

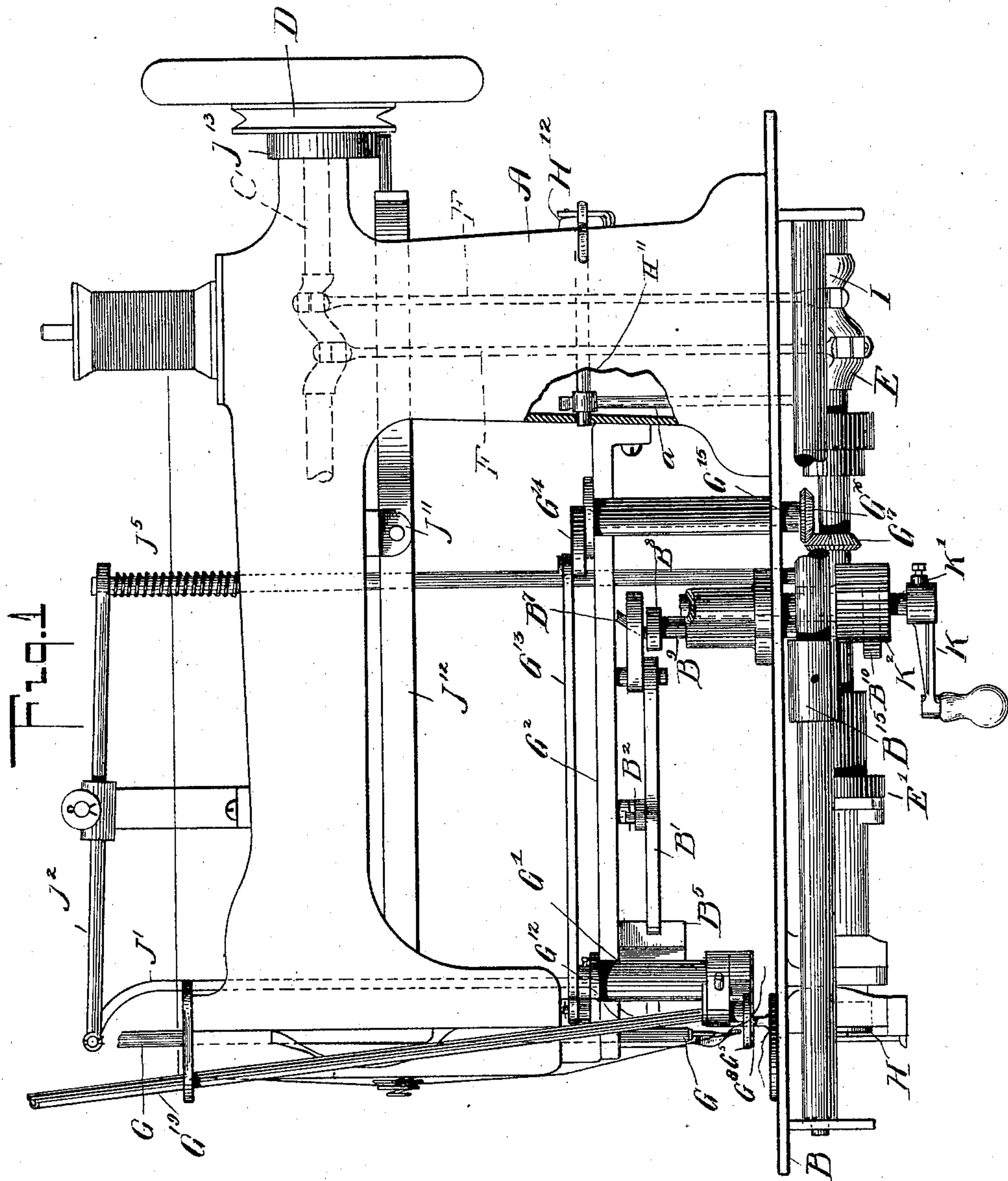
(No Model.)

6 Sheets—Sheet 1.

A. H. KURSHEEDT & J. A. GROEBLI.  
SEWING MACHINE FOR SEWING SPANGLES ON FABRICS.

No. 591,079.

Patented Oct. 5, 1897.



WITNESSES:

*Edmund A. Shaw*  
*Geo. E. Munn*

INVENTORS

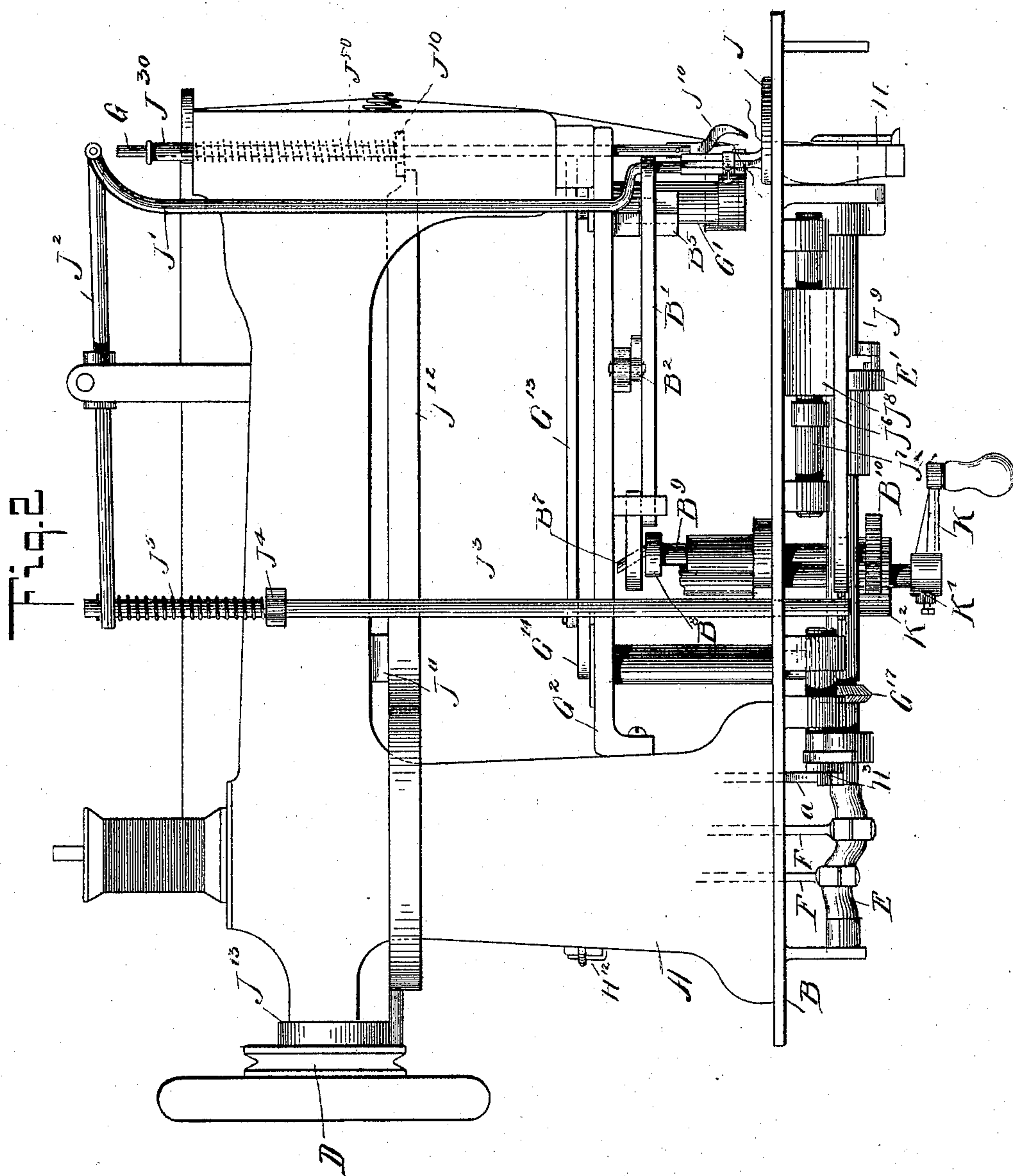
*Alphonse H. Kursheedt*  
*Joseph A. Groebli,*  
BY  
*Briesen Thwaitz*

ATTORNEYS

(No Model.)

