

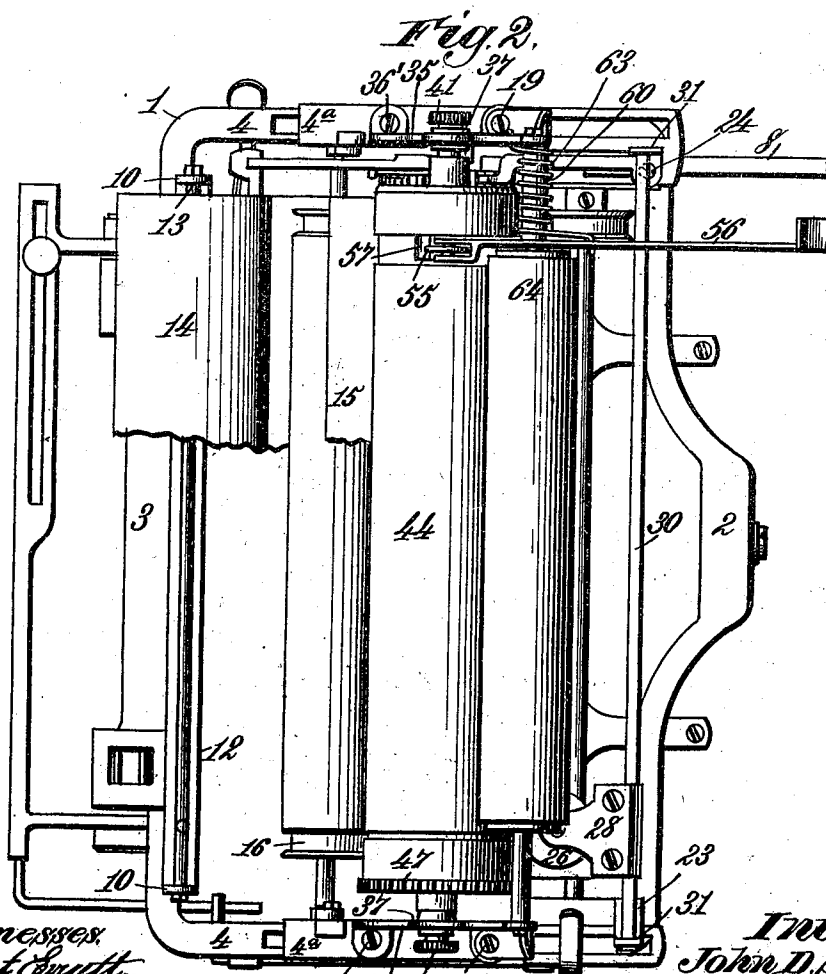
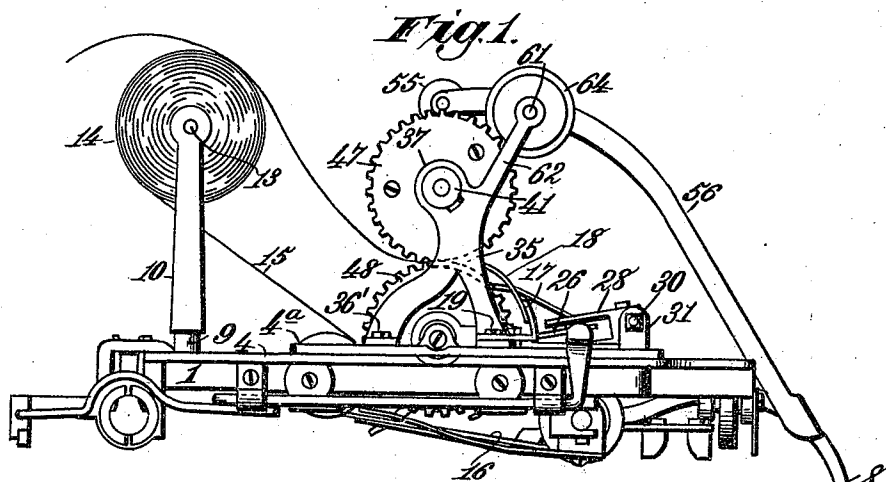
(No Model.)

