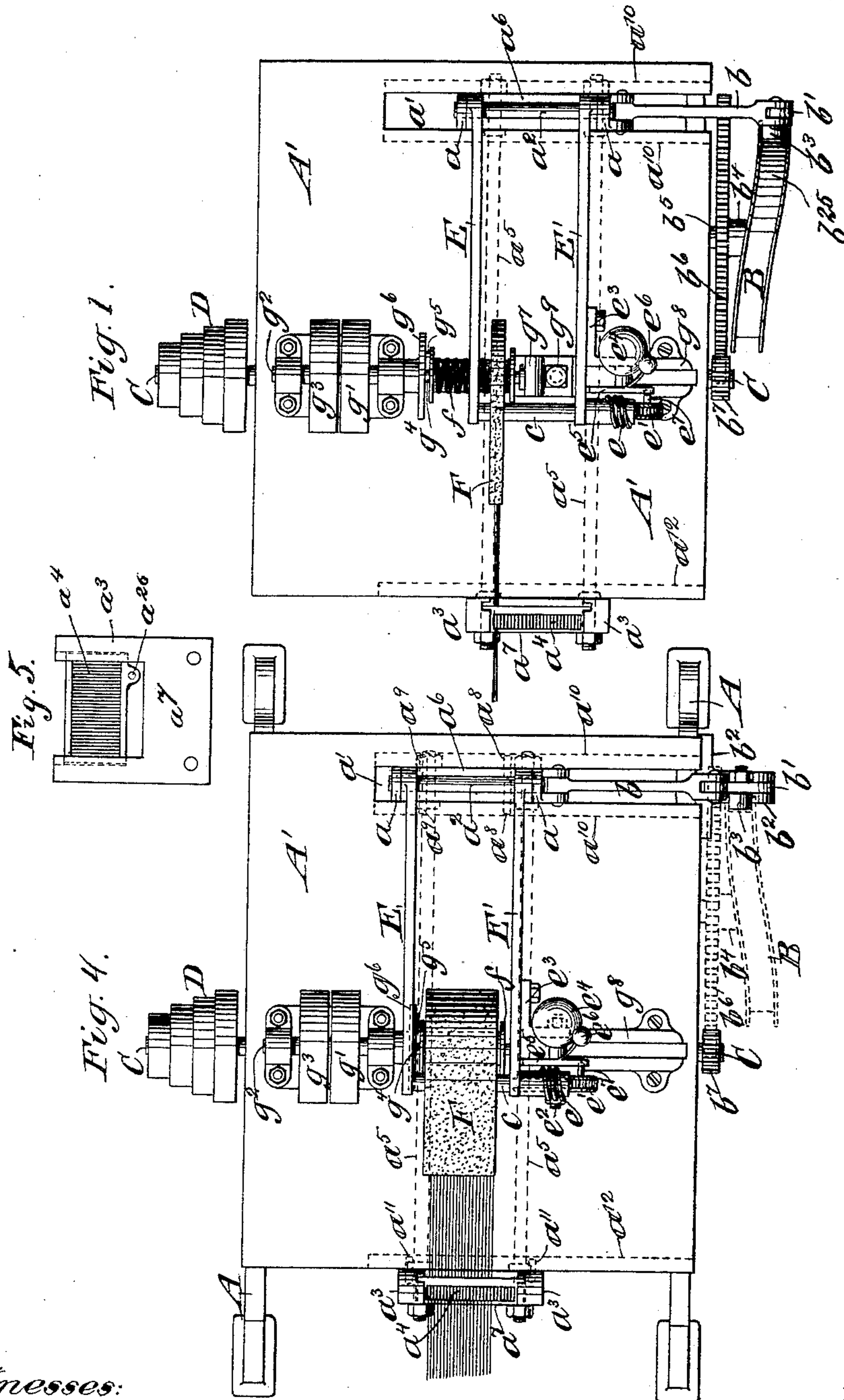


W. J. LUTTON.
WARPING MACHINE.

No. 450,728.

Patented Apr. 21, 1891.