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WITNESSES:

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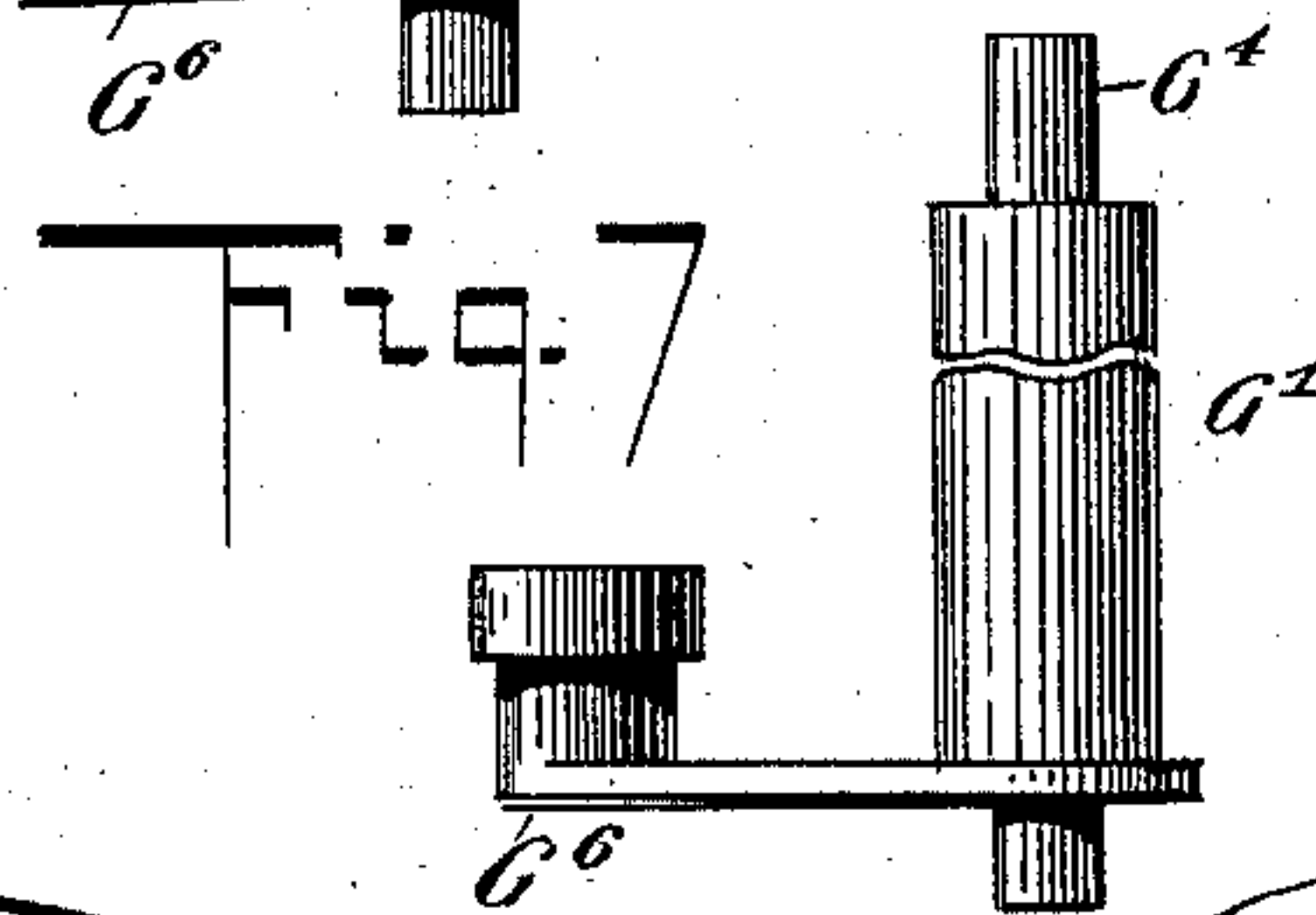
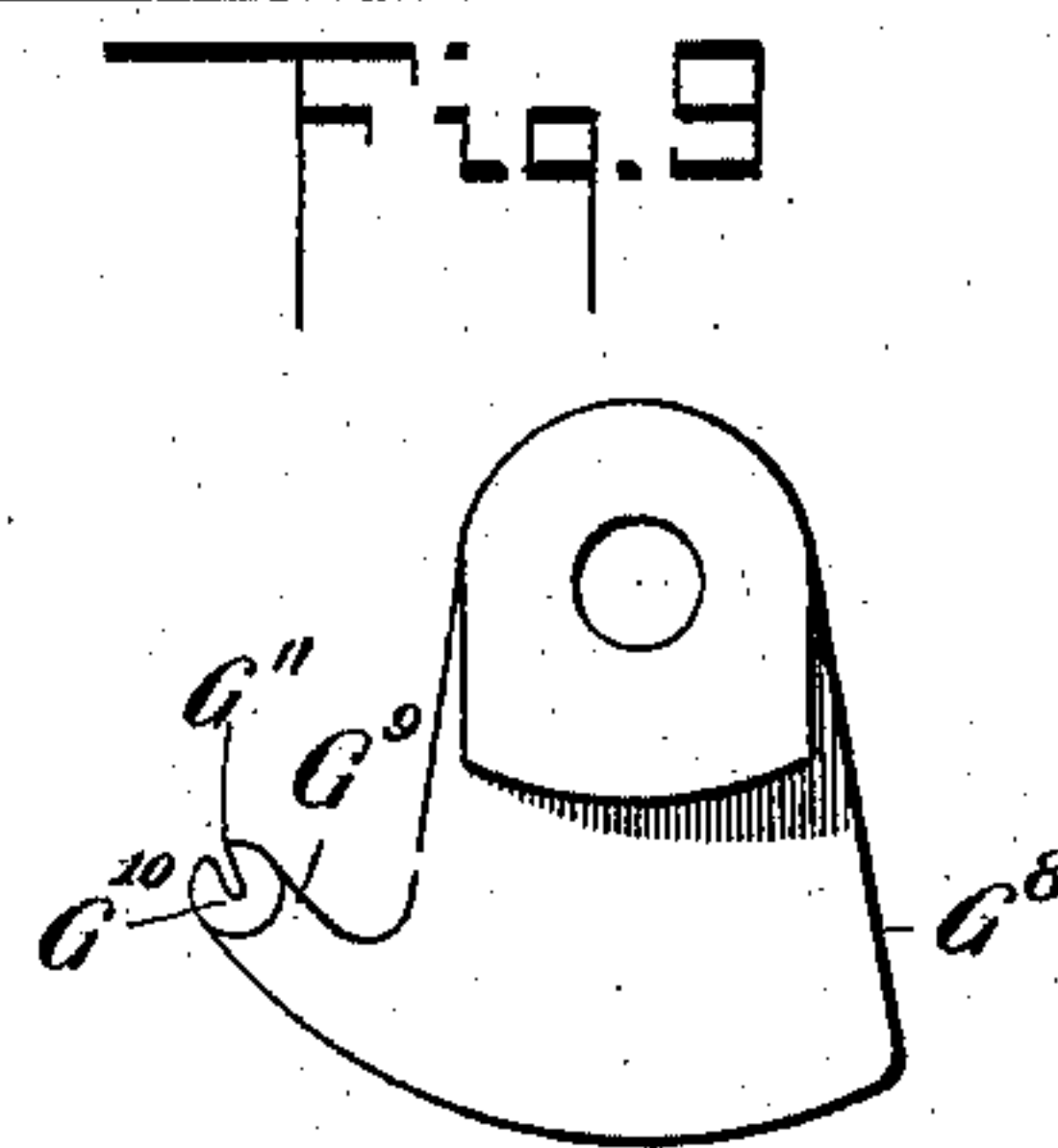
