No. 822,704. PATENTED JUNE 5, 1906.

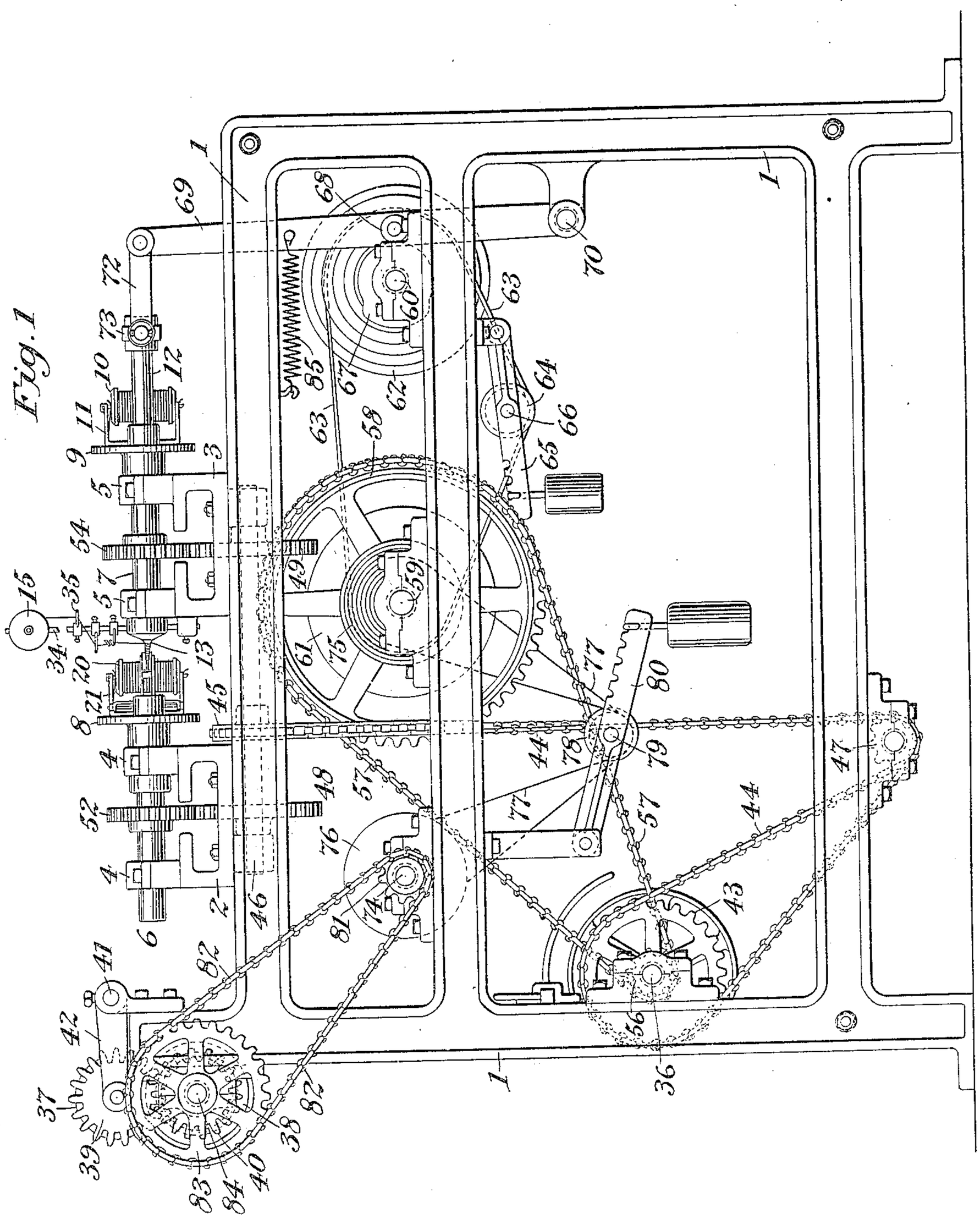
C. WIEBKE.

CHENILLE MACHINE.

APPLICATION FILED JULY 12, 1905.

5 SHEETS—SHEET 1.

Fig. 1



Witnesses:
Bernard Lowen
Henry Barnes

Inventor:
Charles Wiebke
by Henry D. Williams
Atty.

No. 822,704. PATENTED JUNE 5, 1906.