3 Sheets—Sheet 1.

J. D. SMITH.
TYPE WRITING MACHINE.

No. 502,147.

Patented July 25, 1893.



Witnesses
Robert Emmett,
J. A. Killeenford.

Inventor:
John D. Smith.
By *Amos A. Norris*
Atty.

No Model.)

3 Sheets—Sheet 2.

J. D. SMITH.
TYPE WRITING MACHINE.

No. 502,147.

Patented July 25, 1893.

Fig. 3.

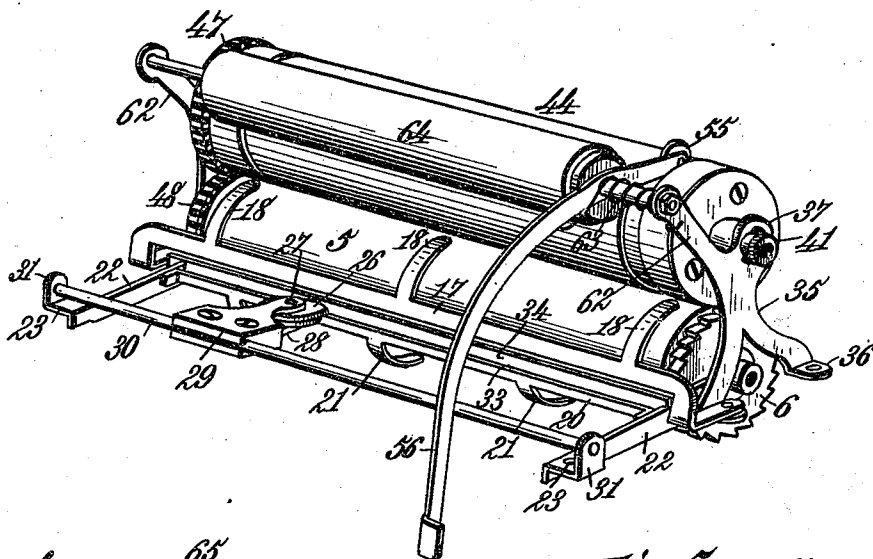


Fig. 4. 55.

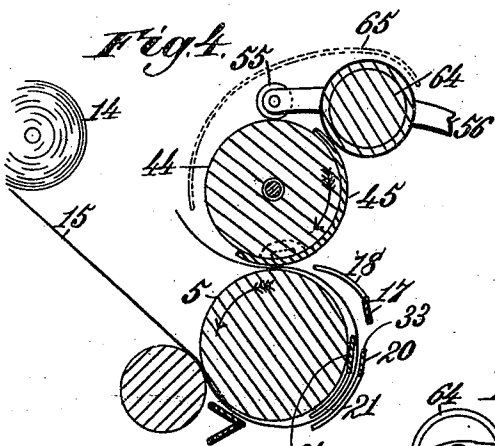


Fig. 5.

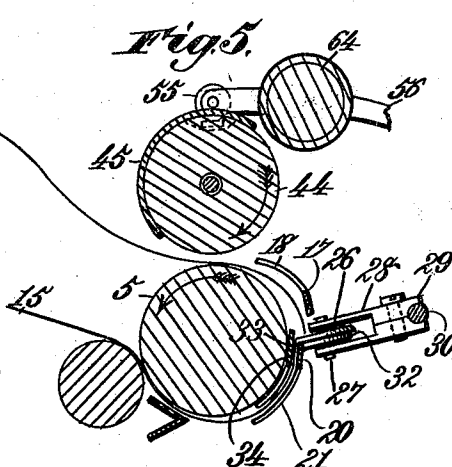
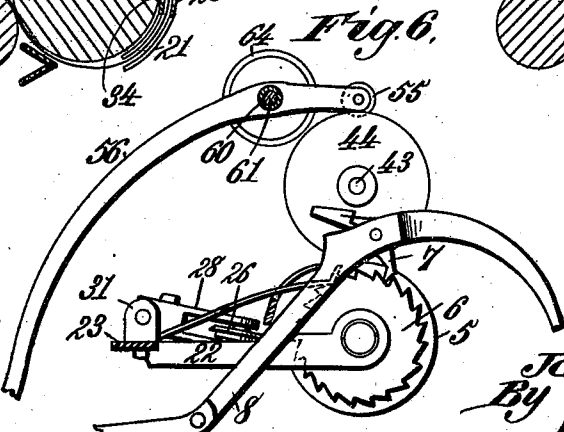


Fig. 6.



