

(No Model.)

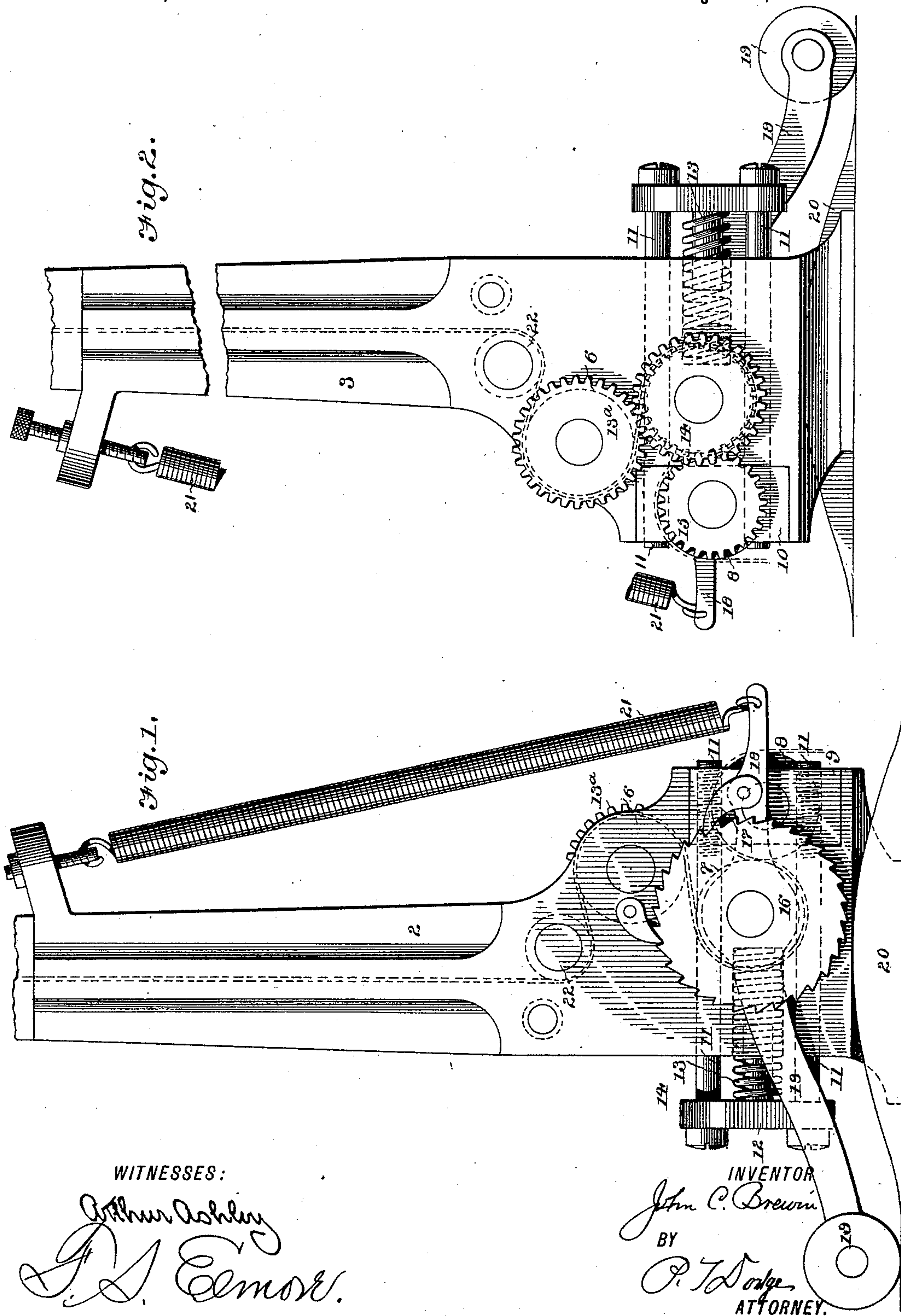
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J. C. BREWIN.