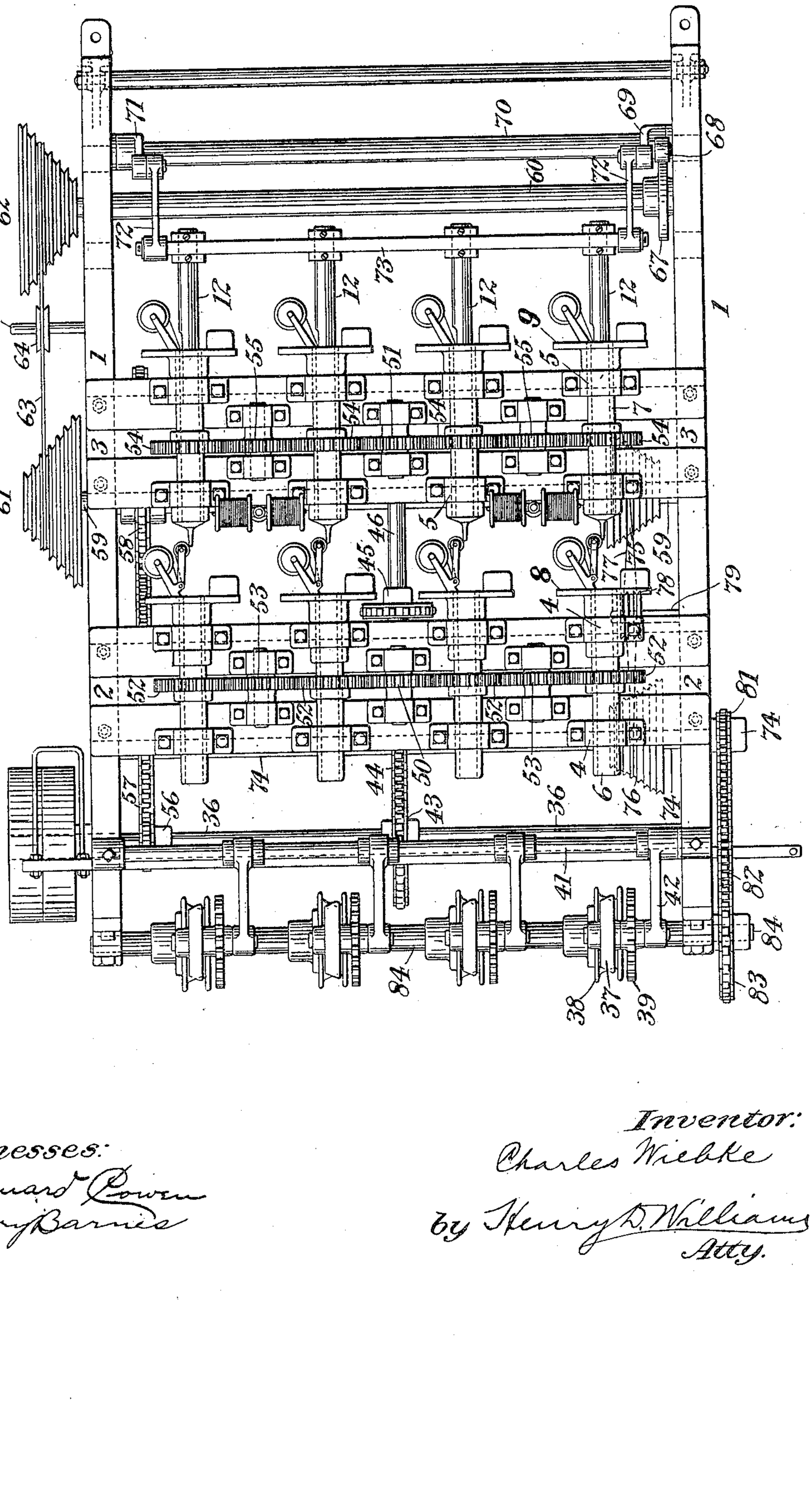
C. WIEBKE.

CHENILLE MACHINE.

APPLICATION FILED JULY 12, 1905.

5 SHEETS—SHEET 2.

Fig. 2



Witnesses:
Bernard Cowen
Henry Barnes

Inventor:
Charles Wiebke
by Henry D. Williams
Atty.

No. 822,704. PATENTED JUNE 5, 1906.

C. WIEBKE.

CHENILLE MACHINE.

APPLICATION FILED JULY 12, 1905.