Witnesses:

Robert Gratt.

J. A. Rutherford.

Inventor:

John D. Smith.

By

Amesbury, Nov. 1894.

Atch.

(No Model.)

3 Sheets—Sheet 3.

J. D. SMITH.
TYPE WRITING MACHINE.

No. 502,147.

Patented July 25, 1893.

Fig. 7.

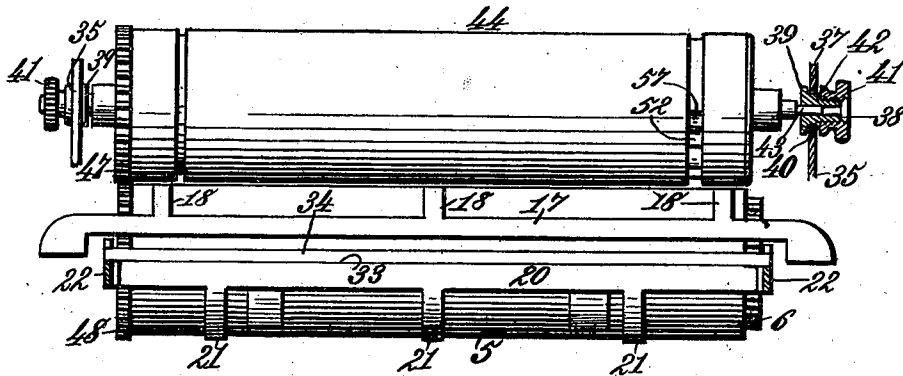


Fig. 8.

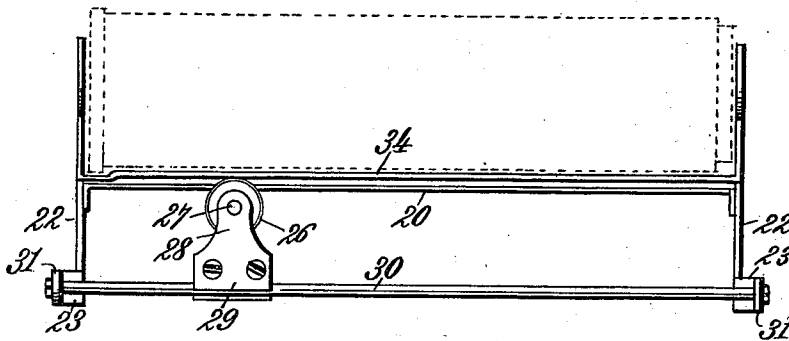


Fig. 9.

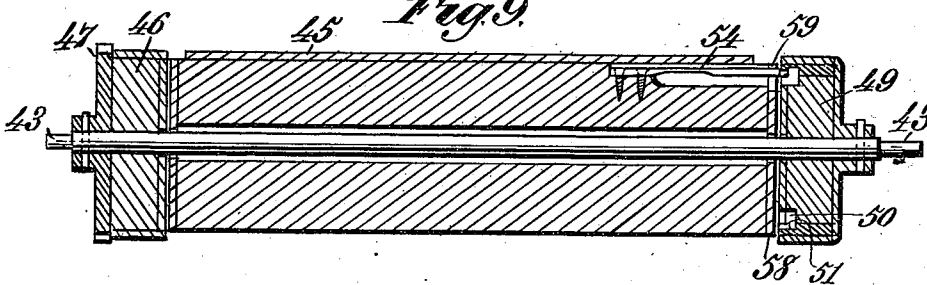


Fig. 10.

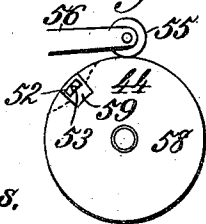


Fig. 11.

