(No Model.)

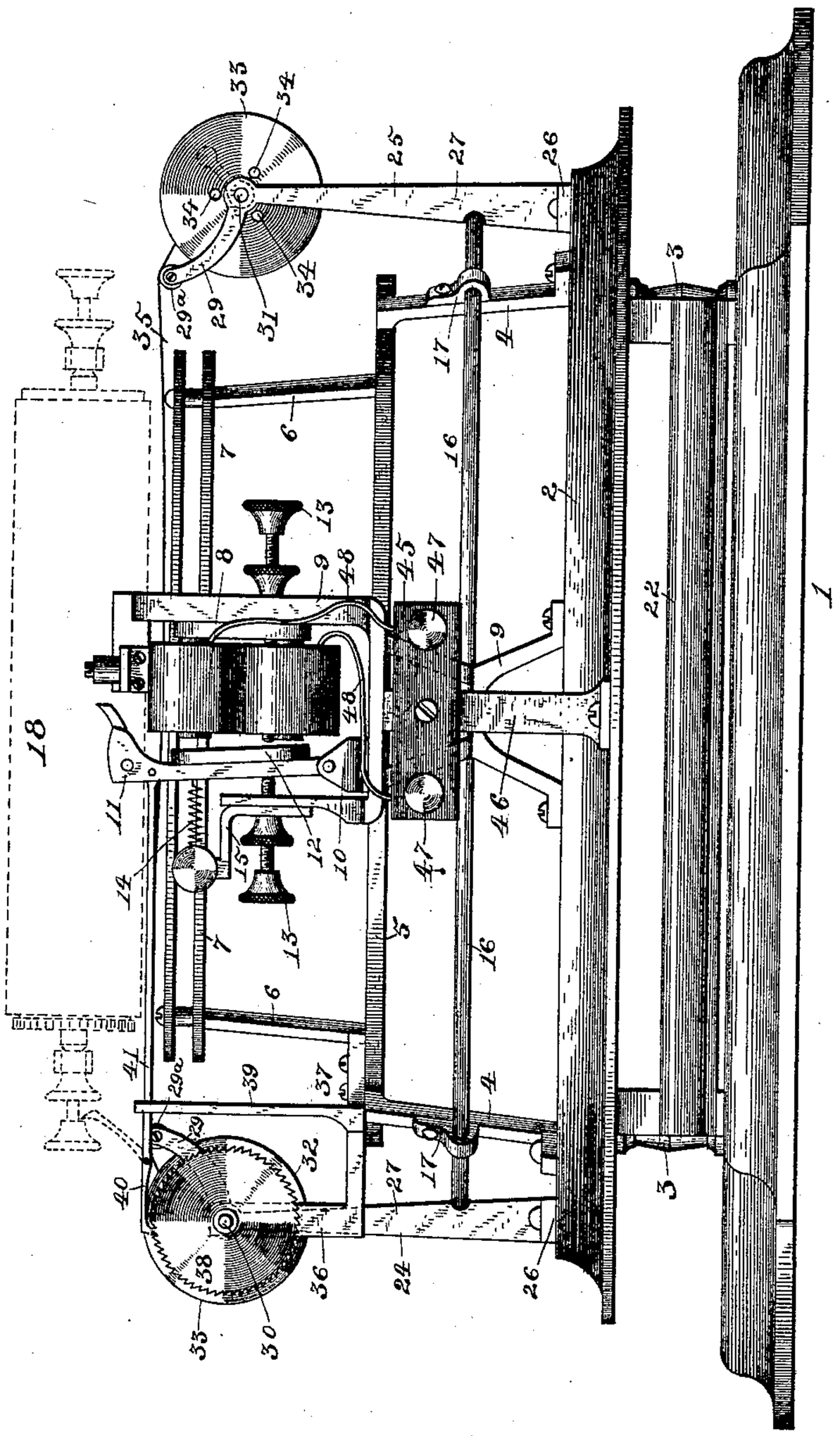
3 Sheets—Sheet 1.

J. F. McLAUGHLIN.

ELECTRICAL TYPE WRITING MACHINE.

No. 453,430. Patented June 2, 1891.

Fig. 1.



ATTEST:

Percy C. Bowen.
Carl B. Waller.