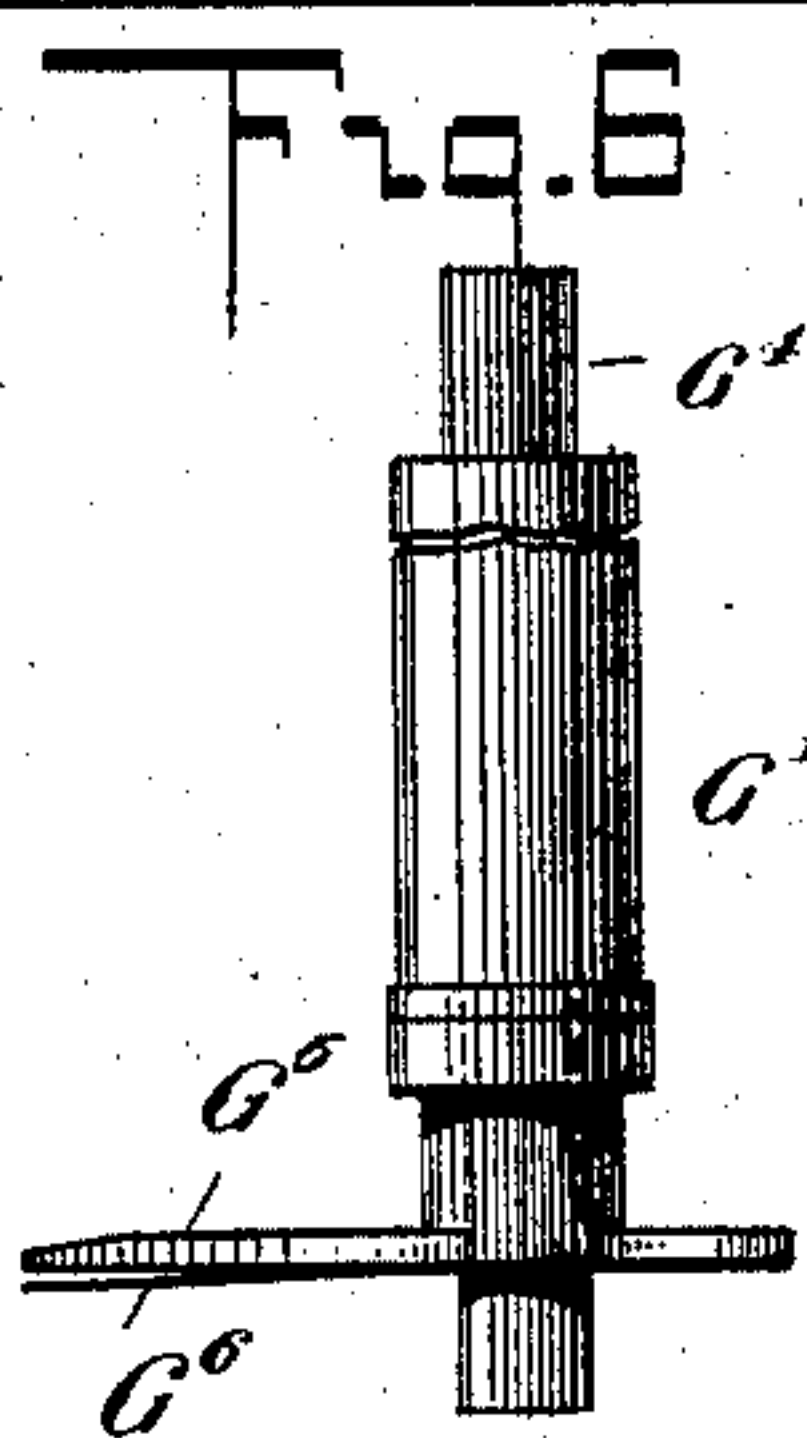
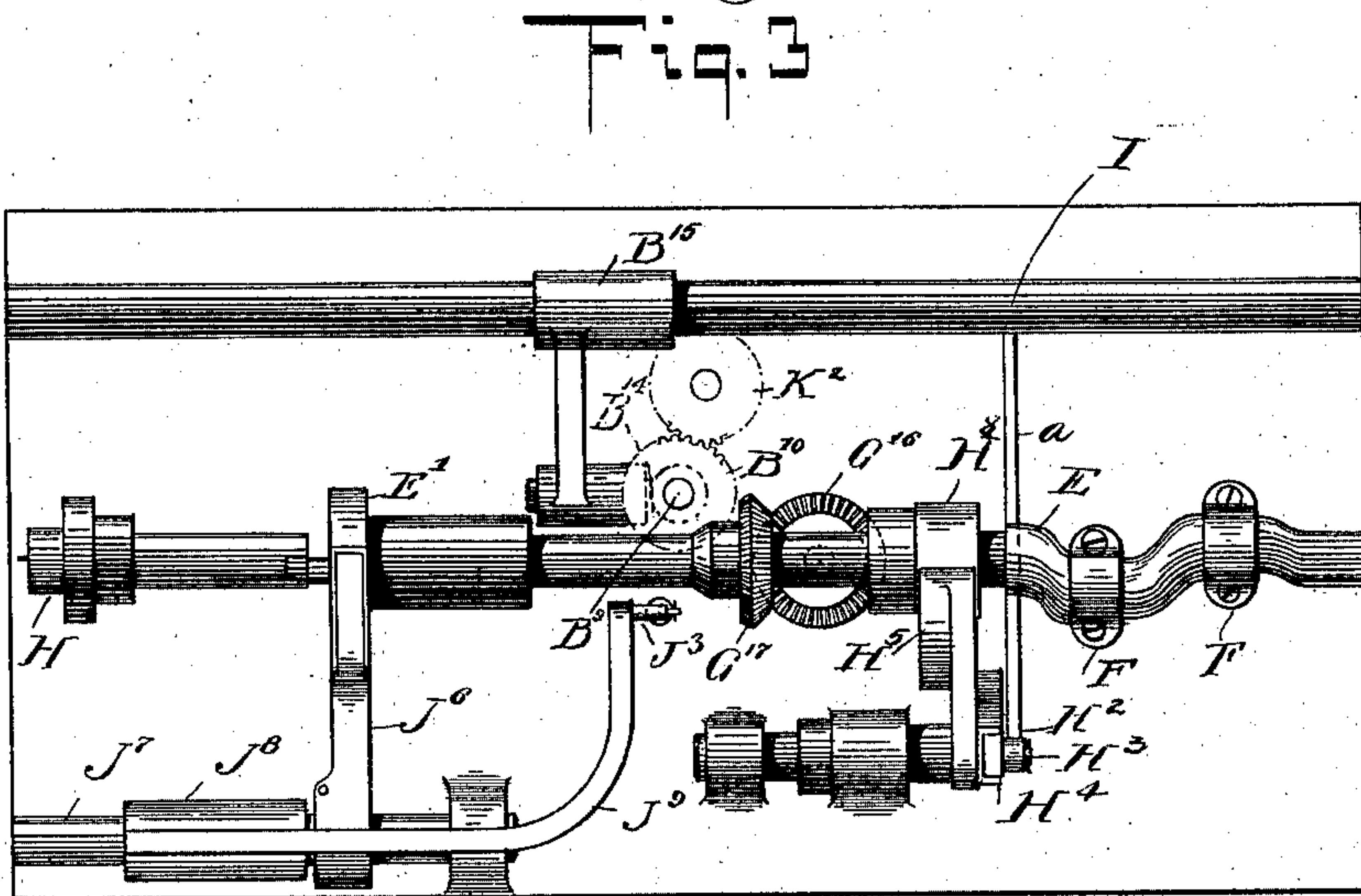
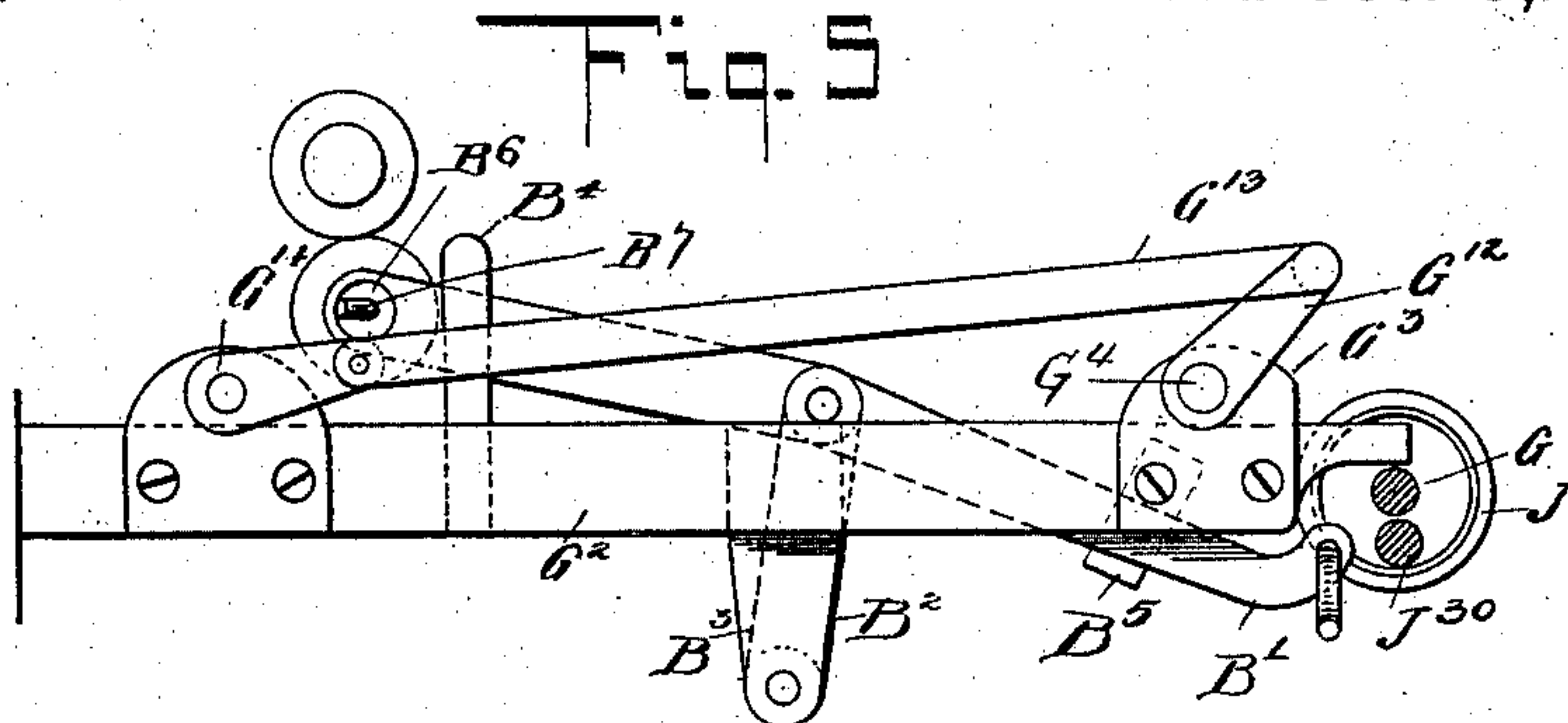
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(No Model.)