5 SHEETS—SHEET 3

Fig. 3

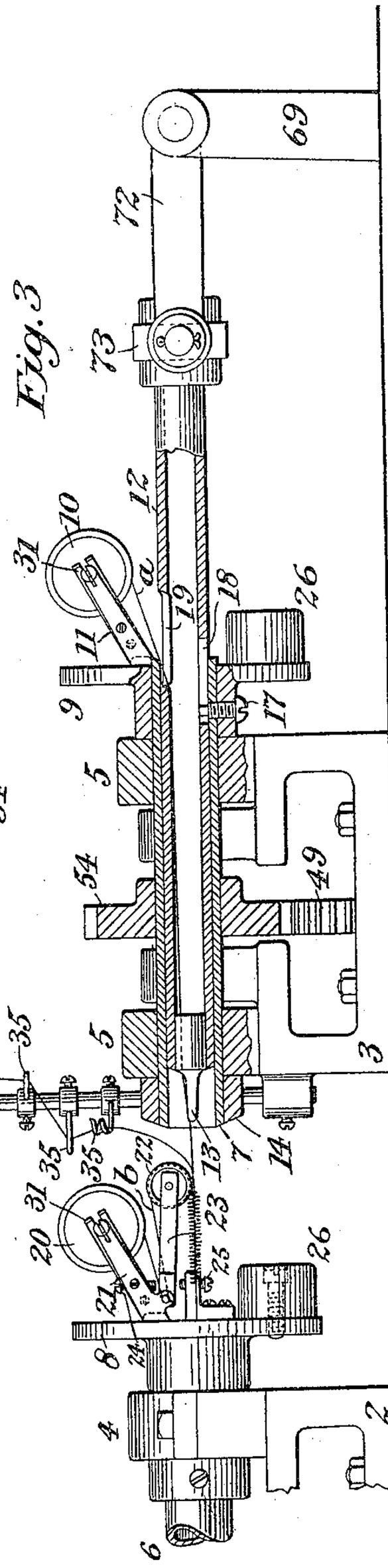


Fig. 4

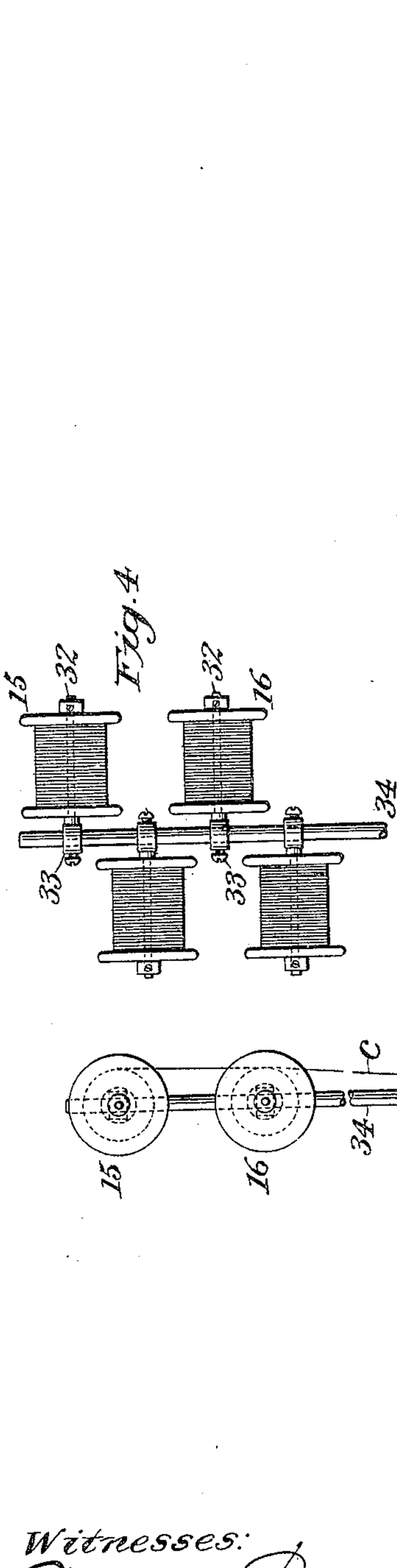


Fig. 6

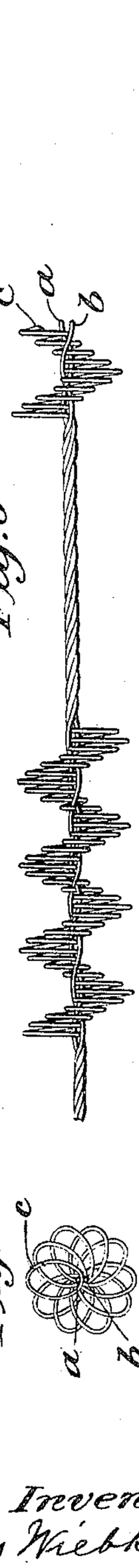


Fig. 5

Witnesses:
Bernard Lowrie
Henry Barnes

Inventor:
Charles Wiebke
by Henry D. Williams
Atty.

No. 822,704. PATENTED JUNE 5, 1906.

C. WIEBKE.

CHENILLE MACHINE.

APPLICATION FILED JULY 12, 1905.

