

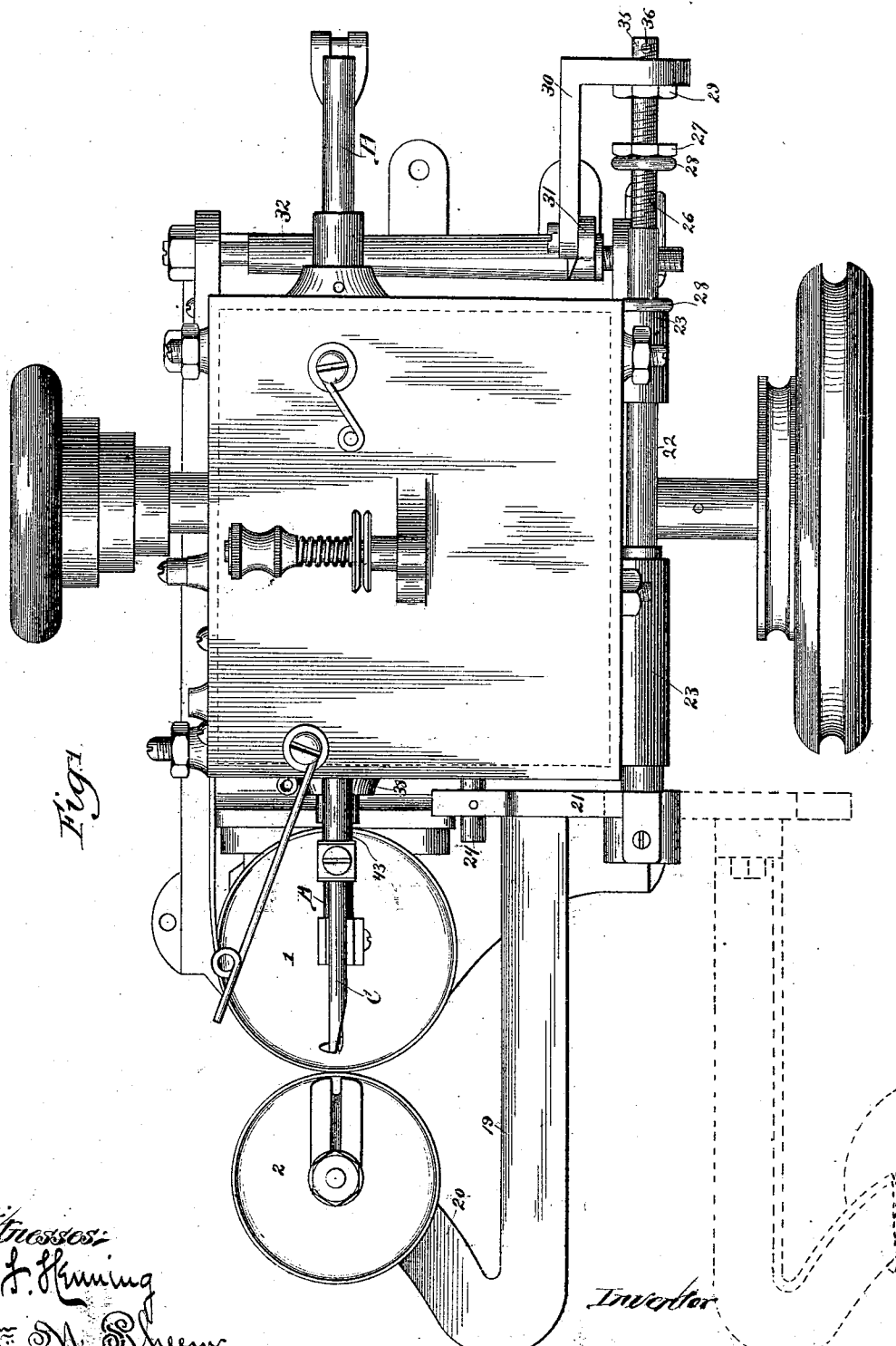
(No Model.)

F. VAN CAUWENBERGH.
FOR SEWING MACHINE.

6 Sheets—Sheet 1.

No. 514,874.

Patented Feb. 13, 1894.



Witnesses:
Wm. L. Fleming
Geo. M. Rheim.

Inventor
Frank Van Cauwenbergh
By J. H. Kennedy, Atty.

(No Model.)

