

(No Model.)

3 Sheets—Sheet 1.

T. PUETZ, Jr.

PLUG TOBACCO MACHINE.

No. 336,526.

Patented Feb. 16, 1886.

Fig. 1.

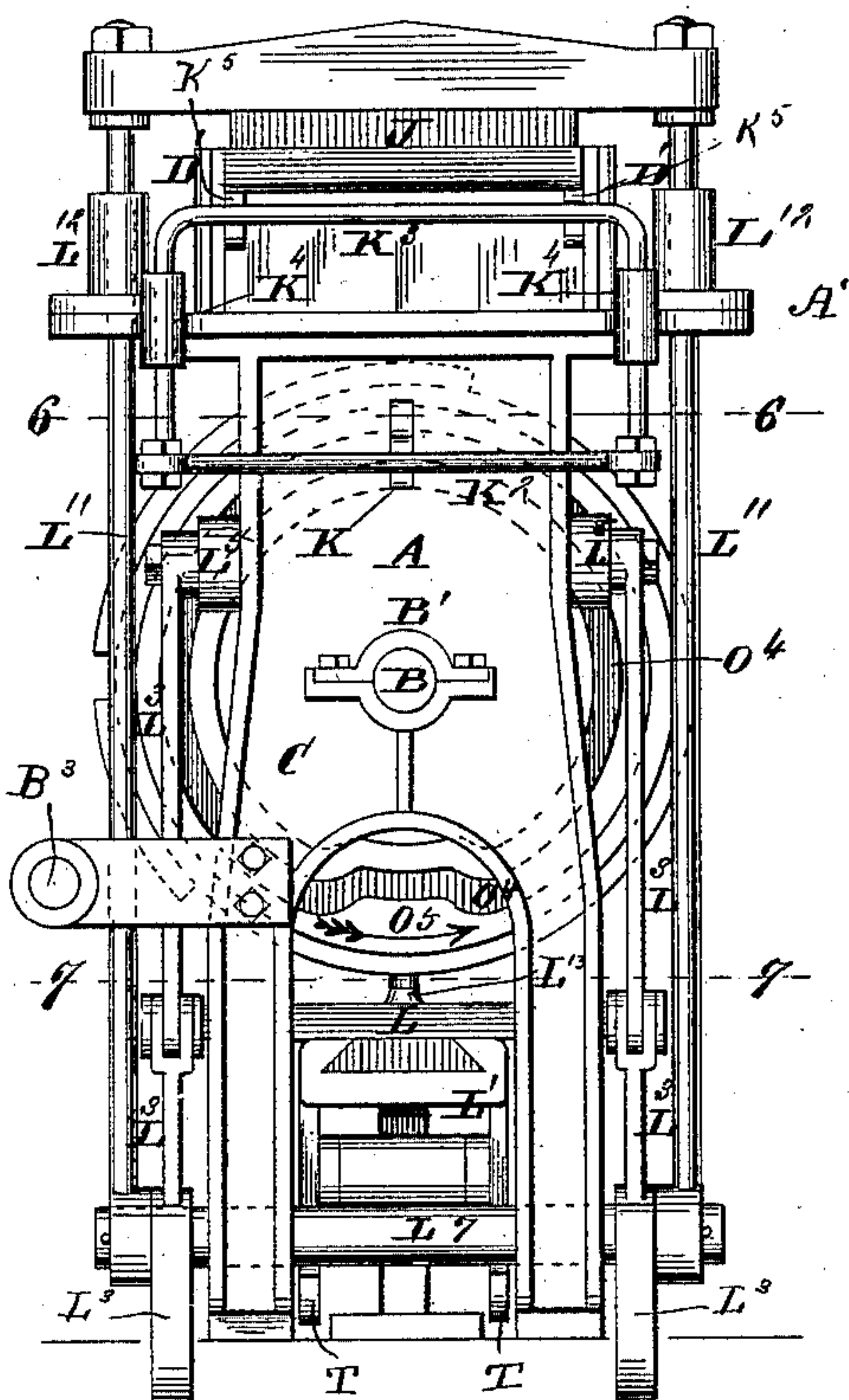


Fig. 2.