TAKE-UP MECHANISM FOR KNITTING MACHINES.

No. 582,452.

Patented May 11, 1897.



WITNESSES:

Arthur Ashley  
D. S. Emory.

INVENTOR

John C. Brewin

BY

P. T. Dodge  
ATTORNEY.

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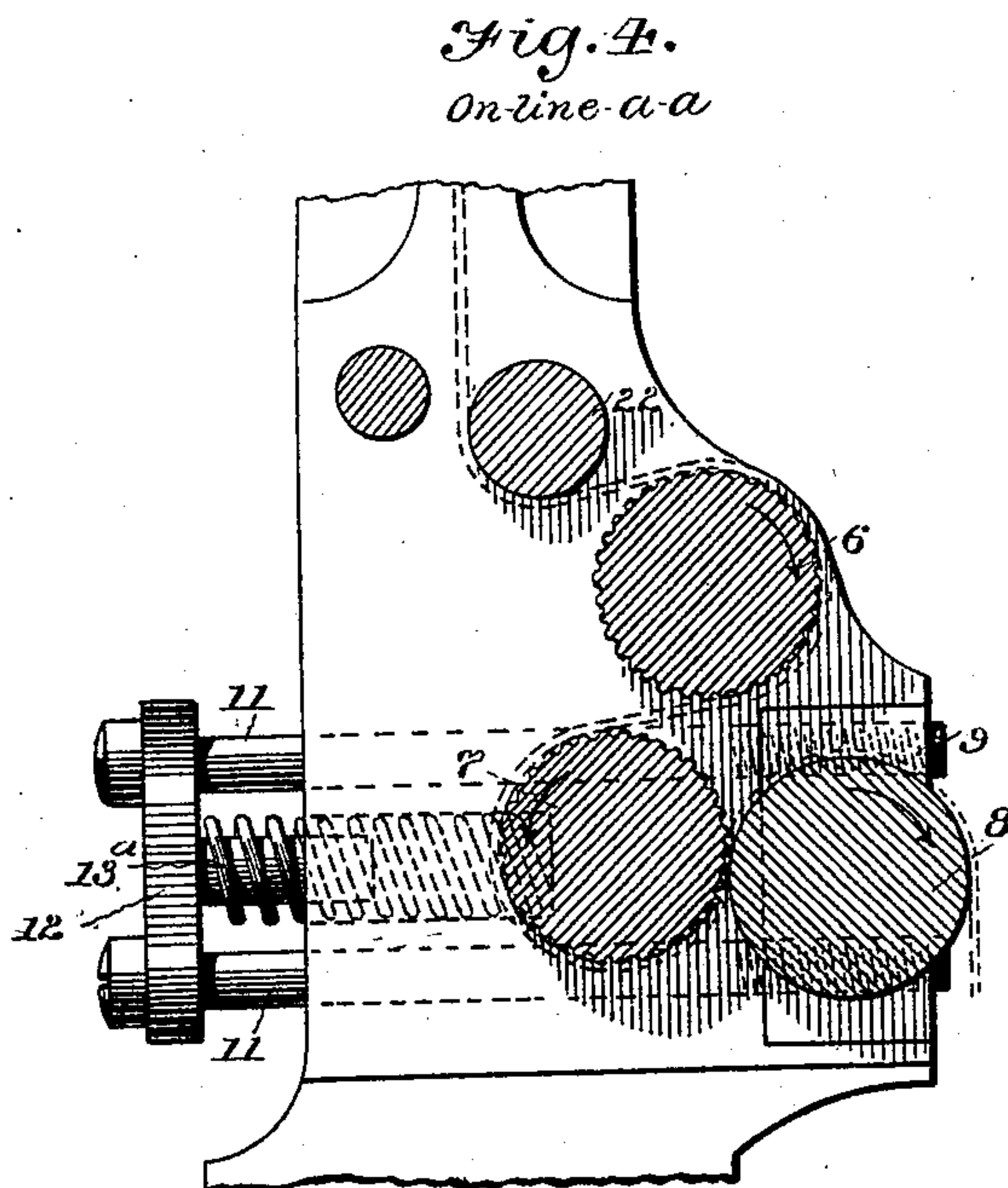
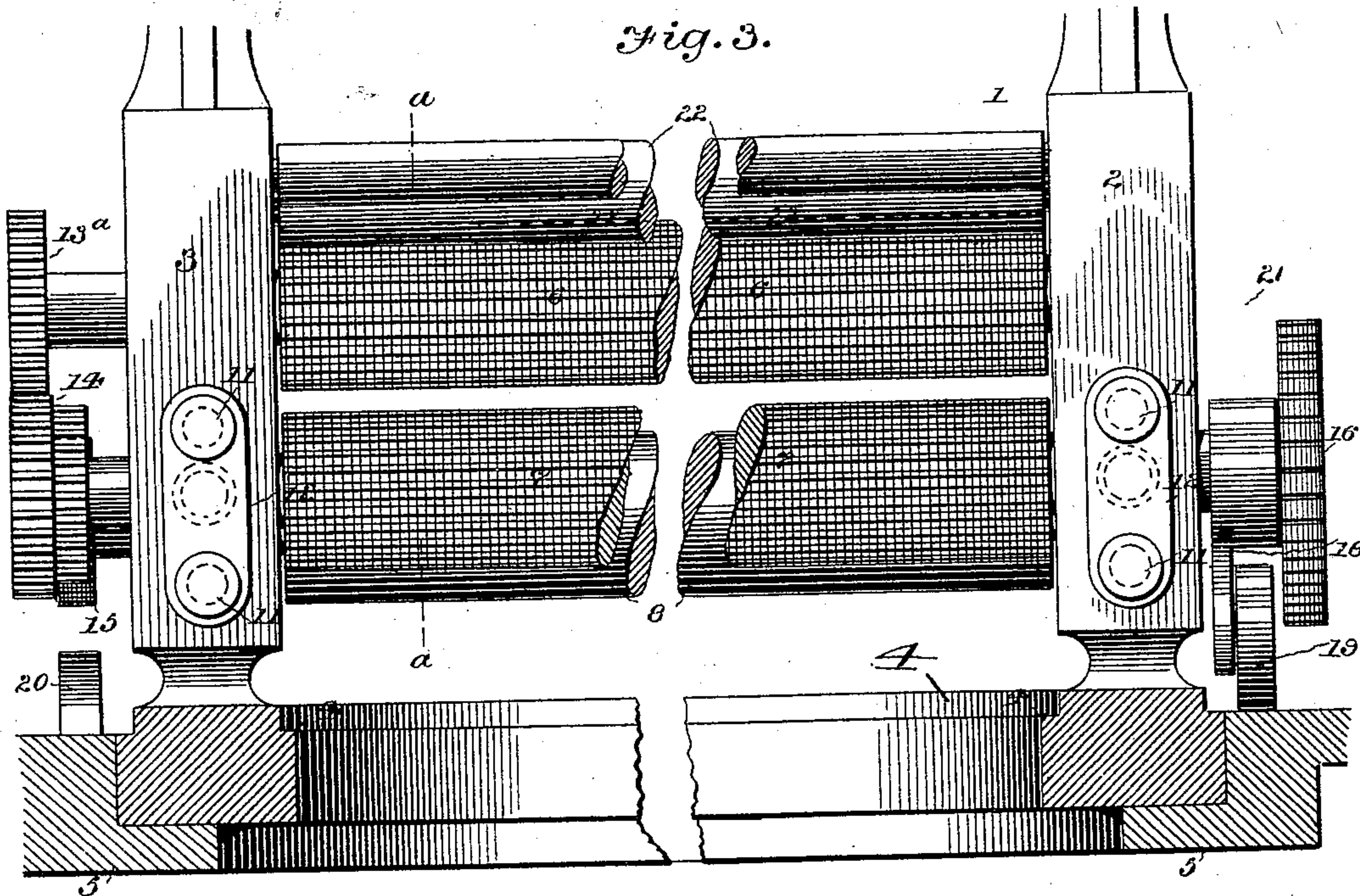
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# UNITED STATES PATENT OFFICE.