6 Sheets—Sheet 2.

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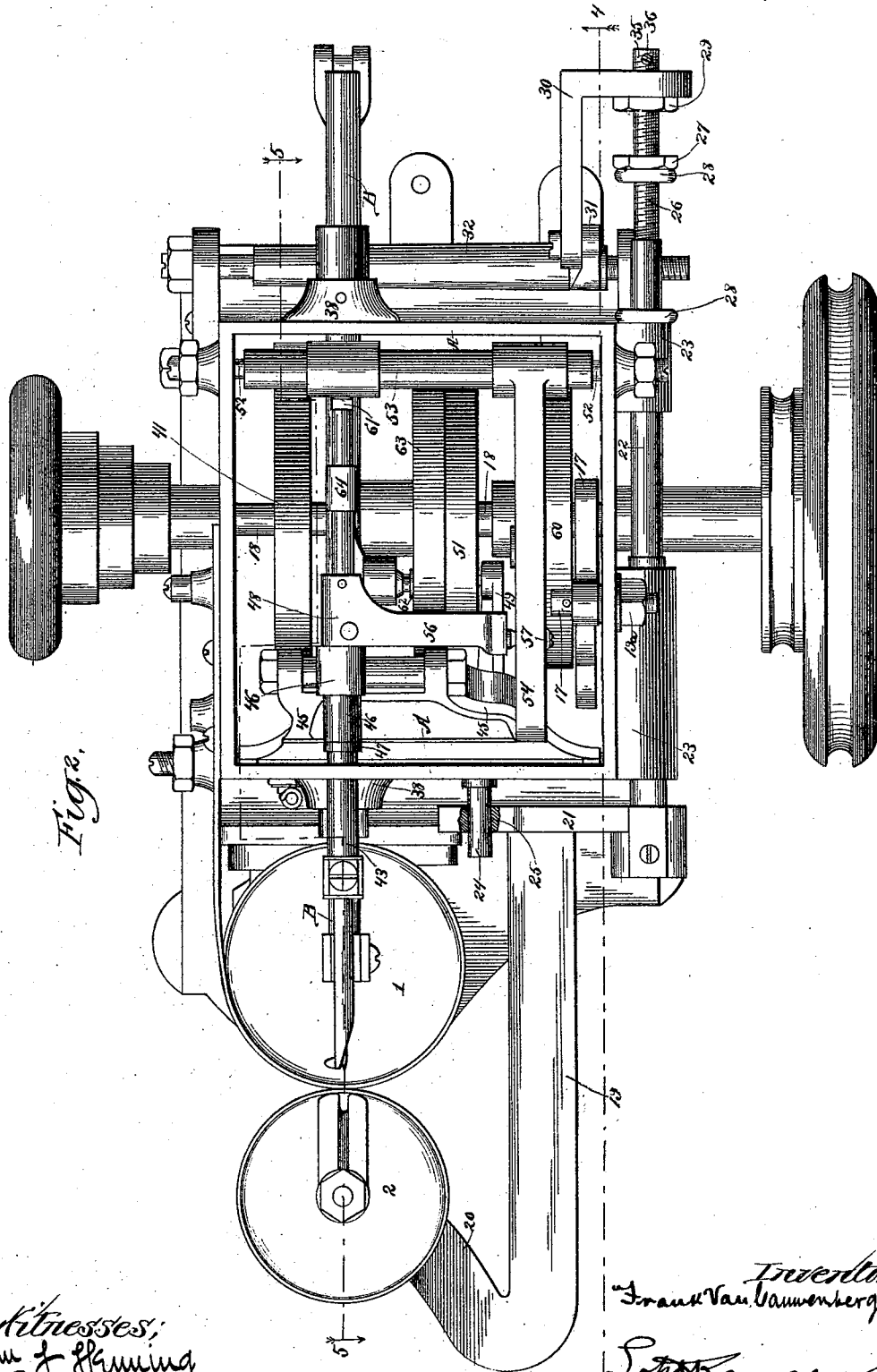


Fig. 2.

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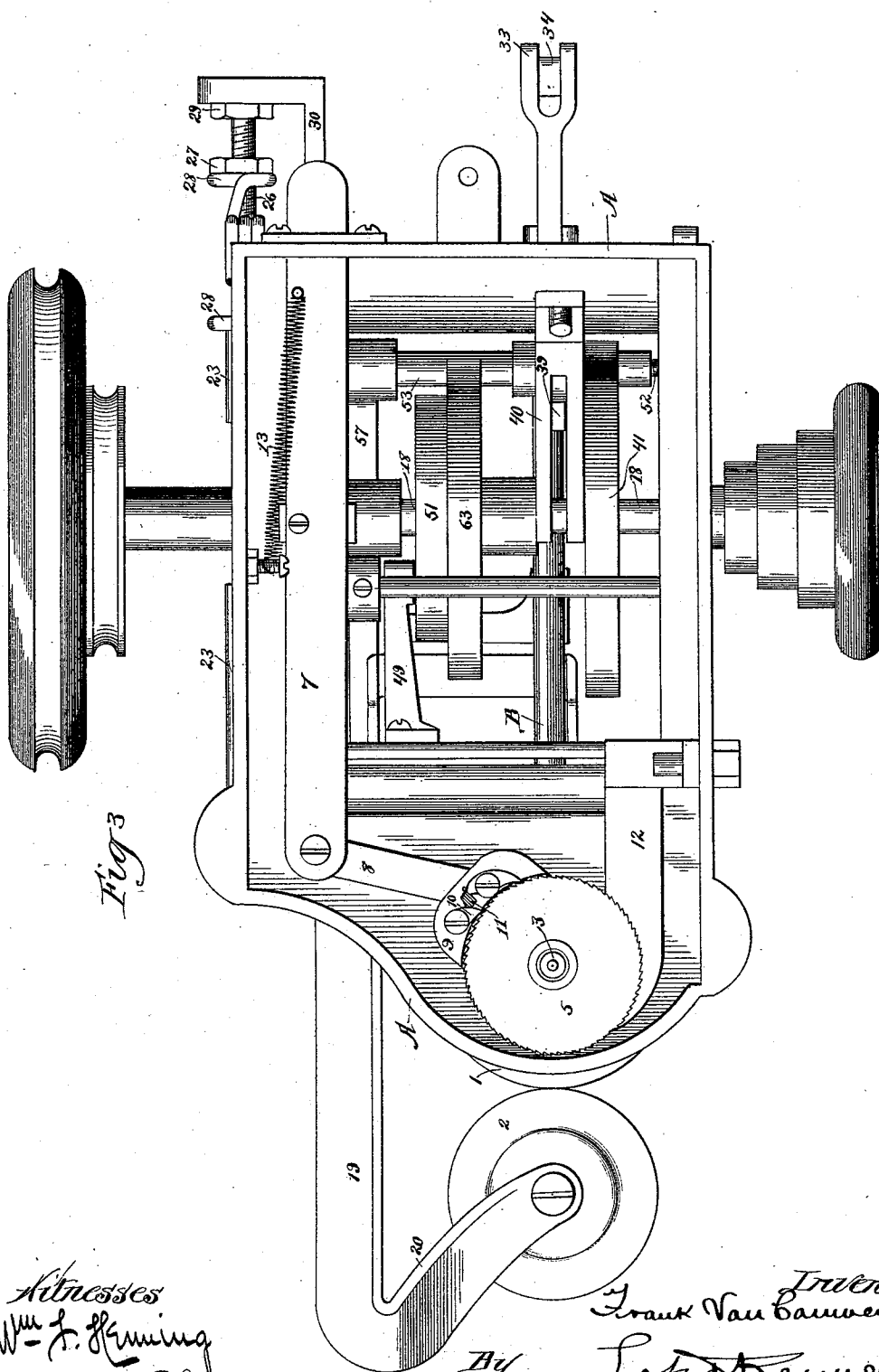
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6 Sheets—Sheet 3.

