No. 641,352. Patented Jan. 16, 1900.

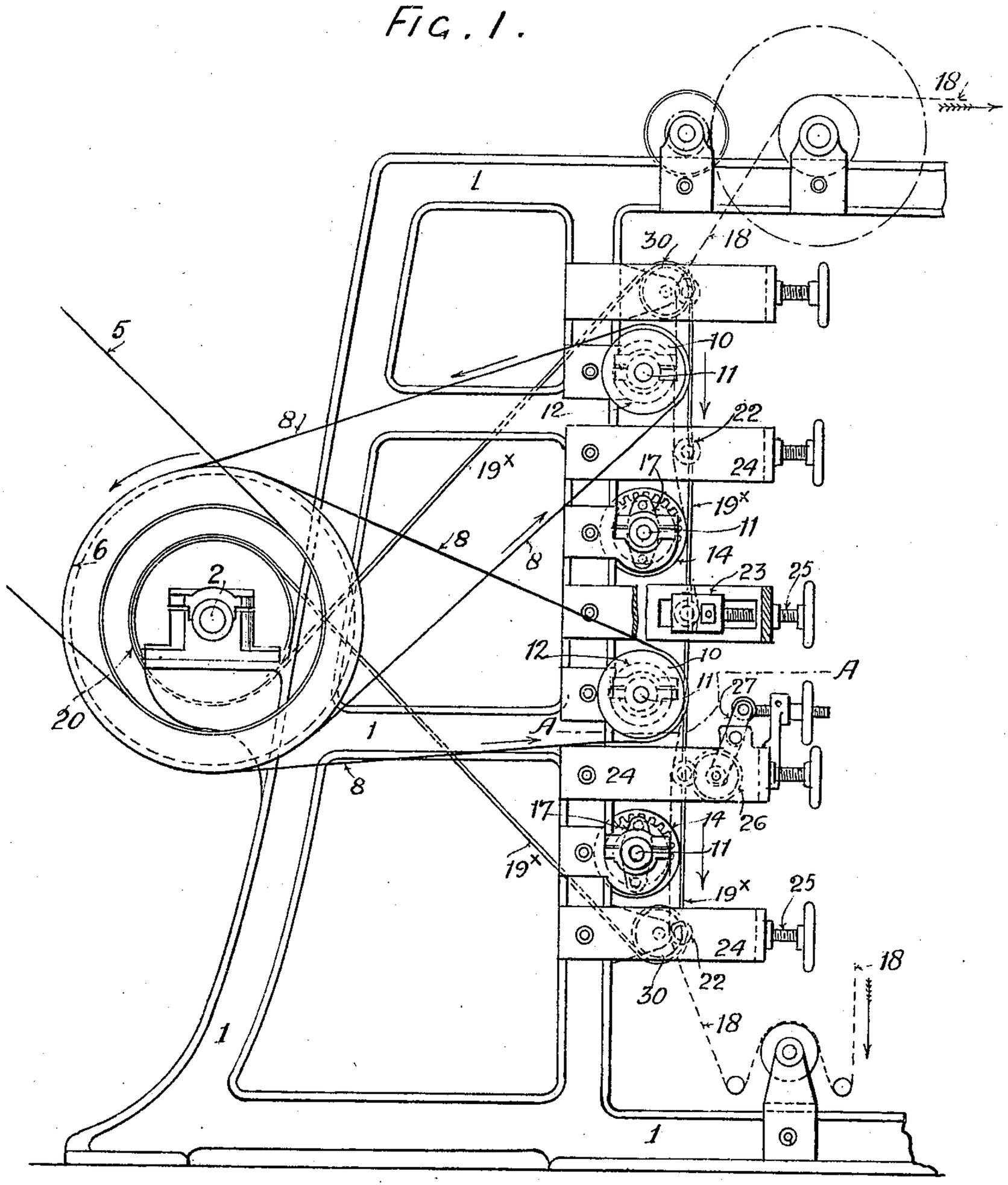
C. WOOD.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

(Application filed Apr. 29, 1899.)

(No Model.) 5 Sheets—Sheet 1.

FIG. 1.



WITNESSES:
Ella L. Giles.
Otto Munn

INVENTOR
Charles Wood
BY Richards & Co
ATTORNEYS

No. 641,352. Patented Jan. 16, 1900.

