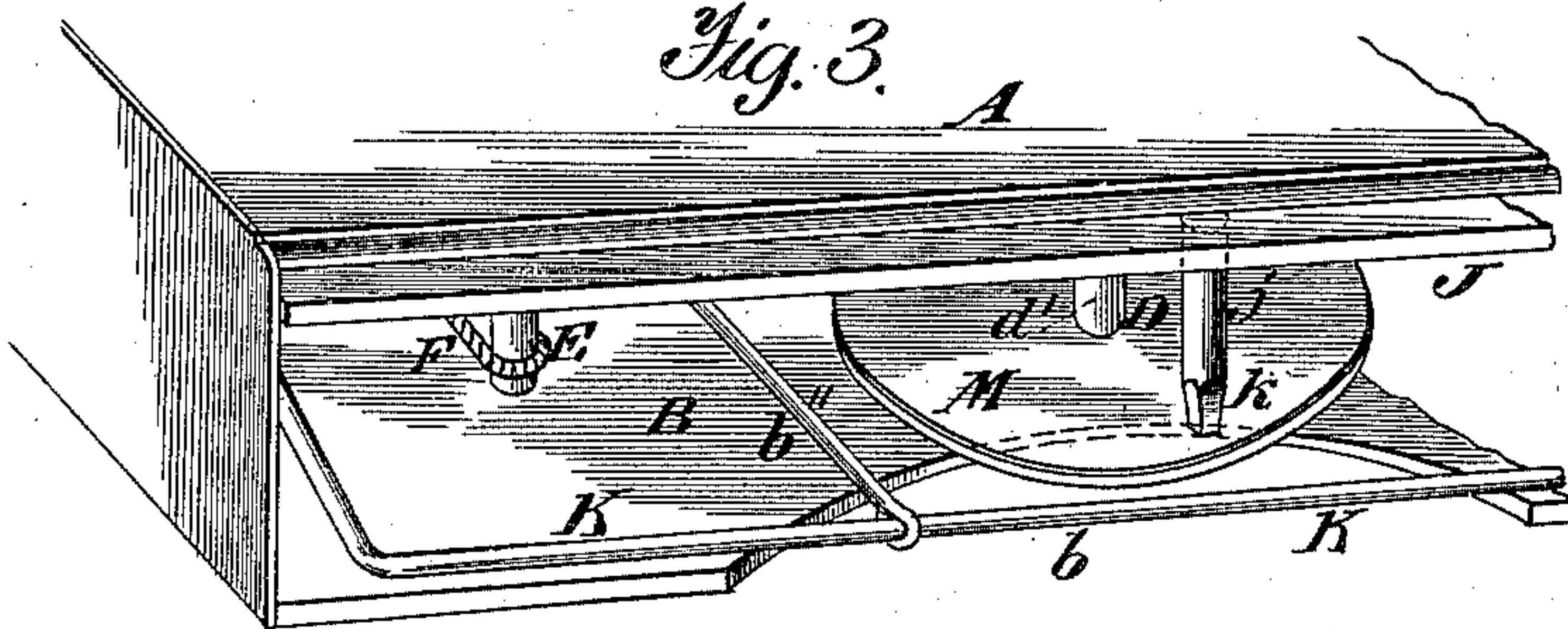
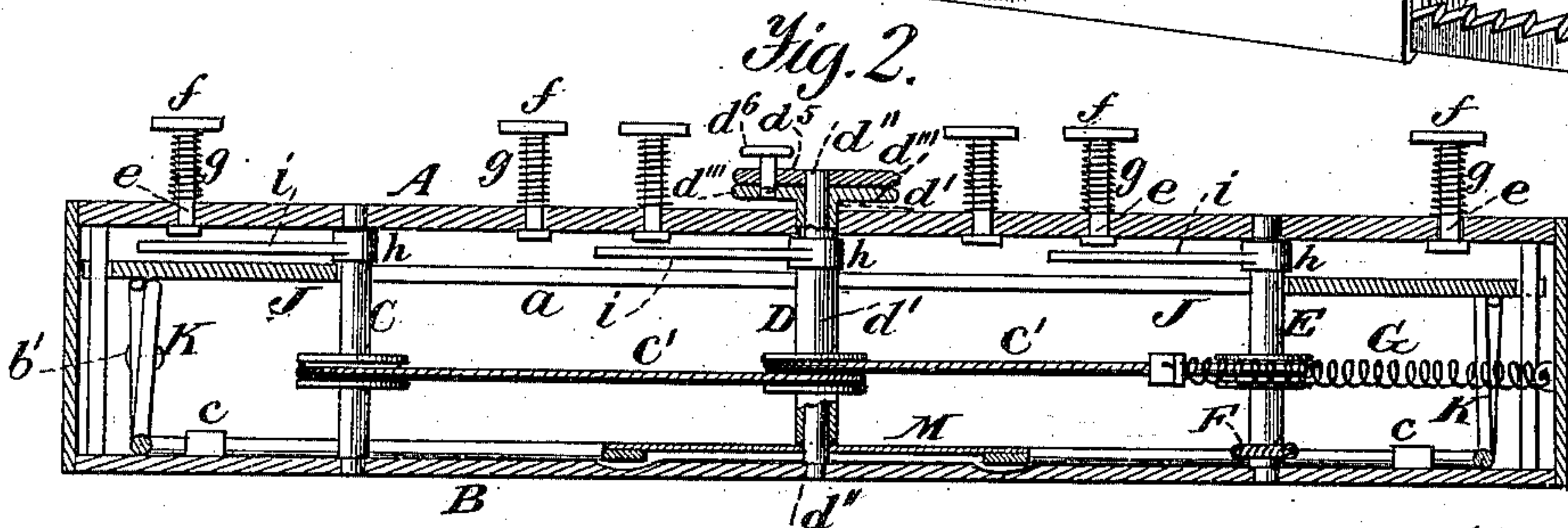