F. VAN CAUWENBERGH.
FOR SEWING MACHINE.

No. 514,874.

Patented Feb. 13, 1894.



Witnesses
Wm. J. Fleming
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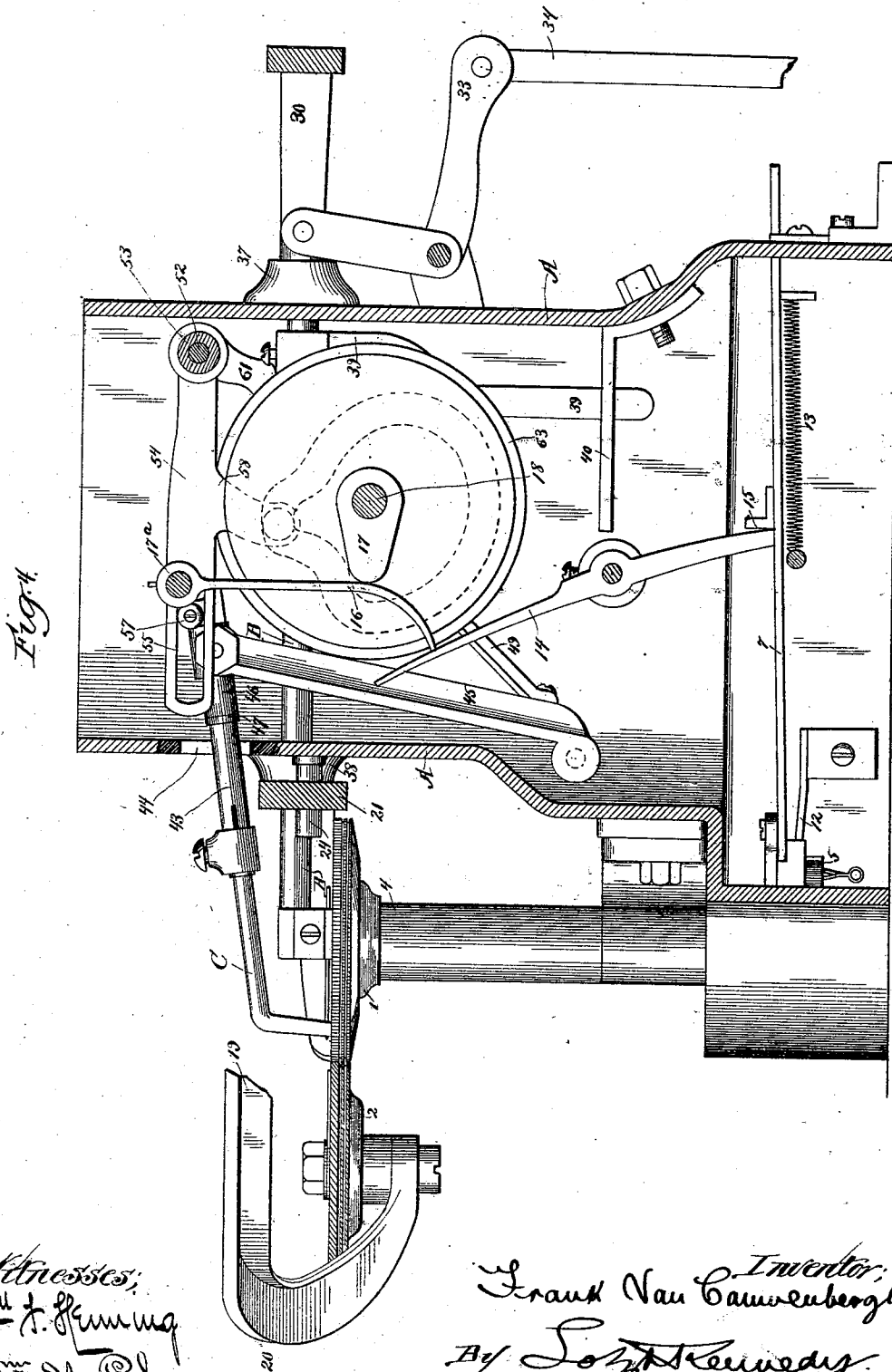
(No Model.)

F. VAN CAUWENBERGH.
FOR SEWING MACHINE.

6 Sheets—Sheet 4.

No. 514,874.

Patented Feb. 13, 1894.