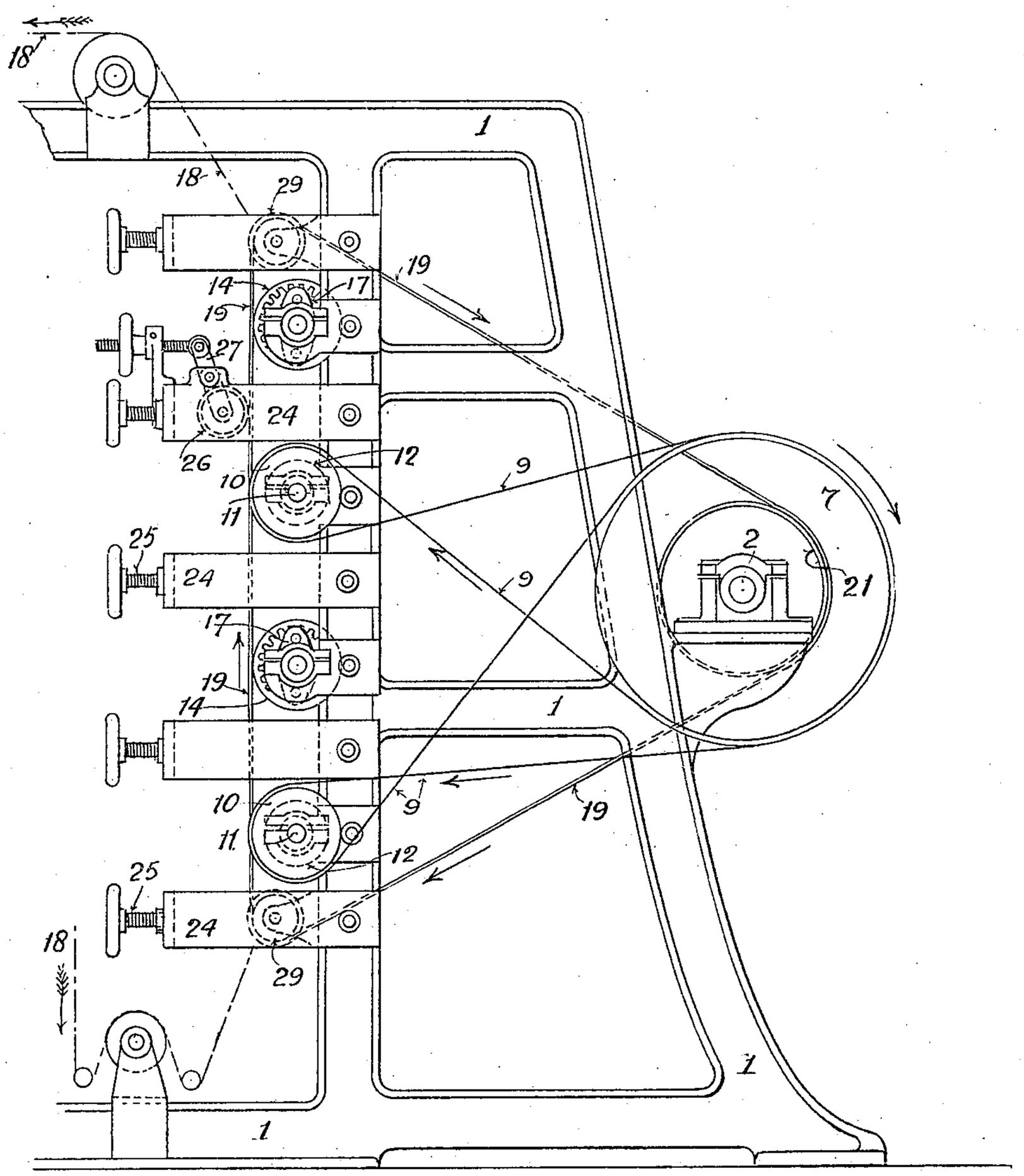
C. WOOD.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

(Application filed Apr. 29, 1899.)

(No Model.) 5 Sheets—Sheet 2.

Fig. 1.a



WITNESSES:
Ella L. Giles
A. Downes

INVENTOR
Charles Wood
BY
Richardson & Co.
ATTORNEYS

No. 641,352. Patented Jan. 16, 1900.

C. WOOD.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

(Application filed Apr. 29, 1899.)

(No Model.) 5 Sheets—Sheet 3.

FIG. 2.

