

No. 808,130.

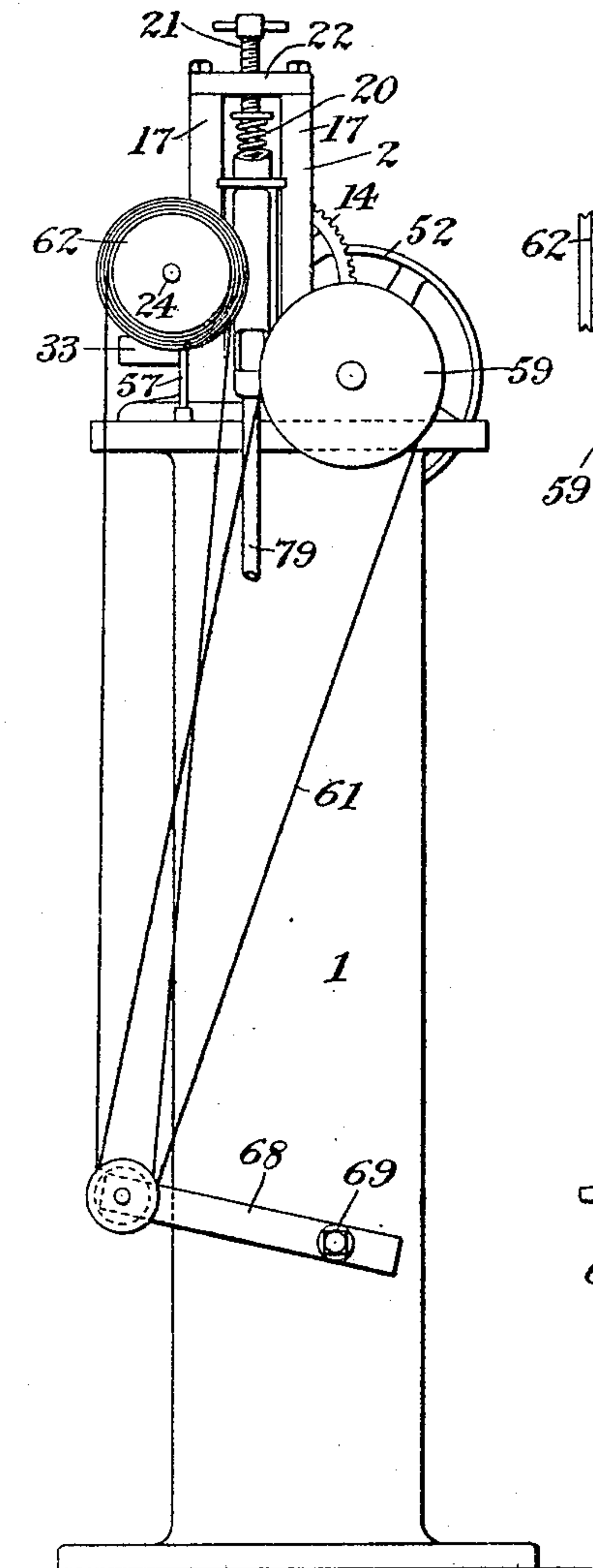
PATENTED DEC. 26, 1905.