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No. 591,079. Patented Oct. 5, 1897.



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(No Model.)

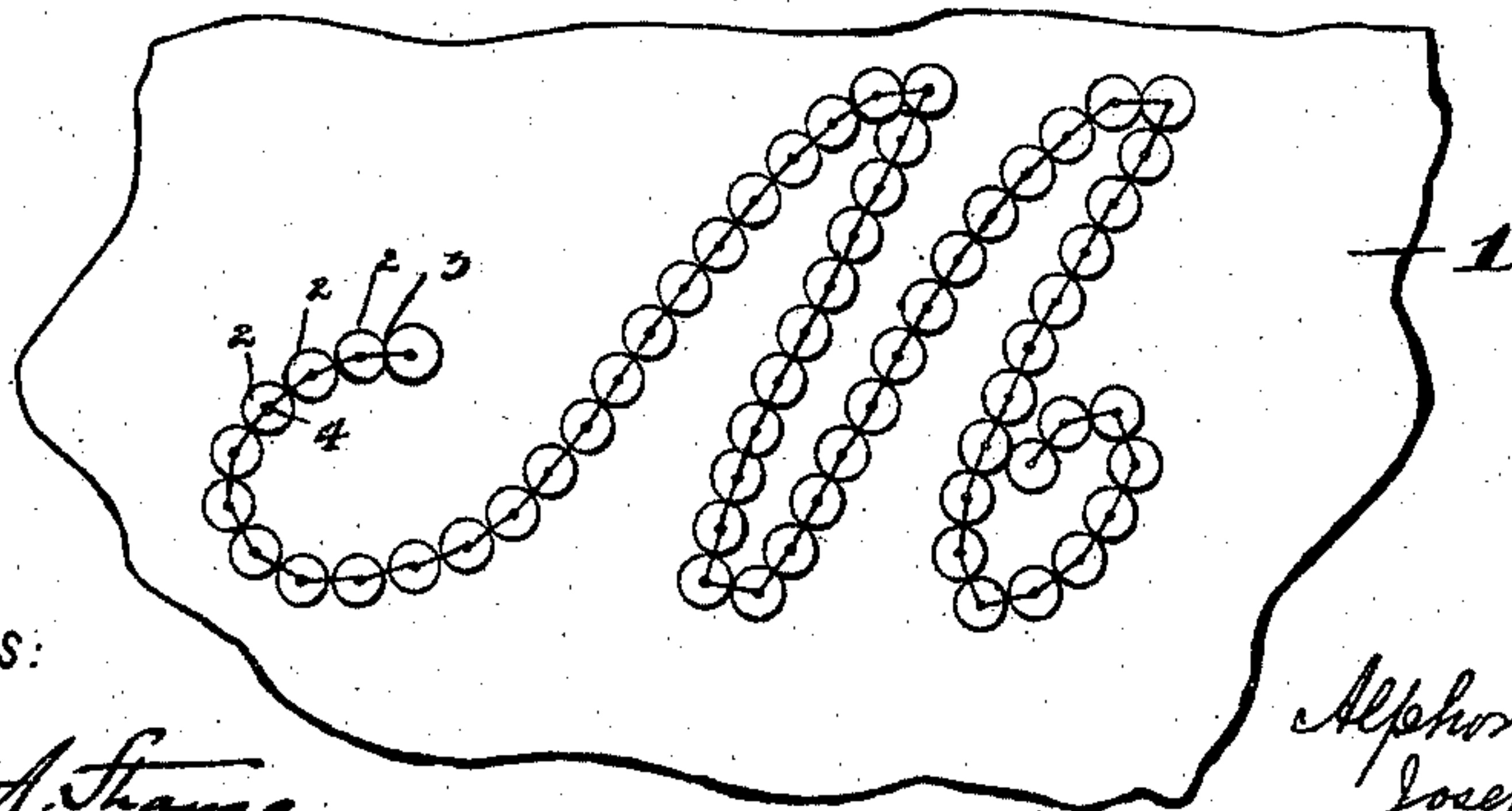
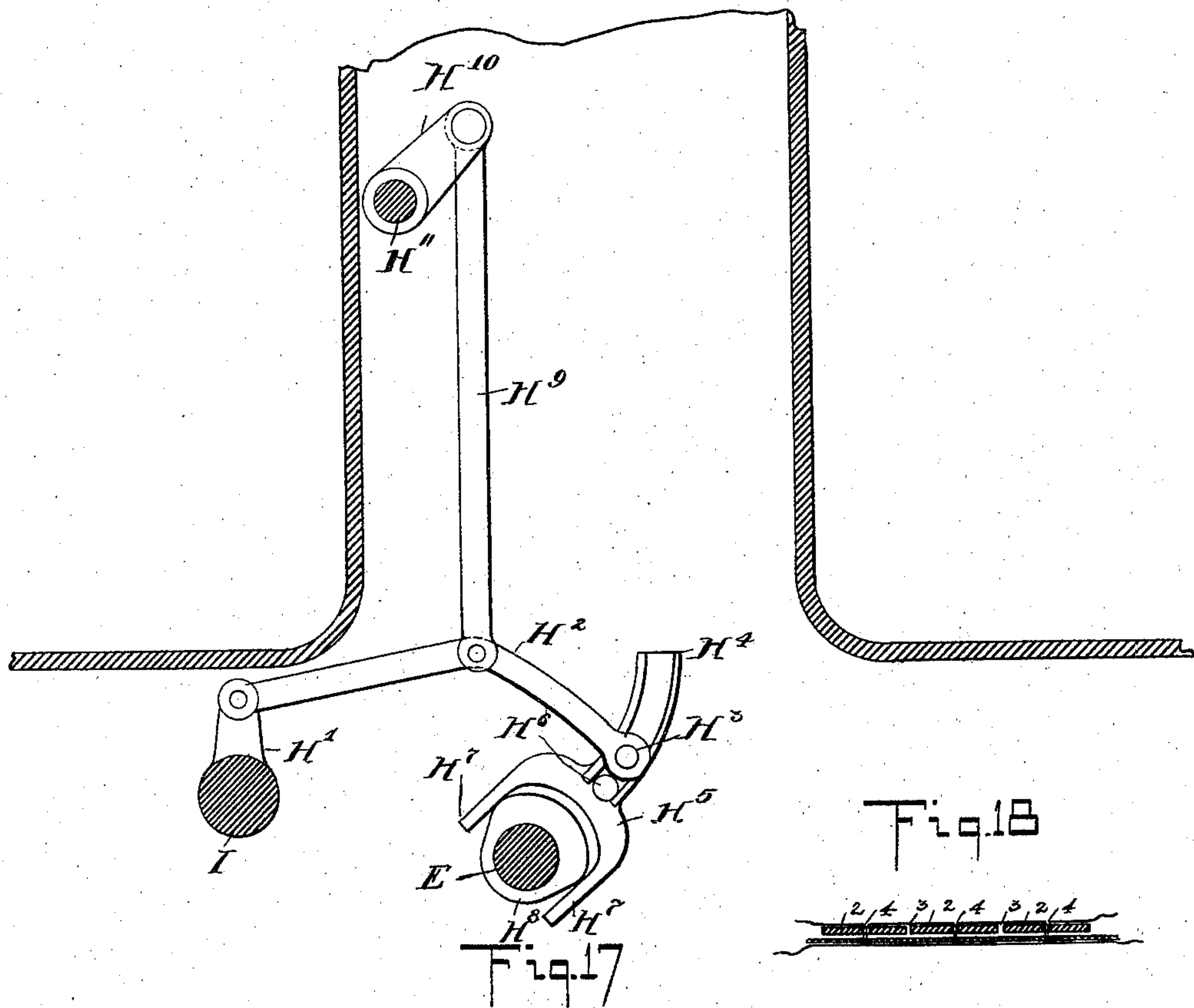
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Fig. 4



