabric-Handling Mechanism, of which the following is a specification.

My invention relates to improvements in devices for holding flexible fabric in such manner that it can be rolled and unrolled, and comprises certain peculiarly-arranged abutment and tension members, as hereinafter described and claimed; and the objects of my improvement are, first, to produce fabric-handling mechanism which enables cloth, paper, or other material having similar characteristics to be successfully wound into a roll and drawn from a roll under constant and approximately even tension; second, to provide such tension for a fabric roll; third, to afford adequate means for handling rolls of any size within the capacity of any given device; fourth, to furnish mechanism into or from which rolls may be easily and expeditiously inserted or removed at will, and, fifth, to provide simple and comparatively inexpensive mechanism in the class named which is eminently practicable and efficient. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a preferred form of my invention; Fig. 2, a similar view of the same, illustrating the changed relations of the parts when a smaller roll than the one shown in the preceding view is in position; Fig. 3, a rear end view of the mechanism as it appears in the first figure. Figs. 4, 5, and 6 are views of different kinds of rollers which may be used with my mechanism, and Figs. 7 and 8 side views of modifications.

Similar letters refer to similar parts throughout the several views.

Generally speaking, this invention, which is designed to be employed independently or in connection with type-writers, handwriting-boards, printing-presses, and other machines or devices which utilize fabric from a roll and in connection with the manufacture of fabric, consists of a suitable frame and a series of abutment and tension members mount-

ed therein or thereon and adapted to invest a fabric roll, some of said members having movable bearings. The addition of a carrier to the before-mentioned parts is found to be necessary or advantageous in some cases. While the abutment and tension members usually consist of rollers, in some cases non-rotary members which are not of roller formation even may be employed in place of some or all of the rollers, more especially for the abutment roller or rollers, perhaps.

Although I have shown the embodiment of my invention in the several forms which it would be most likely to take, it is to be understood that I do not restrict myself in this connection, but may vary the detailed construction of the mechanism to whatever extent is required to meet any particular case in hand. In many cases no journals need be provided for the magazine-roll which this mechanism is designed to handle. Indeed, some of the most valuable applications of said mechanism depend upon the ability to feed from a roll supported only by its perimeter and in being able to wind fabric onto a core which has no journals. In the latter case the fabric is wound into a roll by fastening the end of a strip of cloth, paper, or other material to the core and feeding in from the rear or from above by revolving the abutment member or members, or the feeding in may be done from the front either above or below the abutment member or above or below both, if two such members are provided, or between the latter. The drawings illustrate the use of the mechanism for feeding from a roll; but the other use of winding into or onto a roll or core will be readily understood from the foregoing, taken in connection with the detailed description of said drawings. In this latter case the tension members will obviously move away from the abutment member or members as the magazine-roll takes on increased thicknesses of fabric in process of winding.

Referring now to the drawings and considering, first, Figs. 1, 2, and 3, it will be observed that a frame consisting of a floor *a* and two sides *b* is provided, each of said sides having three slots or runways *c* therein which

converge from back to front. It should be stated here that the end of the device from which the fabric is drawn is herein termed the "forward" or "front" end and the opposite end the "rear" or "back" end, and in all of the views, except Figs. 3, 4, 5, and 6, the forward end is at the right. An "abutment" member or roller d , so called because it serves as a direct or indirect stop or means of limitation for the tension members described below, has its trunnions or shaft e fixedly journaled in the sides b ahead of the middle runway c . A carrier comprising side pieces f and connecting-rods g is here provided, each of said side pieces having fixed trunnions or studs h and h' , which project from the outside face thereof into the middle runway c , it being understood that said carrier is inside of the frame. Springs i extend forward from the carrier-studs h' to points of attachment near the upper edges of the sides b and normally draw the carrier toward the front. Two members j are supported by the carrier and frame, such members being rollers in this as in the other cases illustrated herewith, the trunnions or ends of the shafts k of said rollers extending through slots l in the side pieces f into the upper and lower runways c in the sides b —that is, the ends of one of said shafts enter the upper pair of runways c and the ends of the other enter the lower pair of runways c . The rollers j may be termed "tension-rollers," since part of their office is to bear on a magazine-roll with a yielding pressure, as will presently appear. The slots l , a pair for each shaft k , are so arranged in the side pieces f as to intersect the planes of the upper and lower runways c . Since each pair of studs h and h' so fit the corresponding runway c that there is little or no motion permitted except longitudinally of said runway, the carrier is thereby prevented from rocking, and it will be readily seen that if said carrier be moved backward against the resiliency of the springs i the rollers j will separate, being forced apart by the diverging bearings formed by the upper and lower runways c for the shafts k , and, conversely, if said carrier be moved forward, as by said springs, said rollers will approach each other, said shafts moving freely in the slots l in any event.