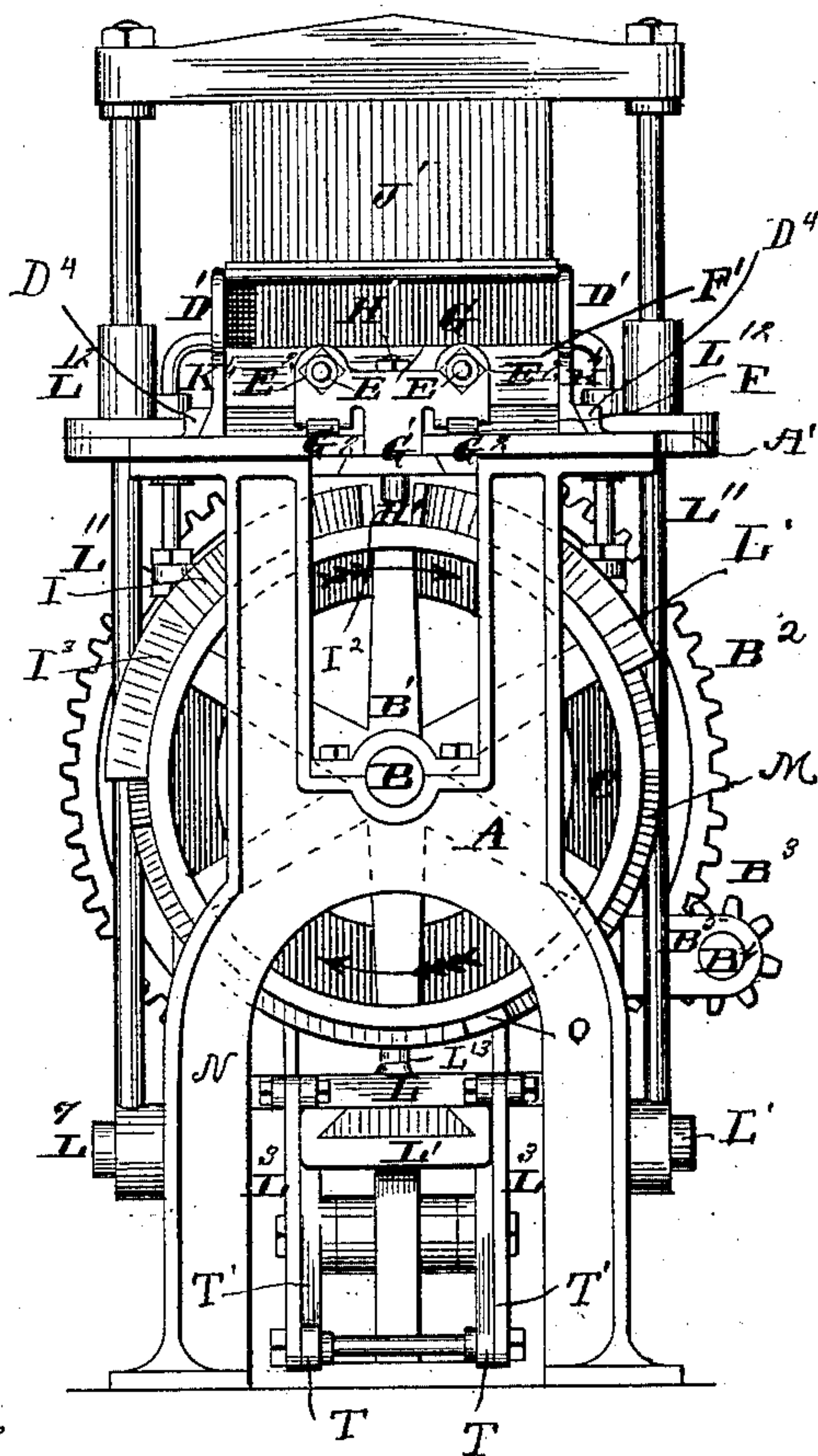
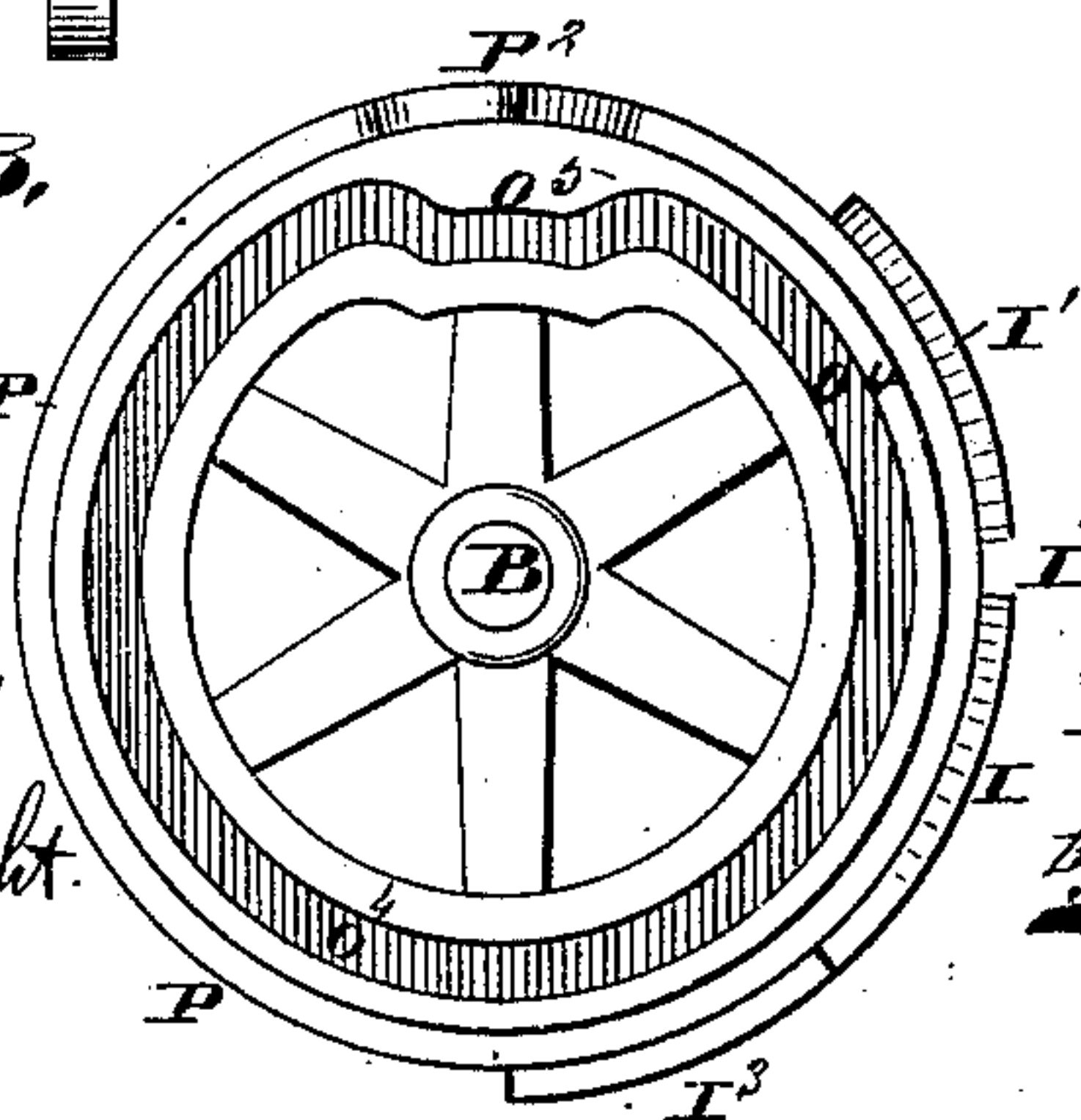


Fig. 3.