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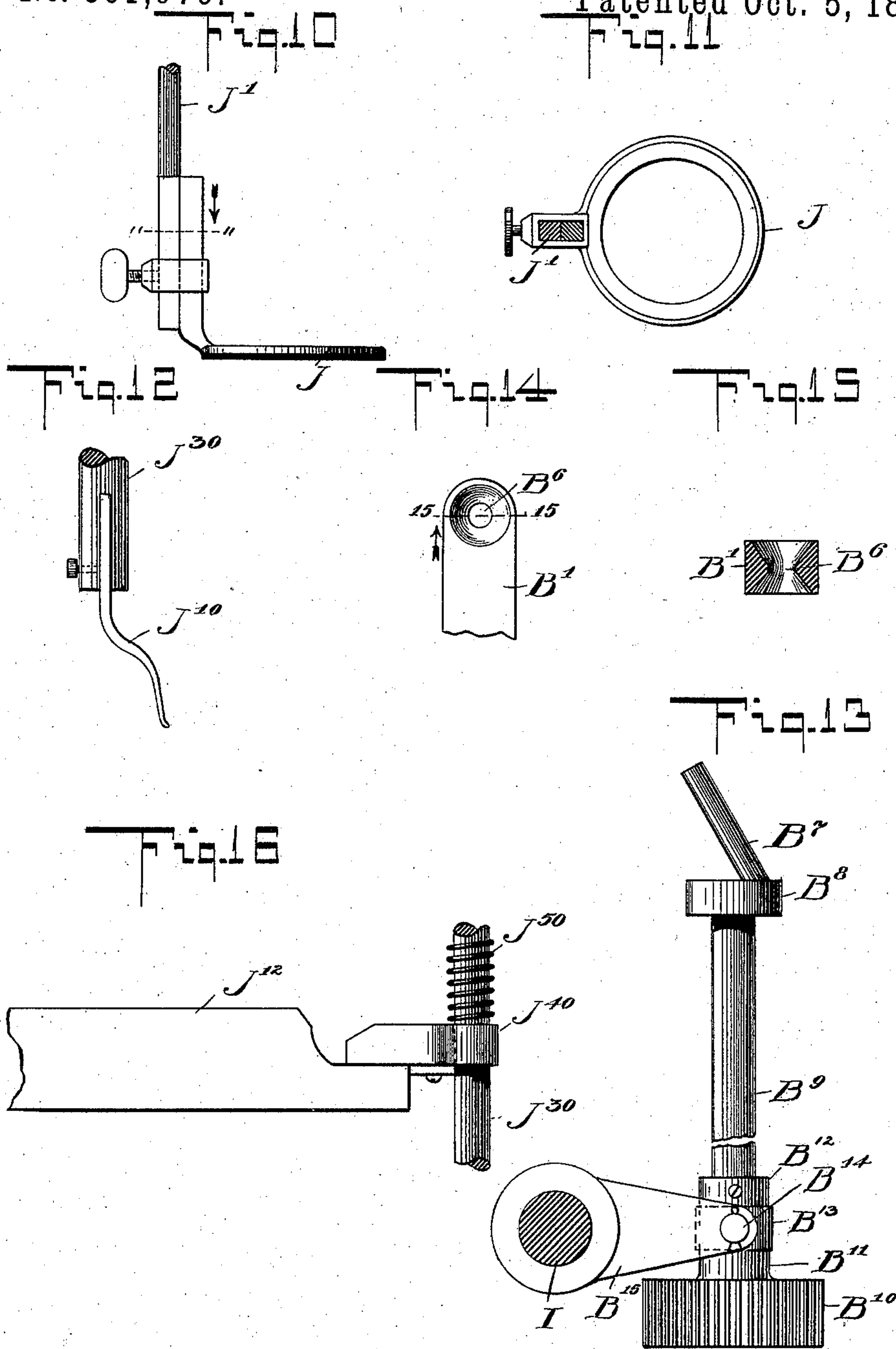
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No. 591,079.

Patented Oct. 5, 1897.



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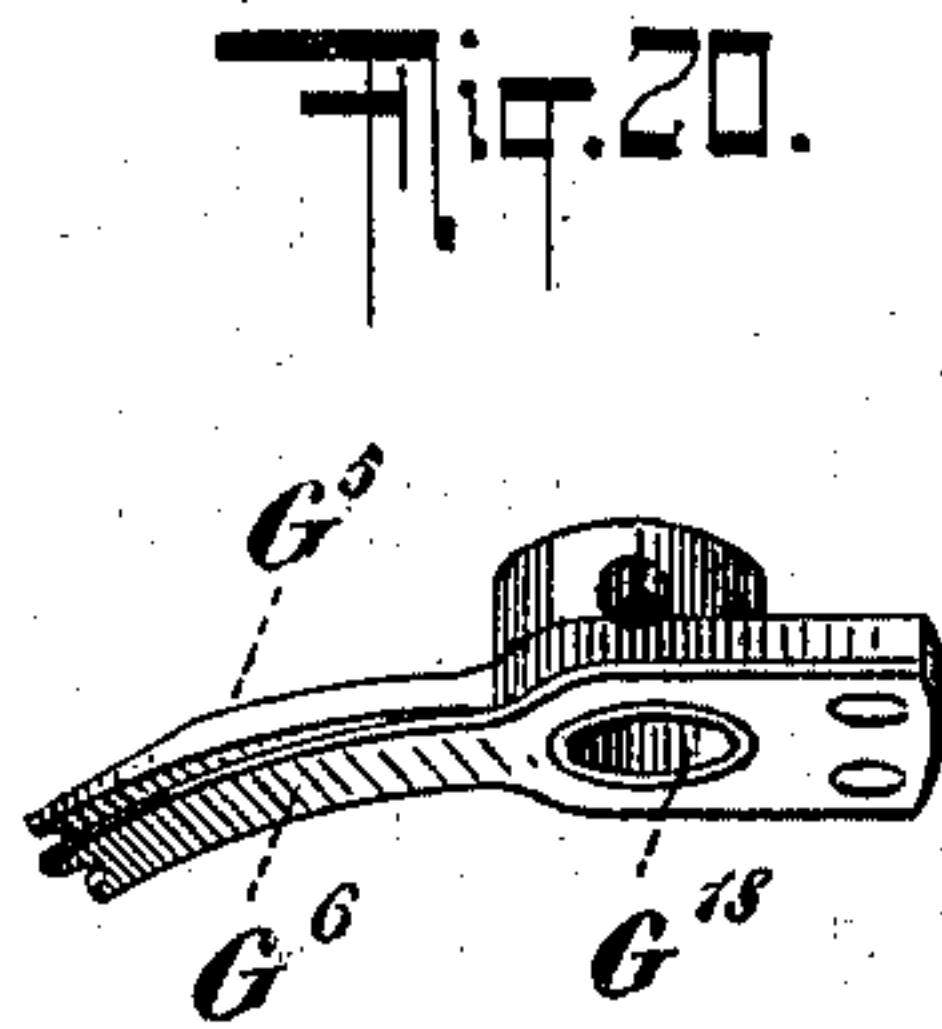
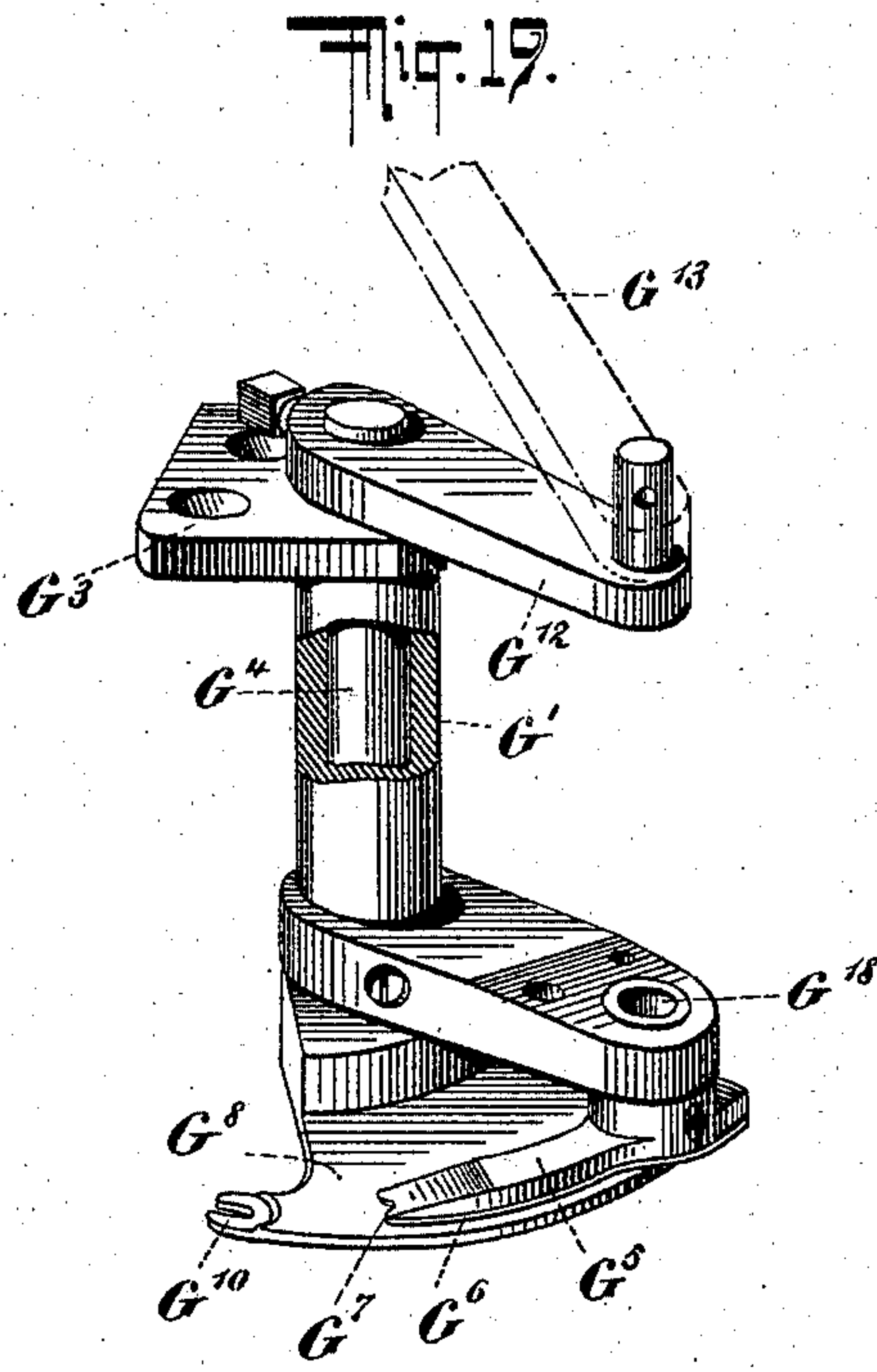
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No. 591,079.