5 SHEETS—SHEET 4.

Fig. 8

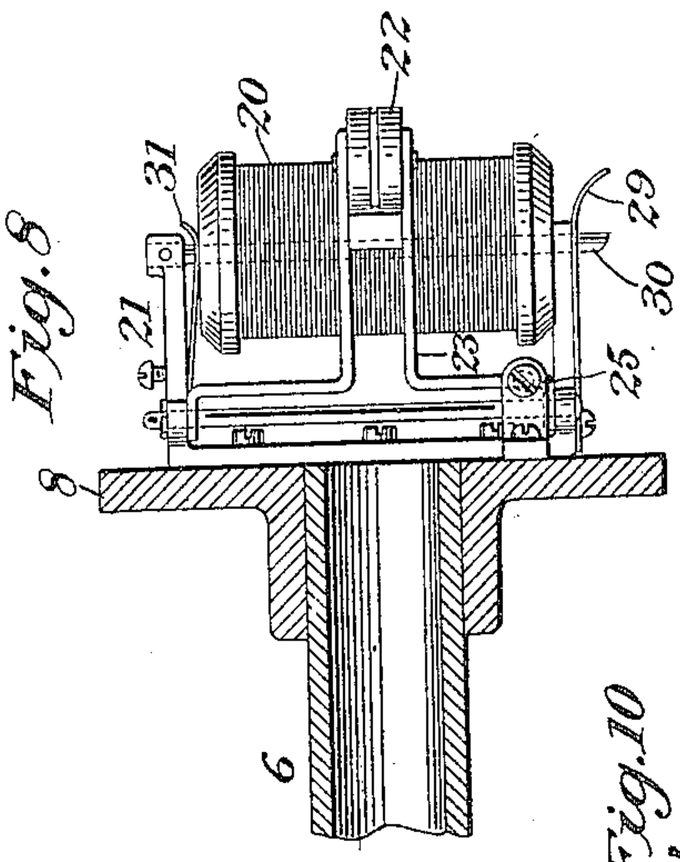


Fig. 10

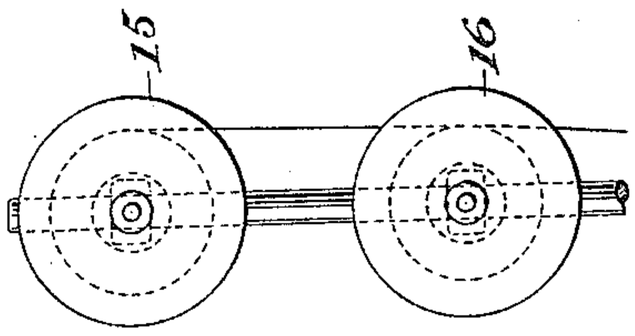


Fig. 9

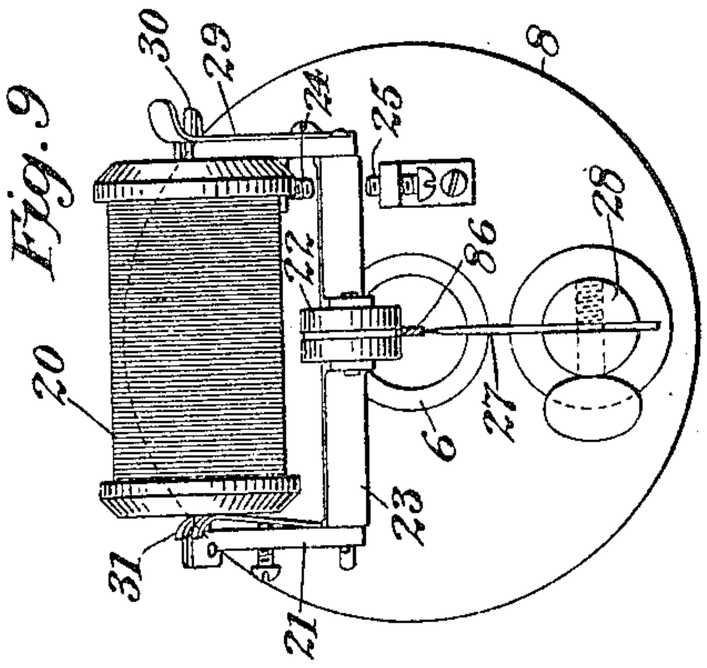
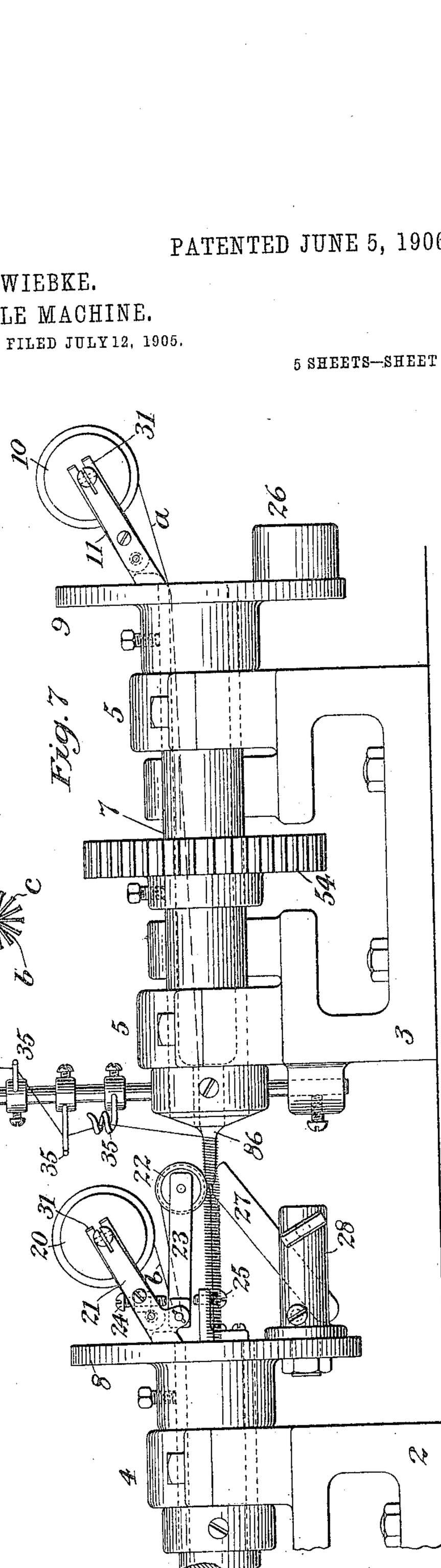


Fig. 7



Witnesses:
Bernard Lowe
Henry Barnes

Inventor:
Charles Wiebke
by Henry B. Williams
Atty.

No. 822,704. PATENTED JUNE 5, 1906.

C. WIEBKE.

CHENILLE MACHINE.

APPLICATION FILED JULY 12, 1905.

5 SHEETS—SHEET 5.

Fig. 13

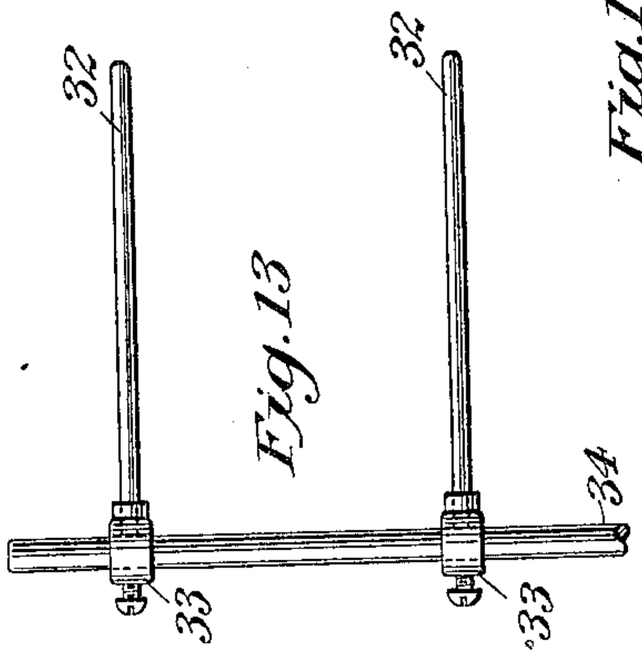
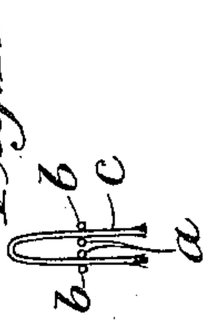
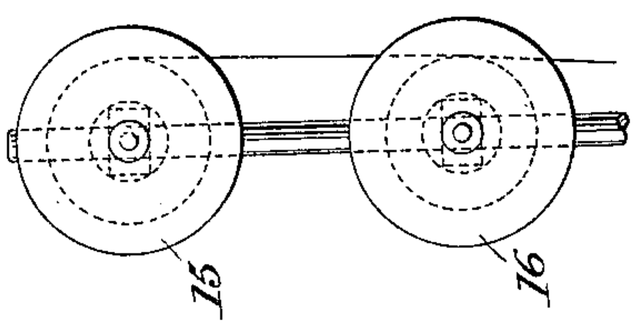