INVENTOR:

James F. McLaughlin:
By Harding & Dickinson
his Attorneys.

(No Model.) 3 Sheets—Sheet 2.

J. F. McLAUGHLIN.

ELECTRICAL TYPE WRITING MACHINE.

No. 453,430. Patented June 2, 1891.

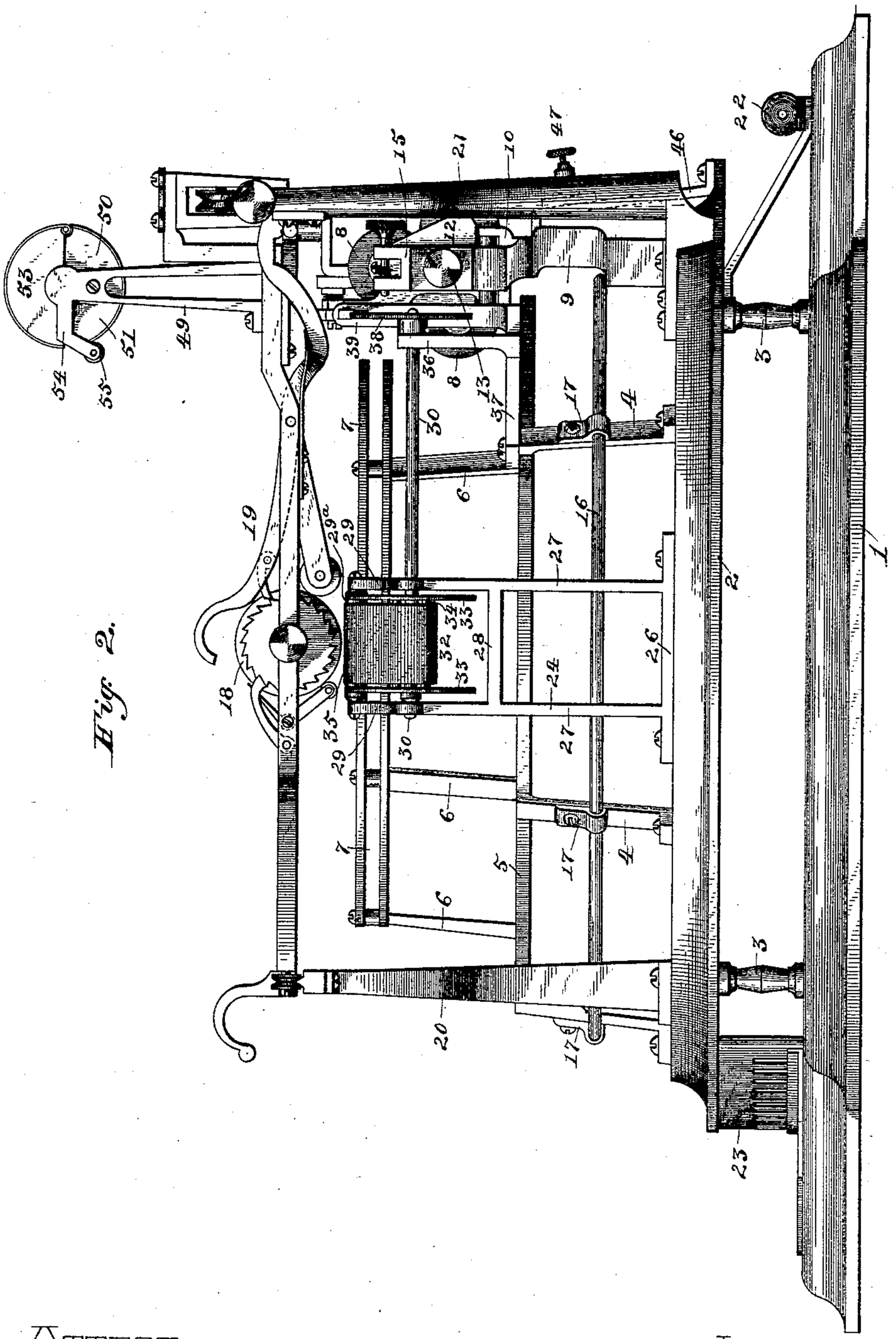


Fig. 2.

Attest:

Percy C. Bowen.

Chas. B. Waller.