Patented Oct. 5, 1897.



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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ALPHONSE H. KURSHEEDT AND JOSEPH A. GROEBLI, OF NEW YORK, N. Y.,  
ASSIGNORS TO SAID KURSHEEDT.

## SEWING-MACHINE FOR SEWING SPANGLES ON FABRICS.

SPECIFICATION forming part of Letters Patent No. 591,079, dated October 5, 1897.

Application filed November 1, 1895. Serial No. 567,636. (No model.)

*To all whom it may concern:*

Be it known that we, ALPHONSE H. KURSHEEDT and JOSEPH A. GROEBLI, residents of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

Our invention relates to sewing-machines, and has for its object to produce a combination of devices which will sew spangles upon fabrics, performing the operations of feeding the spangles, sewing the spangles to the fabric, and advancing the work.

To this end our invention consists in the construction and arrangement of devices by which we are enabled to perform the operations of feeding and sewing spangles upon fabric and advancing the work, as hereinafter described and claimed.

Our invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation, partly broken away, of a two-thread sewing-machine embodying our invention. Fig. 2 is a side elevation of the same machine, the elevation being taken from a direction opposite to the direction of view in Fig. 1. Fig. 3, Sheet 3, is an under side plan of the driving devices which are arranged beneath the bed or work plate of the sewing-machine. Fig. 4, Sheet 4, is a sectional detail view, partly broken away, illustrating the mechanism for transmitting motion from the main cam-shaft of the sewing-machine to the feed rock-shaft which operates to advance the work, showing also the means for regulating the length of the feed. Fig. 5 is a detail plan view of the mechanism which operates directly to advance the work and to effect the feed of the spangles into the path of the needle. Figs. 6 and 7 are elevations taken at right angles to each other of a detail of the spangle-feeding mechanism. Fig. 8 is a plan view of one member thereof. Fig. 9 is a plan view of another member of the same mechanism. Fig. 10 is an elevation of the feeding-foot of the machine. Fig. 11 is a plan view thereof. Fig. 12 is an elevation of the work-holding presser-foot, which operates to hold the spangle against the work and to hold the work

when the feeding-foot is lifted. Fig. 13 is an elevation of a detail of the feeding or work-advancing mechanism. Fig. 14 is a plan view of another detail thereof. Fig. 15 is a section on line 15 15 of Fig. 14. Fig. 16 is a detail view of a connection between the work-holding presser-foot shown in Fig. 12 and its operating-arm. Fig. 17 represents a specimen of the work performed by the machine. Fig. 18 is a section through the same drawn to a larger scale. Fig. 19 is a detail perspective view, with parts broken away, of the spangle-feeding mechanism. Fig. 20 is a perspective detail of a portion of the same.

Stated generally, the machine which we have illustrated consists of a sewing mechanism which may be of the ordinary kind and which we have illustrated as a two-thread sewing-machine of the Wheeler & Wilson type, a feeding mechanism for feeding the spangles to the sewing mechanism, a work-advancing mechanism, which we have shown in the present instance as a universal feeding-foot which is operated by suitable mechanism upon lines radiating from a common center, and mechanism for lifting the feeding-foot, and mechanism for regulating the extent and the direction of the throw of the feeding-foot.

Referring to the accompanying drawings, which form part hereof, and in which like letters and figures of reference indicate the same parts, we will proceed to describe the various cooperating elements.

The sewing mechanism, as before stated, may consist of an ordinary sewing-machine. In the present instance, A represents the arm of the sewing-machine; B, its base or work plate; C, the driving-shaft, which is driven by a pulley D, fast thereon.

E is the main cam-shaft, which is driven from the main shaft by pitmen F.

G is the needle-bar, which is operated in the usual manner.

H is the shuttle of the sewing-machine, which is supported in the usual manner and driven from the main cam-shaft. The sewing is effected by the motions of the needle and shuttle, as in the ordinary Wheeler & Wilson sewing-machine. The machine is also provided with a feed rock-shaft I, which operates the work-advancing mechanism.



J, Fig. 2, is the feeding-foot, which is carried by the rod J', which is connected to the swiveled rod J<sup>2</sup>, the free end of which is connected to the rod J<sup>3</sup>, on which is a collar J<sup>4</sup>, a coiled spring J<sup>5</sup> intervening between the collar J<sup>4</sup> and the rod J<sup>2</sup> for the purpose of assisting in restoring the parts to position. Mounted upon the main cam-shaft E is a cam E', Figs. 2 and 3, with which coöperates an arm J<sup>6</sup>, mounted upon a rock-shaft J<sup>7</sup>, carrying the collar J<sup>8</sup>, from which extends an arm J<sup>9</sup>, which is connected to the lower end of the rod J<sup>3</sup>.

The parts just described are for the purpose of lowering and raising the feeding-foot J. This is effected during normal operation of the sewing-machine by the rotation of the main cam-shaft, which rocks the arm J<sup>6</sup> by means of the cam E', thereby rocking shaft J<sup>7</sup> and pulling upon the rod J<sup>3</sup>.

J<sup>10</sup> is a presser-foot which is carried by a reciprocating bar J<sup>30</sup>, which works in the arm A of the sewing-machine. This reciprocating rod J<sup>30</sup> carries a collar J<sup>40</sup> and is surrounded by a spiral spring J<sup>50</sup>, which bears against some fixed part of the arm (not shown) of the sewing-machine. Pivoted in a bracket J<sup>11</sup> is an arm J<sup>12</sup>. (Shown in Figs. 1, 2, and 16.) The forward end of this arm J<sup>12</sup> extends into the arm of the sewing-machine and contacts with the collar J<sup>40</sup> on the reciprocating rod J<sup>30</sup>. The rear end of the arm J<sup>12</sup> extends into engagement with the cam J<sup>13</sup> on the main shaft of the sewing-machine. During normal operation of the sewing-machine the cam J<sup>13</sup> swings the arm J<sup>12</sup> on its pivot, thereby raising and lowering the presser-foot J<sup>10</sup>.

The spangles are fed to the needle by suitable spangle-feeding mechanism, which is shown in the present instance as consisting of the following elements: A sleeve G' is carried by a bar G<sup>2</sup> through the medium of a connecting-plate G<sup>3</sup>, (see Fig. 5,) within which sleeve a spindle G<sup>4</sup> works. Carried upon the lower end of the sleeve G' is a spangle-guide or guiding-arm G<sup>5</sup>, which is provided upon its lower face with a friction-spring G<sup>6</sup> and is slotted, as at G<sup>7</sup>, for the passage of the needle. This sleeve and spangle-guide remain stationary. Carried upon the end of the spindle G<sup>4</sup> is a spangle-carrier G<sup>8</sup>, which is provided with an arm G<sup>9</sup>, in which a socket G<sup>10</sup> is sunk, the end of the arm being slotted, as at G<sup>11</sup>, which slot extends to about the center of the socket. This socket is of the proper size to receive a spangle. Carried upon the upper end of the spindle G<sup>4</sup> is a crank G<sup>12</sup>, which is connected by link G<sup>13</sup> with a crank G<sup>14</sup>, (see Figs. 1 and 5,) carried by a vertical spindle G<sup>15</sup>, upon which is carried a bevel-gear G<sup>16</sup>, which meshes with the bevel-gear G<sup>17</sup> on the main cam-shaft. (See Figs. 1 and 3.) The spangle-guide G<sup>5</sup> is apertured, as at G<sup>18</sup>, for the reception of a tube G<sup>19</sup>, which serves to conduct the spangles.