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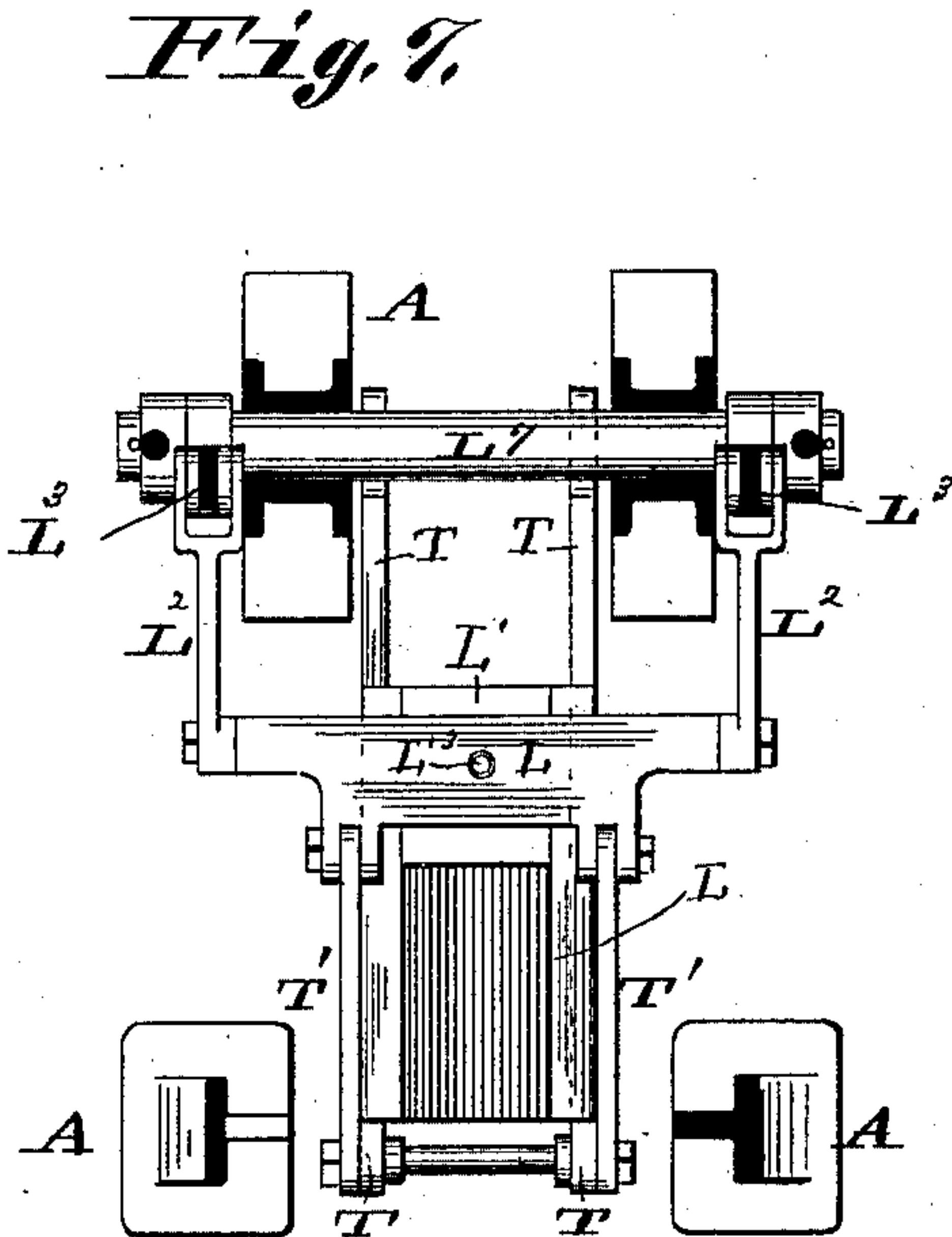
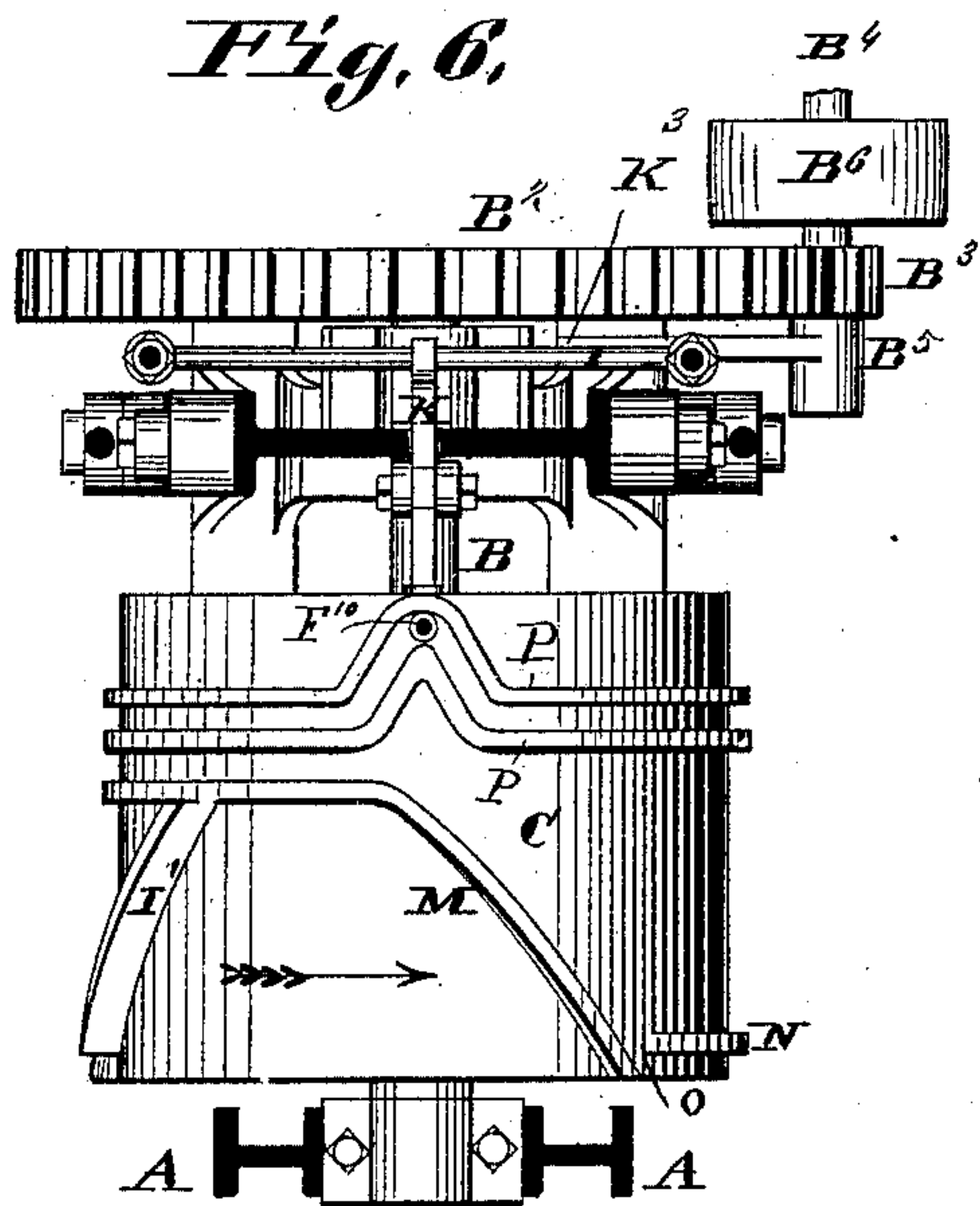