Inventor:

James F. McLaughlin.

By Harding & Fickenor

his Attorneys.

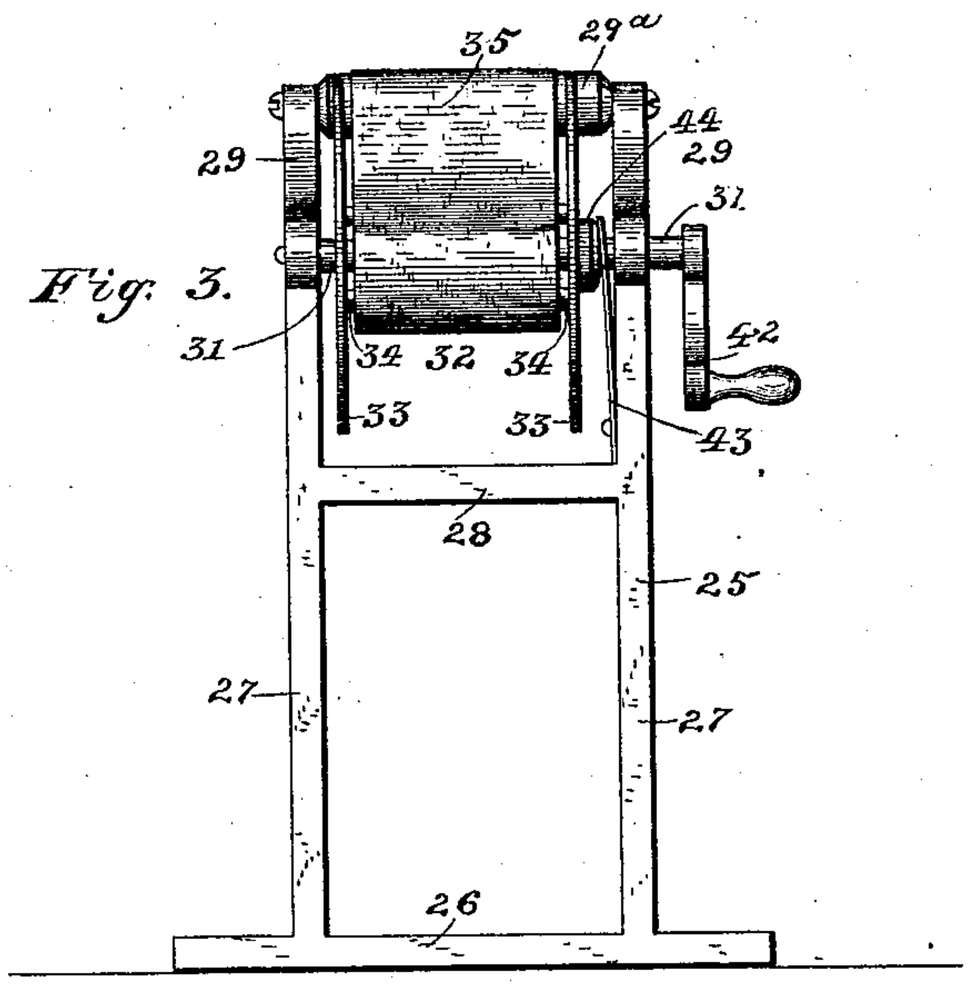
(No Model.) 3 Sheets—Sheet 3.

J. F. McLAUGHLIN.

ELECTRICAL TYPE WRITING MACHINE.

No. 453,430. Patented June 2, 1891.

Fig. 3.



ATTEST:

Percy C. Bowen,
Carr B. Waller.

INVENTOR:

James F. McLaughlin;
By Harding & Richenor
his Attorneys.

UNITED STATES PATENT OFFICE.

JAMES F. McLAUGHLIN, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 453,430, dated June 2, 1891.

Application filed August 18, 1887. Serial No. 247,313. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McLAUGHLIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Type-Writing 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.

My invention relates to a new and improved ribbon attachment for type-writing machines, and is designed particularly to be used in conjunction with the electrical type-writer for which Letters Patent No. 367,650 were granted to me on or about August 2, 1887.