C. WIEBKE.  
FABRIC SPREADING MACHINE.

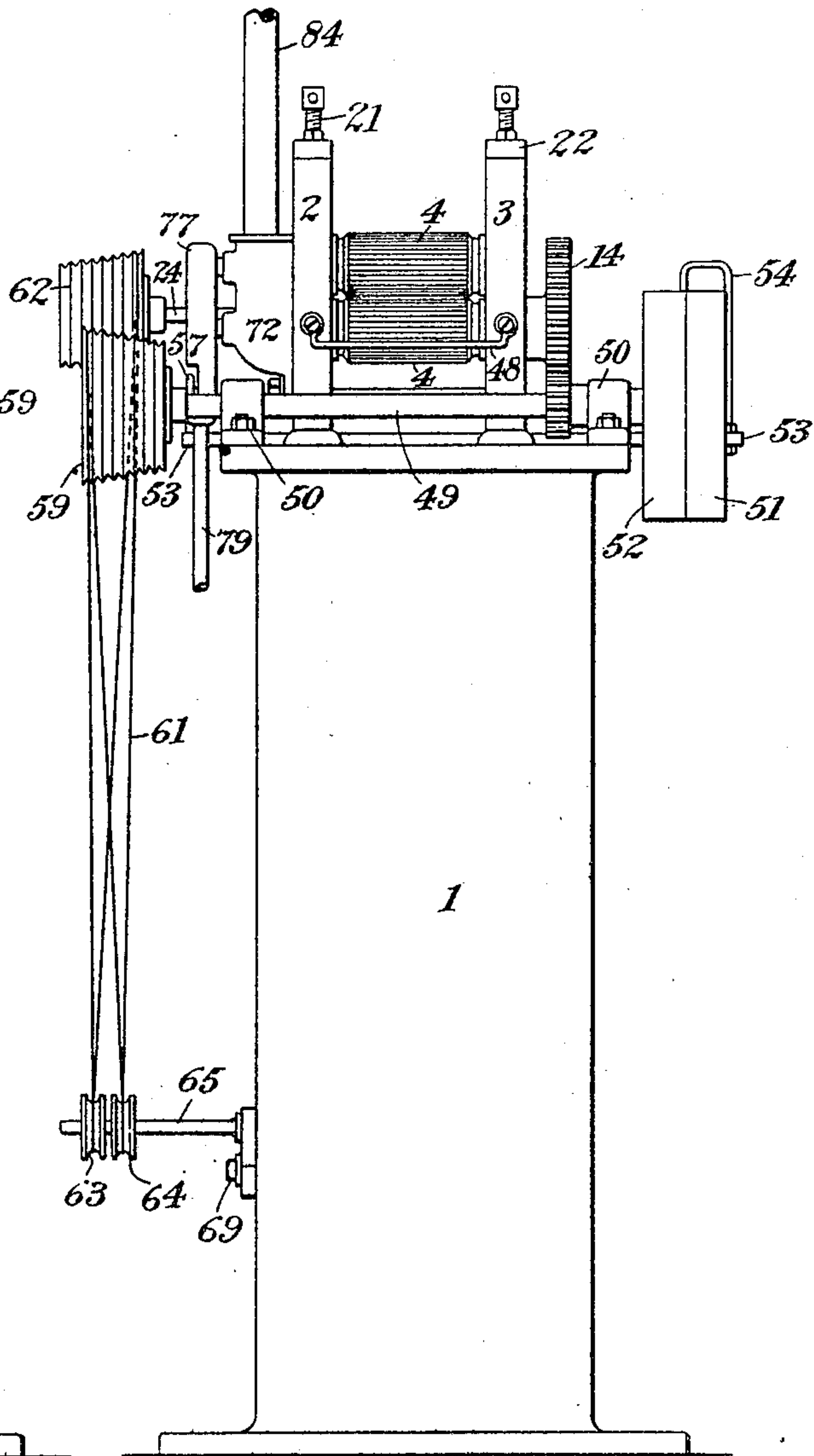
APPLICATION FILED APR. 17, 1905.