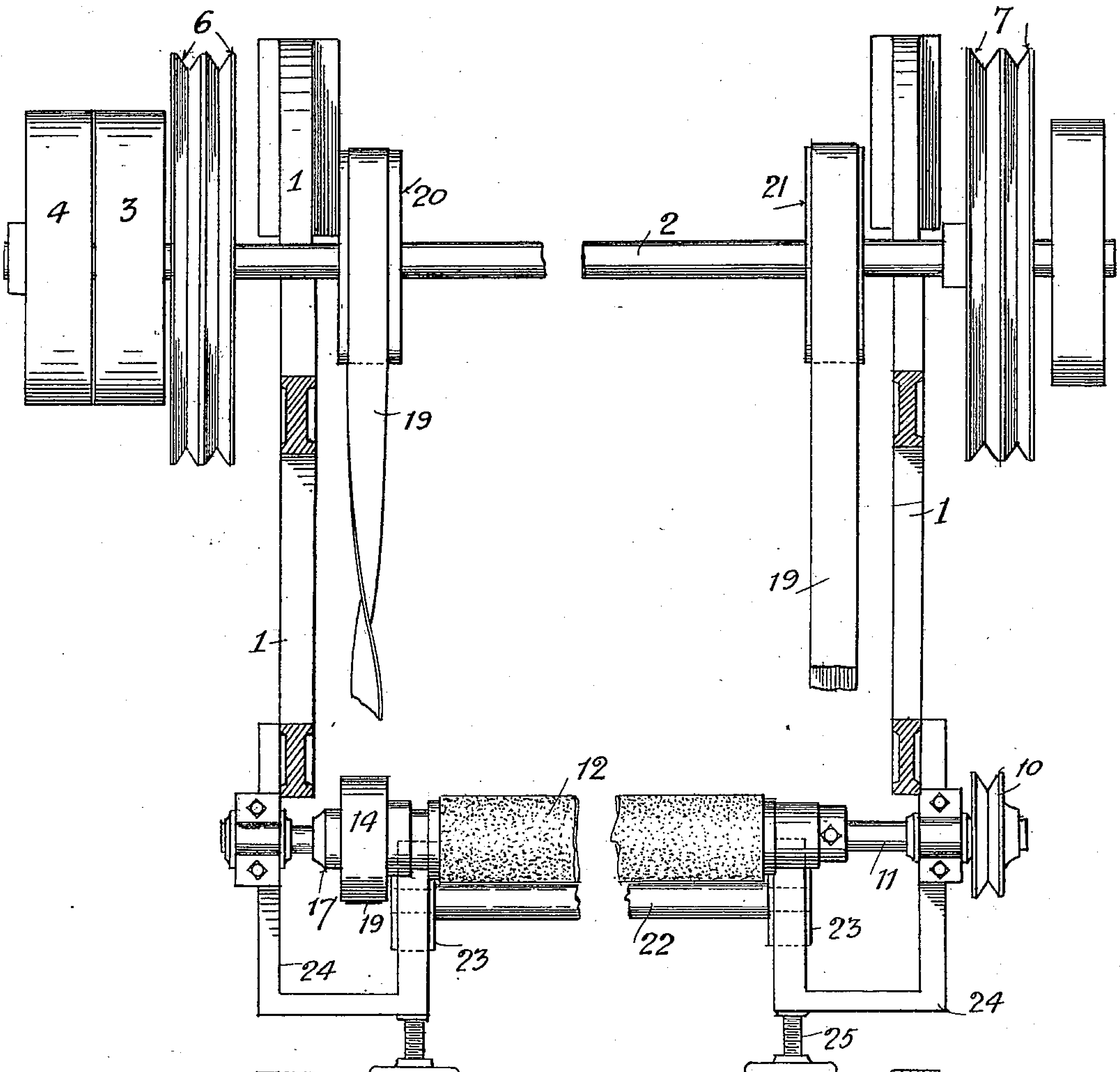