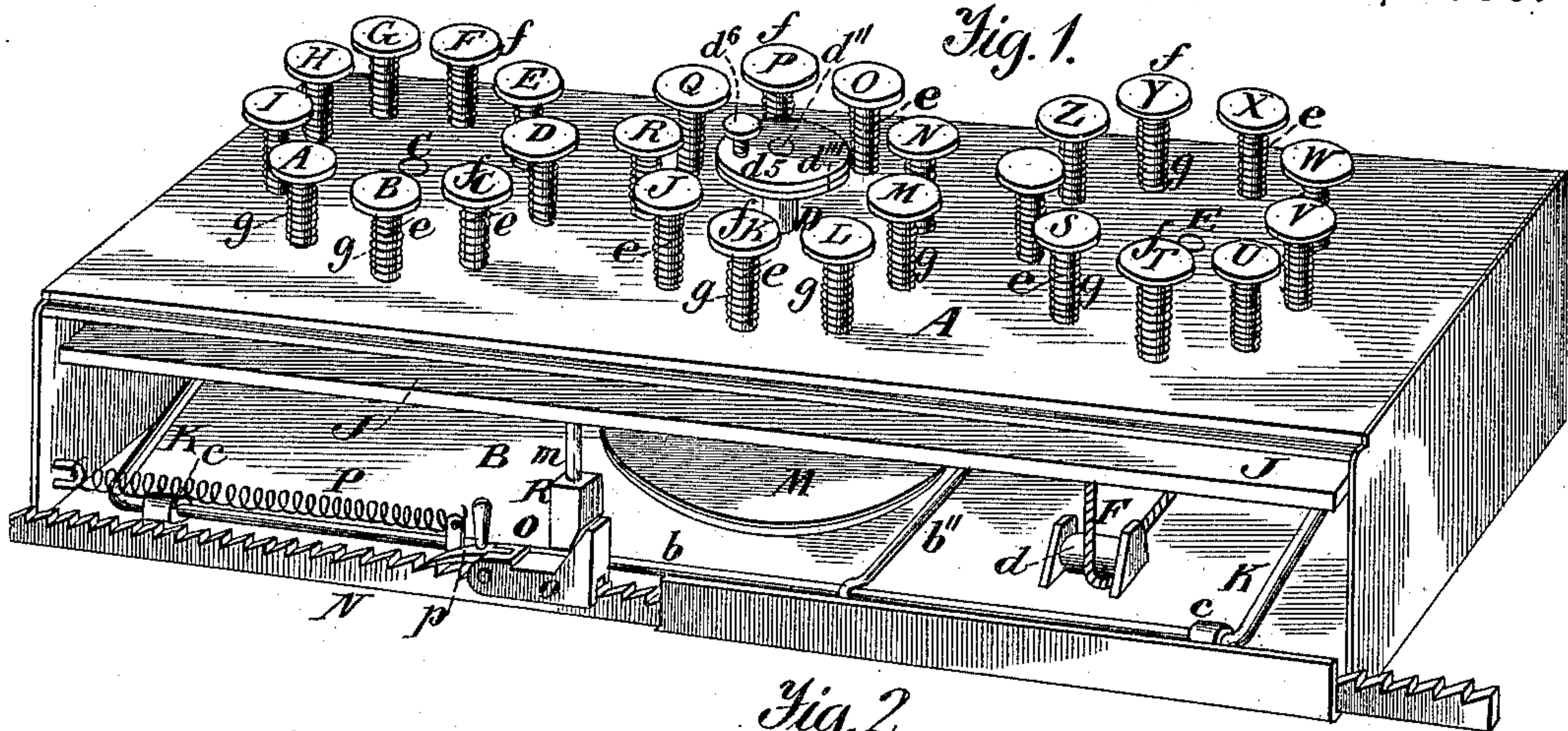