4 SHEETS—SHEET 1.

*Fig. 1*



*Fig. 2*



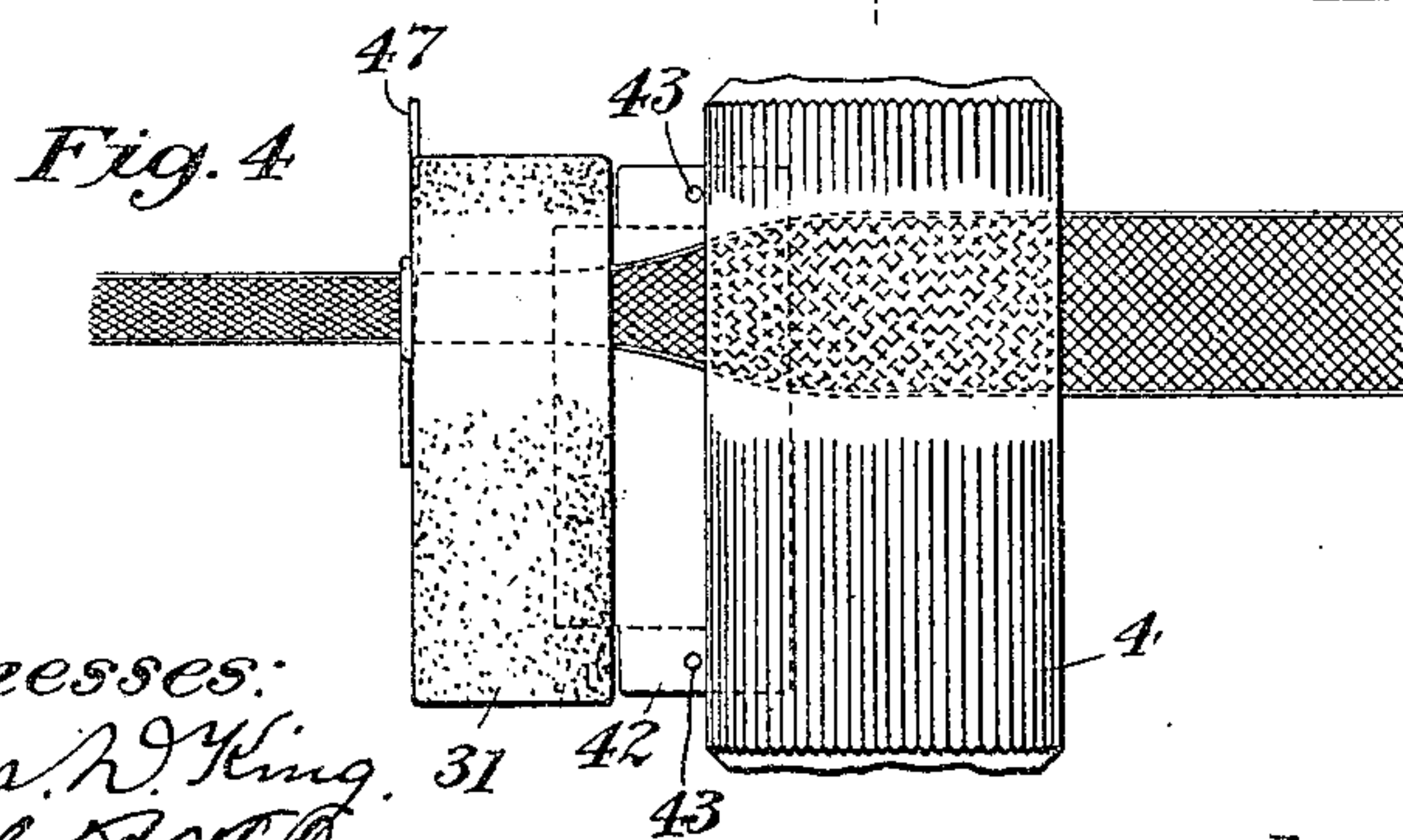
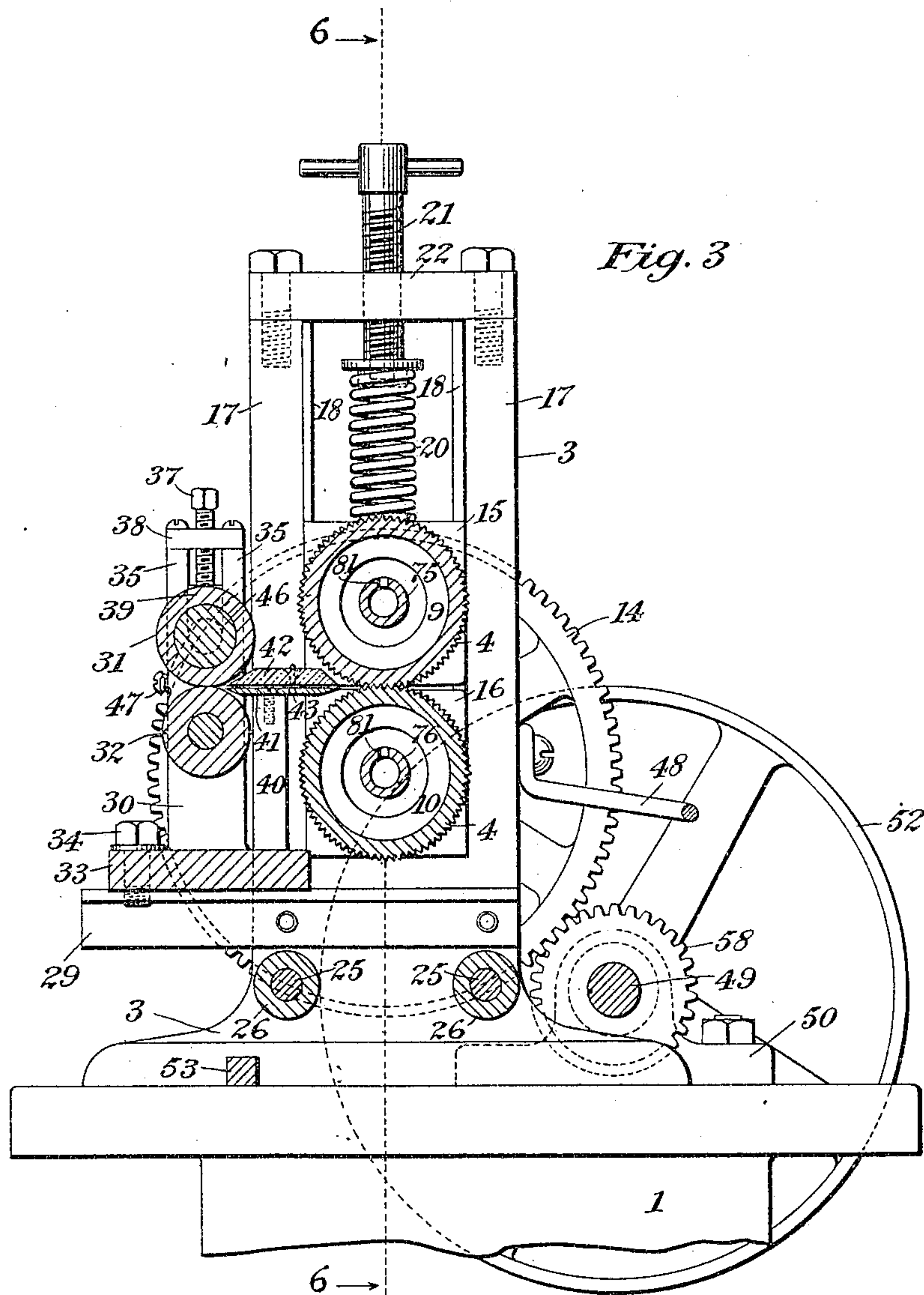
Witnesses:  
Chas. R. King.  
Albert J. Day

