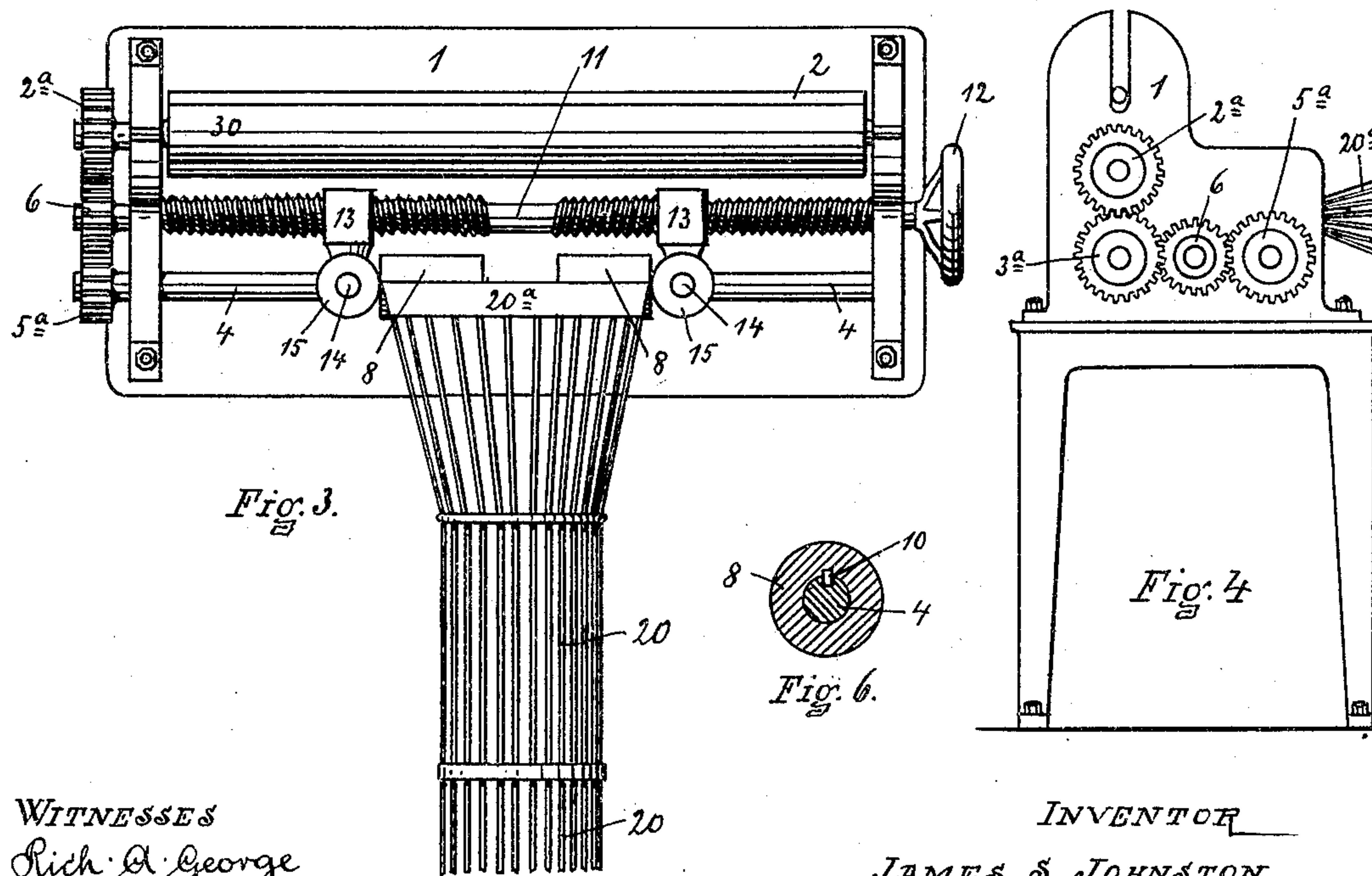
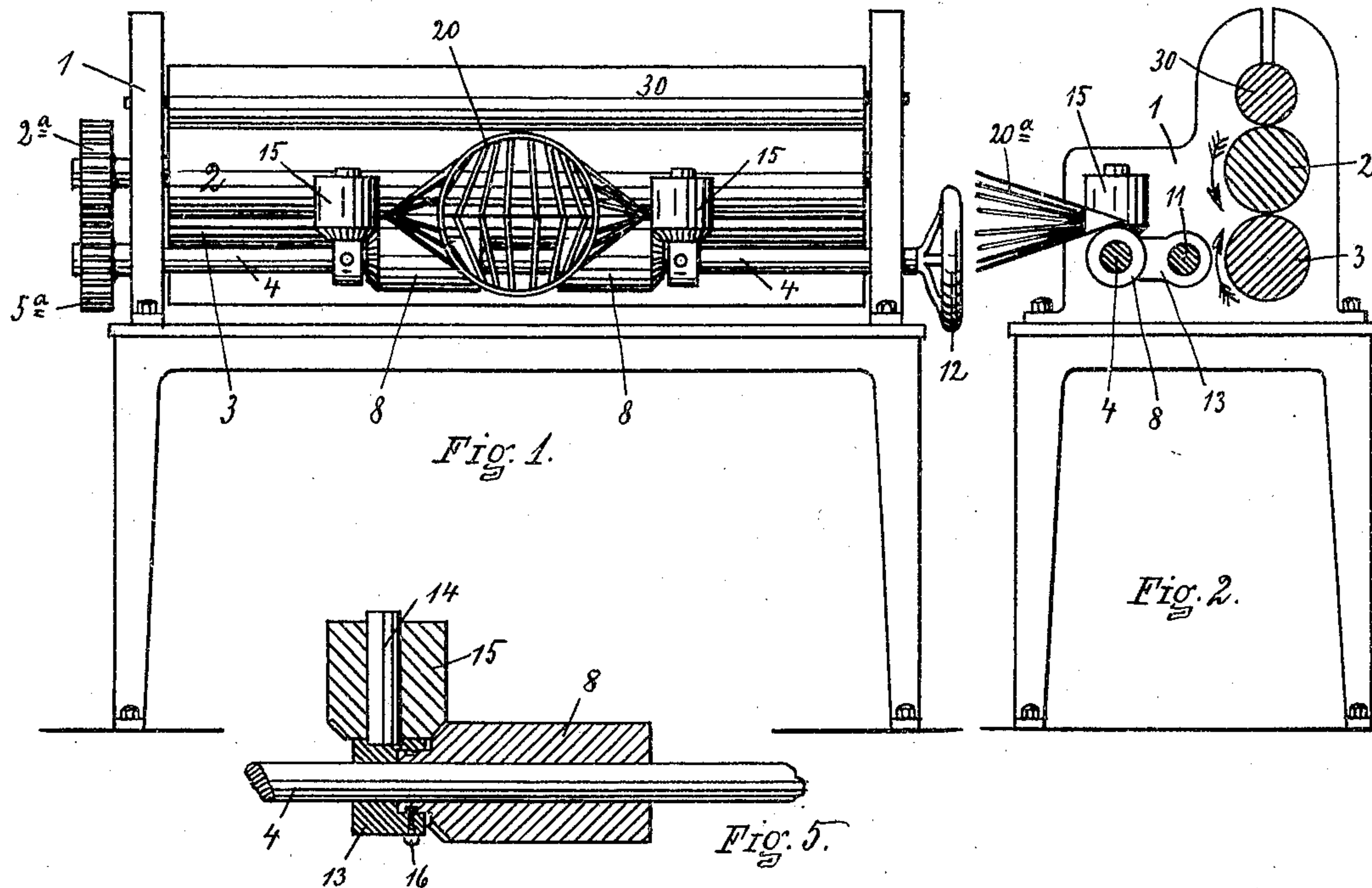