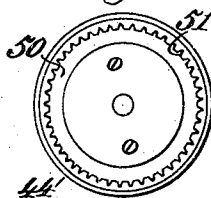
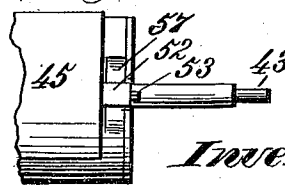


Fig. 12.



Witnesses,
 Robt. Smith,
 J. A. Lutherford.

Inventor.

44' *John D. Smith.*
By *James L. Norris.*
Atty.

UNITED STATES PATENT OFFICE.

JOHN D. SMITH, OF BONHAM, ASSIGNOR OF ONE-HALF TO REUBEN R. GAINES
AND JAMES S. WILLIAMS, OF PARIS, TEXAS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 502,147, dated July 25, 1893.

Application filed August 13, 1892. Serial No. 443,053. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. SMITH, a citizen of the United States, residing at Bonham, in the county of Fannin and State of Texas, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines, and the main objects thereof are to provide a simple, reliable and easily operated auxiliary attachment, or apparatus, whereby paper may be fed to the type in a continuous web, from which the several sheets, as they are printed, may be severed in equal lengths, without disturbing the engagement of the continuous web with the paper-cylinder and feeding-devices.

It is my purpose, in other words, to provide a simple and efficient mechanism capable of being incorporated with, or attached to, a type-writer of any of the known patterns now in use, said mechanism being so organized that it will feed a continuous web of paper to the type by the feeding-devices now used upon the different type-writers known to the public, thereby avoiding the necessity of making any material change, either in construction, in the parts constituting the type-writer, proper, or any addition to, or omission from said parts, which involves any constructive modification of the same.

It is my further purpose to combine with a type-writing machine of any known, or preferred form, a simple, efficient, and comparatively inexpensive attachment for printing upon a continuous web of paper, and to provide means whereby sheets of any required length may be easily, quickly, and accurately severed from the continuous web, as they are printed, without disturbing the relations of said web to the feed-mechanism.

It is my purpose, also, to combine with a type-writing machine of any pattern simple means whereby a letter-head may be printed upon each sheet, of paper, in succession, as it is fed over the paper-cylinder, and before the process of printing begins.

It is my further purpose, in this connection, to provide simple means for printing a letter-head, or other suitable matter, upon each sheet of paper, in succession, as said sheet is fed over

the paper-cylinder; the parts being particularly adapted for a type-writing machine used in printing upon a continuous web, but capable of use in printing letter-heads upon single, or separate sheets.

It is my purpose, also, to provide means for printing letter-heads, or other suitable matter, upon the paper used in a type-writing machine and to combine with the parts simple devices whereby the mechanism printing the letter-heads may be rendered operative, or inoperative, as circumstances may require, and to combine therewith, also, suitable inking-devices, the whole being so organized that it may be operated by the parts of the type-writer which are operated by the person using the latter.

Finally, it is my purpose to combine with a type-writer of any suitable or preferred form, a mechanism for feeding a continuous web of paper to the type, devices for severing sheets of any required length therefrom, automatic means for printing a letter-head upon each sheet, and devices for rendering said printing devices inoperative, or operative, as may be desired, the feed of the continuous web and the action of the parts printing the letter-head being produced by the manually operated parts of the type-writer, proper.

The invention consists, in the several novel features of construction and new combinations of parts hereinafter fully described and then more particularly pointed out and defined in the claims terminating this specification.

To enable others skilled in the art to make, construct, and use my said invention, I will now proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1, is an end elevation of the top of a Remington type-writer, showing my invention incorporated therein. Fig. 2, is a plan view of the parts shown in Fig. 1. Fig. 3, is a perspective view of the paper-cylinder, the printing or type-cylinder, the inking-roll and the sheet severing device, together with their respective supports. Fig. 4, is a transverse or vertical section taken through the paper and printing-cylinders, the inking-roll and pay-off roll, the point of view being at the

left of the type-writer. Fig. 5, is a similar transverse section, including the sheet-severing device and omitting the pay-off-roll. Fig. 6, is an end elevation showing the paper-cylinder, its actuating lever, the printing-cylinder, inking-roll, automatic disengaging devices for the printing-cylinder and the sheet-severing devices. Fig. 7, is a front elevation showing the paper and printing-cylinders, the paper-guides and the straight-edge and clamp for the sheet-severing device. Fig. 8, is a plan view of the sheet-severing device and its several adjuncts. Fig. 9, is a longitudinal section of the printing-cylinder. Fig. 10, is an end view of the printing-cylinder showing the automatic disengaging devices. Fig. 11, is a view of the inner face of one of the heads of the printing-cylinder. Fig. 12, is a detail plan view of one end of the printing-cylinder.