Witnesses:
Wm. A. Fleming
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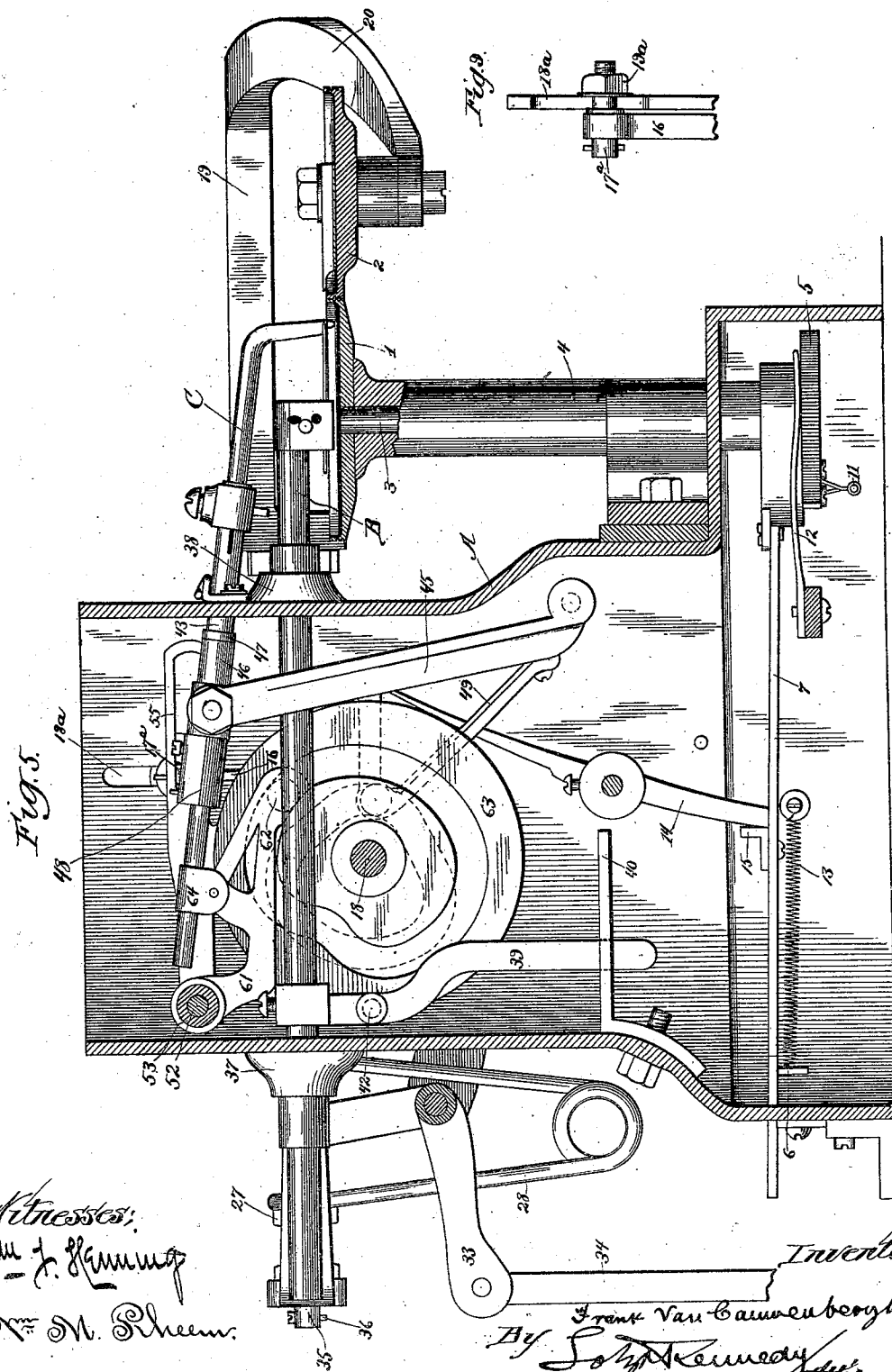
(No Model.)

6 Sheets—Sheet 5.

F. VAN CAUWENBERGH.
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(No Model.)

6 Sheets—Sheet 6.

F. VAN CAUWENBERGH.
FOR SEWING MACHINE.

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Fig. 6.

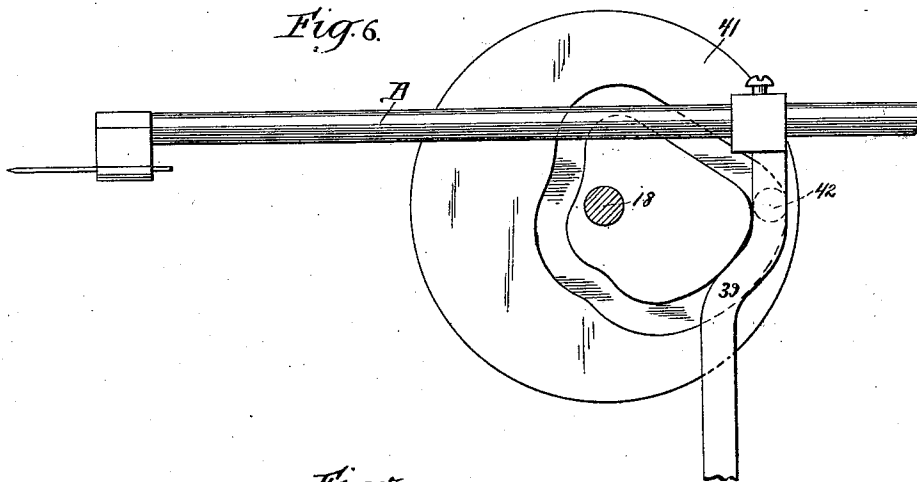


Fig. 7.