(No Model.)

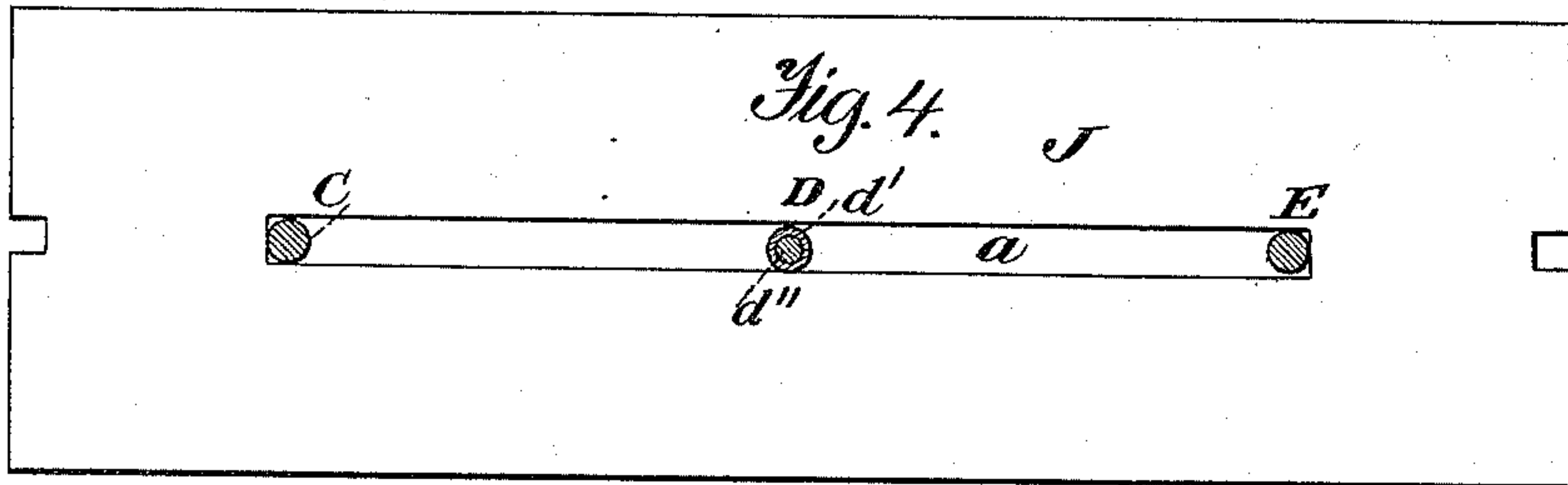