Inventor:  
Charles Wiebke  
by Henry D. Williams  
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4 SHEETS—SHEET 3.

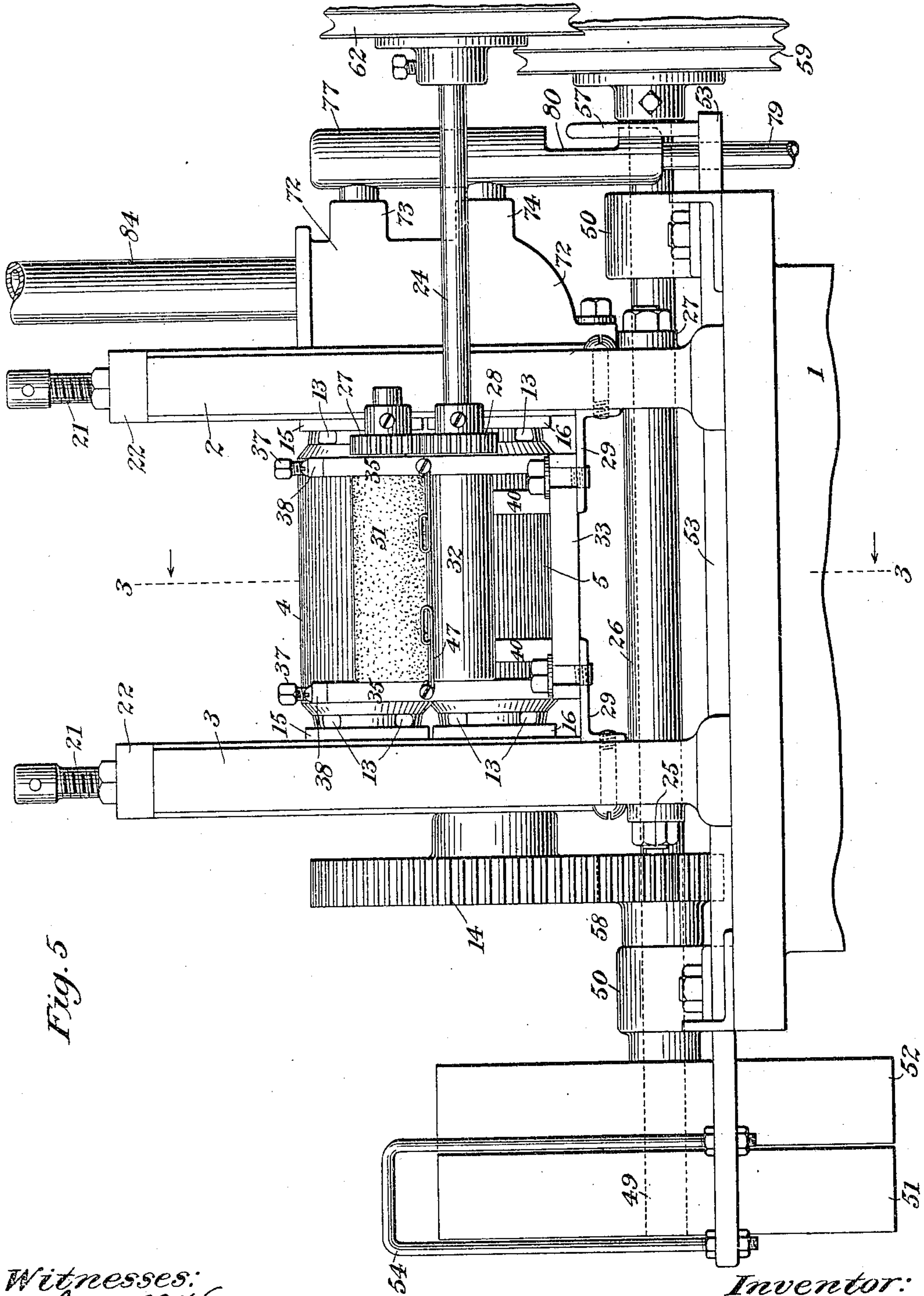


Fig. 5

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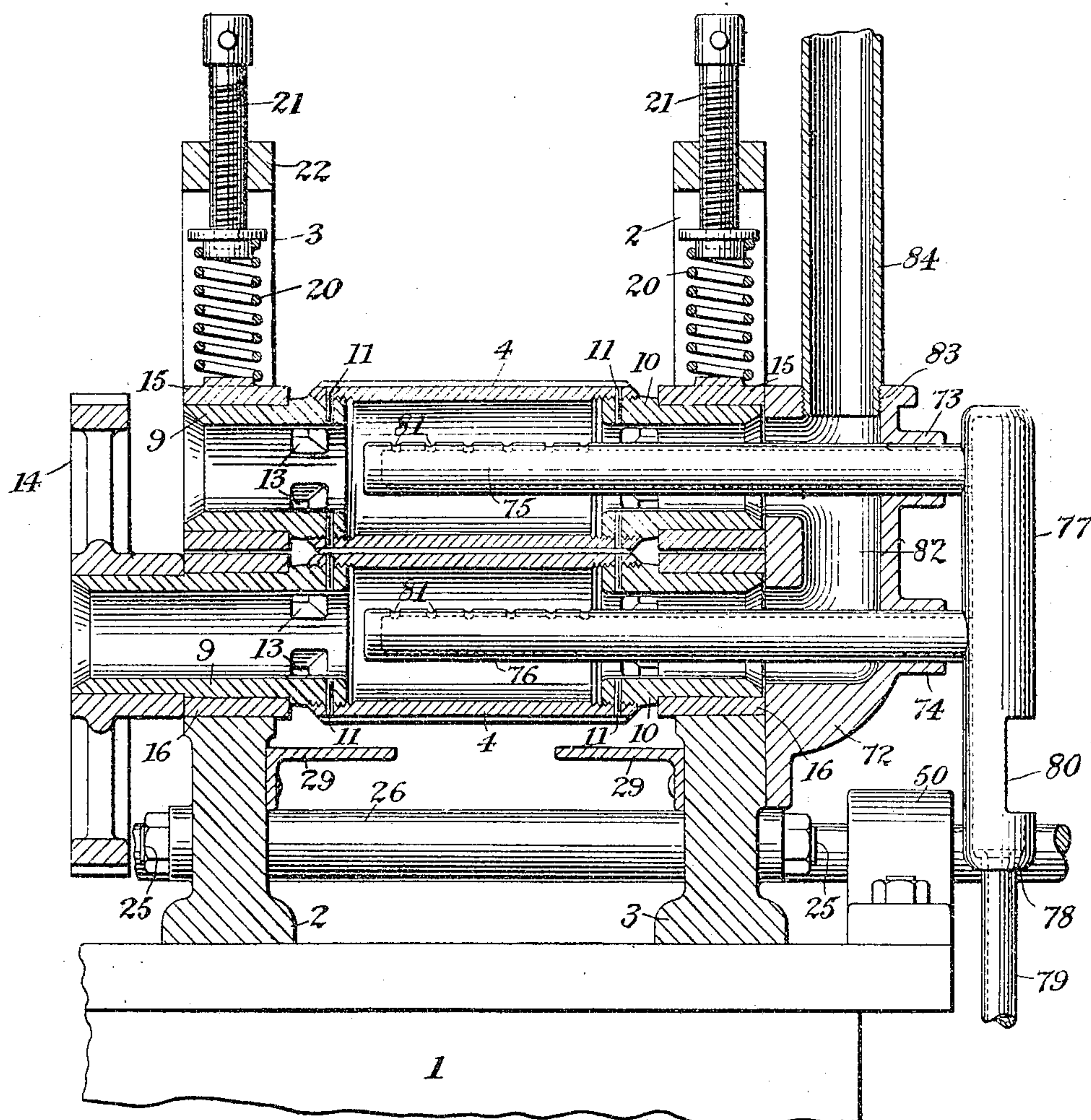
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4 SHEETS—SHEET 4.

*Fig. 6*



*Witnesses:*

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# UNITED STATES PATENT OFFICE

CHARLES WIEBKE, OF NEW YORK, N. Y.

## FABRIC-SPREADING MACHINE.

No. 808,130.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed April 17, 1905. Serial No. 255,945.