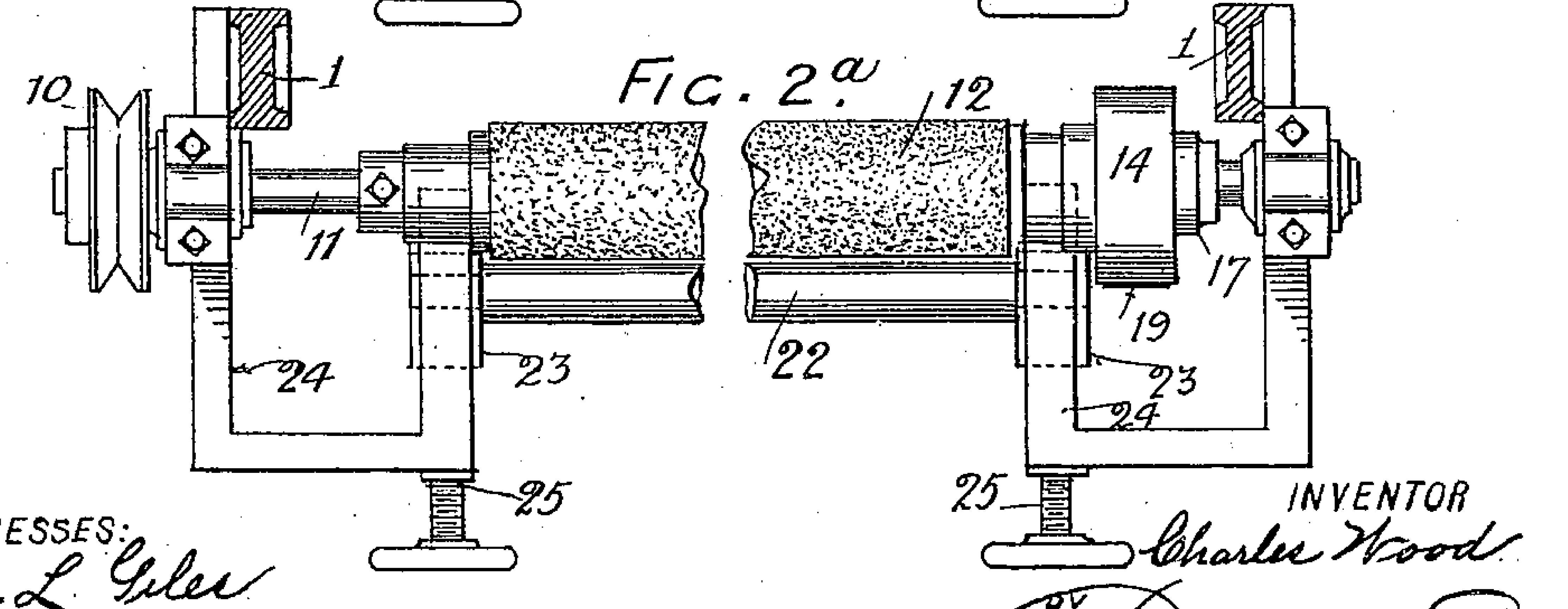