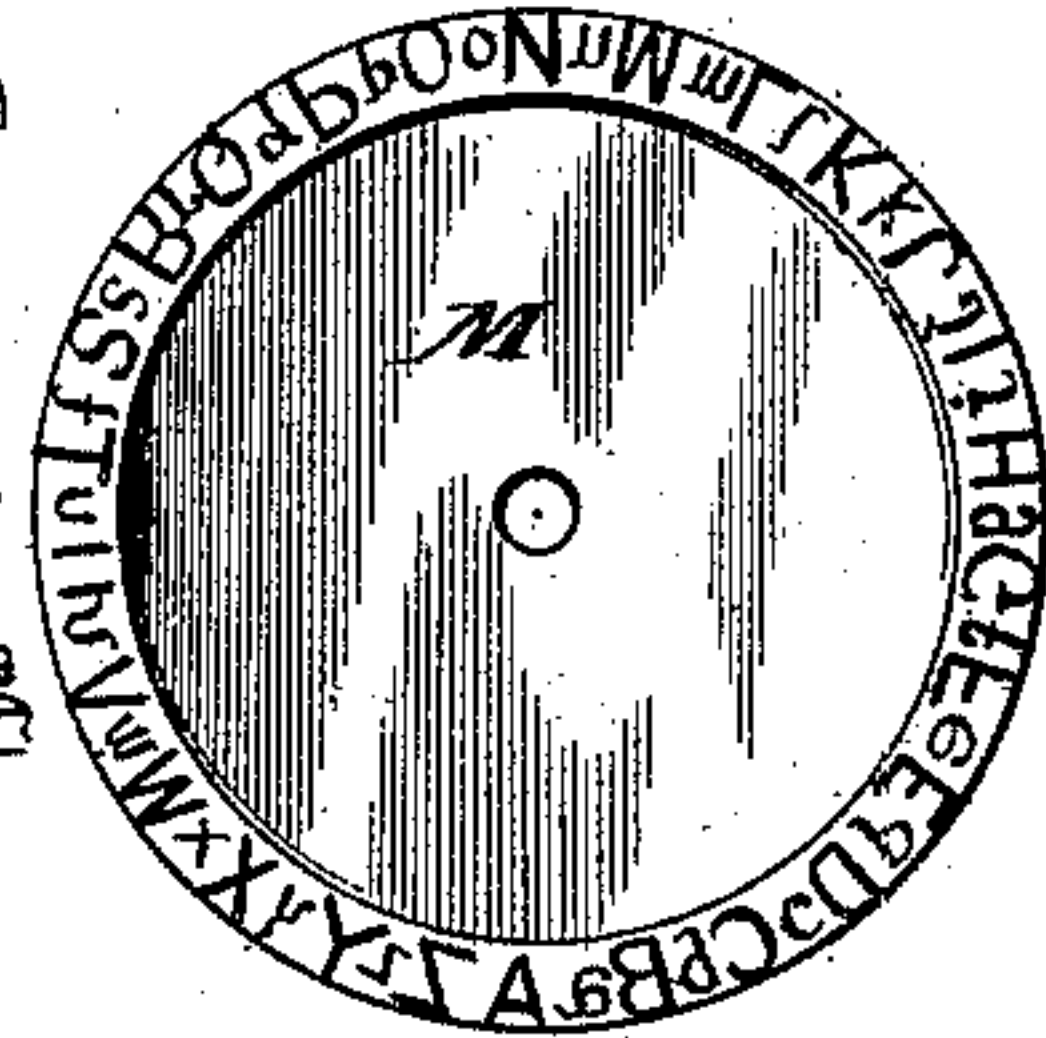
H. G. WOOD.  
TYPE WRITING MACHINE.