Fig. 14





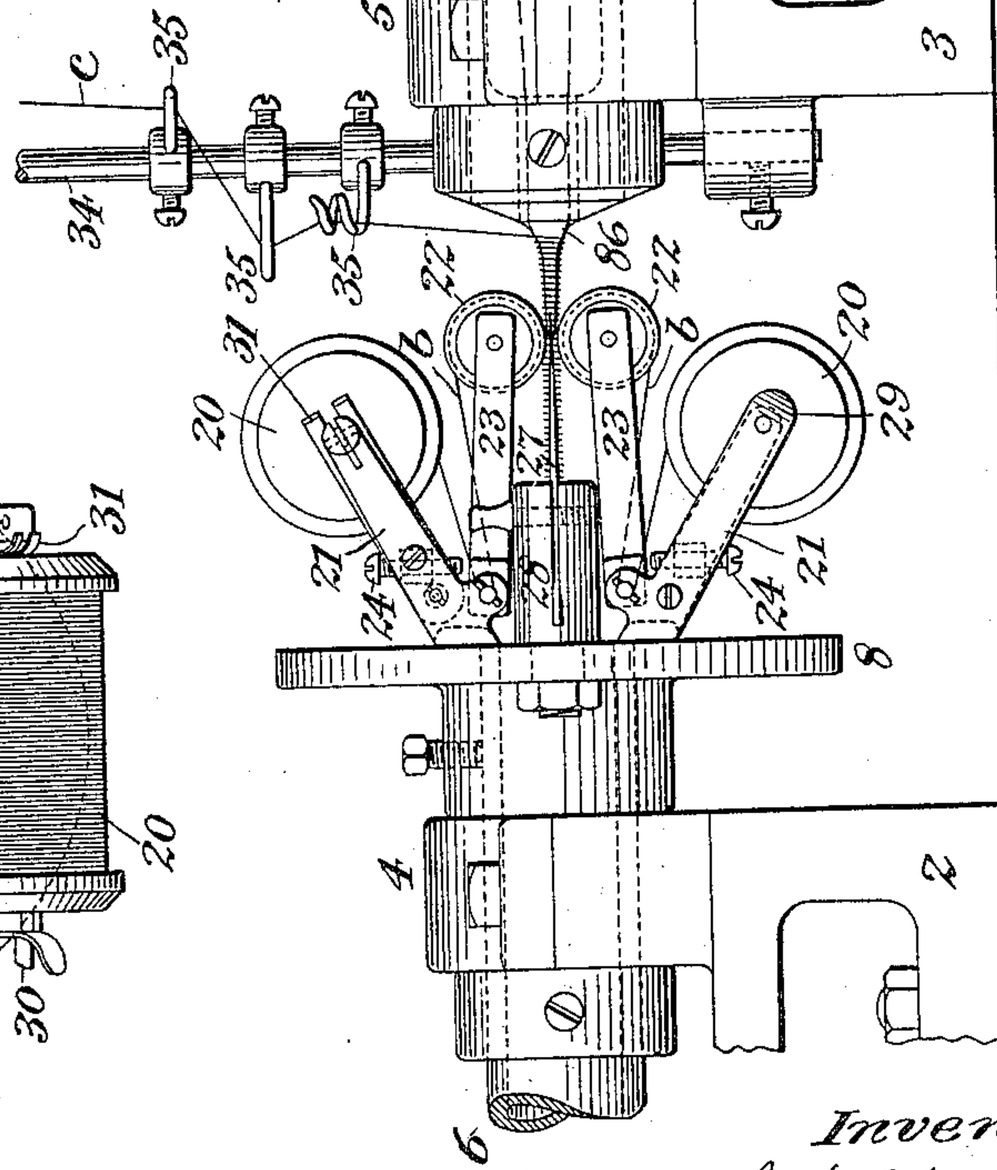
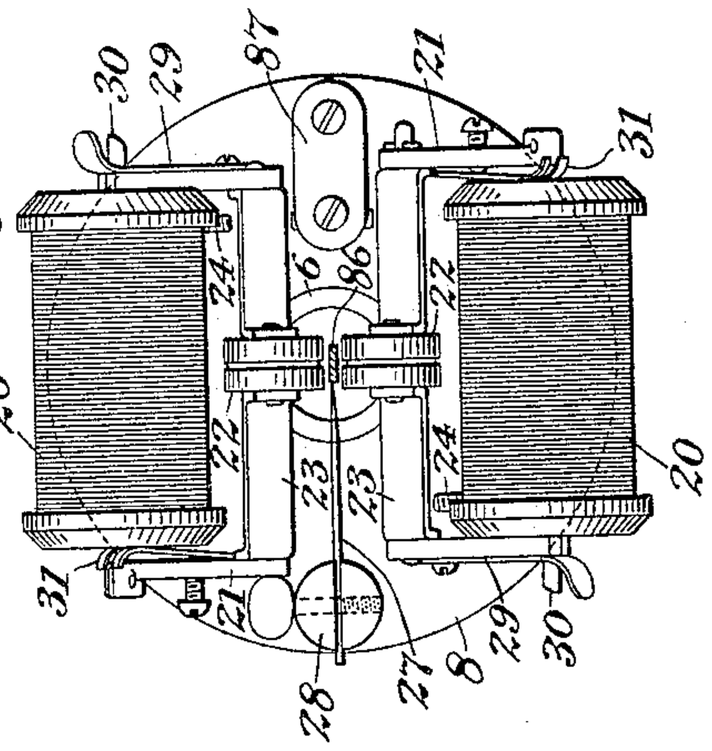


Fig. 11

Fig. 12



Witnesses:
Bernard Cowen
Henry Barnes

Inventor:
Charles Wiebke
by Henry D. Williams
Atty.

UNITED STATES PATENT OFFICE.

CHARLES WIEBKE, OF NEW YORK, N. Y.