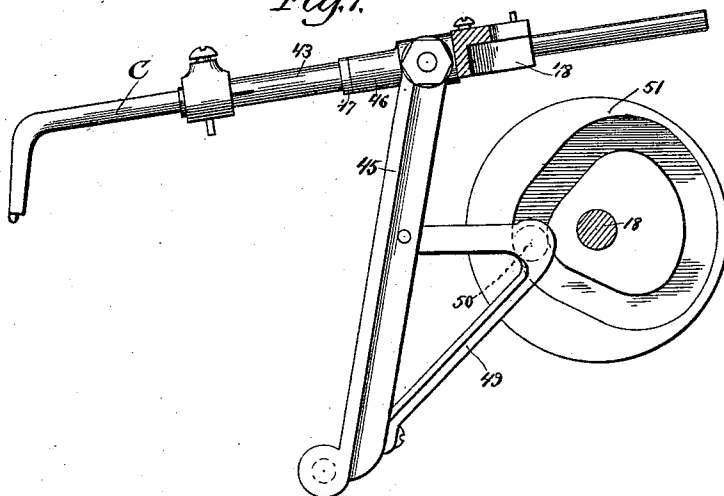
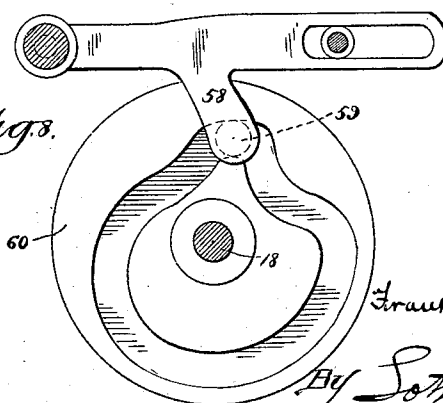


Fig. 8.



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UNITED STATES PATENT OFFICE.

FRANK VAN CAUWENBERGH, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT
AND MESNE ASSIGNMENTS, TO HENRY HARTMANN, OF SAME PLACE.

FUR-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,874, dated February 13, 1894.

Application filed July 12, 1892. Serial No. 439,835. (No model.)

To all whom it may concern:

Be it known that I, FRANK VAN CAUWENBERGH, a subject of the King of Belgium, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fur-Sewing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in fur sewing-machines of that class comprising essentially a reciprocating needle rod, a looper arm and two guides or feed cups between which the fur is held while the stitch is being made.

The invention consists in the features of construction and combinations of parts hereinafter fully described and pointed out in the appended claims.

In the accompanying drawings illustrating my invention,—Figure 1 is a top plan view of a fur sewing-machine constructed in accordance with my invention. Fig. 2 is a top plan view with the top plate of the machine removed. Fig. 3 is a bottom plan view. Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 2. Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 2. Figs. 6, 7, 8 and 9 are detail views.

Referring now to said drawings, A indicates the frame of the machine which is of familiar construction, and which is provided with a reciprocating needle rod B and looper arm C, also of familiar construction. As is usual in this class of machines, at one end thereof is located two feed cups 1 and 2, the said cup 1 serving to feed the work forward, while the said cup 2 serves to exert a tension thereon. It will be understood that the devices for holding and feeding the work forward; and also for making the stitch, are similar to those in general use in this class of machines, and that my invention relates more particularly to the devices for operating such parts and in the peculiar construction and arrangement of such devices, the same being intended to provide a fur sewing-machine that will possess great efficiency of

action as well as durability and simplicity of construction.

The feed cup 1 is of ordinary construction and is provided with a spindle 3 that passes through a tubular bearing 4 secured to the frame of the machine, and is provided with in the lower part of such frame A with a ratchet wheel 5. The devices for turning such ratchet wheel are constructed as follows: Supported upon suitable guides 6 located within said frame A is a longitudinally movable bar 7 that is pivotally connected at its forward end with a lever 8, which lever is rigidly secured to an arm 9 journaled upon spindle 3. The said arm 9 is provided on its lower face with two pawls or ratchets 10 that are held by a spring 11 in engagement with said ratchet wheel 5. In this way it will be seen that when the bar 7 is reciprocated the said pawls or ratchets 10 will engage said ratchet wheel in an obvious manner, and thereby serve to give an intermittent rotary motion to said feed cup 1 to feed the work forward.

A spring 12 is secured to the frame of the machine and bears at its outer end against the upper face of the ratchet wheel 5 and exerts a tension thereon to prevent the accidental rotation of said ratchet wheel. It will be noted that when the bar 7 is moved forwardly the pawls 10 will pass over the teeth of said ratchet wheel and the said bar 7 is normally held at the forward limit of its movement by a spring 13 connected at its opposite ends with said bar 7 and the frame of the machine. The devices for moving the said bar 7 to the rear are constructed as follows: A vibrating lever 14 is pivoted to the side of the frame A and has one end located to engage a forwardly facing shoulder or projection 15 upon said bar 7. The other end of said vibrating lever 14 is located in the path of another lever 16 pivoted to the side of the frame A, which lever 16 is located in the path of a cam 17 mounted upon the main operating shaft 18 of the machine. It will be seen that as the said cam 17 revolves it will serve to move the lever 16 on its pivot, and said lever 16 engaging one end of the lever 14 will serve to swing the said lever 14 on its pivot and thus move

the said bar 7 to the rear by reason of the engagement of the other end of said lever 14 with the shoulder or projection 15 on said bar 7. As the high part of the cam engages the lever 16, it will thus be seen that the bar is moved to the rear to turn the ratchet wheel, and as soon as the high part of said cam 17 leaves the said lever 16 the spring 13 will move the bar 7 to the front. It will, of course, be noted that the location of the cam 17 is such with relation to the other parts that the feed cup will be turned at such times when the needle is withdrawn from the work. To adjust the length of the stitch I impart to the feed cup a greater or less extent of rotation, as will be obvious, and to vary the rotation of said feed cup the said lever 16 has an adjustable connection with the frame of the machine, so that it can be moved toward or away from the pivot of the lever 14. To accomplish this end the pivot 17^a of the said lever 16 is located with an upright slot 18^a in the frame of the machine, and on the outside of said frame of the machine said pivot is provided with a nut 19^a by means of which it can be held at any desired location within the slot 18^a. It will thus be seen that by moving the pivot 17^a of the lever 16 away from the pivot of the lever 14, the length of the stitch will be decreased, and vice versa.