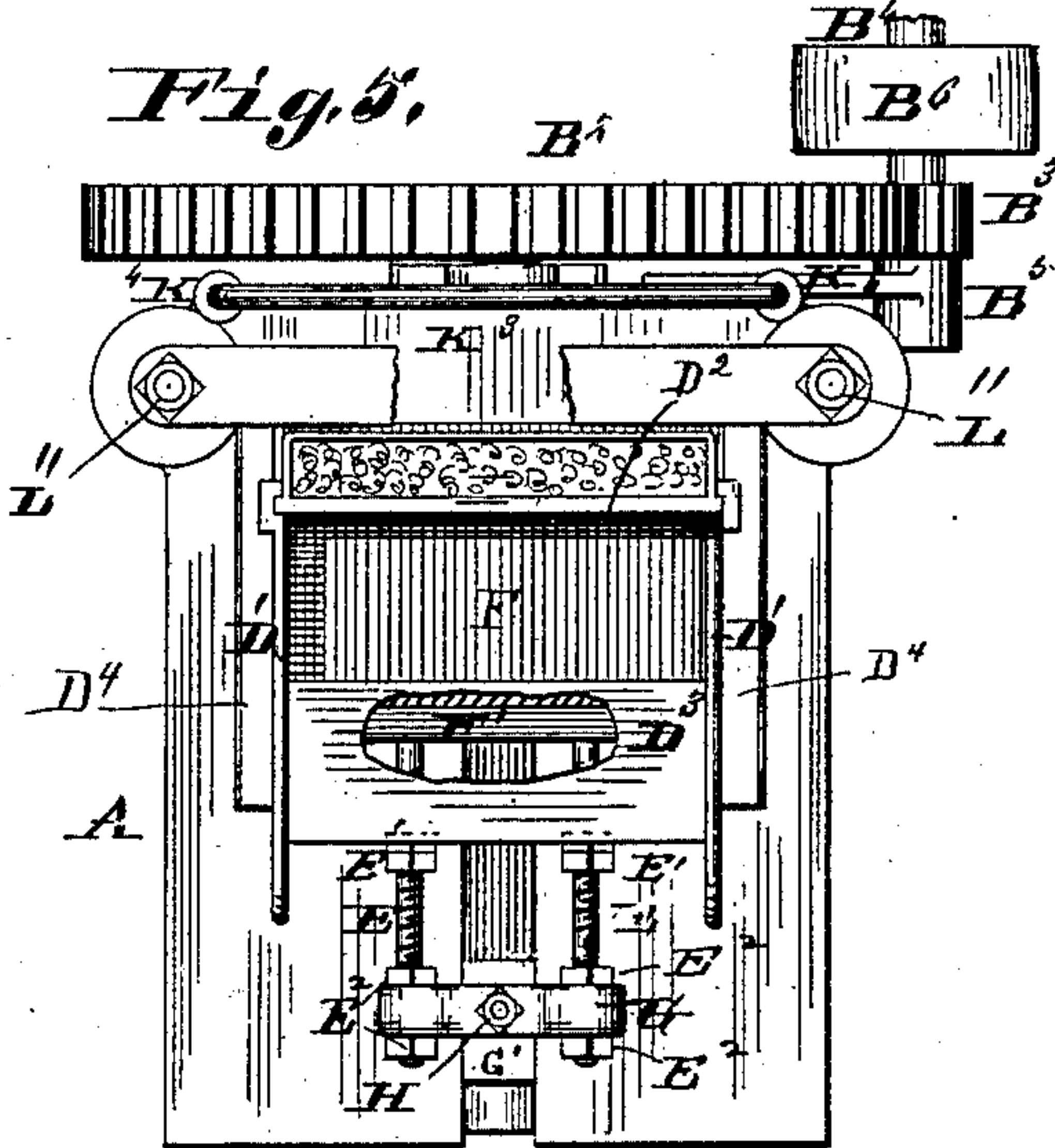
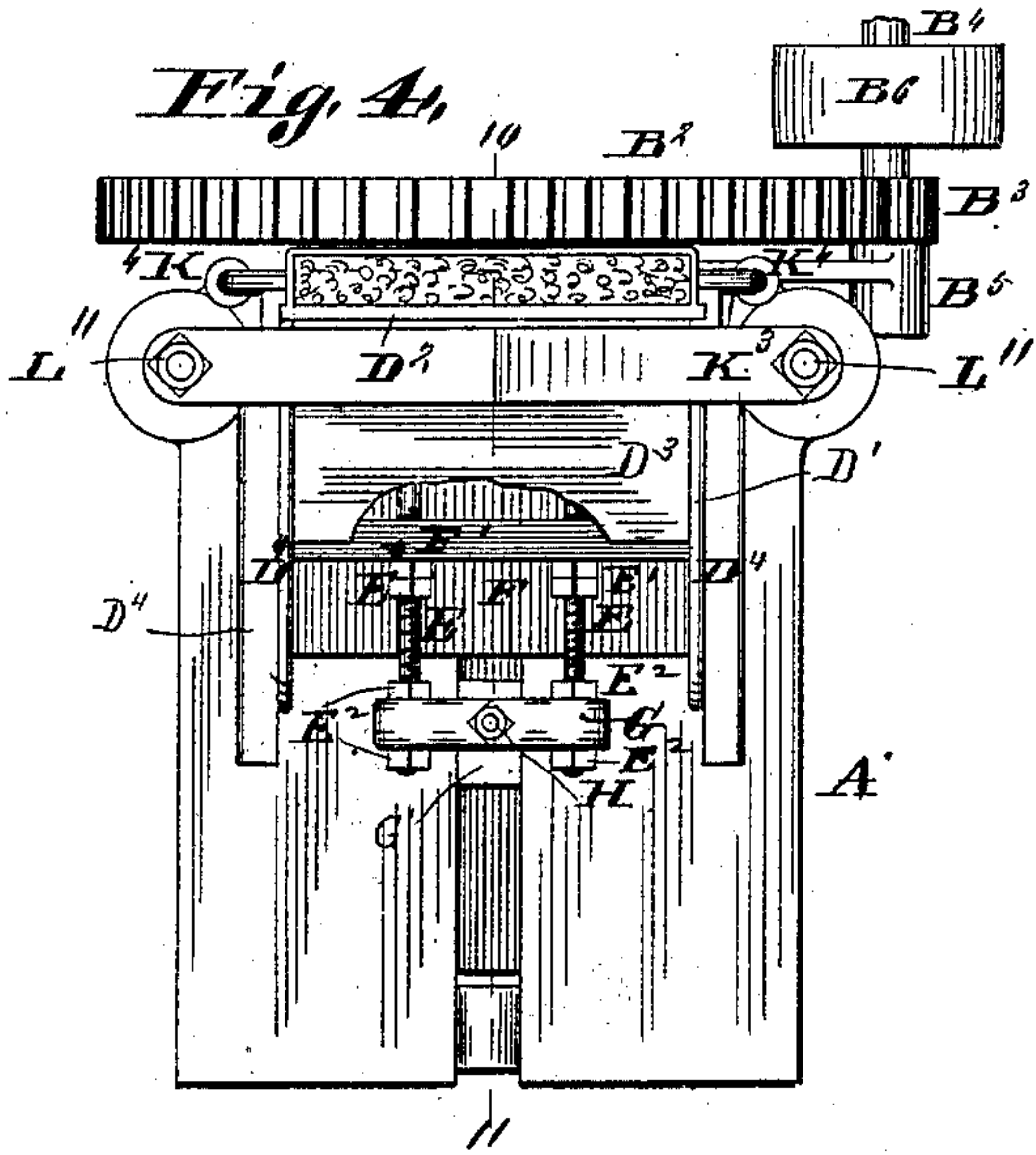
3 Sheets—Sheet 2.