*To all whom it may concern:*

Be it known that I, CHARLES WIEBKE, a citizen of the United States, residing at the borough of the Bronx, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Fabric-Spreading Machines, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

My invention relates to machines for spreading braids or other fabrics, especially those that have been woven obliquely or on a bias.

My invention has for its objects simplicity and economy of construction, reliability of operation, ready control, adjustment, and regulation to attain the desired degree of spreading in any fabric, the imparting of an effective set to the spread fabric, and other objects and advantageous features which will appear from the following description of the spreading-machine embodying my invention, which is illustrated in the accompanying drawings.

I will now describe the crimping-machine embodying my invention, which is illustrated in the accompanying drawings, and will thereafter point out my invention in claims.

Figure 1 is a side elevation of the complete machine. Fig. 2 is a rear elevation. Fig. 3 is an enlarged vertical section of the upper part of the machine, taken on a plane indicated by the line 3 3, Fig. 5. Fig. 4 is a plan view of the upper feeding and crimping rollers and the intermediate guide-plates, showing a braid running between them and illustrating the spreading effect given to the braid under the influence of the rollers and guide-plates. Fig. 5 is a front elevation of the upper part of the machine. Fig. 6 is a longitudinal central sectional view of the machine, taken on a plane indicated by the line 6 6 in Fig. 3, showing the construction of the crimping-rollers and the heating pipes and passages.

Upon the table of a suitable bed 1, two pedestals 2 and 3 are erected, which carry the bearings for the two crimping-rollers. The fluted surfaces of these rollers engage with each other to give a crimped or corrugated form to the fabric.

The crimping-rollers, instead of being cast in one piece, as heretofore, are made up of tubing with attached journals, thus permitting the fluted surfaces to be cut in suitable

wrought metal—such, for example, as seamless brass tubing—and obviating the possibility of blow-holes such as frequently appear in a cast roller during the operation of cutting the grooves or flutings, requiring the roller to be discarded after a great deal of work has been expended on it. The construction of these crimping-rollers is particularly shown in Fig. 6. Each roller is made up of a cylindrical seamless tube 4, the outer surface of which has angular grooves or flutings thereon which run in the direction of the longitudinal axis of the roller, and this tube is provided at the ends of its interior surface with internal screw-threads, whereby it is tightly screwed on the externally-threaded ends of the journals 9 and 10, respectively, one at each end of the tube. To prevent any possibility of unscrewing of these joints, I insert lock-pins 11 radially through the tubes and journals at their overlapping portions. The parts may be thus rigidly secured together after the journals have been turned, and thereafter the grooves or flutings may be cut in the crimping-rollers.

The journals 9 and 10 are hollow and are open at their ends to provide, in conjunction with the cylindrical tubes, a continuous open passage through the rollers. Openings or ports 13 are provided in the journals to supply air to the heating-burners hereinafter described, these openings being located between the fluted portions and the journals proper, so as to keep down the temperature of the journals by the influx of cold air through these openings. The journal 9 of the lower crimping-roller is made of additional length to receive the gear-wheel 14, which is fixed thereon and which gives motion to the lower crimping-roller, the upper crimping-roller being actuated by the meshing of its fluted portions with those of the lower roller.

The journals 9 and 10 rotate in brasses or journal-boxes 15 and 16 of usual construction held in vertical slots or openings formed in the pedestals 2 and 3, being guided and prevented from lateral movements by guide-ways 18, formed in the pedestals. The upper journal-boxes 15 are pressed downward by the helical springs 20, bearing upon the tops of the boxes and having their tension regulated by set-screws 21, which are screwed into the bars or yokes 22 at the tops of the pedestals.

The pedestals 2 and 3 are shown as mounted on the table of the bed 1 and connected to



each other to make a united structure by two binding-rods 25, having sleeves 26 thereon, which bind together the lower sections of the pedestals. Upon the adjacent faces of the pedestals directly above the binding-rods and sleeves 25 26 are secured L-shaped shelves 29, which extend across and to the rear beyond the pedestals. Upon these shelves or supports a smaller pedestal is mounted, the bed 33 of which is securely held to the shelves by the screws 34. This pedestal is provided with uprights 35, which provide bearings for the feed-rollers 31 and 32, the longitudinal axes of which are parallel to the axes of the crimping-rollers. The bearings of the lower feed-roller 32 are located so that the horizontal upper tangent of said roller will lie substantially in the plane of the horizontal tangent to the pitch-circles of the crimping-rollers. The uprights 35 are slotted to receive the journals of the upper feed-roller, and these journals are restrained from upward movement after allowance has been made for the thickness of the material run through the feed-rollers by set-screws 37, which are screwed into the yokes 38, connecting the tops of the uprights 35, and which bear down upon brasses 39, resting upon these journals. The upper feed-roller 31 has a surface of yielding material, as rubber.