No. 794,228.

PATENTED JULY 11, 1905.

J. S. JOHNSTON.
CLOTH DRYING MACHINE.
APPLICATION FILED AUG. 1, 1904.



WITNESSES
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JAMES S. JOHNSTON, OF UTICA, NEW YORK, ASSIGNOR TO JOHNSTON NOVELTY & MILL SPECIALTY COMPANY, OF UTICA, NEW YORK.

CLOTH-DRYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 794,228, dated July 11, 1905.

Application filed August 1, 1904. Serial No. 219,055.

To all whom it may concern:

Be it known that I, JAMES S. JOHNSTON, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Cloth-Drying Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

The object of my present invention is to provide an improvement in cloth-drying machines for operating more particularly on tubular-knit goods.

The more particular object of the invention is to provide a machine which will draw the fabric during the drying operation and wind it on a roll in an even manner and free from all cross or irregular strains or draws in the goods.

In the drawings, Figure 1 shows what may be termed a "front" view of my improved drier with the drier-head in connection therewith. Fig. 2 shows a cross-section of the machine, together with a portion of the drier-head in position therein. Fig. 3 shows a plan view of the part shown in Fig. 1. Fig. 4 shows an end view of the machine as seen from the left of Fig. 1. Figs. 5 and 6 show details of the construction in section.

Referring to the reference-figures in a more particular description, 1 indicates a frame which is preferably provided with legs or standards to give a suitable elevation from the floor and which frame provides bearings for the drawing-rollers 2 and 3. At the ends of the shafts carrying drawing-rollers 2 and 3 there are provided meshing gear-pinions 2^a and 3^a, causing these two rollers to move at uniform speed, and these rollers are driven in the direction indicated by the arrow in Fig. 2 by power applied, preferably, to an extension of the shaft at end roller 2 or 3. In advance of the lower roller 3, mounted in the frame, there is provided a shaft 4, which shaft is driven by means of the gear-pinion 5^a, se-

cured on the end thereof, and the intermediate pinion 6, meshing with pinion 3^a. On the shaft 4 there are mounted two rollers 8 8. These rollers are held to the shaft 4 with a spline or feather 10, as shown in Fig. 6, so that they rotate with the shaft.