JOHN C. BREWIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO NYE & TREDICK, OF SAME PLACE.

## TAKE-UP MECHANISM FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 582,452, dated May 11, 1897.

Application filed October 5, 1896. Serial No. 607,913. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. BREWIN, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Take-Up Mechanisms for Knitting-Machines, &c., of which the following is a specification.

This invention has reference to a take-up mechanism designed more particularly for use in connection with knitting-machines, the object being to produce a take-up mechanism which will positively and uninterruptedly draw the work as produced without regard to any differences that may exist in the thickness of the fabric or any irregularities or defects in its formation.

With these ends in view my improved take-up mechanism comprehends the combination, with two or more rotary drawing-rollers, in contact with which the work successively passes and by which it is drawn, of a rotary pressure-roller acting to hold the fabric yieldingly with a substantially uniform pressure in contact with one of the drawing-rollers other than the first.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an end elevation of the lower portion of the take-up frame of a circular-knitting machine, showing my invention applied thereto. Fig. 2 is a view of the same from the opposite side. Fig. 3 is a side elevation of the same. Fig. 4 is a vertical section on the line *a a* of Fig. 3.

I have shown my improved take-up mechanism applied to a take-up frame which rotates with the cylinder of a circular-knitting machine operating to produce a tubular fabric; but the invention is not to be limited in this connection and is applicable as well to mechanisms producing a flat fabric or wherever it is desirable to take up the fabric effectually and uniformly as it is produced.

1 represents a take-up frame consisting, as usual, of two vertical bars 2 and 3, connected at their upper ends to the diametrically opposite sides of a rotary needle-cylinder (not shown) and at their lower ends to a ring 4, mounted to revolve in a fixed bed-plate 5. In the lower part of this frame my take-up mech-

anism is situated, consisting of two drawing-rollers 6 and 7, roughened on their surfaces, and a smooth pressure-roller 8. The drawing-rollers are mounted in fixed bearings in the take-up frame one above the other and preferably out of line, a short distance apart, as plainly shown in Fig. 3, while the pressure-roller is mounted in yielding bearings 9 and 10 at the side of the lower drawing-roller 7. These yielding bearings consist of journal-blocks sliding horizontally in recesses formed in the edges of the side bars of the take-up frame, and each block has connected to it two rods or bolts 11, which extend loosely through openings in the side bar beyond the opposite edge of the bar, where they are connected by a head or plate 12.

Spiral springs 13 are seated in sockets in the edges of the side bars and bear at their opposite ends against the plates 12 and tend to hold the pressure-roller yieldingly in contact with the lower drawing-roller 7. The drawing-rollers and pressure-roller have their spindles extended beyond the take-up frame at one side of the same and are provided with intermeshing gears 13<sup>a</sup>, 14, and 15, by which the rollers are caused to revolve in the directions indicated by the arrows in Fig. 4. These rollers may be driven in any suitable manner; but I prefer to adopt the mechanism shown and now to be described and which is peculiarly effective in connection with a take-up frame which rotates with the needle-cylinder. The driving mechanism consists of a ratchet-wheel 16, which is mounted on the extended spindle of the lower drawing-roller beyond the side of the take-up frame opposite the driving-gears. The ratchet-wheel is engaged by a pawl 17, carried on one end of a rocking lever 18, mounted on the spindle of the roller between the ratchet-wheel and the take-up frame. The other end of the lever carries a friction-roller 19, which as the take-up frame revolves successively rides up and down the two sides of cam-surfaces 20, arranged at intervals on the bed-plate 5. A spring 21 is connected to the end of the lever adjacent to its pawl and to the take-up frame and tends to hold the lever with its friction-roller in the path of the cam-surfaces, the arrangement of the pawl and spring being such that as the roller rides up