Upon the smaller pedestal-bed 33 are mounted posts 40, which are located between the feeding and crimping rollers. These posts are of such height that when the lower guide-plate 41 is placed thereon the top surface of the lower guide-plate lies substantially in the horizontal plane passing tangentially from the feed-rollers at their common point of contact. This guide-plate extends the full length of the rollers across the guide-posts 40. Upon this guide-plate 41 rests the upper guide-plate 42 of substantially the same width and length. This upper guide-plate is made of glass to permit inspection of the fabric during its passage from the feed-rollers to the crimping-rollers and is restrained from longitudinal or lateral movement by the pins 43, fixed in the lower guide-plate at each end thereof. It is free to be raised, however, for access to the fabric. Both guide-plates have their sides beveled to permit their extension as close to the rollers as is permissible, thus insuring that the material running between their surfaces will be prevented from curling upward or taking any indirect path in passing from the feed-rollers 31 to the crimping-rollers. The feed-rollers 31 and 32 are geared together by spur-gears 27 and 28, and the shaft 24 of the lower roller extends outward and has a cone-pulley 62 thereon.

A guide-wire 47 extends across the uprights of the feed-roller pedestal and is screwed upon the latter at a point substan-

tially in the plane passing tangentially through the points of contact of the feed-rollers 31 and 32 and serves as a support and guide for the fabric as it is fed to the machine. Upon the opposite or rear side of the machine a bar 48 is extended across the larger pedestals and secured thereto and serves as a support or guide for the fabric after it has been run through the machine and has taken the form desired.

Power is supplied in the usual manner by a belt which transmits its motion to a pulley 52, secured upon a main shaft 49, which rotates in the journals 50, mounted on the table of the bed. A loose pulley 51 is also shown on the main shaft, and a belt-shifter 54 is provided, carried by a slide-rod 53 and actuatable by a handle 57.

Upon the main shaft 49, rotated by the fixed pulley 52, is secured a small gear wheel or pinion 58, which meshes with the large gear-wheel 14, the latter wheel being mounted upon the journal 9 of the lower or driving crimping-roller. Upon the opposite or forward end of the shaft 49 the driving-pulley 59 is mounted. This driving-pulley 59 transmits its motion to the pulley 62 on the feed-roller shaft 24 by means of a continuous cord 61, which also passes around two idle pulleys 63 and 64, mounted upon a stud or rod 65, which is adjustable, so as to take up the slack of the cord. The driving and following pulleys 59 and 62 are oppositely cone-shaped or provided with a number of grooves of diminishing diameters. It is evident from the construction of the pulleys that a great number of adjustments of the relative speeds of the main shaft and feed-rollers are permitted. In fact, with eight grooves on each cone-pulley, as shown, sixty-four different adjustments may be made. To allow the distances between the axes of the spindles and idle pulleys to be varied so as to take up the slack of the cord, the rod 65, upon which the idlers are mounted, is fixed to a bar 68, which is pivotally secured to the front face of the bed 1 by a stud and nut 69 and may be swung to any angle.

By means of the various pulleys, gear-wheels, and spindles the feed-rollers are made to rotate in conjunction with the crimping-rollers, and it is evident that while the crimping-rollers rotate at a constant speed with reference to the initial driving-pulley the feed-rollers may be rotated at a great variety of speeds.

I will now describe the means for heating the crimping-rollers. A flue-casting 72 is secured to the pedestal 2 and is provided with bosses 73 and 74, the axes of which are coincident with the respective axes of the crimping-rollers 4 and 5. These bosses serve as supports for central pipes 75 and 76, which extend inward horizontally from their outer connections with the cylindrical cap 77.



This cap is closed at its upper end and provided at its lower end with a bore 78 of smaller diameter than that of the chamber of the cap and into which the fuel-feed pipe 79 fits. The lower portion of this cylindrical cap is provided with a draft or air inlet 80, through which air is drawn by the fuel, thus making a Bunsen burner. The horizontal pipes 75 and 76 extend into the hollow crimping-rollers and are closed at their ends and are provided on their upper portions with burner-apertures. To provide means of escape for the heat and gases resulting from the combustion of the fuel supplied by the pipes to the burners just mentioned, the casting 72, supporting the horizontal central pipes 75 and 76, is constructed so that the bores of the roller-journals 9 and 10, adjacent to the casting, are continued and open into the vertical passage 82 of the casting. The top portion 83 of this passage is threaded, and into it is fitted a vertical pipe 84, carrying the heated gases upward and away from the operator. It is obvious that this construction will not only insure the continuous passage of the gases in the manner just described, but also a complete combustion of the gases and fuel. The heat as it passes toward the flue causes fresh air to be drawn through openings of the journal at the left of the crimping-rollers, creating a draft thereby, and also causes fresh and cooling air to be drawn through the ports or openings 13 on the collars of the journals.