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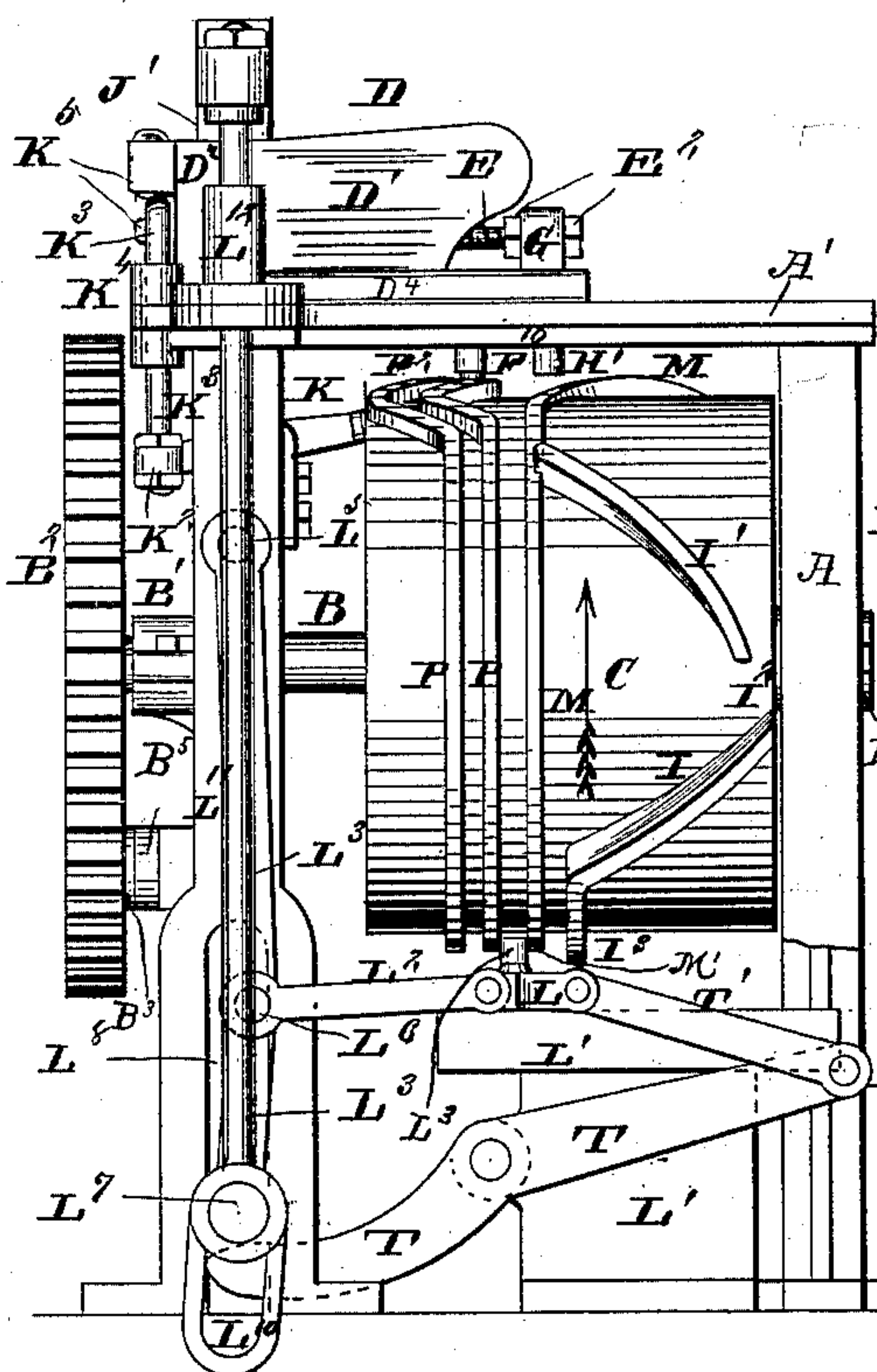
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3 Sheets—Sheet 3.