No. 334,920.

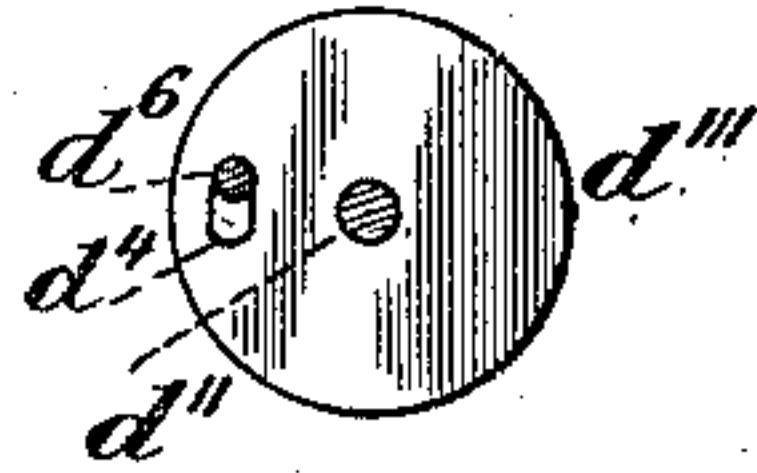
Patented Jan. 26, 1886.



*Fig. 5.*



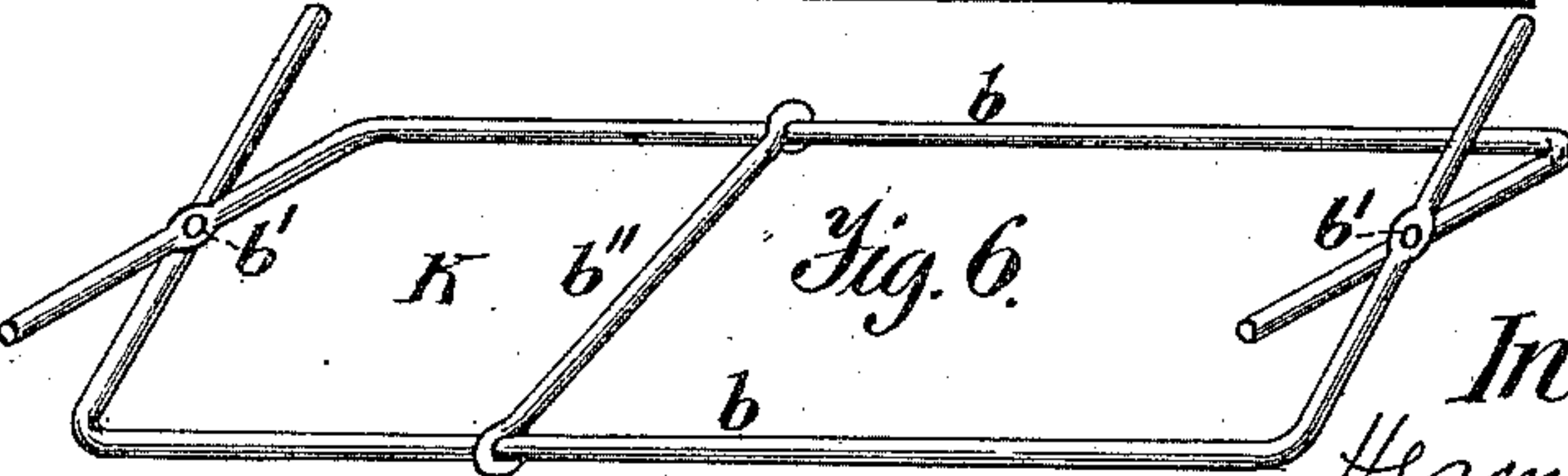
*Fig. 7.*



Witnesses:

A. Ruppert.

E. Cruise.



Inventor:

Hermon G. Wood,

by *W. J. Howard*  
att'y



# UNITED STATES PATENT OFFICE.

HERMON G. WOOD, OF SHARON, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH  
TO E. A. WHEELER, OF SAME PLACE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 334,920, dated January 26, 1886.