The operation of the spangle-feeding mechanism is as follows: The spangles are fed into the tube G<sup>19</sup>, generally in rouleaux, and are

conducted by the tube to the spangle-guide. The lowermost spangle is forced into the socket G<sup>10</sup> of the spangle-carrier G<sup>8</sup> by a weight from above, and as the main cam-shaft revolves it turns the spindle G<sup>15</sup>, and through the medium of the cranks G<sup>14</sup> and G<sup>12</sup> and the link G<sup>13</sup> rocks the spindle G<sup>4</sup> and swings the spangle-carrier until the spangle comes into the path of the descending needle, which passes through the eye thereof (see Fig. 17) and transfers the spangle from the socket G<sup>10</sup> to the fabric, where it is held in place by the presser-foot, the needle carrying its thread through the eye 4 of the spangle 2, the lower thread 5 interlocking with the needle-thread 3. (See Figs. 17 and 18.) As the needle rises the spangle-carrier is swung by its moving mechanism into its original position, bringing the socket G<sup>10</sup> thereof again into its original position beneath the aperture G<sup>18</sup> in the spangle-guide. These operations are repeated each time a spangle is to be sewed, the spring G<sup>6</sup> serving to hold the spangle in its socket G<sup>10</sup> in the spangle-carrier as the latter swings to bring the spangle into the path of the descending needle. The advance of the work is effected by swinging the feeding-foot. This swinging is effected by the following work-advancing mechanism:

Referring particularly to Figs. 1, 2, and 5, it will be seen that the rod J', which carries the feeding-foot, is engaged by the end of a link B', which is provided with an aperture B<sup>6</sup> at the opposite end. This link B' is pivoted to a swinging link B<sup>2</sup>, which in turn is pivoted to a plate B<sup>3</sup>, carried upon the bar G<sup>2</sup>, which works in guides B<sup>4</sup> B<sup>5</sup>. The form of the aperture in the end of the link B' is shown in Figs. 14 and 15 as consisting of two frusto-conical recesses joined by their narrowest parts. Working in this aperture is an inclined pin B<sup>7</sup>, which is shown in the present instance as carried upon the head B<sup>8</sup> of a vertical spindle B<sup>9</sup> and inclined at an angle of about sixty degrees. It will be observed that the particular form of the aperture B<sup>6</sup> in the link B' provides circular oppositely-extending cam-faces against which the upper and lower sides of the pin B<sup>7</sup> bear at all times. By this means an upperward movement of the spindle B<sup>9</sup> will cause the upper side of the pin B<sup>7</sup> to bear against the lower cam-face of the aperture B<sup>6</sup> and cause the link to be moved in one direction. When the spindle B<sup>9</sup> is again lowered, the under face of the pin B<sup>7</sup> bears against the upper cam-face of the aperture B<sup>6</sup> and causes the link to be moved in the opposite direction. The pin B<sup>7</sup> at the same time may be rotated in the aperture B<sup>6</sup> without affecting the movement produced by the vertical movement of the spindle B<sup>9</sup>.

Referring particularly to the enlarged detail view Fig. 13, it will be seen that this vertical spindle carries at its opposite end a gear B<sup>10</sup>, which is also seen in Figs. 1, 2, and 3. Two fast collars B<sup>11</sup> and B<sup>12</sup> are also car-



ried upon the vertical spindle B<sup>9</sup>, between which collars the spindle carries a loose sleeve B<sup>13</sup>, on which is a pin B<sup>14</sup>, which enters the crank B<sup>15</sup>, mounted upon the rock-shaft I. Mounted also upon rock-shaft I (see Fig. 4) is a crank or arm H<sup>1</sup>, to which is connected a link H<sup>2</sup>, which is provided with a bowl H<sup>3</sup>, which enters a slot H<sup>4</sup> in a yoke H<sup>5</sup>, which is pivoted at H<sup>6</sup> and provided with arms H<sup>7</sup>, which embrace the cam H<sup>8</sup>, carried upon the main cam-shaft E.

The operation of the work-advancing mechanism is as follows: As the main cam-shaft rotates it will, through the medium of the cam H<sup>8</sup>, rock the yoke H<sup>5</sup>, cause the said yoke to pull upon the link H<sup>2</sup> to rock the shaft I, which, through the medium of the arm or crank B<sup>15</sup>, will raise and lower the vertical spindle B<sup>9</sup>, causing the inclined pin B<sup>7</sup> to reciprocate the link B<sup>1</sup> by its cam action upon the said link, thereby swinging the feeding-foot back and forth. The feeding-foot carries the cloth with it and is automatically raised as soon as the cloth has been advanced, so that when the feeding-foot is drawn back by the return reciprocation of the link B<sup>1</sup> it will move freely over the work and will be dropped upon the work when it has returned to its initial position, the movements of the feeding-foot-lifting mechanism being so timed with respect to the movement of the link as to effect these operations. The length of the forward feed of the work, and consequently the space between the centers of the various spangles, is regulated by the following-described regulating mechanism, in describing which reference is had particularly to Figs. 1 and 4:

Pivoted to the link H<sup>2</sup> is a link H<sup>9</sup>, which is pivoted at its upper end to an arm H<sup>10</sup>, mounted upon a shaft H<sup>11</sup>, which is shown in Fig. 1 as journaled in the arm A of the sewing-machine and terminating at one end in a button H<sup>12</sup> on the outside of the arm, so that the turning of the button will rock the shaft H<sup>11</sup> and raise or lower the link H<sup>9</sup>, thereby swinging the link H<sup>2</sup> on its pivot, (which is its connection with the arm H<sup>1</sup>), thereby moving the bowl along the slot H<sup>4</sup> in the yoke H<sup>5</sup> to a point more or less distant from the center of swing of the yoke—that is to say, the pivot H<sup>6</sup>—so that the distance of the bowl from the center of swing of the yoke may be efficiently regulated, it being of course obvious that the greater the distance between the bowl and the center of swing of the yoke the greater will be the throw given by the yoke to the link H<sup>2</sup> and thereby transmitted to the arm H<sup>1</sup> and rock-shaft I, and as the length of the throw of the feeding-foot depends directly upon the length of the reciprocation of the pin B<sup>7</sup> and the length of the reciprocation of the pin B<sup>7</sup> depends upon the length of throw of the shaft I it follows that the length of throw of the feeding-foot can be efficiently regulated by turning the regulating-button H<sup>12</sup>.

There remains now to be described the

mechanism for determining the direction of the feed of the fabric, which, as has before been pointed out, is effected by the swing of the feeding-foot. Before proceeding to a detailed description of the mechanism for determining the direction of swing of the feeding-foot it will be premised that since the link B<sup>1</sup> is pivoted and secured at one end to the feeding-foot-lifting bar and in engagement with the inclined pin B<sup>7</sup> it follows that any movement given to the end of the link B<sup>1</sup>, which is engaged with the pin B<sup>7</sup>, will be in a sense duplicated by the end of the link which engages the presser-foot-lifter bar. In the present instance the drawings show the pin as inclined with relation to the plane of the length of the link B<sup>1</sup> and the plane of its axis, so that an up-and-down excursion of the spindle B<sup>9</sup> and pin B<sup>7</sup> will cause a reciprocation of the link B<sup>1</sup> in the line of its axis. If, however, we rotate the spindle B<sup>9</sup> a quarter of a revolution and then proceed to reciprocate it, we will in this instance swing the end of the link B<sup>1</sup> which is in engagement with the pin B<sup>7</sup>, thereby swinging the feeding-foot to feed the work in a direction at an angle to its former feed. This direction will, however, not necessarily be in a right line, but may be on the arc of a circle, which has the pivot of the link B<sup>1</sup> as a center. Other positions into which the pin may be turned by turning the spindle B<sup>9</sup> will give different directions of throw to the feeding-foot, so that in order to produce a throw of the feeding-foot in any given direction the spindle B<sup>9</sup> must be turned to bring the pin B<sup>7</sup> in position to effect such movement. It must be remembered that while the feeding-foot is being reciprocated to feed the work the pin has merely a motion of translation—that is to say, an up-and-down movement and not a rotary movement. The rotary movement is only given to the spindle B<sup>9</sup> and the pin B<sup>7</sup> at the moment when it is desired to adjust the pin for changing the direction of feed of the feeding-foot. This adjustment is effected by the operator by means of the handle K, which is carried on a spindle K<sup>1</sup>, upon which the gear K<sup>2</sup> is mounted, which gear meshes with the gear B<sup>10</sup> upon spindle B<sup>9</sup>, so that a swing of the handle will turn the gear K<sup>2</sup>, and thereby also the gear B<sup>10</sup>, revolving the spindle B<sup>9</sup> and the pin B<sup>7</sup>. It will be noted that the gear K<sup>2</sup> is enlarged laterally to secure a constant meshing with the gear B<sup>10</sup> during its excursion up and down. This mechanism for determining the direction of the advancement of the work is operated only when it is desired to change such direction, for after the pin has once been set it will continue to reciprocate and feed the work in a given direction until the handle K has been operated to change the direction of feed.

Having described the detail operation of the various elements which we employ, we will now proceed to describe their operations *seriatim* in order that the capability and mode



of operation of our sewing-machine may be readily understood.