Extending parallel with the shaft 4 is a screw 11, provided with a right-hand thread 11^a on one part and a left-hand thread 11^b on the other part. The screw 11 is mounted in bearings in the frame to rotate freely and is provided on one end with a hand-wheel 12, by means of which it may be operated. The opposite end of the screw from the hand-wheel 12 is extended to provide a stud on which the pinion 6 is supported; but the pinion 6 does not operate the screw. On this screw 11 there is provided a nut 13, which has an arm projecting to and encircling as a collar the shaft 4. In this collar part of the nut 13 there is provided an upwardly-extending pivot or shaft 14, which carries the upright roller 15. The upright roller 15 is provided on its lower end with beveled gear-teeth, which mesh with beveled gear-teeth on the end of the roller 8. The roller 8 is also extended into the collar 13 and is coupled thereto by means of a groove, being provided on said extension with a set-screw 16 in the collar entering the groove, whereby the roller 8 and the collar of the nut 13 are coupled together for lateral movement.

The drier-head 20, which is preferably of wirework, is attached at one end to a drier-pipe in the usual manner, while the delivery end 20^a of the drier-head is brought into the usual flat form, as shown. Drier-heads of various sizes are employed from time to time, depending upon the diameter of the tube of the tubular fabric to be operated upon. The delivery end of the drier-head is adapted to rest substantially centrally upon the rollers 8. By means of the hand-wheel 12 and the screw 11 the upright rollers 15 are brought against the corners or ends of the delivery end of the drier-head and will be adjusted so that they will serve to move the fabric passing over the drier-head by the corner and draw it, assisting the drawing-rolls 2 and 3.

It may be noted that the rollers 8 and 15,

as well as the rollers 2 and 3, will preferably be provided with a roughened surface—such, for instance, as one furnished by emery and glue.

5 It will be understood, of course, that the pipe 21 is attached to a hot-air blower in the usual manner and that the goods to be dried are first threaded on over the tube 21 when the drier-head 20 is removed. The goods are
10 then brought forward over drying-head 20 and passed into the drawing-machine and engage with the drawing-rollers 2 and 3. The rollers 8 and 15 will then be adjusted so as to have the upright rollers 15 engage with
15 and assist the fabric by the corners of the drying-head. After passing the rollers 2 and 3 the fabric is started on the accumulating-roller 30. Heretofore considerable difficulty has been experienced in making the portions
20 of the tubular fabric which pass the corners of the drying-head next to the rollers 15 move forward as promptly and at the same rate of speed as the portion of the fabric passing over the middle part of the delivery end of the
25 drying-head. When the parts passing over the corner portion fail to move up as promptly, the wales in the fabric will not run parallel with the accumulating-roller 30, but will be found to form curves, which are objection-
30 able. With the drying-machine here illustrated the fabric can be drawn so that the wales will be parallel with the accumulating-roller or much more nearly to that result than has heretofore been obtained.

35 When drier-heads of larger or smaller sizes are substituted, the rollers 8 and 15 can be quickly adjusted to accommodate them by rotating the screw 11 by means of the hand-wheel 12, and in starting a new length of fab-
40 ric through the machine the rollers 15 can be readily operated to enable the operator to accomplish the work more readily.

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

1. The combination in a drying-machine of 45 the drawing-rollers, the drier-head adapted to deliver tubular fabric in collapsed form, and the adjustable rollers 15 arranged to operate on the edges of the collapsed tubular fabric, with means for adjusting the rollers toward 50 and from each other, and means for driving the rollers, substantially as set forth.

2. The combination in a drying-machine of the drawing-rollers, the drier-head, the adjustable rollers 8, with which the delivery end 55 of the head is adapted to coöperate, the angularly-arranged rollers 15 adapted to engage the fabric passing the corners of the head, and means for driving the drawing-rollers and the rollers 8 and 15 at uniform speed, sub- 60 stantially as set forth.

3. The combination in a drying-machine of the drawing-rollers, the drier-head, the shaft extending parallel to the drawing-rolls, the rolls 8 8 mounted on said shaft, and the an- 65 gularly-arranged rolls 15, with means for adjusting the rolls 8 along the shaft and the rolls 15 in connection therewith, substantially as set forth.

4. The combination in a drying-machine of 70 the drier-head, the short rolls arranged at the delivery end of the drying-head in planes parallel thereto, and the rolls arranged at right angles to the plane of the delivery end of the drier-head, and means for driving said rolls, 75 substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 28th day of June, 1904.

JAMES S. JOHNSTON.

Witnesses:

E. WILLARD JONES,
E. S. HESSE.