CHENILLE-MACHINE.

No. 822,704. Specification of Letters Patent. Patented June 5, 1906.

Application filed July 12, 1905. Serial No. 269,336.

To all whom it may concern:

Be it known that I, CHARLES WIEBKE, a citizen of the United States, residing in 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 Chenille-Machines, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

My invention relates to chenille-machines, and has for its objects the production of the chenille by continuous operation of the machine and in endless form and at an increased rate of production.

It also has for its objects simplicity and compactness of the construction of the machine, ready adjustability of parts, ease and reliability of operation, and the realization of other advantageous features which will appear from the following description of a machine embodying my invention.

My invention includes the provision of two parts rotating in the same direction, each part carrying thread or wire or other suitable material for performing the work of holding the loops of silk or yarn or other suitable ornamental or surface material.

In the following specification and claims the body or holding or binding material will be designated as "binder-threads" and the ornamental or surface material will be designated as "surface threads."

My invention also includes a loop-former or pin, upon which the loops of surface thread are formed, and means for supplying the surface thread thereto.

My invention also includes various other parts, as will appear from the following description.

I will now describe the constructions embodying my invention illustrated in the accompanying drawings and will thereafter point out my invention in claims.

Figure 1 is a side elevation of the complete machine fitted for the production of set-off chenille. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation, partly in central section, of the upper part of the machine. Fig. 4 is a detached elevation of the upper part of the surface-thread bobbin-carrying post with the bobbins thereon. Fig. 5 is an enlarged cross-section of the completed set-off chenille. Fig. 6 is a longitudinal view of the same. Fig. 7 is a side elevation of the upper part of the machine as fitted for making ordinary chenille. Fig. 8 is a horizontal central section looking upward of the rear portion of the front or secondary binder-thread arbor and the secondary binder-thread bobbin-holder and bobbin carried thereby fitted for ordinary chenille, as shown in Fig. 7. Fig. 9 is a rear end elevation of the same. Fig. 10 is an enlarged cross-section of ordinary chenille, showing the binder-threads and surface threads, the loops of the latter having been cut to produce this style of chenille. Fig. 11 is a side elevation of the upper part of the machine fitted for making cut and uncut chenille. Fig. 12 is a rear end elevation of the front or secondary binder-thread arbor, showing the secondary binder-thread bobbins and knife fitted for cut and uncut chenille, as shown in Fig. 11. Fig. 13 is a detached elevation of the upper part of the surface-thread bobbin-carrying post and pins. Fig. 14 is an enlarged cross-section of the completed cut and uncut chenille, showing the binder-threads and surface threads, one of the two loops of the latter having been cut to produce this style of chenille.

Extending across the top of the frame 1 and mounted thereon are two bearing-supporting rails 2 and 3, upon which are secured a plurality of bearings 4 and 5, within which rotate a series of hollow arbors 6 and 7, consisting of hollow tubes, over the rear ends of which are fitted and secured binder-thread bobbin-carrying heads 8 and 9.

The machine shown is constructed to simultaneously produce in parallel four lengths of chenille, and the chenille-producing parts are therefore quadrupled in parallel arrangement on the one frame. A single chenille-producing mechanism will now be described, comprising a rear hollow arbor 7 and its primary binder-thread bobbin-carrying head 9, and a front hollow arbor 6 and its secondary binder-thread bobbin-carrying head 8, and other parts to be hereinafter described.

The head 9 on the rear arbor carries the bobbin 10, from which the primary binder-thread *a* is fed to the machine. The construction of the bobbin-holder 11 will be hereinafter described, it being here noted that it extends obliquely from the rear face of the head 9.

Within the rear hollow arbor 7 is fitted to slide longitudinally the loop-former operating-tube 12, which has at its front end the loop-former 13. This loop-former 13 is shown as driven into the front end of its tube

12 and is of the usual tapering form and grooved for the passage of the primary binder-thread.

In the construction shown in Figs. 1, 2, and 3, with the machine fitted for the production of set-off chenille, this loop-former is reciprocated at intervals from the forward position shown in Figs. 1 and 2 to the rearward position shown in Fig. 3. When in forward position, it presents an unbroken surface in common with the collar 14 on the front end of the rear arbor 7 to receive the surface thread or silk *c*, which is wound thereon from stationary guide and tension devices and fed thereto from bobbins 15 and 16, fitted to rotate on stationary axes.

Upon the loop-former tube 12 a narrow slot 18 of greater length than its reciprocating or longitudinal movement is provided, into which fits the projecting end of a set-screw 17, which secures the head 9 to the arbor 7, and this projecting end of the set-screw guides the tube 12, assuring a rotary movement thereof in common with the arbor and permitting the reciprocating movement of this tube relatively to the arbor. Diametrically opposite this slot 18 a second slot 19 is made, through which the primary binder-thread *a* passes from its bobbin into the tube 12.

The front hollow arbor 6 is rotated in the same direction and at the same speed as the rear hollow arbor 7 above described and resembles the rear hollow arbor in construction, having at its rear end the bobbin-carrying head 8, above referred to, and this head having the bobbin-carrier 21, carrying the bobbin 20 for the secondary binder-thread *b*. A guide-roller 22 is also provided, the function of which is to deliver the secondary binder-thread *b* in desired position to grip the loops of the surface thread *c* against the primary binder-thread *a* as the loops are delivered from the loop-former 13. This guide-roller 22 is carried by a pivotally-mounted bracket 23, shown as pivoted upon the U-shaped bobbin-carrying bracket 21 and controlled by adjusting-screws 24 25, which are usually adjusted to permit of slight play between them.

In the construction shown in Figs. 1, 2, and 3, with the machine fitted to produce set-off chenille, a single primary binder-thread and a single secondary binder-thread are employed; and therefore each rotating arbor carries a single bobbin, and a counterweight 26 is provided on each head diametrically opposite the bobbin to rotatively balance the parts.