the cam-surface the lever will be rocked, the pawl will slip along the teeth of the wheel, and the spring will be distended, and when the roller descends the opposite side of the cam-surface the spring in resuming its normal position will rock the lever in the opposite direction, which movement will, through the pawl 17, drive the ratchet-wheel and turn the lower drawing-roller, the rotation of which will move the upper drawing-roller and the pressure-roll.

As shown in Fig. 4, the work from the needles passes around the lower side of a guide-bar 22, mounted between the bars of the take-up frame above the upper drawing-roller, then partly around the side of the upper drawing-roller, whence it passes around the opposite side of the lower drawing-roller, thence up between the same and the pressure-roller, whence it passes into the usual receptacle or winding-roller, as desired. By passing the fabric first around one side of the upper drawing-roller, then around the opposite side of the lower drawing-roller, and finally between the latter and the pressure-roller the contact of the fabric with the two rollers is uniformly maintained and the opposite sides of the same are subjected to a positive pulling action of the drawing-rollers, the pressure-roller, in connection with the lower drawing-roller, maintaining positively the lap of the fabric around the two rollers, thereby effectually preventing any backward slip of the work.

By reason of the lap of the fabric around the two drawing-rollers I am enabled to use in connection with the pressure-roller a very weak spring, which is highly advantageous in that the pressure-roller will yield readily to allow the passage of any thick portions of the fabric, such as "bunches" or other irregularities and defects in its formation. The function of the pressure-roller being to hold the fabric around the lower drawing-roller it moves to and from the drawing-roller only when the thickness of the fabric varies, and this movement is consequently very slight. Hence the pressure-roller bears against the drawing-roller with a practically uniform and unvarying pressure, which is highly important and which is to be distinguished from the action of the winding-rollers in certain take-up mechanisms, which, as the fabric is

wound thereon, increases greatly in diameter and necessarily exerts an irregular pressure on the drawing-roller and prevents the passage of any abnormally thick portions of the fabric.

Having thus described my invention, what I claim is—

1. In a take-up mechanism the combination with a plurality of rotary drawing-rollers mounted in fixed bearings and having their surfaces roughened and out of contact and adapted to receive the fabric, one from the other direct, of a rotary pressure-roller cooperating with one only of said drawing-rollers, other than the first, said pressure-roller being of a predetermined unchanging diameter, and means tending to hold the same yielding in contact with the drawing-roller with which it cooperates.

2. In a take-up mechanism the combination with the two rotary drawing-rollers mounted in fixed bearings and provided with roughened surfaces out of contact and adapted to receive the fabric one from the other direct on opposite sides, of a rotary pressure-roller cooperating with the second drawing-roller only and having a predetermined unchanging diameter, said pressure-roller being mounted in bearings to yield with relation to said drawing-roller.

3. In a take-up mechanism the combination with the take-up frame comprising two bars, of a drawing-roller mounted between said bars in fixed bearings, bearing-blocks mounted to slide horizontally in recesses in said bars, a pressure-roller mounted in said blocks and cooperating with the drawing-roller, bolts connected to said blocks and extending loosely through the bars of the take-up frames, plates connecting said bolts and springs bearing against the bars of the take-up frame and against the plates 12; whereby the pressure-roller will be held yielding against the drawing-roller.

In testimony whereof I hereunto set my hand, this 25th day of September, 1896, in the presence of two attesting witnesses.

JOHN C. BREWIN.

Witnesses:

FRANK A. NYE,  
C. M. DUFFIN.