Witnesses:

O. Sundgren
D. H. Hayward

Inventor.

William J. Lutton
by Attorneys
Brown & Grinwald

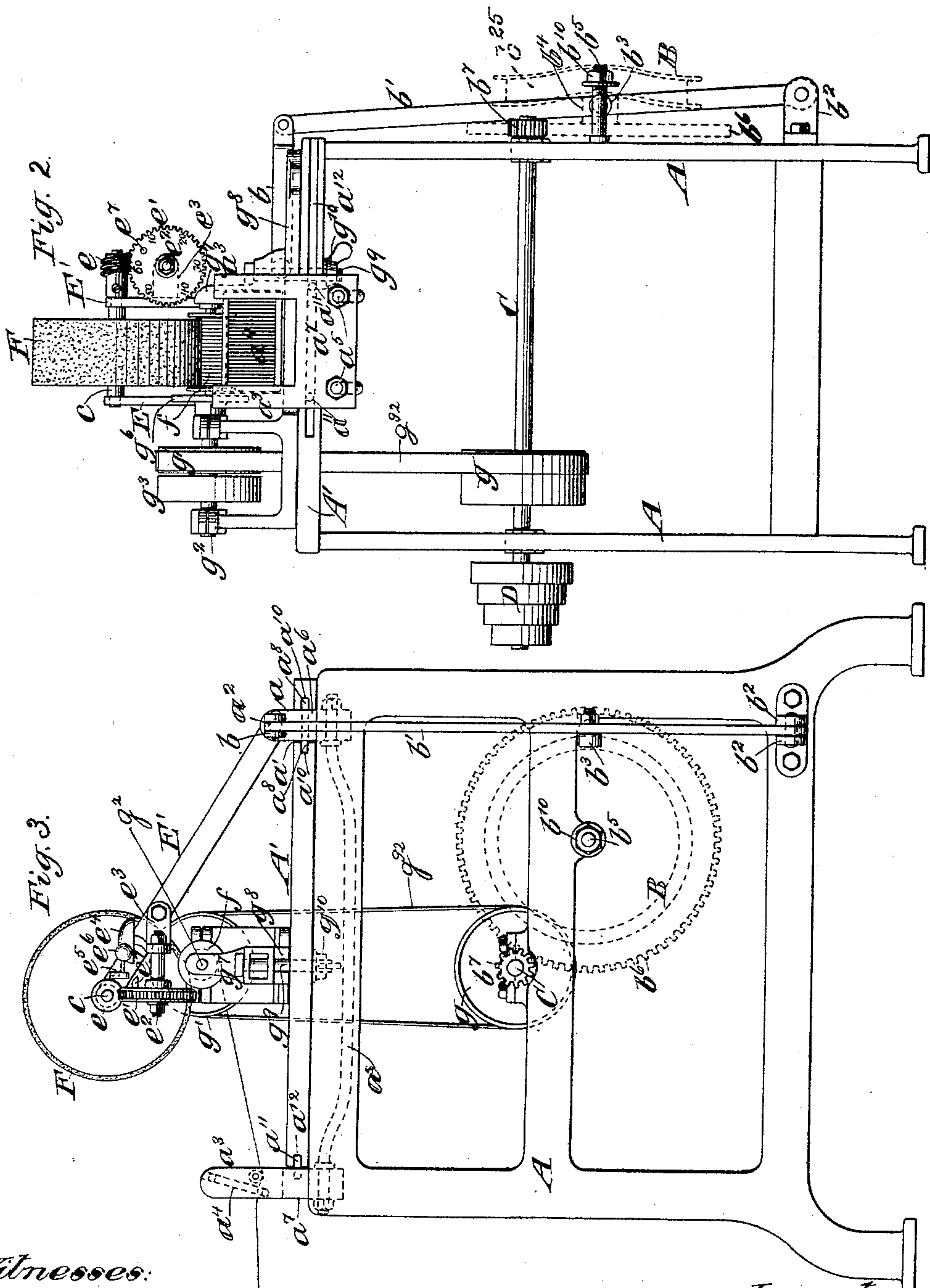
(No Model.)