My invention is applicable to a type-writer of any known or preferred form, and to facilitate and simplify the explanation of the same, I have shown it, in this instance, as incorporated in, or connected with, a Remington machine, which is as widely and probably as familiarly known as any pattern of type-writer now in use.

In the said drawings therefor, the reference numeral 1 indicates the top of the Remington machine, with its essential parts, which are of the usual well known construction. Said parts comprise the frame, or paper-carriage, composed of front and rear bars 2 and 3, respectively, and end-bars 4, having the usual mounting upon the type-basket.

In suitable boxes upon the end-bars 4, are mounted the journals of the paper-cylinder 5, which is provided at one end with a ratchet 6, with which the pawl or dog 7 of the line-feed or carriage-lever 8, makes engagement to give intermittent revolution to the cylinder and thereby advance the paper by equal feed-movements, as the lines are successively completed.

The remaining constituent parts of the paper-carriage I need not particularly refer to, as they are familiarly known to all who are skilled in the art. The parts I have specified above are in the same category, but I have made reference thereto because said parts are more or less intimately connected with the mechanism embodying my invention.

In applying my invention to the Remington machine, I usually remove the paper-shelf, which lies in rear of the paper-cylinder 5. While this removal may not be absolutely essential for carrying out my purpose, I prefer to dispense with said paper-shelf, as it is not required where a continuous web is used, and its removal avoids any tendency to a cumbersome, or top-heavy appearance. Moreover, the removal of the paper-shelf affords the means of attaching an important part of the web-supporting mechanism, as I will now explain more specifically.

Upon the lugs 9, to which the paper-shelf

is attached, I mount uprights 10, which are usually connected by a metallic plate 12, which lies parallel with the rear bar 3 of the paper-carriage. The upper ends of these uprights are provided with apertures, or other suitable bearings, in which are placed the journals 13 of a pay-off roll 14, upon which is wound a continuous web 15 of paper of any suitable or preferred kind or quality. From this pay-off roll the paper is led under the paper-cylinder 5, around the front face and over the top thereof, its free end being carried back over the top of the pay-off roll 14. If the web 15 is taken from the rear side of the pay-off roll, the movement of the top of the latter, as the web is paid off, will be toward the rear, and the paper, which will rest thereon by its own gravity, only, will be constantly carried to the rear of said pay-off roll as fast as it comes from the top of the paper-cylinder 5. The web passes between the bottom, or lower face, of the paper-cylinder 5, and the rubber bands 16, which are carried by feed-rolls in front and in rear of the paper-cylinder, in the manner usually followed in machines of this construction. The web is printed in the ordinary way and is fed by the line-space feed-lever or carriage-lever 8.

In front of the paper-cylinder I arrange a narrow metallic plate or flat bar 17, longitudinally parallel with the surface of the cylinder, and provided with a plurality of curved paper-guides, or guard-fingers 18, which curve over toward the surface of the paper-cylinder, their ends closely approaching the same. The function of these guides is to direct the end of the web 15, when it is introduced, or brought upon the cylinder 5, toward the rear. The bar or strip 17 is preferably raised somewhat above the upper surface of the carriage, its extremities being curved or turned downward and then bent toward the rear, into substantial parallelism with the end-bars 4. These ends receive attaching screws 19, which are tapped into the cylinder-shift slide-bars 4^a, just in rear of the slots which receive the cylinder shift-guides on the end-bars 4. A second guide-supporting bar 20 is arranged a little below and parallel with the bar, or strip 17, and upon this second bar are formed, or mounted, curved guide-fingers 21, which extend downward and rearward in such position as to receive the end-edge of the web, as the latter is brought upon the cylinder 5, and direct it between the guide-fingers 18 and the face of the cylinder 5. The second guide-supporting bar 20 is supported upon the cylinder-shift slide-bars 4^a, by arms 22, lying parallel with and inside the said rails. These arms extend rearwardly far enough to catch a bearing upon the shaft of the paper-cylinder. Near the front rail 2 the ends are bent upwardly, to extend to the upper surface of the said slide-rails, and then bent laterally, outward, forming horizontal supporting portions 23, resting upon said surface. At one end the engagement is preserved