In the construction shown in Figs. 7, 8, and 9 and particularly claimed herein, in which the machine is fitted to produce ordinary chenille, a single primary binder-thread bobbin 10 and its carrier 11 are provided and also a counterbalance 26; but the secondary binder-thread bobbin and its carrier 21 are combined with a knife or loop-cutter 27, carried on the same head and which, with its supporting-post 28, rotatively counterbalances the bobbin, guide-roller, and carriers. The details of the common construction of all of the bobbin-carriers are well illustrated in Figs. 8 and 9 in connection with this arrangement of parts and will now be particularly described.

At one side of the U-shaped bracket a retaining-spring 29 is arranged to press against the outer face of the bracket and is perforated to receive the end of the bobbin-spindle 30, and this bobbin-spindle is pivoted in the other arm of the bracket, and both arms of the bracket are suitably slotted to permit the bobbin-spindle to be freely swung on its pivot to present one end for the insertion or removable of the bobbin. In swinging the spindle to the bobbin-retaining position shown the outer end of the pin, shown as obliquely rounded, engages and pushes outward the retaining-spring 30 until the perforation of the spring registers with the end of the spindle, and thereupon the spring will move inward over the spindle to the locked position shown. To unlock the spindle, it is only necessary to press the retaining-spring outward clear of the end of the spindle. The bobbin-holder also has a tension-spring 31 located between the bobbin-head and the inner face of the arm of the bracket opposite to the arm carrying the retaining-spring 29.

The surface-thread bobbins 15 16 are carried on stationary spindles 32, which project from collars 33, suitably clamped upon the post 34, as by set-screws, as shown. Suitable tension and guiding devices 35 are also carried on collars clamped upon this post 34.

It will be noted that one post carries the bobbins and tension and guide devices for two adjacent parallel chenille-producing mechanisms, as shown in Figs. 2 and 4, although for clearness of illustration this duplication of parts on the same post is omitted from the other portions of the drawings.

The drawing mechanism is located at the extreme front of the machine and comprises an upper drawing-roller 37 and a lower drawing-roller 38 for each chenille-producing mechanism, these rollers being geared together by gears 39 40, having deep teeth, and the upper drawing-rollers 37 being carried by and fitted to rotate on studs projecting from arms 42, these arms 42 being loosely pivotally mounted between fixed collars on a stationary shaft 41, extending across the frame. The upper and lower drawing-rollers are in the shape of complementary frustums of cones, the lower drawing-rollers having rims to prevent the chenille from running off laterally therefrom. Each lower drawing-roller is fixed upon a rotating shaft 84, extending across the frame at the extreme front end thereof and mounted in bearings thereon.

The tension is maintained by the weights of the upper drawing-rollers and attached parts, and each upper roller may be separately lifted clear of its lower roller whenever such movement is desirable or necessary. The completed chenille drawn out by these rollers may be deposited in any suitable receptacle or wound on reels.

The mechanism shown for actuating the various parts will now be described. The driving-shaft 36 is at the front of the machine and is fitted in bearings secured to the front standards of the frame. A sprocket-wheel 43, centrally fixed upon the driving-shaft, imparts rotary motion by means of a chain 44 to a sprocket-pinion 45, fixed upon a longitudinally-arranged intermediate shaft 46, suitable idler-sprockets 47 being provided near the bottom of the frame to guide the chain and allow considerable vertical length of the chain in which the chain may freely turn through the right angle required by the right-angular relation of the two shafts.

The longitudinal intermediate shaft 46 is provided with spur-gears 48 49, which respectively mesh with intermediate spur-gears 50 and 51, located vertically over the longitudinal intermediate shaft 46, and the intermediate gear 50 is one of a train of gears including a gear 52 on each secondary binder-thread arbor 6 and including other intermediate gears 53 between these arbor-gears, and the intermediate gear 51 is one of a train of gears including a gear 54 on each primary binder-thread arbor 7 and including other intermediate gears 55 between these last-mentioned arbor-gears, and by this gearing all of the arbors are rotated in the same direction and at the same high rate of speed.

A sprocket-pinion 56 is fixed upon the driving-shaft 36, near the left end thereof, and imparts rotary motion by means of a chain 57 to a large sprocket-wheel 58, fixed upon another intermediate shaft 59, extending across the frame and fitted to rotate in bearings thereon. From this slow-speed intermediate shaft 59 motion is transmitted to the loop-former reciprocating mechanism and to the drawing mechanism.

For the operation of the loop-former reciprocating mechanism a cam-shaft 60 is provided fitted to rotate in bearings near the rear end of the frame and is connected with the slow-speed intermediate shaft 59 by reversely-arranged stepped cone-pulleys 62 and 61 on the respective shafts and a driving-cord 63 and a tension-pulley 64, loosely mounted on a pin 66, carried by a weighted pivotally-mounted arm 65, engaging with the lower length of the driving-cord. This construction permits a large range of variation of the speed of the cam-shaft 60 by shifting the driving-cord 63 upon the stepped cone-pulleys 61 and 62.

A cam 67 is fixed upon the cam-shaft 60 and works against a cam-roller 68, rotatively mounted upon an arm 69. This arm 69 is secured at its lower end upon a rock-shaft 70, extending across the frame and mounted in bearings thereon. A helical extension-spring 85 yieldingly holds the arm 69 forward, so that the cam-roller 68 will be pressed against the cam 67. The arm 69 is duplicated by another arm 71, fixed upon the rock-shaft 70 at the other end thereof, and at the upper end of each arm 69 71 a connecting-rod 72 connects each arm with a cross-bar 73, which engages each loop-former tube 12 of the four parallel chenille-forming mechanisms shown, resting between collars thereon, so as to permit free rotative movement thereof while simultaneously imparting to all of these tubes the reciprocating movement longitudinally of the machine imparted to the cross-bar 73 by the cam 67.