The outer feed cup 2 is of ordinary construction, but the construction of the arm by which it is supported, and the connection of such arm with the frame of the machine, forms a part of my invention.

It will be noted that when an operator is standing in front of the machine that, to secure the best results and the greatest efficiency in manipulating the work, it is necessary that not only should the work be in plain view, but that entire freedom of movement of the hands of the operator should be permitted, and in the machines in present use, as far as I am informed, the supporting arm for the outer feed cup either obstructs to a certain extent the view of the work, or interferes with the manipulating thereof, which, of course, is objectionable, and to overcome such objections I provide a supporting arm 19 for said outer feed cup which is suitably mounted upon the frame of the machine, as fully described hereinafter, but which extends forward parallel with the needle rod above and to one side of the cups 1 and 2 and to a point beyond the location of the outer feed cup. The said arm 19 is provided at its outer end with a downwardly, inwardly and rearwardly extending inclined end portion 20 to the end of which the pivot of the outer feed cup is secured. In this way it will be seen that, as shown in Figs. 2 and 5, the arm is located sufficiently to one side of the outer feed cup so as not to obstruct the view, and sufficiently above the same to be beyond interference with the hands of the operator. The said arm 19 is connected at its rear end with a cross piece 21 that is secured

to a shaft 22 located within suitable bearings 23 on the side of the frame of the machine. The said shaft 22 is movable both longitudinally and axially within said bearings 23, but to hold the said shaft normally against axial rotation, a pin 24 is located at the forward end of the frame A and is adapted to pass through a perforation 25 in the said cross piece 21, said parts being so constructed that when the pin 24 is located within said opening 25 the said feed cups will be located in the same horizontal plane. The rear end portion of said shaft 22 is screw threaded, as shown at 26, and between a nut 27 upon said screw threaded portion and the end of one of the bearings 23 for said shaft is located a spring 28, which spring acts by expansion and serves to exert a tension against the said nut or abutment 27 on said shaft, to hold said shaft at the rearward limit of its movement and, consequently, the outer feed cup against the inner feed cup. It will be understood, of course, that springs of various construction could be employed for this purpose, but as a convenient construction the said spring 28 consists of a coil portion and two spring arms engaging the said shaft. The said outer feed cup is thus held against the inner feed cup under spring tension, and by moving the nut or abutment 27 back or forth upon the rear end portion of the shaft 22 the tension of said spring can be varied to adapt the machine to the thickness of the work to be operated upon, or to meet other contingencies. It will be noted, of course, that it is necessary in machines of this description to provide devices for supporting the feed cups, when it is desired, to insert or remove the work from between the same, and to accomplish this purpose an abutment or shoulder 29 is secured upon the rear end of the shaft 22 and is engaged by an arm 30 that is pivotally connected with an upwardly extending arm 31 mounted upon a rock shaft 32 upon the frame of the machine. The said rock shaft is connected by an arm 33 with a pedal lever 34, and it will be seen that by elevating said pedal lever 34 the arm 31 of said rock shaft will be swung forwardly and will thus serve to move the shaft 22 forwardly in an obvious manner. When the said shaft 22 moves longitudinally it will be guided by the pin 24 which is located within the perforation 25 in the cross piece 21, the extent, however, to which said shaft is moved by the pedal lever is not sufficient to move said cross piece forward to such an extent that it will pass beyond the end of said pin 24.

When it is desired to throw the outer feed cup to one side of the inner feed cup, to thread the needle, or for any other purpose, the same can be accomplished by pulling on the arm 19 until the cross piece moves beyond the end of the pin 24, and then swinging such supporting arm 19 to one side in an obvious manner. It will be noted, of course, that when the arm 19 and rod 22 are thus moved

forward it will be against the tension of spring 28, and it will be further noted that, whereas, when the pedal lever 34 is operated to move the tension cup, the limit of such movement is such that the cross piece 21 will not be moved beyond the end of the pin 24, yet, by reason of the sliding connection between the rod 22 and arm 30, it is possible to move such arm 30 a little farther than by its connection with the pedal lever. Such sliding connection or lost motion between the arm 30 and rod 22 is attained by extending the rod 22 in the rear of the arm 30, as shown at 35, and passing a pin or abutment as at 36 through the rearward extension 35. It will be seen that the spring 28 serves to hold the nut or shoulder 29 of the rod 22 against the arm 30, and that the pin 36 is located a little distance in the rear of said arm 30 whereby said rod 22 and arm 30 can be moved in relation to each other, and said parts are so constructed and located with relation to each other that when the pedal lever is moved the arm 30 will serve to move the rod 22 forward to a certain location, but not sufficient to move the cross piece 21 beyond the end of the pin 24, but the further movement of said rod 22 that will bring the pin 36 against the side of the arm 30 will be sufficient to clear the cross piece 21 from the pin 24.