by means of a screw 24, which also secures the holding-pawl in place, by which any backlash of the paper-cylinder is prevented. At the other end of the bar, the supporting-portion 23 rests upon the slide-rail without positive fastening.

A space is preferably left between the two rails 17 and 20, of sufficient width to permit the passage of a severing-device, which preferably consists of a cutting-roll 26, journaled on a vertical axis 27, which is supported upon a forked bracket 28. This bracket is provided with a clip, or other suitable device, 29, whereby it is so engaged with a rail 30, that it may slide freely thereon from end to end of the paper-cylinder 5, said rail having support upon the upwardly turned lugs 31, which may be conveniently formed as prolongations of the horizontal supporting-portions 23. The severing or cutting-roll 26 is formed with a thick body-portion having a tread 32, which presses against the outer surface of the guide-supporting bar 20, and forces the inner face of said bar closely against the paper web which is thereby clamped, or pinched, between said bar 20 and the surface immediately in rear thereof. The cutting-edge of the roll, which projects beyond the tread 32, rests upon the upper edge 33 of the supporting bar 20, and projects inside said bar far enough to give its sharp periphery a bearing against the paper and press the same against a metal strip 34, lying behind the guide-supporting bar 20 and close to the face of the cylinder. The edge of the said strip 34 rises above the edge 33, of the guide-supporting bar, in order to present an even, metallic surface against which the cutting-edge of the roll may press the paper, which passes between said strip 40 and bar. The ends of the strip are supported upon the forward extremities of the arms 22, which may be either integral parts of the said strip, or separately formed and suitably connected to it. The guide-supporting bar 20 is usually attached to these arms by bending its ends toward the front and soldering, riveting, or otherwise securing them to the inner faces of the said arms. By this construction the edge 33 of the guide-supporting bar 50 20 forms a straight-edge for the accurate guidance of the cutting-roll, while the bar itself, in conjunction with the strip 34, serves as a temporary clamp for the paper, to prevent its slip, or movement, during the action of the cutting-roll, the clamping-pressure being produced by the pressure of the tread 32 of the cutting-roll.

Upon the cylinder-shift slide-bars 4^a are rigidly affixed upright brackets 35, having outwardly turned foot-pieces 36, through one of which passes an attaching screw 36', while the other foot-piece rests upon the end of the guide-supporting bar 17 and is fastened by the screw 19 above mentioned. Upon these upright brackets are formed, or mounted, lugs 37, in which are formed angular openings, within which are mounted journal-boxes 38, having

heads 39, upon which are angular bosses 40 fitting the openings in the lugs 37. The journal-boxes 38 are threaded upon their exterior 70 to enter nuts 41, which lie between the lugs 37 and shoulders 42, at the inner ends of journals 43, which lie in the boxes 38. The journals form the supports for the shaft of a roll 44, of any suitable diameter, and constructed of wood, metal, or other material. 75 Upon the surface of said roll is formed, or attached, a form of type, arranged in accordance with the taste of the user, and containing the matter usually provided for a letter-head, bill-head, or other similar print, or impression, which will ordinarily include the name of the city, or town, with a depression or socket in the roll for receiving type to designate year, month and day. 85