FIG. 2a.



WITNESSES:
Ella L. Giles
[signature]

INVENTOR
Charles Wood

BY Richards & Co
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 641,352. Patented Jan. 16, 1900.

C. WOOD.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

(Application filed Apr. 29, 1899.)

(No Model.) 5 Sheets—Sheet 4.

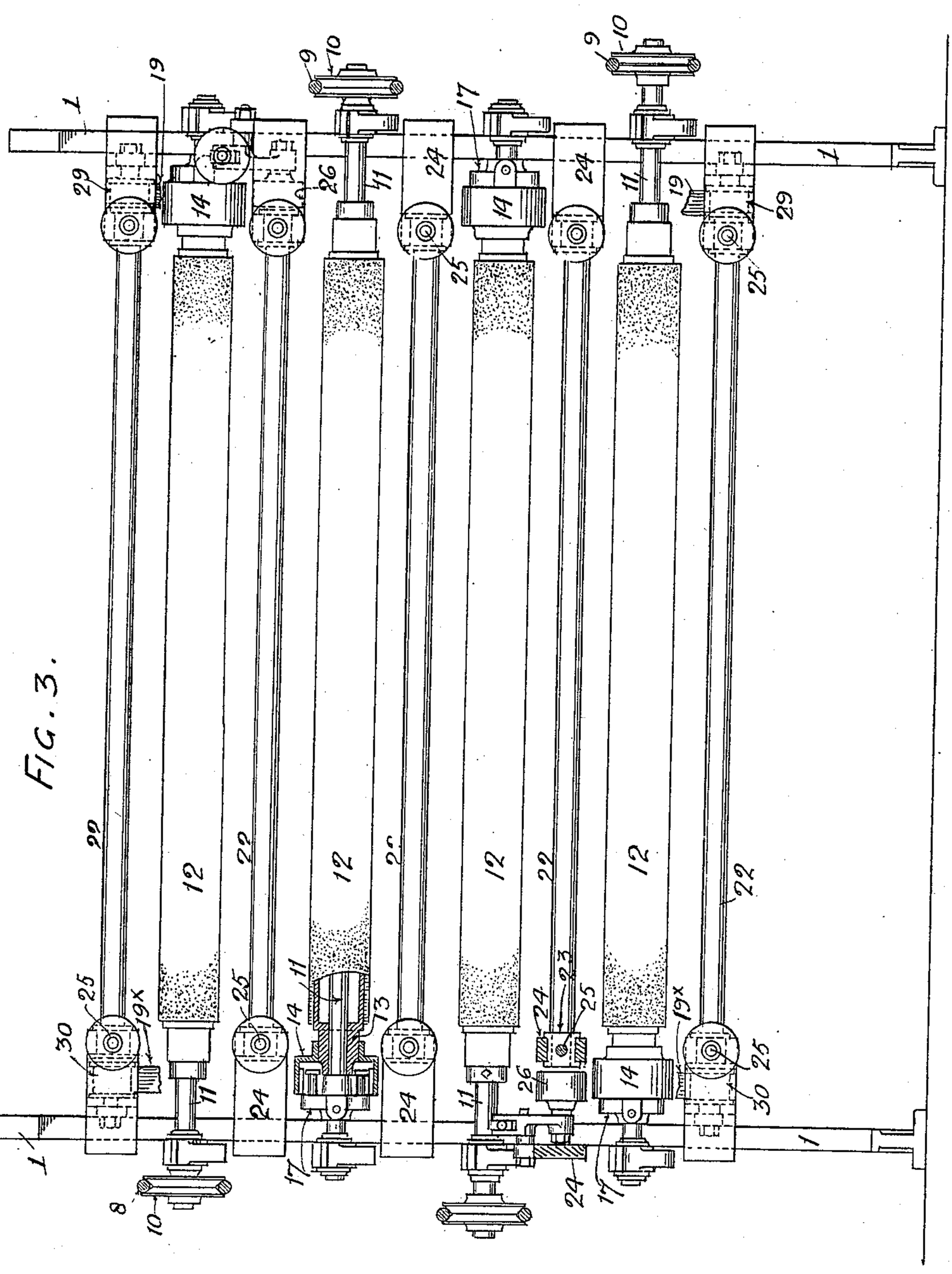


FIG. 3.

WITNESSES:
Ella L Giles
Otto Munn

INVENTOR
Charles Wood
BY Richards & Co
ATTORNEYS

No. 641,352. Patented Jan. 16, 1900.

C. WOOD.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

(Application filed Apr. 29, 1899.)

(No Model.) 5 Sheets—Sheet 5.

FIG. 5.

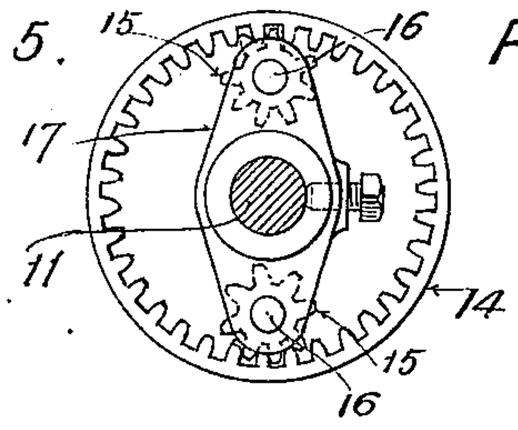


FIG. 6

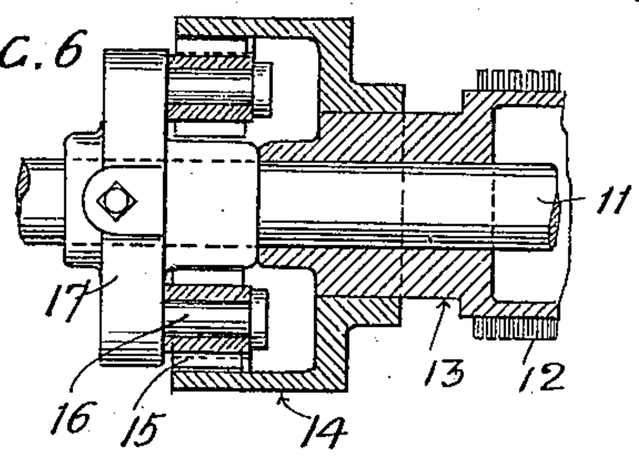


FIG. 3a.