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Fig. 8.



F'g. 9.

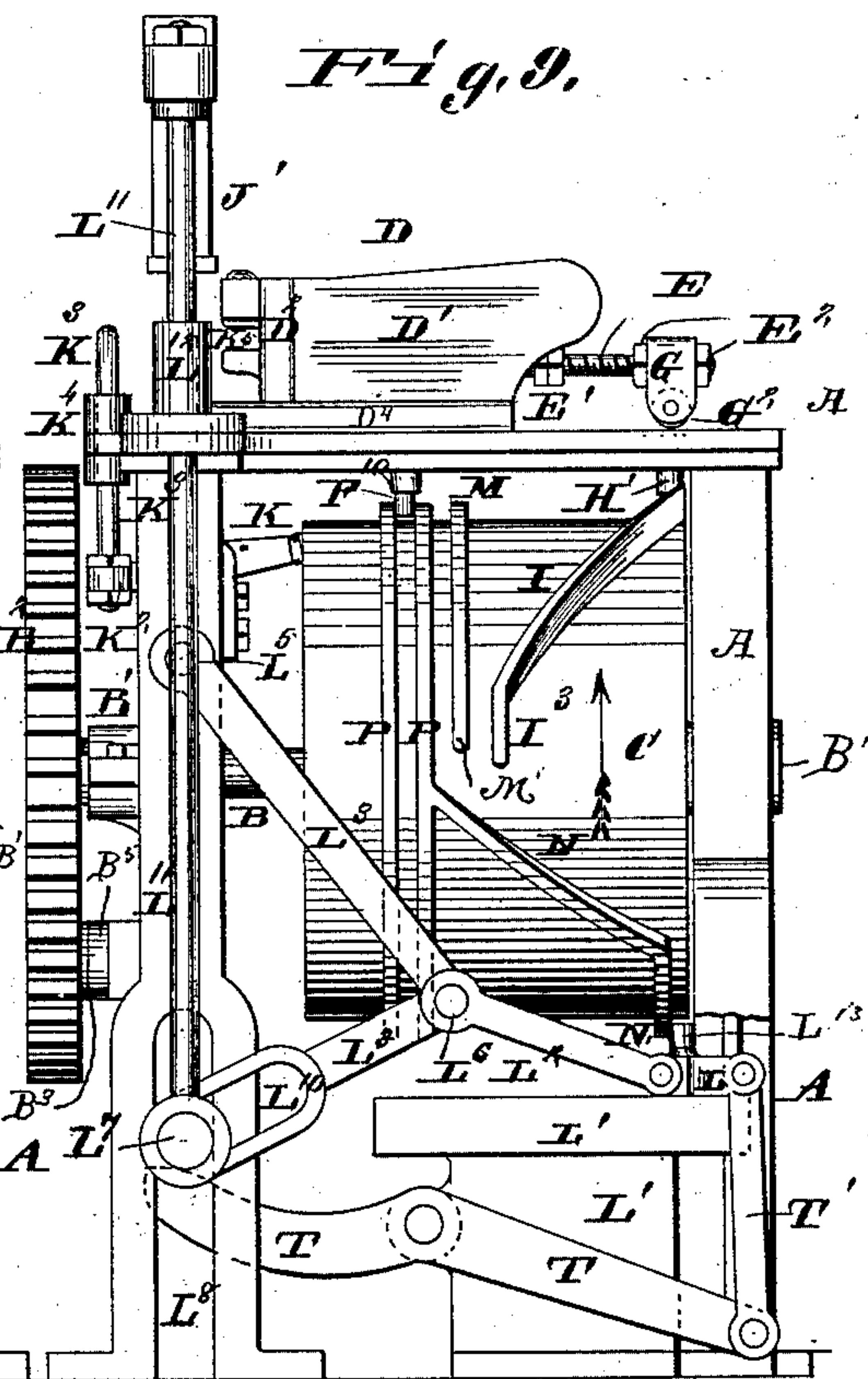


Fig. 10.

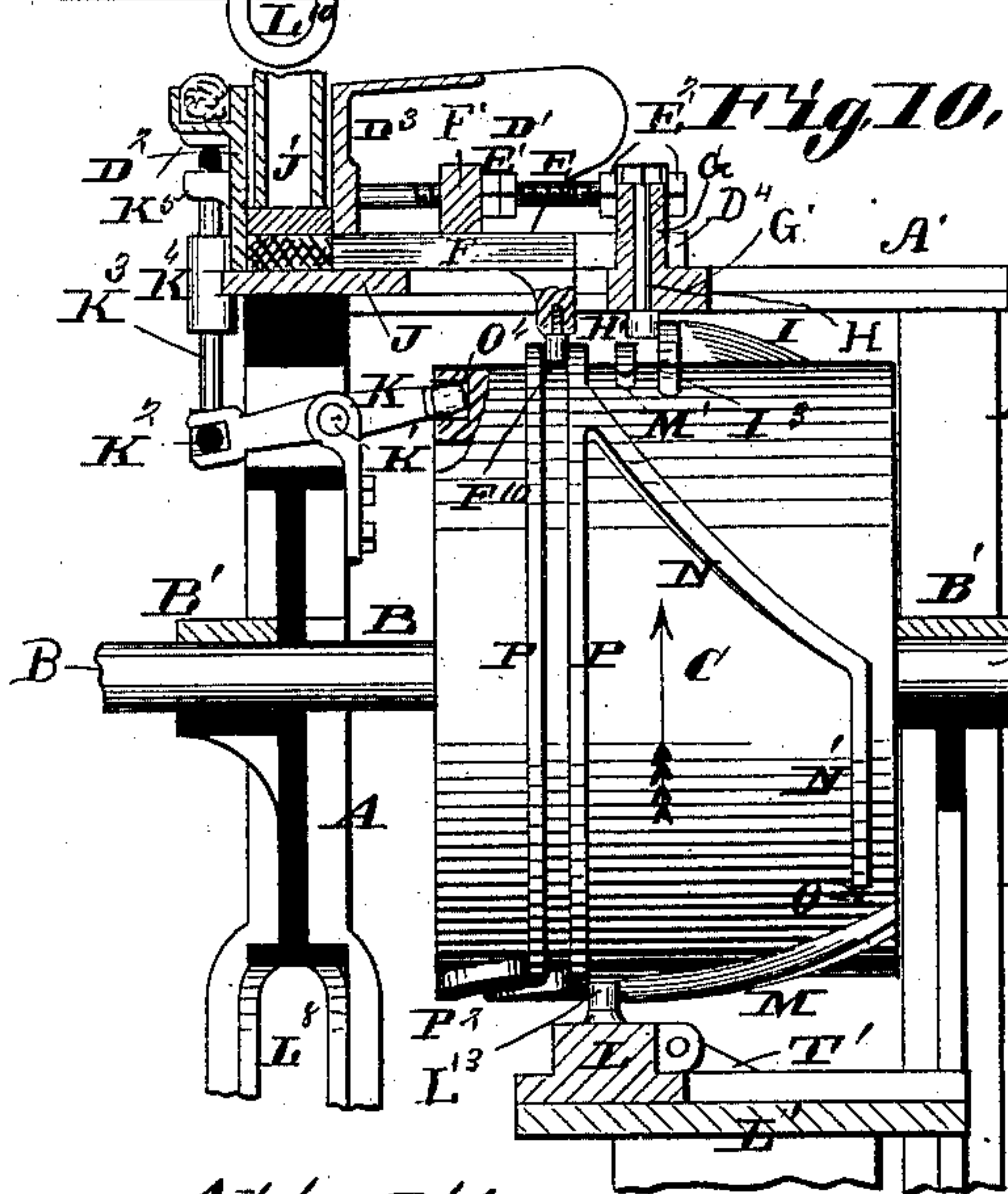
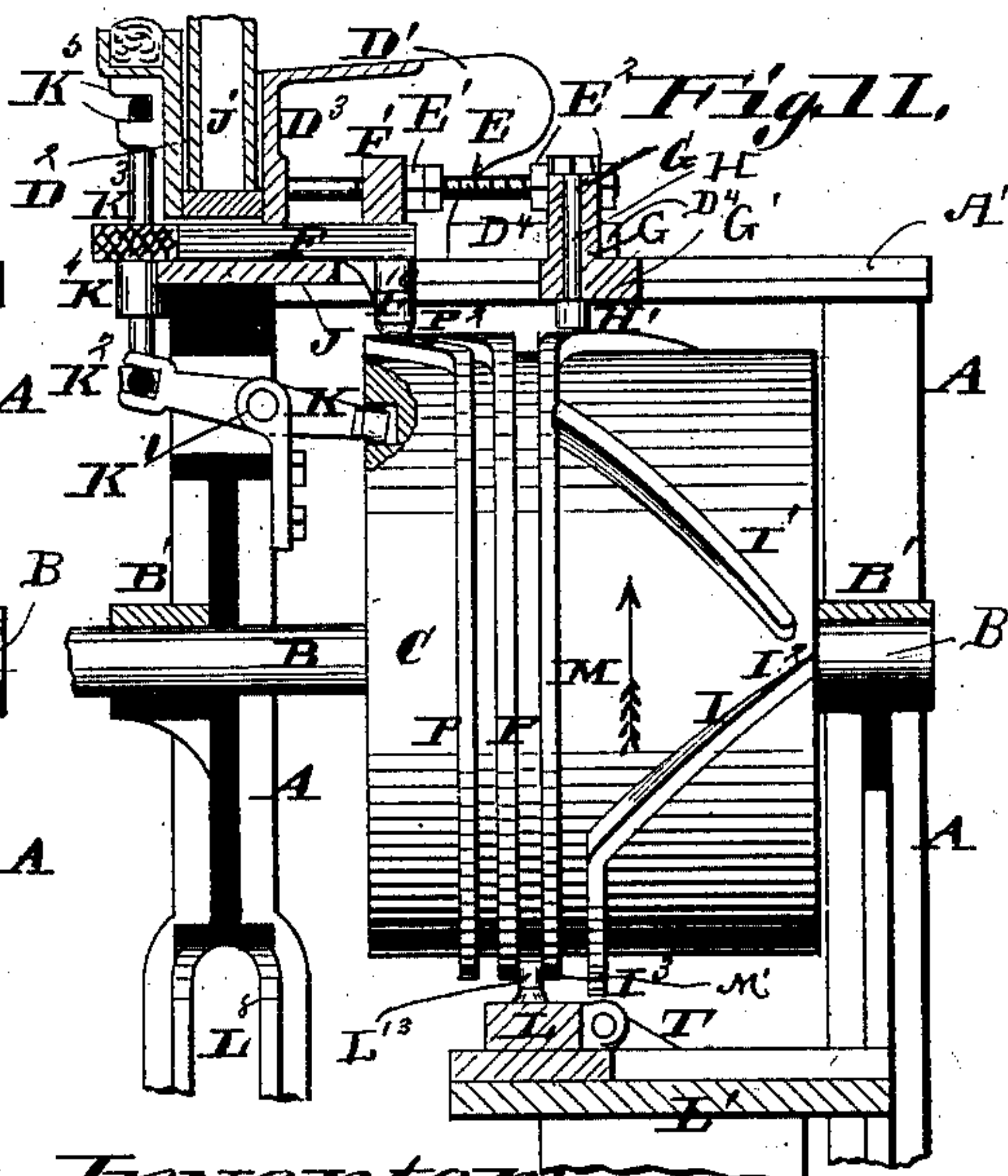