In the operation of the machine shown in the drawings the work is fed into the feed-rollers. The guide-wire 47 is looped to form guide-eyes, which properly locate the fabric as it enters the feed-rollers, and, as shown, two widths or portions of the fabric may be fed into the machine and will pass through the machine side by side, one entering each guide-eye in the guide-wire 47. The spreading operation effected is illustrated in Fig. 4 as to a single strip of braid. The peripheral speed of the feed-rollers is greater than the peripheral speed of the crimping-rollers, and in consequence thereof the braid is continuously fed to the crimping-rollers at a higher rate of speed than it is fed through the crimping-rollers, and as the braid is prevented from any other than a lateral movement by reason of the fact that it is confined between the upper and lower guide-plates 42 and 41 and enters between the guide-plates from the feed-rollers 31 and 32 at higher velocity than it emerges from between the guide-plates at the crimping-rollers 44, the braid is subjected to a longitudinal thrust, which by reason of the biasly-woven threads spreads the fabric as it passes between the guide-plates and causes the braid to be delivered to the crimping-rollers in the desired spread or widened condition and necessarily of the abbreviated length which is the concomitant of

this spread or widened condition. It may be said that the feeding-rollers feed at higher speed a fabric of greater length than the crimping-rollers deliver at slower speed, the alteration of the length of the braid between these two sets of rollers being determined by the relative peripheral speeds of the two sets of rollers. The crimping effect of the fluted crimping-rollers tends to set the braid in its spread condition, and the heated condition of these rollers also contributes to that end, so that the braid when it emerges from the machine is permanently set in the desired widened or spread condition. The large range of adjustment and the exceeding fineness of adjustment of the varying speeds of the feed-rollers and crimping-rollers permits the degree of spreading to be nicely determined in accordance with the requirements of the braid or fabric.

It is obvious that various modifications may be made in the construction shown and above particularly described within the principle and scope of my invention.

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

1. A fabric-spreading machine having means for successively engaging the fabric, such means comprising feeding means and means for imparting a set to the spread fabric, and actuating means therefor arranged to actuate the same so that the parts of the feeding means in contact with the fabric shall move at a higher speed than the fabric-contacting parts of the means for imparting a set to the spread fabric.

2. A fabric-spreading machine having feeding means and crimping means and actuating means therefor so that the parts of the feeding means in contact with the fabric shall move at a higher speed than the parts of the crimping means in contact with the fabric.

3. A fabric-spreading machine having feeding means and heated crimping means and actuating means therefor so that the parts of the feeding means in contact with the fabric shall move at a higher speed than the parts of the crimping means in contact with the fabric.

4. The combination of feeding-rollers and rollers for imparting a set to a fabric, and means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from the peripheral speed of the rollers for imparting a set to the fabric.

5. The combination of feeding-rollers and crimping-rollers, and means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from the peripheral speed of the crimping-rollers.

6. The combination of feeding-rollers and heated crimping-rollers, and means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from



the peripheral speed of the heated crimping-rollers.

7. A fabric-spreading machine comprising two parts having movable fluted surfaces and adapted to mesh with each other, and fabric-feeding means arranged to feed a fabric to such parts at a higher speed than the speed of the fluted surfaces of such parts.

8. A fabric-spreading machine comprising two parts having movable heated fluted surfaces and adapted to mesh with each other, and fabric-feeding means arranged to feed a fabric to such parts at a higher speed than the speed of the fluted surfaces of such parts.

9. The combination of feeding-rollers and roller for imparting a set to a fabric, means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from the peripheral speed of the rollers for imparting a set to the fabric, and guiding means between the feeding-rollers and the rollers for imparting a set to the fabric arranged to permit forward and lateral movement only of the fabric.

10. The combination of feeding-rollers and crimping-rollers, means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from the peripheral speed of the crimping-rollers, and guiding means between the feeding-rollers and the crimping-rollers arranged to permit forward and lateral movement only of the fabric.

11. The combination of feeding-rollers and crimping-rollers, means for actuating such rollers so that the peripheral speed of the feeding-rollers shall be different from the peripheral speed of the crimping-rollers, means for heating the crimping-rollers, and guiding means between the feeding-rollers and the crimping-rollers arranged to permit forward and lateral movement only of the fabric.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES WIEBKE.

Witnesses:

HENRY D. WILLIAMS,  
M. M. ALCORN.