My invention has for its object to provide an adequate and efficient device whereby the inking-ribbon which receives the impact of the type-levers may be automatically advanced in a step-by-step manner simultaneously with each and every imprint of a letter, character, or symbol carried by the said type-levers, so that every time a space is effected between any two letters or words the inking-ribbon is slightly advanced for the obvious and necessary purpose of affording a fresh inking-surface for each impact.

With this end in view my invention consists, in brief, in certain details of construction, combinations, and arrangements of parts, which will be more fully described hereinafter, and the specific points of novelty in which will be particularly designated in the appended claims.

Before entering into a detailed description of the construction and operation of my invention I would deem it expedient to here state that the same has been, for the sake of convenience and clearness, shown applied to my improved form of electrical type-writer which now forms the subject-matter of several concurrent applications; but it will be understood that it would be entirely unnecessary to explain the arrangement, construction, and operation of these non-essential parts, since they do not enter into in any manner the spirit of this invention.

Referring to the drawings, Figure 1 is a rear elevation of my ribbon attachment in position upon the frame of my electrical type-writer, only so much of the latter being shown as is necessary to illustrate the position of the attachment thereupon. Fig. 2 is a side elevation of the same. Fig. 3 is an elevation of one of the ribbon-reels and its supporting-frame.

Like numbers of reference designate corresponding parts in all the figures of the drawings, referring to which—

1 designates the base of suitable insulating material, above which is supported, by means of the standards 3 3, a supplementary platform 2. Upon the said supplementary platform 2 is supported by means of the inclined standards 4 4 a ring 5, which in turn supports the standards 6 6, upon which latter is secured the slotted ring 7. The spacing-magnets 8 8 are suitably secured upon the frame 9, which frame also has the bracket 10 secured thereto. The pawl-lever 11 is pivoted in the bracket 10 and carries the triangular armature 12, and the play of the said lever 11 and armature 12 is limited by the adjusting-screws 13 13. A retracting-spring 14 is fastened at one end to the lever 11, and has its other extremity attached to the bracket 15 by an adjusting clamp-screw for the purpose of keeping the lever 11 and armature 12 normally away from the poles of the magnets 8 8, as shown in Figs. 1 and 2.

In the operation of the machine the electro-magnets 8 8 are energized for an instant after each imprint of the type upon the paper, whereby the armature 12 is attracted, and the pawl, carried by the lever 11, as shown, is caused to engage a rack-bar upon the carriage, whereby the latter is advanced to make the space for the next succeeding letter. The rack-bar upon the carriage is not shown in the drawings, for the letter-spacing operation is not claimed herein; and for the purposes of this case it is of no consequence how that operation is effected, so long as it is understood that it is caused by the electro-magnets 8 8 acting upon the lever 11 and the latter acting upon the carriage. The lever 11 is properly called an "armature-lever," and since it also carries a pawl for advancing the carriage it may also be called and will hereinafter be referred to as a "letter-spacing pawl-lever."

16 designates a conducting-ring supported in the insulators 17 17, secured to the standards 4 4.

18 designates the paper-roll, suitably journaled in the frame-work of the traveling carriage 19.

20 and 21 designate the front and rear supports, respectively, of the traveling carriage 19 and its attached mechanism.

22 is the insulated boxing in which are pivoted the ends of the key-levers, (not shown,) and 23 designates the perforated apron through which the said key-levers project.

All of the foregoing being fully described in my former application, filed July 16, 1887, Serial No. 244,434, it is not thought necessary to enter into further description thereof, as the present application relates more particularly to the ribbon attachment, which I will now proceed to describe.

24 and 25 designate two supporting-frames, one of which is secured upon each side of the supplementary platform 2. The said supporting-frames 24 and 25 each consist of the horizontal base-piece 26, the vertical side bars 27, and the cross-bar 28. At the upper end of the vertical side bars 27 are formed the curved arms 29, which project upwardly and inwardly and have the friction-rollers 29^a 29^a journaled in their upper extremities. At the junction of the arms 29 29 with the side bars 27 27 are formed enlarged journal-bearings through which pass the shafts 30 and 31, carrying the reels 32 32. The said reels 32 32 are each composed of two disks 33 33, connected together by three rods 34 34 34. To one of the rods 34 in each of the reels 32 32 is secured in any suitable manner one end of the ribbon 35, which passes over and is supported by the friction-rollers 29^a 29^a. By this construction it will be seen that the ribbon 35 may be wound upon either of the reels 32 32 at pleasure, or it may be wound from one to the other.