Fig. 11.



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UNITED STATES PATENT OFFICE.

TILLMAN PUETZ, JR., OF ST. LOUIS, MISSOURI.

PLUG-TOBACCO MACHINE.

SPECIFICATION forming part of Letters Patent No. 336,526, dated February 16, 1886.

Application filed August 10, 1885. Serial No. 174,045. (No model.)

To all whom it may concern:

Be it known that I, TILLMAN PUETZ, Jr., of the city of St. Louis, in the State of Missouri, have invented a certain new and useful
5 Improvement in Plug-Tobacco Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

10 Figure 1 is a front end view of my improved machine, the cog-wheel and pinion being omitted. Fig. 2 is a rear view of the same. Fig. 3 is an end view of the cam-drum removed. Fig. 4 is a top view showing a charger in its
15 forward position. Fig. 5 is a similar view showing the charger back. Fig. 6 is a horizontal section taken on line 6 6, Fig. 1. Fig. 7 is a similar view taken on line 7 7, Fig. 1. Fig. 8 is a side elevation showing the charger
20 in its forward position. Fig. 9 is a similar view showing the charger back. Figs. 10 and 11 are detail vertical sections taken on line 10 11, Fig. 4, Fig. 10 showing the parts in the position they occupy when the plug is formed,
25 but before it is ejected from the machine, and Fig. 11 showing the parts in the position they occupy when the plug is ejected.

My invention relates to certain improvements in plug-tobacco machines, for which
30 Letters Patent Nos. 330,849 and 330,850, were granted on the 17th of November, 1885; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

35 Referring to the drawings, A represents the frame of the machine, supporting a main shaft, B, in journal-boxes B'. On the outer end of this shaft is a cog-wheel, B², engaged by a pinion, B³, on a shaft, B⁴, journaled in brackets
40 or boxes B⁵, secured to the frame of the machine. This latter shaft is provided with a driving-pulley, B⁶, through which motion is imparted to the machine.

On the shaft B is a drum, C, carrying a number of cams on its outer periphery.
45

The charger D consists of side pieces, D', front piece, D², and back piece, D³. The front piece has tongue-and-groove connection with and is carried by the side pieces, but the back
50 piece is not attached to the side pieces, but moves independently thereof.

D⁴ are guides for the charger on the table A'.

Secured to and projecting rearwardly from the back piece are rods E, screw-threaded on their outer ends to receive nuts E' and E².
55 These rods pass through a cross-bar, F', working on a sliding piece, F, that works beneath the front and back pieces of the charger, as shown in Figs. 10 and 11, and forms a bottom to the charger and a discharging device.
60

Secured to the outer ends of the rods E by means of the nuts E² is a cross-head, G, having a sliding support, G', dovetailed into the table of the machine, as shown in Fig. 2, and provided with friction-rollers G², that bear up-
65 on the table as the charger is worked back and forth. Passing down through this cross-head is a bolt, H, on the lower end of which is a friction-roller, H', engaged by a cam, I, on the periphery of the drum C, to force the charger
70 forward, and engaged by a cam, I', also on the periphery of the drum, to cause the charger to be moved back.

Fig. 9 shows the cam I about to engage the roller to force the charger forward.
75

Fig. 10 shows the cam as it is about to leave the roller, and at this point it has a portion, I³, that is transverse of the drum, the office of which is to hold the charger a short time in its forward position before the cam leaves the
80 roller.

Figs. 8 and 11 show the cam I' before reaching the roller to cause the charger to be carried back. There is a space, I², between the releasing end of the cam I' and the engaging
85 end of cam I, as shown in Figs. 8 and 11, for the passage of the roller from the former to the latter. As the cam commences the forward movement of the charger, as described, the rear part, D³, of the charger is first carried
90 forward until the tobacco is sufficiently pressed to move the charger forward bodily, as shown and described in said Letters Patent, and when the charger has reached the position shown in Figs. 8, 10, and 11 the plunger J' is
95 brought down against the tobacco on a stationary bed or plate, J, as shown in Fig. 10. This plunger is raised and lowered by the following means: L represents a sliding block dovetailed into a standard or bed-plate, L', and connected
100 by means of links L² to toggle-bars L³. The upper toggle-bars L³ are pivoted at their upper ends to the frame of the machine, as shown at L⁵, and are connected at their lower ends

to the lower toggle-bars by a pin, L^6 . The lower toggle-bars are connected at their lower ends to a vertical sliding rod or beam, L^7 , working in slots L^8 of the frame of the machine, and they preferably have slots L^{10} , through which the rod or shaft passes, these slots allowing for lost motion, in case lost motion is required. The rod or beam L^7 is connected to the plunger by means of two vertical rods, L^{11} , passing through guides L^{12} , secured to the table of the machine; and it will be seen that as the toggle-bars are forced forward the plunger will be pulled down to press the tobacco, and as the toggle-bars are pulled rearward back again from the position shown in Fig. 8 to that shown in Fig. 9 the plunger will be elevated again.