In operation the carrier with its rollers is forced back sufficiently to permit a magazine-roll m to be inserted between said rollers and the abutment-roller d , and then said carrier is released to its springs. The roll m is now securely held in place under the tension afforded by the springs i and the fabric n is led therefrom either under or over the roller d , according to the manner in which said roll is placed in the device. By drawing on the exposed end of the fabric n said fabric is unwound from the roll m , which revolves with comparative freedom, all of the supporting or contacting rollers rotating with it. As the roll m de-

creases in size, which it is constantly doing during the unwinding process, the rollers j follow it in the converging courses already explained, always maintaining a comparatively even tension thereon. If the arrangement is such that the rollers j can approach each other, so that the space between them is less than the diameter of the core o of the roll m , the entire amount of fabric on said core can be removed while the latter remains in the device. The removal of a core or roll from the mechanism is effected in the same simple manner as the introduction.

By making the trunnions or shaft p of the core o long enough to enter the middle runways c additional bearings for the roll m are secured, in which event the rollers j serve as followers and tension members without exerting so much influence in the way of supports. In some constructions, and for heavy rolls in particular, it may be desirable to journal the roll trunnions or shaft in the manner just noted.

For some purposes—to decrease frictional resistance, for instance—it may be deemed best to break up the periphery or peripheries of one or all of the rollers used in this mechanism, and I have shown three methods by which this can be done. In Fig. 4 the marginal portions q only are adapted for contact with the magazine-roll, in Fig. 5 merely the central portion q' , and in Fig. 6 the marginal and central portions q and q' . Other forms of rollers having broken peripheries will readily occur to one familiar with the art.

Passing now to a consideration of the modifications illustrated in the other views, which modifications, it is clear, do not depart from or affect the general and essential features underlying my invention, in Fig. 7 the middle runway is omitted and spring connections are had with both shafts k through the medium of links r , or two springs may be used; otherwise the description of the first three views applies to this one. There is no provision for bearings for the roll-shaft p . Two abutment-rollers appear in Fig. 8, where the device is turned end for end, as it were, so that the fabric n can pass forward from the roll m above or below either of the tension-rollers j , but preferably out of contact therewith. Except for the addition of another abutment-roller and the reversed position of the mechanism this device does not differ from the one first described.

The term "magazine-roll" as herein employed refers to the transitory member which the abutment and tension members are adapted to receive, whether said transitory member consists entirely of fabric or is made up by winding or rolling fabric upon a substantial core, which latter, as hereinbefore stated, may or may not be provided with journals, and also applies to the denuded core.

If little or no tension on the fabric is re-

quired in feeding, the fabric from the magazine-roll may be led rearward instead of forward, leaving the device somewhere behind the abutment roller or rollers.

5 I do not wish to be restricted to any particular resilient or yielding means, gravity being sufficient and convenient under some conditions, it only being necessary that there be an agency or law which constantly tends
10 to keep the tension members against the perimeter of the magazine-roll when in place regardless of the variation thereof.

What I claim as my invention, and desire to secure by Letters Patent, is—

15 1. In fabric-handling mechanism, the combination with a suitable frame provided with runways, of a carrier provided with transverse members all having movable bearings in said runways, certain of said transverse

members having movable bearings also in said carrier on a plane or planes intersecting the planes of the runways. 20

2. In fabric-handling mechanism, the combination with a suitable frame provided with three converging runways, of a carrier provided with transverse members having movable bearings in all of said runways, certain of said transverse members having movable bearings also in said carrier on planes intersecting the planes of the runways. 25 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES J. BELLAMY.

Witnesses:

F. A. CUTTER,
A. L. STEVENS.