Application filed May 1, 1884. Serial No. 139,912. (No model.)

*To all whom it may concern:*

Be it known that I, HERMON G. WOOD, of Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements, hereinafter fully described, whereby a positive and improved actuating movement is secured for this class of machines, and the general structure simplified and improved.

In the accompanying drawings, Figure 1 is a perspective view of a type-writer machine constructed in accordance with my invention, the rear side being shown. Fig. 2 is a vertical longitudinal section. Fig. 3 is a view showing the front side of the machine. Figs. 4, 5, 6, and 7 are details.

Similar letters of reference indicate similar parts in the respective figures.

A represents the top, and B the base of the machine, which parts are connected by suitable intermediate frame-work. A series of vertical spindles, C D E are journaled in the top A and bottom B, so as to revolve in their bearings. The spindles C D E are belted together by means of the cord *c*, while a contraction-spring, G, is connected to the cord and to one of the fixed side portions of the machine. A rectangular plate, J, (a top view of which is shown in Fig. 4,) is slotted at *a* for the passage of the upper portions of the spindles C D E, whereby the plate may play vertically, it being maintained normally in the position illustrated in Fig. 1 by means of spring K. This spring K (shown detached in Fig. 6) is formed of steel wires bent to a right angle at each end and pivoted at *b'*, as shown. The sides *b* are connected by a wire, *b''*, and rest on the base-plate B, one side turning in loops *c* thereon, as shown in Fig. 1, and the other side being free to have a lateral movement, as shown in Fig. 3. A cord, F, is attached at one end to the under side of the plate J, and, passing around a guide-pulley, *d*, journaled on the base-plate B, is attached at its other end to the vertical spindle E. The top plate, A, is perforated for the passage of

a series of key-spindles, *e*, each of which carries at its upper end a button or head, *f*, which is marked to indicate one or more letters or characters. Each key-spindle *e* is headed or otherwise enlarged at its lower end to prevent its complete withdrawal from the opening in which it plays, such headed portion being maintained in contact with the under side of the top A by means of an expanding spring, *g*, which surrounds the key-spindle and stands between the button *f* and the top A of the machine. A disk, M, made of any suitable elastic and pliant material, is attached to the spindle D, near the base thereof, and provided on its under side near its periphery with a series of letters or characters. These letters or characters may be formed on a rubber ring, and so arranged that the characters representing the capitals and small letters may be side by side, as shown in Fig. 5. This ring is secured to the disk M in such a manner that each of the characters will bear a relative position to such one of the keys *e* as indicates a similar character, so that when any key-spindle is depressed the disk will revolve to such an extent as to bring the character indicated by such key to a certain point for the purpose of printing, as will be hereinafter described.

The spindle D is formed in two parts, *d'* *d''*, the part *d'* being tubular and adapted to receive the part *d''*. The interior part, *d''*, projects beyond the outer part, *d'*, both at its upper and lower end. To the lower projecting part, *d''*, is secured the disk M, which is thus entirely free from the part *d'*. The part *d'* is provided with a button, *d'''*, at its upper end, in which is a small slot, *d<sup>4</sup>*. (See Fig. 7.) The part *d''* is also provided with a button, *d<sup>5</sup>*, in which is a headed pin, *d<sup>6</sup>*, which projects through the button *d<sup>5</sup>* and enters the slot *d<sup>4</sup>* of the button *d'''*, as shown in Fig. 2. The part *d''* fits within the tubular part *d'* sufficiently tight to be revolved with it, but is also capable of receiving an independent partial rotation within the tubular part *d'*, which rotation is, however, limited by the pin *d<sup>6</sup>* moving in the slot *d<sup>4</sup>*. The object of this arrangement is to change the position of the type-disk sufficiently to print either a capital or small letter by the use of a single key. The slot will



therefore only be equal to the space between a capital and a small letter on the disk.