By reference to Fig. 2 it will be seen that the shaft 30 projects rearwardly from the frame 24, having its rear end journaled in the upper extremity of an upright 36, secured to a frame 37, which latter is rigidly fastened upon the horizontal portion of one of the standards 4. To the extreme rear end of the shaft 30 is rigidly secured a ratchet-disk 38, which is adapted to be rotated by the action of a pawl 40, pivotally attached to the end of a reciprocating rod 41 and arranged normally in engagement with the teeth on the periphery of the ratchet-disk 38. The reciprocating rod 41 is pivotally attached at its inner end to the lever 11, and its outer end adjacent to the pawl 40 is supported in and adapted to slide through an opening in the upper end of an upright 39, which is secured to the frame 37. It will thus be seen that when the armature 12 is attracted by the spacing-magnets 8 8 the lever 11 will draw the reciprocating rod 41 inwardly toward the said magnets, and the pawl 40 will slide idly over the teeth on the ratchet-disk 38, the said teeth being inclined in the manner shown for this purpose; but when the armature 12 is released from the attraction of the spacing-magnets 8 8 and the lever by virtue of the spring 14 resumes its normal position the rod 41 and the attached pawl 40 will be moved outwardly and the latter will engage with the teeth on the ratchet-disk 38 and will consequently rotate the same a distance corresponding to the length of the oscillating movement of the lever 11, and, moreover, as the ratchet-disk 38 is rigidly secured to the shaft 30, which carries the reel 32 in the frame 24, it will be apparent that the said shaft and reel will be simultaneously rotated with the said ratchet-disk, and a small portion of the ribbon 35 will be advanced and wound upon the reel in the frame 24 at each backward movement of the lever 11 after a letter-space has been made, thereby presenting a fresh inking-surface at each imprint of a character. It will thus be understood that the ribbon is kept constantly moving in a step-by-step manner while the machine is in operation, so that the impact of the letter will not be twice in the same place on the said ribbon. When the ribbon has been all wound upon the reel in the frame 24, the pawl 40 may be thrown upwardly out of engagement with the ratchet-teeth in the position shown in dotted lines in Fig. 1, and the ribbon may be wound back upon the reel in the frame 25 by means of the crank-handle 42.

A friction-spring 43 is secured to the inner side of one of the uprights 27 of the frame 25, and the free end thereof is bifurcated to fit over the shaft 31 and arranged so as to impinge against a boss or collar 44, secured upon one of the disks 33, for the obvious purpose of preventing the reel 32 in the frame 25 from rotating farther than is necessary at each movement of the ribbon, and thereby causing the latter to hang loosely or to sag in the middle.

45 designates a plate of hard rubber or other insulating material, upon which are supported the binding-posts 47 47, which form the electrical connecting-points for the spacing-magnets 8 8. Wires 48 48 connect the said binding-posts 47 47 with the said spacing-magnets 8 8. The insulating-plate 45 is supported upon a bracket 46, which is secured at its lower end to the supplementary platform 2, and at its upper extremity to the horizontal portion of the frame 9.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an electrical type-writer, the combination of an ink-ribbon reel and a reciprocating rod for actuating the same with a letter-spacing pawl-lever actuating the reciprocating rod, an electro magnet or magnets, and a retractile spring for controlling the action of the letter-spacing pawl-lever, substantially as described.

2. In an electrical type-writer, the combi-

nation of an ink-ribbon reel and a ratchet-disk thereon with a pawl engaging the ratchet for imparting a step-by-step movement to the reel, a reciprocating rod actuating the pawl, and an electro-magnetically-actuated spacing pawl-lever and a retractile spring therefor for imparting motion to the rod, substantially as described.

3. In an electrical type-writer, the combination of an ink-ribbon reel and a ratchet-disk thereon with a reciprocating rod carrying a pivoted pawl in engagement with the ratchet, a spacing pawl-lever for advancing the carriage of the machine after each imprint, having the reciprocating rod pivoted thereto, and an electro-magnet and retractile spring for actuating the spacing pawl-lever, substantially as described.

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

J. F. McLAUGHLIN.

Witnesses:

GEO. H. TICHENOR,

F. R. HARDING.