M represents the cam on the drum for forcing the plunger down.

Fig. 10 shows the cam M engaging with the projection L^{13} on the sliding block, and shows the parts in the position they occupy just as the block has been forced back to the limit of its movement to lower the plunger. From this point the cam extends around the periphery in a line transverse of the drum, and when the drum is turning the plunger is thus held in its position, giving time for the tobacco to be thoroughly pressed. This cam ceases at M' , Figs. 8, 9, 10, and 11, and then a cam, N , comes against the projection on the sliding block and forces the block and toggle-bars from the position shown in Fig. 8 to that shown in Fig. 9, and this latter cam has a portion, N' , transverse of the drum, which holds the plunger in its elevated position until the proper time comes for it to be again depressed, then the projection will pass through a space, O , at the end of this cam and the end of the compressing-cam M . Just as the plunger starts to rise, the front end of the charger is elevated by the following means:

K represents a lever pivoted at K' to the frame of the machine, and connected by its outer end to a rod, K^2 , made fast to the lower end of a yoke-frame, K^3 , passing through guides K^4 , secured to the frame of the machine, and engaged by lugs K^5 on the front part of the charger (see Fig. 11) when the charger is in its forward position. This front part of the charger has vertical movement from the position shown in Fig. 10 to that shown in Fig. 11, by means of its tongue-and-groove connection with the sides of the charger. The inner end of the lever K fits in a cam-groove, O^4 , in the front part of the drum C , (see Figs. 1, 3, 10, and 11,) the groove being annular until it reaches an offset, O^5 , and as the inner end of the lever enters this offset its outer end is elevated, causing this upward movement of the front part of the charger, thus permitting the plug to be removed from beneath the plunger, which has, as stated, just started to rise. As soon as the plug has been ejected, the front part of the charger is pulled down again by the end of the lever emerging from this offset O^5 in the annular cam-groove. The plug is

ejected by the sliding plate F , which is forced forward and backward by means of cams P , between which fits a friction-roller, F^{10} , depending from the plate. While the plate is in its normal position, the roller fits between the parallel parts of the cam, and when it is to be forced forward the roller passes between the V-shaped projection P^2 of the cam. (See Figs. 6, 8, and 11.) The V-shaped projections of the cam are made quite acute, so that the movement of the plate is rapid, being forced forward just at the time the front of the charger is elevated, as shown in Fig. 11, and then being pulled back immediately before the front part of the charger is again lowered to its normal position. When the plate is pulled back and the front part of the charger pulled down to its normal position, the charger is moved back to receive another quantity of tobacco, when the operation above described is repeated.

It will be seen that the charger, the plunger, the sliding plate for ejecting the plugs, and the movable front end of the charger are all operated from a single cam-drum, and as this drum can be cast in one piece at one operation it can be quickly and cheaply produced, and the form of the drum permits the compressing-cam M to have a long surface that will hold the plunger in its lower position, to give time for the tobacco to be rendered compact before the pressure is removed. The cams I and I' are made higher than cams M and N , so that the roller H' will not have to be placed so low as to strike these latter cams, yet it is low enough to strike its own cams I and I' .

To assist the toggle-bars L^3 in lifting the plunger, if required, I pivot two levers, T , to the frame of the machine, connected at one end to the sliding block L by two links, T' , and at the other end they extend beneath the rod or beam L^7 . As the block is moved from the position shown in Fig. 8 to that shown in Fig. 9, the free ends of the levers press against the rod L^7 , as shown.

I claim as my invention—

1. A sliding charger consisting of longitudinally-moving side pieces, a vertically-moving front piece, and a longitudinally-moving rear piece sliding between the side pieces, in combination with mechanism for operating the said parts, substantially as set forth.

2. A sliding charger consisting of longitudinally-moving side pieces, a longitudinally-moving rear piece, and a front piece, in combination with a longitudinally-moving bottom-piece and operating mechanism, substantially as set forth.

3. A sliding charger consisting of side pieces, rear piece, and a vertically-moving front piece, in combination with a longitudinally-moving bottom piece and operating mechanism, substantially as set forth.

4. A sliding charger consisting of longitudinally-moving side pieces, a vertically-moving front piece, and a rear piece, in combination with a discharger forming a bottom piece to

the charger, a table on which the material is supported in front of said rear piece and said discharger, a plunger by which the material is pressed into the receptacle in rear of the front piece and in front of the discharger, and operating mechanism, substantially as set forth.

5. A sliding charger consisting of longitudinally-moving side pieces, a vertically-moving front piece, and a longitudinally-moving rear piece sliding between the side pieces, in combination with a longitudinally-moving bottom piece sliding beneath the rear piece, a cross-bar between the side pieces working on the bottom piece, guide-rods working through the cross-bar and secured to the rear piece, and operating mechanism, substantially as set forth.

6. The combination of a table having fixed guides, a charger consisting of side pieces sliding on the table between the guides, a front piece, and a rear piece, a bottom piece sliding on the table between the side pieces, and operating mechanism, substantially as set forth.

7. The combination of a sliding charger having a rear piece, D^3 , a cross-bar, F' , sliding rods E , screw-threaded on their outer ends, passed through the cross-bar, and secured to the rear piece, a sliding support, G' , having a cross-head, G , receiving the outer ends of the rods, pin H , a table in which the support is guided, a driving-shaft, and a drum on the driving-shaft having cams I , I^3 , and I' , engaging the pin, substantially as set forth.

8. The combination of a sliding charger having a vertically-moving front piece, a longitudinally-moving bottom piece or discharger having a downwardly-projecting pin, a table on which the charger and discharger slide alternately, a driving-shaft, and a drum having cams P P , formed with V-shaped projections P^2 , substantially as set forth.

9. The combination of a sliding charger having a vertically-moving front piece formed with lugs K^5 , a table, a frame, K^3 , sliding vertically in front of the table and charger, a rod, K^2 , secured to the frame, and means by which the front piece is advanced to engage the lugs with the frame, substantially as set forth.

10. The combination, with the plunger, of the drum C , provided with cams N , N' , and M , the sliding block L , toggle-bars L^3 , connected to said block, and rods L^7 and L^{11} , operating substantially as and for the purpose set forth.

11. The combination, with the plunger and drum C , provided with cams N , N' , and M , of the sliding block L , toggle-bars L^3 , connected to the block, rods L^7 and L^{11} , connecting the toggle-bars to the plunger, and the levers T , connected to the sliding block by links T' , substantially as and for the purpose set forth.

TILLMAN PUETZ, JR.

In presence of—

GEO. H. KNIGHT,
BENJN. A. KNIGHT.