2 Sheets—Sheet 2.

W. J. LUTTON.
WARPING MACHINE.

No. 450,728.

Patented Apr. 21, 1891.



Witnesses:

Edmundgren
R. H. Haywood

Inventor:

William J. Lutton
by Attorneys
Brown & Griwold

UNITED STATES PATENT OFFICE.

WILLIAM J. LUTTON, OF PATERSON, NEW JERSEY, ASSIGNOR TO SCHIAUM
& UHLINGER, OF PHILADELPHIA, PENNSYLVANIA.

WARPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 450,728, dated April 21, 1891.

Application filed November 2, 1889. Serial No. 329,066. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LUTTON, of Paterson, in the county of Passaic and State of New Jersey, have invented a certain new and useful Improvement in Warping-Machines, of which the following is a specification.

My invention relates to warping-machines in which the number of yards of silk or other warp are measured as they are wound upon the spool.

I will describe in detail a warping-machine embodying my improvement and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a plan or top view of a machine embodying my invention, showing the reciprocating frame carrying the warp-guide and measuring-roller. Fig. 2 is a front elevation of the machine so modified as to dispense with the use of the means for reciprocating the frame which carries the warp-guides. Figs. 3 and 4 represent, respectively, a side elevation and top plan view of the machine shown in Fig. 2. Fig. 5 is a view of a part elevation of the machine, showing the aperture through which the rope of warp is led to the winding mechanism.

Similar letters of reference designate corresponding parts in all the figures.

A designates the frame of the machine, provided with a table or bed A'.

I employ a frame comprising upright portions a , extending upwardly through a slot or opening a' in the bed A' of the machine near one end of the latter. These upright portions are connected together by means of a connecting-piece a^6 , extending between them near their lower ends, and also by a bolt or rod a^2 . The other end portion of the frame comprises upright portions a^3 , secured together near their lower ends by a connecting-piece a^7 . Between said upright portions a^3 is arranged a reed a^4 , which may be of ordinary construction. The portions a^3 of the frame are joined together by bolts a^5 , which extend across the machine beneath the bed A'.

Extending from the connecting-piece a^6 and upon opposite sides thereof are pins or projections a^8 a^9 , which pins or projections extend into grooves a^{10} , formed at the sides of

the slot or opening a' . From the connecting-piece a^7 pins or projections a^{11} extend inwardly into a groove a^{12} , formed in the outer edge of the bed A'. During its bodily movement widthwise of the machine the pins or projections a^8 a^9 a^{11} not only serve to guide the frame in its to-and-fro movement, but also to support the frame in a proper position.

Bodily movement is imparted to the frame from a link b , which is pivotally connected near one end to a lever b' . The lever b' is fulcrumed between lips or lugs b^2 , extending from the frame of the machine. Upon one side said lever bears a roller b^3 , which extends into a peripheral groove b^{25} of a cam-wheel B, which cam-wheel is mounted upon a sleeve b^4 , surrounding a stud b^5 , extending from the frame of the machine. Upon the sleeve b^4 of said cam B is keyed a gear-wheel b^6 , which derives rotary motion from a pinion b^7 , keyed upon a main or driving shaft C. Motion is imparted to the driving-shaft C by means of a belt passing about a cone-pulley D. When the cam-wheel B is rotated, the roller b^3 will be caused to follow the peripheral groove therein and thus rock the lever b' and impart a to-and-fro movement to the said frame.

Extending upwardly and, as shown, at an angle from the bolt and rod a^2 are arms E E'. These arms are loosely mounted near their lower ends upon said bolt or rod. Near their upper ends there is loosely journaled in them a shaft c . Upon the shaft c is a wheel F. The periphery of this wheel may be faced with felt or other suitable material which affords a good friction-surface.

Rotary motion is imparted to the wheel F by frictional contact with the warp upon a spool f while the warp is being wound upon the spool.

Upon the shaft c and, as shown, outside the arm E' is a worm e , which meshes with a worm-wheel e' , mounted upon a stud e^2 , secured in a bracket e^3 , extending from the arm E'. Also secured upon said bracket is a bell e^4 . Upon the arm E' is secured a resilient strip e^5 , which may be of metal. This strip bears a bell-clapper e^6 .