Each of the spindles C D E has secured thereto above the plate J a collar, *h*, from which projects a horizontal arm, *i*. A rod, *j*, depends from the plate J, and carries at its lower end a block or hammer, *k*, which, when the plate J is depressed, is adapted to come in contact with and depress the disk M.

A ratchet-bar, N, is located at the lower edge of the machine, as shown in Fig. 1, which bar is stationary, and along which the machine is adapted to move, as hereinafter described. A pawl, O, consisting of a block, *o*, and a blade or tooth, *p*, engages the teeth of the rack-bar N, the engagement being maintained by means of a contracting spring, P, attached to the said pawl or tooth and to a fixed part of the frame. A second rod, *m*, depending from the plate J, carries at its lower end a beveled block, R, which as the plate is depressed is adapted to come in contact with a beveled shoulder on the block *o* of the pawl and move the same to shift the blade *p* one tooth.

The operation of the machine is as follows: By striking one of the key-spindles *e* the lower end of the key spindle engages the plate J and depresses it, thus slackening the cord F and permitting the distended spring G to contract and operate the cord *c'* and rapidly rotate the spindles C D E. The plate J will continue its descent under the pressure of the partly-depressed key-spindle until the arm *i* of the spindle C, D, or E nearest said depressed key-spindle engages with it, at which time the type-disk M will have revolved sufficiently to bring the character or letter represented by the depressed key-spindle into position beneath the block or hammer *k*, which, striking the disk, depresses it, and so prints the character immediately beneath the block or hammer *k*. As the foregoing movements are accomplished the block R engages with and shifts the blade *p* of the pawl O one tooth in the rack N, as previously described, and upon the disengagement of the block R from the body O of the pawl the spring P causes the pawl to shift the machine one tooth. The paper-supporting devices being connected to

the said bar N, the proper spacing is thus effected. As the cord F is slackened and the spindle E revolved, the cord winds upon the said spindle, and as the plate ascends the cord, by unwinding, rotates the spindle E in a reverse direction to shift the cord F backward and distend the spring G to repeat the hereinbefore-described operation.

I do not limit myself to the means for effecting the inking operation, whether by an inking-pad or other device, nor to the particular connection of devices shown, as the same may be subject to modification and still remain within the scope of my invention. Furthermore, I do not desire to limit myself to the precise arrangement and combination of parts for effecting the actuation and revolution of the spindles C D E, as the same may be modified and still perform the desired functions.

Having described my invention, I claim—

1. In a type-writing machine, the combination of a spring-supported plate, spindles adapted to be coincidentally rotated, and having arms *i*, cord F, pulley *d*, cord *c'*, spring G, key-spindles *e*, rod *j*, and flexible disk M, substantially as set forth.

2. In a type-writing machine, a spring-supported plate adapted to be depressed in the printing operation, combined with the spring key-spindles, rod *m*, beveled block R, pawl O *o p*, spring P, and ratchet-bar N, substantially as set forth.

3. In combination with a type-disk spindle, the disk having a pin, *d<sup>6</sup>*, and spindle having a slotted disk, *d'''*, substantially as set forth.

4. In a type-writing machine, a spring-supported plate, J, the series of key-spindles *e*, spindles C D E, arms *i*, cord *c'*, spring G, cord F, disk M, rod *j*, rod *m*, and ratchet-and-pawl mechanism for effecting the movement of the machine as the plate J is depressed, all combined and operating substantially as set forth.

In testimony whereof I have hereunto set my hand on this 15th day of April, 1884.

HERMON G. WOOD.

Witnesses:

J. H. REED,  
ABNER APPLGATE.