By referring to Figs. 17 and 18 it will be noted that we have there shown a specimen  
 5 of the work performed by this machine. In these figures we designate a fabric upon which spangles 2 2 2, &c., are secured by a needle-thread 3, which passes through the eyes 4 of  
 10 the spangles and extends across the face of the spangles. This thread is in the present instance the upper or needle thread and co-operates with the lower or shuttle thread 5, which is on the other side of the cloth. We  
 15 will suppose the parts of the machine to be in the positions shown in Figs. 1 and 2 and the main shaft to be revolved. As the main shaft revolves the spangle-carrier G<sup>8</sup> will be swung by the mechanism described and the  
 20 spangle will be brought into the path of the descending needle, which will remove the spangle from the socket of the spangle-carrier, the spangle traveling to the cloth, closely followed by the presser-foot J<sup>10</sup>, which bears  
 25 thereon, until the needle is withdrawn from the spangle. As soon as the stitch has been formed and the needle passes clear of the fabric the work-advancing mechanism comes  
 30 into play and moves the work through the feeding-foot J the desired distance, which is regulated by previously setting the button H<sup>2</sup>, and in the desired direction, which is regulated by previously setting the handle K. As  
 35 soon as the work has been advanced the feeding-foot is lifted and carried back to its original position and again dropped upon the cloth. During the excursion of the feeding-foot and  
 40 while it is returning to its initial position the presser-foot holds the cloth to the work-table, being lifted from the cloth about the time that the feeding-foot returns to its initial position  
 45 and is dropped upon the cloth. It will be understood that the spangle-carrier is returned to its original position, and when the feeding-foot has again been dropped upon the cloth in its initial position the parts have  
 50 again returned to their original positions shown in the drawings. These operations are repeated for each spangle, the spacing apart of the spangles and the direction of feed—  
 55 that is to say, the configuration formed by the line of spangles—being regulated from time to time by the appropriate devices.

Now while we have described in concise terms one form of our invention, we would  
 55 have it understood that we do not wish to limit ourselves to the construction shown and described, as the devices, their construction, and operation may be changed and modified by those who may desire to enjoy the fruits  
 60 of our invention without departing from the spirit of our invention.

We have referred throughout the foregoing description to "spangles," and by the word  
 65 "spangles" we mean perforated plate-like objects usually employed for ornamental purposes, and use the term "spangle" to distinguish the articles from shank-buttons.

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

1. In a spangle-sewing machine, the combination of an automatic sewing mechanism, an  
 70 automatic spangle-feeding mechanism for feeding the spangles to the sewing mechanism, and an automatic work-advancing mechanism, said sewing mechanism, spangle-feeding  
 75 mechanism and work-advancing mechanism coöperating one with another to automatically feed the spangle to the sewing mechanism to sew the spangles onto the fabric by  
 80 continuous threads, and to automatically feed the work forward.

2. In a spangle-sewing machine, the combination of an automatic sewing mechanism, mechanism for feeding spangles to the sewing  
 85 mechanism, automatic work-advancing mechanism and means for automatically regulating the extent of the feed of the work and means for determining the direction thereof, and intermediate mechanism between said  
 90 spangle-feeding mechanism, sewing mechanism and work-advancing mechanism, as and for the purposes set forth.

3. In a spangle-sewing machine, the combination of an automatic sewing mechanism, spangle-feeding mechanism, and work-advancing  
 95 mechanism capable of advancing the work in two or more directions, and intermediate mechanism between said spangle-feeding mechanism, sewing mechanism and work-advancing mechanism, whereby the parts are  
 100 automatically operated to feed the spangles, to sew the spangles fed and to feed the material.

4. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding  
 105 mechanism feeding above the cloth-plate of the machine for successively feeding disconnected spangles to the sewing mechanism and upon the upper side of the fabric, a work-advancing feeding-foot combined with means  
 110 for throwing the said feeding-foot and with a presser-foot which bears upon the spangles, as and for the purposes set forth.

5. In a spangle-sewing machine, the combination of sewing mechanism, an automatic  
 115 spangle-feeding mechanism feeding above the cloth-plate of the machine for successively feeding disconnected spangles up to the sewing mechanism and upon the upper side of the fabric, a feeding-foot, a presser-foot, means  
 120 for throwing the feeding-foot to advance the work, and means for actuating the presser-foot to hold the spangles being sewed.

6. In a spangle-sewing machine, the combination of a sewing mechanism, mechanism for  
 125 feeding disconnected spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot and mechanism for throwing the feeding-foot upon lines at an angle to one  
 130 another.

7. In a spangle-sewing machine, the combination of a sewing mechanism, a spangle-feeding mechanism for feeding disconnected



spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot mechanism for throwing the feeding-foot on lines at angles to one another, and means for determining the direction of such throw.

8. In a spangle-sewing machine, the combination of a sewing mechanism, mechanism for feeding disconnected spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot, means for throwing the feeding-foot on lines at an angle to one another to effect the advance of the work, means for determining the direction of such movements and means for determining the length of such movements.

9. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding mechanism, comprising a spangle-carrier, and a spangle-guide, with means for bringing the spangles up to the guide, and intermediate mechanism between said sewing and spangle-feeding mechanism for automatically moving the spangle-carrier to bring the spangles into the path of the needle of the sewing mechanism.

10. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding mechanism comprising a slotted, spangle-guide having the slotted portion thereof projecting into the path of the needle of the sewing mechanism, a spangle-carrier provided with a slotted socket for receiving a spangle, and intermediate mechanism between the sewing mechanism and the spangle-carrier for automatically swinging said carrier into the path of the needle of the sewing mechanism, substantially as described.

11. In a spangle-feeding mechanism, the combination of a spangle-guide, a movable spangle-carrier, and a friction-plate interposed between the guide and carrier.

12. In a work-advancing mechanism, the combination of a feeding-foot, a cam-surface, a connection between the cam-surface and the feeding-foot for transmitting motion from the cam-surface to the feeding-foot to throw the feeding-foot, a rock-shaft for transmitting motion to the cam-surface, a pivoted yoke, means for transmitting motion to the yoke, a link connecting said rock-shaft and yoke, and means for varying the distance between the pivot of the yoke and its connection with the link.

13. In a spangle-sewing machine, the combination of sewing mechanism, mechanism for feeding disconnected spangles to said sewing mechanism, a work-advancing mechanism, means for regulating the length of throw of the work-advancing mechanism, means for determining the direction of throw of the work-advancing mechanism, means for disengaging the work-advancing mechanism from the work, and intermediate mechanism between said sewing and work-advancing mechanisms, whereby all of said parts coöperate one with another to automatically feed disconnected spangles to the sewing mechanism and sew on such spangles in lines determined by the work-advancing mechanism.

14. The combination of a feeding-foot, a cylindrical inclined pin, means for reciprocating and rotating the inclined pin, and a pivoted link connecting directly to the feeding-foot and pin, substantially as described.

15. The combination of a feeding-foot, an inclined pin, means for reciprocating and rotating the inclined pin, a pivoted link connected to the feeding-foot at one end and provided at its other end with an aperture consisting of conoidal sections joined by their narrowest parts, said apertures surrounding the before-mentioned pin, substantially as described.

16. The combination in a spangle-sewing machine, of an annular feeding-foot, a sewing mechanism, a spangle-feeding mechanism for feeding disconnected spangles within the annulus of the feeding-foot and a presser-foot working within the annulus of the feeding-foot to hold the spangles in the position to which they are fed.

17. The combination of a spangle-guide, a spangle-containing tube removably connected therewith and a spangle-carrier for conveying spangles from the spangle-guide, substantially as described.

18. In a machine of the character specified, the combination of a spangle-guide, a spangle-carrier  $G^8$  for conveying spangles from said spangle-guide, said spangle-carrier having a depression  $G^{10}$  of suitable shape and dimensions to receive a spangle with a slot  $G^{11}$  in said depression for permitting of the withdrawal of the carrier while the needle is through the spangle, substantially as described.

19. In a spangle-sewing machine, the combination of a sewing mechanism, means for feeding disconnected spangles to said sewing mechanism, a presser-foot adapted to bear upon a spangle and hold it against the fabric while the sewing mechanism is operating thereon, and intermediate mechanism between said sewing mechanism, spangle-feeding mechanism and presser-foot to automatically operate said parts.

20. In a spangle-sewing machine, the combination of an automatic sewing mechanism, an open feeder-foot therefor, means for feeding disconnected spangles to said sewing mechanism and within the open feeder-foot, and a presser-foot adapted to bear upon a spangle and hold it against the fabric while the sewing mechanism is operating thereon.

21. In a spangle-sewing machine, the combination of an automatic sewing mechanism, a spangle-receptacle, a spangle-carrier for conveying disconnected spangles from said spangle-receptacle to the sewing mechanism, and intermediate mechanism between said sewing mechanism and spangle-carrier for automatically operating the spangle-carrier



to convey spangles to the sewing mechanism and to automatically sew the spangles thus conveyed.

22. In a spangle-sewing machine, the combination of an automatic sewing mechanism, a spangle-receptacle, a spangle-carrier for conveying disconnected spangles from said spangle-receptacle to the sewing mechanism, means for maintaining a spangle in said spangle-carrier, and intermediate mechanism

between said sewing mechanism and spangle-carrier for automatically operating the spangle-carrier to convey spangles to the sewing mechanism and to automatically sew the spangles thus conveyed.

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