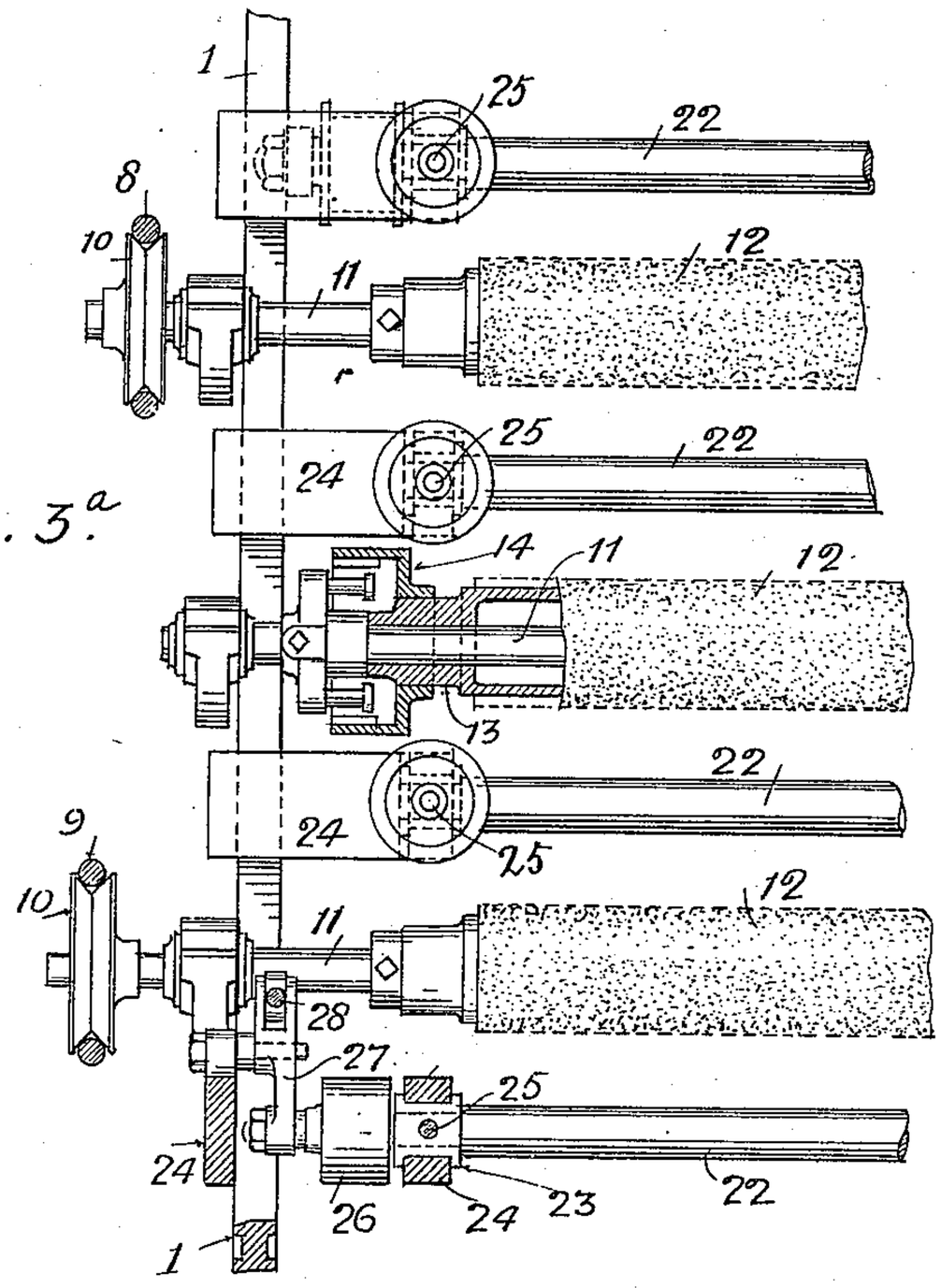
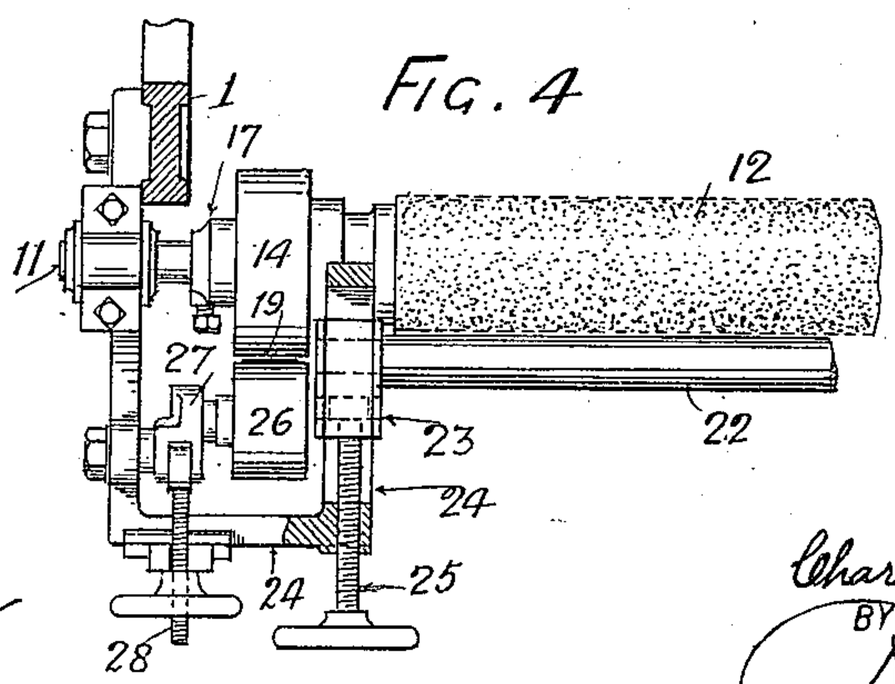