As before stated, I do not claim as part of my invention the manner of forming the stitch, as I employ the usual needle rod B and looper C that are used in this class of machines, but I do claim as a part of my invention the construction and arrangement for accomplishing the movements of such needle rod and looper, and I will now proceed to describe the construction of the devices for operating said needle rod. The said needle rod B is supported in suitable bearings 37 and 38 at the rear and front sides of the machine and is provided at its rear end portion with a downwardly projecting arm 39 that is located in a guide 40 secured to the frame of the machine, which guide is parallel with the longitudinal axis of said needle rod, and by reason of the engagement of said arm 39 with said guide 40 the axial rotation of said needle rod is prevented. The main shaft 18 of the machine is supported in suitable bearings on the side pieces of the frame A and is provided with suitable pulleys for driving the same. Located adjacent to said needle rod and mounted upon said shaft 18 is a side grooved cam 41 that is engaged by a lateral projection or anti-friction roller 42 upon the arm 39, and the form of said side grooved cam is such as to impart to the needle rod through the intermediacy of the mechanism described a desired longitudinal movement of said needle rod. The form of such side grooved cam 41 is shown in Fig. 6. The looper C is secured to a looper rod 43 that passes through a slot 44 in the frame of the machine and is connected with devices located within the frame to impart to said looper a forward and

backward movement, an up and down movement, and a lateral movement. The devices for moving the looper back and forth are constructed as follows: A pivoted frame 45 is pivoted at its lower end to the lower end portion of the frame and is provided at its upper end with a bearing sleeve 46 that is pivotally connected with said pivot frame 45 and the looper rod 43 passes through said bearing sleeve 46 and is adapted to turn therein. To prevent the longitudinal movement of said looper rod with relation to said sleeve 46 the said sleeve is located between a washer or ridge 47 rigidly secured to said rod 43 and a collar 48 also rigidly secured to said rod 43. It will thus be seen that while said looper rod 43 is capable of turning within the sleeve 46 it is incapable of longitudinal movement therein. The pivot frame 45 is provided with a rearwardly projecting arm 49 that carries a lateral projection or anti-friction roller 50 that is located to engage a side grooved cam 51 mounted upon the driving shaft 18, and it will be noted that by reason of the form of such cam 51 the pivot frame 45 will be rocked on its pivot so as to move the lever back and forth in an obvious manner. The construction of the devices for imparting to said looper its lateral movement is as follows: Between the sides of the frame A and near the rear end of the machine is located a shaft 52. Upon said shaft is loosely mounted a sleeve 53, and rigidly secured to said sleeve 53, near one end thereof is an arm 54 that extends toward the front end of the machine and is provided at its front end portion with a slot 55. Extending from the collar 48 upon the looper rod, is a lateral extension 56 that is provided at its end with an anti-friction roller 57 that is located within the slot 55 of said arm 54. Said arm 54 is provided with a downward extension 58 that is provided with a lateral extension or anti-friction roller 59 located to engage a side grooved cam 60. Said side grooved cam is constructed to elevate and depress the arm 54, and as such arm turns at its rear end on a pivot the forward swinging end of such arm 54 will swing the outer end of the lateral extension 56 so as to cause the axial rotation of the looper rod 43 and thus impart to the looper the desired lateral movement. To permit the up and down movement of said looper the said bearing sleeve 46 is pivotally connected with the upper end of the pivot frame 45, so that by depressing or elevating the rear end of the looper rod 43 the front end of said looper rod will be correspondingly depressed or elevated. The devices for raising and lowering such rear end of the looper rod are constructed as follows: Loosely mounted upon the sleeve 53 is an arm 61 that extends forwardly and is provided at its forward end with a lateral projection or anti-friction roller 62 that is located to engage a side grooved cam 63 rigidly mounted upon the main shaft 18, whereby, during the rotation of said cam 63, said arm 61 will be swung on its pivot to elevate and

depress the free end thereof. Located upon the rear end of the looper rod 43 is a sliding sleeve 64 that is pivotally connected with said arm 61, so that as said arm 61 is raised or lowered the rear end of the sleeve 64 will be correspondingly moved by reason of its connection with said arm, while at the same time the forward and backward or axial movement of said looper rod will be permitted by reason of the sliding connection of said looper rod with the sleeve 64. It will, of course, be understood that the said cams are so constructed with relation to each other and with relation to their connection with the needle rod and looper, so as to impart thereto the necessary movements for making the stitch, but as such movements, as before stated, are not a part of my invention a detailed description thereof will be unnecessary.

I claim as my invention—

1. The combination substantially as hereinafter set forth in a sewing-machine, of an outer feed cup, an inner feed cup located adjacent thereto and mounted upon a revoluble spindle, a ratchet wheel upon said spindle, a longitudinally movable bar carrying a pawl located to engage said ratchet wheel, a pivoted lever 14, having one end located to engage a forwardly facing projection 15 on said rod, a lever 16 having its swinging end located in the path of an eccentric upon the operating shaft of the machine and located to engage the other end of said lever 14, and a spring connected with said rod to move the same forwardly.

2. The combination substantially as hereinafter set forth in a sewing-machine, of an outer feed cup, an inner feed cup, located adjacent thereto and mounted upon a revoluble spindle, a longitudinally movable bar supported in suitable guides on the frame of the machine, gearing between said bar and spindle for imparting a rotary motion to said spindle from the reciprocation of said bar, a pivoted lever 14 having one end located to engage a projection on said bar, a lever 16 pivoted to the frame of the machine and having its end located to engage the other end of said lever 14, said pivot being adjustable toward and away from the pivot of said lever 14, a cam or eccentric located to engage said lever 16, and devices for moving said bar in an opposite direction to that in which it will be moved by said lever 14.

3. The combination substantially as hereinafter set forth in a sewing-machine, of an inner feed cup, an outer feed cup located adjacent thereto and mounted upon a revoluble spindle, a longitudinally movable bar supported in suitable guides on the frame of the machine, gearing between said bar and spindle for imparting a rotary motion to said spindle from the reciprocation of said bar, a lever 14 pivoted to the frame of the machine and having one end located to engage a projection on said bar, a lever 16 having its pivot adjustably located within a slot in the frame of the

machine, the free end of said lever 16 being located to engage the other end of said lever 14, a cam or eccentric on the operating shaft of the machine located to engage said lever 16, and devices for moving said bar in the opposite direction to that in which it is moved by said lever 14.