Extending from the side of the worm-wheel e' is a projection e^7 . Each time the worm-wheel makes a complete rotation the projec-

tion e^7 will come into contact with the resilient strip e^5 and deflect it, and when it has passed by the same the bell-clapper will be caused to strike the bell and give an alarm.

5 This alarm indicates that a certain number of yards of warp have been wound upon the spool.

The gearing may be such as to wind any desired number of yards upon the spool; but
10 I have illustrated it so as to indicate when sixty yards have been thus wound.

Upon the face of the worm-wheel are figures from 10 to 60, and the worm-wheel therefore operates as an indicator to indicate the
15 number of yards wound.

Rotary motion is imparted to the spool f by means of a belt g^{92} , passing over a pulley g upon the shaft C and a pulley g' , fast upon a shaft g^2 , journaled in suitable bearings secured upon the bed of the machine A' . Said
20 shaft also bears a loose pulley g^3 . The shaft g^2 has at one end a bearing-piece g^4 , upon which the spool is fixed.

In one of the heads of the spool is a suitable
25 aperture into which a pin g^5 , extending from a disk g^6 upon the shaft g^2 , extends when the spool has been passed over the spindle, whereby rotary motion will be imparted by the shaft to the spool. The outer end of the shaft g^2
30 rotates in an adjustable bearing-piece g^7 , which is mounted on a slideway g^8 , secured upon the bed A' of the machine. A bolt g^9 , passing through the bearing-piece g^7 and the bed A' , may be clamped by a thumb-nut g^{10} , so as to
35 maintain said bearing-piece in any position into which it may be adjusted. This provides for inserting and removing the spools.

As shown in Fig. 1, the warp-threads are bunched and are led through a suitable aperture
40 a^{26} in the frame which supports the reed a^4 , and as the wheel F is mounted upon supports which move with the frame which carries the reed it is maintained in such position as to engage the rope of warp as it traverses the spool from end to end. Where, as
45 shown in Fig. 1, the warp is fed in rope form and wound evenly upon the spool by the side-to-side movement of the reciprocating frame, the wheel F will only be of such width as to
50 engage the rope. By employing a broader-

55 faced wheel F , as shown in Figs. 2, 3, and 4, and feeding the warp through the reed a^4 the reciprocating movement of the frame may be dispensed with, and, if desired, the cam-wheel B and gear-wheel b^6 may be removed when such broad-faced wheel F and reed a^4 are in use. The removal of the cam and gear wheels is accomplished by unscrewing the nut b^{10} from the outer end of the stud b^5 and then sliding the wheels off.
60

It will be seen that by my improvement the rotation of the spool itself is caused to operate an indicator by which the number of yards of warp wound upon the spool will be accurately registered and that irrespective of the
65 diameter of the warp upon the spool, for the reason that as the diameter of the spool increases the rotation of the wheel F will be correspondingly increased, thus imparting a more rapid rotation to the worm-wheel e' .
70

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

1. In a warping-machine, the combination, with a reciprocating frame and a warp-guide carried thereby, of a wheel mounted in said
75 reciprocating frame in position to engage the warp being wound and deriving rotary motion therefrom and an indicator deriving motion from said wheel, substantially as set forth.

2. In a warping-machine, the combination, with a reciprocating frame and a warp-guide carried thereby, of a wheel mounted in said
80 reciprocating frame in position to engage the warp being wound and deriving rotary motion therefrom and an indicator also mounted on said frame and deriving motion from said
85 wheel, substantially as set forth.

3. In a warping-machine, the combination, with a reciprocating frame and a warp-guide carried thereby, of a wheel mounted in said
90 reciprocating frame in position to engage the warp being wound and deriving rotary motion therefrom, an indicator deriving motion from said wheel, and an alarm operated by said indicator, substantially as set forth.

WILLIAM J. LUTTON.

Witnesses:

REUBEN MACFARLAN,
SAML. S. LAMBERT.