FIG. 4



WITNESSES:
Ella L Giles

INVENTOR.
Charles Wood
BY
Richardson & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES WOOD, OF HEATON NORRIS, ENGLAND.

MACHINE FOR RAISING AND DRESSING WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 641,352, dated January 16, 1900.

Application filed April 29, 1899. Serial No. 714,937. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WOOD, engineer, a subject of the Queen of Great Britain, residing at 64 Belmont street, Heaton Norris, near Stockport, in the county of Lancaster, England, have invented certain new and useful Improvements in and Relating to Machines for Raising and Dressing Woven Fabrics, of which the following is a specification.

My invention relates to improvements in and in connection with the raising-rollers of machines for raising and dressing woven fabrics.

Prior to my present invention it has been the practice to fix the raising-rollers upon their shafts or axes; but according to my improvements I employ hollow raising rollers or cylinders and mount the ends of each hollow roller upon hubs or bosses which are loose upon the shaft or axle. I secure to or form with each hub or boss an internally-toothed wheel which gears into a pinion or any number of pinions, preferably two, each carried on a stud fixed on a disk or block fast upon the roller-shaft.

In the accompanying three sheets of drawings, Figure 1 is a side elevation; Fig. 1ª, a view from the other side of the machine from that shown in Fig. 1; and Fig. 2 a plan, partly sectional, of a vertical raising-machine embodying my improvements. Fig. 2ª is a plan of one of the raising-rollers, having its gearing at the opposite end to that shown in Fig. 2. Fig. 3 is a front elevation of the machine with parts in section. Fig. 3ª is a front elevation of part of the machine with some of the parts in section, parts being shown slightly enlarged from those shown in Fig. 3. Fig. 4 is a plan taken on the line A A, Fig. 1. Figs. 5 and 6 are detail views, on an enlarged scale, of the gearing for carrying around the raising-rollers.

In the views, 1 denotes the frame of the machine; 2, the driving-shaft; 3 4, fast and loose pulleys, respectively; 5, the driving-belt; 6 and 7, two pairs of grooved driving-pulleys; 8 and 9, driving-bands; 10, grooved driving-pulleys; 11, raising-roller shafts; 12, raising-rollers with hubs or bosses 13 (see Fig. 6) loose on the raising-roller shafts; 14, internally-toothed wheels fixed on the bosses of the raising-rollers; 15, pinions meshing into the internally-toothed wheels and mounted on studs 16, carried by blocks 17, fixed on the raising-roller shafts.

The raising-machine may be built up of any suitable and convenient number of these raising-rollers 12, and the shafts 11, upon which these rollers are placed loosely, as described, are driven, say, one half in one direction and the other half in the opposite direction. In the present example the machine is shown composed of four raising-rollers 12, arranged vertically with two of the raising-roller shafts 11, driven by the open and crossed bands 8 and 9, respectively, from one pair of grooved pulleys 6, while the other two raising-roller shafts 11 are driven by similar open and crossed bands from the pair of grooved pulleys 7 at the opposite end of the shaft 2.