The drawing mechanism receives rotary motion from the slow intermediate shaft 59 through another intermediate shaft 74, these two shafts being connected by reversely-arranged stepped cone-pulleys 75 and 76 on the respective shafts and a driving-cord 77 and idler-pulleys 78, loosely mounted on a pin 79, carried by a weighted pivotally-mounted arm 80. The shaft 74 has a sprocket-pinion 81 at its right end outside the frame, connected by a chain 82 with a sprocket-wheel 83 on the shaft 84, which carries the lower drawing-rollers 38, as above described. This construction permits of a large range of variation of the speed of the drawing-rollers by shifting the driving-cord 77 on the stepped cone-pulleys 75 and 76.

In the operation of the machine when fitted for the production of set-off chenille, as shown in Figs. 1, 2, and 3, loops of normal length will be produced by the winding of the surface threads *c* about the loop-former 13 when the loop-former is in forward position. The primary binder-thread *a* will be within these loops, and the secondary binder-thread *b* will be applied exteriorly to these loops. The twist of the binder-threads and loops will be imparted by the rotative movement of the two binder-thread-carrying parts or arbors relatively to the drawing mechanism. The withdrawal of the loop-former will result in the twisting of all of the threads together without looping. This position of parts is shown in Fig. 3, and the resulting set-off chenille is shown in Figs. 5 and 6. The spacing of the looped and unlooped portions may be varied by varying the speed of the cam 67 in the manner above explained.

Should it be desired to produce ordinary rough or uncut chenille, it is only necessary to throw off the driving-cord 63 and move the cam so that the loop-former 13 will be in the forward position. (Shown in Figs. 1 and 2.)

For the production of ordinary or cut che-

nille the counterweight 26 on the forward or secondary binder-thread-carrying head 8 will be replaced by a knife-post 28 and a knife or loop-cutter 27, carried thereby, (see Figs. 7 and 9,) and a suitably-shaped loop-former 86, preferably thin and of rectangular cross-section, as shown, and slightly grooved to receive the edge of the knife will be substituted for the rounded loop-former 13 and the loop-former reciprocating parts disconnected or omitted. The ordinary cut chenille which will then be produced is shown in Fig. 10. This fitting of parts of the machine produces the construction which is particularly claimed herein.

For the production of cut and uncut chenille a duplication of primary binder-thread bobbin 10 and of the secondary binder-thread bobbin 20 will be required, and a knife or loop-cutter will also be required. The required arrangement of parts is shown in Figs. 11 and 12. The knife 27 is here arranged parallel to the axes of the bobbins, and the loop-former correspondingly arranged, and the knife and post are rotatively counterbalanced by a small weight 87. The cut and uncut chenille produced with this arrangement of parts is shown in Fig. 14.

Other variations may be made, if desired. In all varieties the chenille may be produced continuously and of any desired length or practically endless, and the production will be rapid and uniform.

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 chenille-machine comprising two rotating binder-thread-carrying parts and means for rotating these two parts in the same direction, a loop-former coöperative therewith, and means for supplying surface thread to the loop-former.

2. A chenille-machine comprising a binder-thread-carrying rotating part, a loop-former carried thereby, means for supplying surface thread to the loop-former, another binder-thread-carrying rotating part, and means for rotating the two binder-thread-carrying parts in the same direction.

3. A chenille-machine comprising two rotating binder-thread-carrying parts fitted to rotate on a common axis, one in advance of the other, means for rotating these two parts in the same direction, a loop-former at the front end of the rear rotating part, and means for supplying surface thread to the loop-former.

4. A chenille-machine comprising two rotating parts and binder-thread bobbins carried thereby, the rotating parts being arranged one in advance of the other, means for rotating these two parts in the same direction, a loop-former at the front end of the rear rotating part, means for supplying surface thread to the loop-former, and drawing means for the chenille.

5. A chenille-machine comprising two rotating binder-thread-carrying parts, means for rotating these parts in the same direction, a loop-former a loop-cutter coöperative therewith, and means for supplying the surface thread to the loop-former.

6. A chenille-machine comprising a binder-thread-carrying rotating part, a loop-former carried thereby, means for supplying surface thread to the loop-former, another binder-thread-carrying rotating part, a loop-cutter carried thereby, and means for rotating the two binder-thread-carrying parts in the same direction.

7. A chenille-machine comprising two rotating binder-thread-carrying parts fitted to rotate on a common axis one in advance of the other, means for rotating these two parts in the same direction, a loop-former at the front end of the rear rotating part, means for supplying surface thread to the loop-former, and a loop-cutter at the rear end of the front rotating part.

8. A chenille-machine comprising two rotating parts and binder-thread bobbins carried thereby, the rotating parts being arranged one in advance of the other, means for rotating these two parts in the same direction, a loop-former at the front end of the rear rotating part, means for supplying surface thread to the loop-former, a loop-cutter at the rear end of the front rotating part, and drawing means for the chenille.

9. A chenille-machine comprising two rotating parts and binder-thread bobbins carried thereby, the rotating parts being arranged one in advance of the other, means for rotating these two parts in the same direction, a loop-former coöperative therewith, means for supplying surface thread to the loop-former, and continuously-operative drawing means for the chenille, substantially as shown and described.

10. A chenille-machine comprising two rotating parts and binder-thread bobbins carried thereby, the rotating parts being arranged one in advance of the other, means for rotating these two parts in the same direction, a loop-former coöperative therewith, means for supplying surface thread to the loop-former, a loop-cutter also coöperative therewith, and continuously-operative drawing means for the chenille, substantially as shown and described.

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

CHARLES WIEBKE.

Witnesses:
BERNARD COWEN,
HERMAN RUFF.