4. The combination substantially as hereinafter set forth in a sewing-machine, of an inner feed cup, an outer feed cup mounted upon the end of an arm 19, a cross piece 21 rigidly secured to a shaft 22 mounted in bearings on the frame of the machine and carrying said arm 19, a pin 24, rigidly mounted upon the frame of the machine, parallel with said shaft 22, an opening or perforation 25 in said cross piece to receive said pin, a spring acting upon said shaft to hold the cups together, and devices for moving said shaft against the tension of said spring.

5. The combination substantially as hereinafter set forth in a sewing-machine, of an inner feed cup, an outer feed cup mounted upon the end of an arm 19, a cross piece 21 upon which said arm is mounted, a shaft 22 mounted in bearings on the frame of the machine and rigidly secured to said cross piece, a pin 24 upon the frame of the machine located to engage a perforation 25 in said cross piece, a spring acting upon said shaft to hold the cups together, an arm 30 located to engage the rear face of an abutment 29 upon said shaft, devices for moving said arm 30 forward, and a pin or abutment 36 upon the rearward extension 35 of said shaft 22.

6. The combination substantially as hereinafter set forth in a sewing-machine, of an inner feed cup, an outer feed cup mounted upon the end of an arm 19, said arm 19 being secured to a cross piece 21, a shaft 22 mounted in bearings on the frame of the machine and rigidly secured to said cross piece, a pin 24 upon the frame of the machine and adapted to engage the perforation 25 in said cross piece, a spring acting upon said shaft to hold said arms together, an arm 30 located to engage the rear face of an abutment 20 on said shaft, and devices for moving said arm 30 forward, and said shaft 22 being capable of being moved forwardly independently of said arm 30.

7. The combination substantially as hereinafter set forth in a sewing machine, of inner and outer feed cups, a reciprocating needle rod, devices for reciprocating the same, a looper C mounted upon a looper rod 43, a bearing sleeve 46 pivotally mounted upon a pivot frame 45, said looper rod being loosely mounted in said bearing sleeve, but incapable of longitudinal movement with relation thereto, devices for swinging said pivot frame on its pivot, a laterally projecting arm rigidly secured to said looper rod 43 and having its outer end geared to a cam upon the operating shaft of the machine for elevating and depressing said outer end, and devices for turning said bearing sleeve 46 on its pivot.

8. The combination substantially as hereinafter set forth in a sewing machine, of inner and outer feed cups, a reciprocating needle rod, devices for reciprocating said needle rod, a looper carried by a looper rod 43, a bearing sleeve 46 pivotally mounted upon a pivot frame 45, devices for turning said pivot frame 45 on its pivot, said looper rod 43 being loosely mounted within said bearing sleeve 46 but incapable of longitudinal movement with relation thereto, a laterally projecting arm 56 rigidly secured to said looper rod 43, an arm 54 pivotally mounted upon the frame of the machine and having a slot 55 in its free end in which the free end of the arm 56 is located, a cam 60 located to engage a lateral projection 58 upon said arm 54 and mounted upon the operating shaft of the machine, and devices connected with the operating shaft of the machine arranged practically as described to turn said bearing sleeve 46 on its pivot.

9. The combination substantially as hereinafter set forth in a sewing machine, of inner and outer feed cups, a reciprocating needle rod, devices for reciprocating the same, a looper carried by a looper rod 43, a bearing sleeve 46 pivotally mounted upon a pivot frame 45, devices for turning said pivot frame on its pivot, said looper rod 43 being loosely mounted within said bearing sleeve but incapable of longitudinal movement with relation thereto, devices connected with said looper rod 43 and with the operating shaft of the machine for turning said looper rod upon its axis, and an arm 61 pivoted upon the frame of the machine and connected with said looper rod in the rear of said bearing sleeve and with a cam mounted upon the operating shaft of the machine to impart to said rear end of the looper rod an up and down motion.

10. The combination substantially as hereinafter set forth in a sewing machine, of inner and outer feed cups, a reciprocating needle rod, devices for reciprocating the same, a looper carried by a looper rod 43, a bearing sleeve 46 pivotally mounted upon a pivot

frame 45, devices for turning said pivot frame on its pivot, said looper rod being loosely mounted within said bearing sleeve 46 but incapable of longitudinal movement with relation thereto, devices connected with said looper rod and with the operating shaft of the machine to turn said looper rod on its axis, and an arm 61 pivoted to the frame of the machine, a collar 64 pivoted to said arm 61 and having a sliding connection with said looper rod in the rear of said bearing sleeve, and a lateral projection on said arm 61 located to engage a side grooved cam 63 mounted upon the operating shaft of the machine.

11. The combination substantially as hereinafter set forth in a sewing machine, of inner and outer feed cups, a reciprocating needle rod, devices for reciprocating the same, a looper carried by a looper rod 43, a bearing sleeve 46 pivotally mounted upon a pivot frame 45, devices for turning said pivot frame on its pivot, said looper rod being loosely mounted within said bearing sleeve 46 but incapable of longitudinal movement with relation thereto, a laterally projecting arm 56 rigidly secured to said looper rod, an arm 54 pivoted to the frame of the machine and having a slot 55 in its free end portion that receives the free end of the laterally projecting arm 56, a side grooved cam 60 located to engage a lateral projection 59 upon said arm 54 to elevate and depress the same, an arm 61 pivoted to the frame of the machine, a collar 64 pivoted to said arm 61 and having a sliding connection with the looper rod 43 in the rear of said bearing sleeve 46, and a side grooved cam 63 mounted upon the operating shaft of the machine and located to engage a lateral projection 62 upon said arm 61 to elevate and depress said arm 61.

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

FRANK VAN CAUWENBERGH.

Witnesses:

HARRY COBB KENNEDY,
RUDOLPH N. LOTZ.