The action of the machine is as follows: Assuming that the shafts are being driven, say, six hundred revolutions per minute, the rollers will be carried around at the same number of revolutions by virtue of the small pinions 15, meshing into the internal gears and the pinions remaining stationary on their pins or studs. When, however, the cloth is guided into contact with the raising-rollers by the guide rods or rollers 22, the resistance of the cloth being operated upon causes the raising-rollers to recede upon their shafts and thereby, through the internal gears, to rotate the pinions 15.

In the event of any raising-roller encountering loose selvages or imperfections in the cloth the said roller being loose on its shaft is free to recede, and consequently no damage to the cloth can take place, which has always occurred hitherto with raising-rollers secured rigidly upon their shafts.

In the arrangement shown there are two driven belts 19 19×, one, 19×, a crossed belt running from a pulley 20 on the driving-shaft 2 over a guide-pulley 30 at the top of the frame, around the internal gears 14 on two of the raising-rollers 12—*i. e.*, the second and fourth—and the other an open belt 19, running from a pulley 21 near the other end of the driving-shaft 2, over a pulley 29, around the internal gears 14 on the remaining two raising-rollers 12—*i. e.*, the first and third rollers. The shafts of the raising-rollers acted upon by the open belt 19 are driven by open ropes 8, traveling in the same direc-

tion as the open belt. The shafts of the second and fourth raising-rollers, acted upon by the crossed belt 19×, are driven by the crossed ropes 9.

Instead of employing two pinions 15 on each block 17 a single pinion or three or more pinions might be employed. Again, instead of using toothed wheels, friction-gearing might be employed.

The cloth 18 is traveled in the usual way and guided into, through, and out of the machine in the direction indicated by the arrows in Fig. 1, and to lead it into contact with the raising-rollers 12 any suitable number of guide rods or rollers 22 are employed, each journaled in slide-blocks 23, carried in brackets 24 and adjustable by means of screws and hand-wheels 25.

To increase the raising action—as, for example, when heavy and strong cloths are under treatment—I regulate the resistance of the raising-rollers and check their tendency to recede upon their shafts when raising by means of the driven belts 19 19×, which are guided into contact with the peripheries of the internal gears, which are secured to the raising-rollers, and which belts are driven at the same speed as that at which the shafts carry around the raising-rollers. The tension of the driven belts 19 19× is regulated by tension-pulleys 26 to increase or diminish, in conjunction with the guiding of the cloth by means of the rods or rollers 22, the raising action upon the cloth, as required.

The belts 19 19× are shown one open and one crossed, because in the arrangement illustrated in the drawings two of the loose raising-rollers 12 are carried around by their driven shafts in the direction in which the cloth is traveled through the machine, while the remaining two loose rollers are carried around by their driven shafts in the opposite direction.

The roller-shafts are driven by the bands or belts 8 and 9, while the belts 19 19×, although driven, are merely hunting-belts or tension-regulating belts, as will be clear from the foregoing explanation.

Instead of mounting the raising-rollers in a vertical frame, as shown and described, they may be mounted in a horizontal frame or otherwise in any of the known arrangements.

When the shaft 11 is rotated and the pinions 15 are carried around with it, said pinions, meshing in the internal gears 14, will revolve the napping-rollers 12, provided that the cloth be either very light in texture, or, in case of a heavy cloth, if it is only brought very slightly into contact with the raising-teeth on the rollers 12. If, however, the cloth be a strong cloth and brought into full contact with the teeth on the raising-roller, the pinions 15 would no longer serve to revolve the said roller 12, but would simply revolve on their own axes the studs 16 were it not for the additional power obtained from the driven regulating-belts 19 19×. It is the slight touch of these belts upon the rollers which enables me to regulate the tension to a nicety.

The action of the internal-gear arrangement depends upon the friction of the parts.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

1. In combination, the driven shaft or axle, the raising-roller loosely mounted thereon and having an internal rack, and pinions journaled upon a support or block carried by the driven shaft and engaging said internal rack, substantially as described.

2. In combination, the driven shaft or axle, the raising-roller loosely mounted thereon and having an internal toothed wheel, a disk or block carried upon said shaft, pinions journaled thereon and meshing with said rack and a driven belt in contact with the periphery of said internal toothed wheel, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CHAS. WOOD.

Witnesses:
H. B. BARLOW,
S. W. GILLETT.