A cheap and convenient method of providing the type is to cast the whole form in rubber upon a suitable foundation, or plate 45, which may be affixed to the face of the roll by cement, tacks, or other suitable means. 90 This construction is not only inexpensive, but will permit the use of inter-changeable forms, should circumstances render the same desirable. It should be noted, however, that a roll having the type formed thereon, or in any manner attached thereto, is, in all respects, within the scope of my invention. The roll 44 is normally loose upon the shaft, so that the latter may turn without obstruction, without imparting motion to the roll. 100 Upon one end of the shaft of said roll is rigidly mounted a head 46, having a spur-gear 47, which engages with a spur-gear 48 upon the shaft of the paper-cylinder 5. At the other end of the roll-shaft is a head 49, also 105 rigid with the shaft. That side of this head lying next the end of the roll is provided with an open, circular channel 50, exposing a series of internal ratchet-teeth 51, formed in the inner face of the periphery of the head 110 49. Projecting from the end of the roll is a dog 52, which lies in a recess parallel with the axis, or nearly so, and carrying a point 53, so formed as to engage the said ratchet-teeth 51, when the dog is moved outward, and to be 115 withdrawn therefrom when it is moved a corresponding distance inward. The outward movement is effected by means of a spring 54, and the disengagement of the dog from the ratchet-teeth is made by a spring-pressed riding-roll 55, which travels upon the end of the roll 44 and, at the proper point, rolls upon the outer face of the dog. The riding-roll 55 is journaled in the forked end of a lever 56, which is operated by a spring of greater elastic 125 tension than that which throws the dog outward. The dog is driven inward thereby and disengaged from the ratchet 51. The inward movement of the riding-roll is provided for by the formation of a recess 57 in the face of 130 the roll, which is arrested the moment disengagement is made. When the roll 44 is made of wood, rubber, or composition, or any material besides metal, I usually mount a me-

tallic disk 58 on the end thereof and form a shallow slot 59 in the edge thereof to receive and permit the movement of the point, or end, of the dog 52.

5 The lever 56 carrying the riding-roll 55 is provided with a rigid sleeve 60, which is loosely mounted on the end of a shaft 61, which has journal-support in arms 62 forming part of the brackets 35. Upon the sleeve is coiled a
10 spring 63 rigidly attached at one end to the bracket-arm 62, and having its other end extended somewhat from the axis of the sleeve and hooked under the edge of the lever between its fulcrum and the end to which the
15 power is applied.

Upon the shaft 61 is loosely mounted a roll 64 which supplies ink to the type upon the roll 44, and is, for this purpose, of any suitable material and construction. This inking-roll,
20 as well as the printing-roll 44, is usually covered, or inclosed, by a light shield 65, to prevent soiling the paper and the fingers of the operator. The power-end of the lever 56 is extended toward the front and is brought
25 into such proximity to the corresponding end of the pawl-carrying-lever that both may be operated by one hand.

In the construction of the mechanism I prefer to dispense with the nuts 41, surrounding the journals of the roll-shaft, and to make these, or equivalent devices, as parts of the lugs 37, or other supports, which receive the journal-boxes 38. It should be noted, also,
30 that the construction may be varied in other respects, without any departure from my invention, as I do not confine myself to specific details in the construction and assemblage of the several parts of the mechanism.

By the organization set forth, I provide a
40 simple apparatus for feeding a continuous web to the type-writing mechanism and for separating, or severing, sheets therefrom, as printed successively, of any desired or necessary length. I also provide means for printing letter-heads and bill-heads, or other similar matter, upon each sheet as it is brought upon the paper-cylinder, said printing devices being, normally, rendered inoperative by automatic means, and being capable of receiving operative movement at any moment.
50

It is an important feature of my invention that the printing-mechanism is actuated wholly by the revolution of the paper-cylinder and depends primarily, therefore, upon
55 the pawl-carrying lever, or line-feed lever 8, for its action, the paper-cylinder constituting one of the printing-rolls and corresponding, in that capacity, to the impression-cylinder of a press using a type-cylinder.

60 The capacity of utilizing the parts of the type-writer as co-operating elements in the web-feeding and sheet-severing apparatus, and especially in connection with the printing-mechanism, is a feature of the highest importance, as it enables me to greatly simplify the construction, reduce the number of parts,
65 and very materially diminish the cost of man-

ufacture. I am able, also, to benefit by the accuracy of workmanship and operation which is found in all type-writers which have gained
70 a foothold upon the market.

The use of the invention is compatible, as I have mentioned in a preceding portion of this specification, with any form of type-writing machine in use, without any material
75 change. I have shown and described the same in combination with a Remington machine merely as a matter of convenience, and for the further reason that the Remington being a machine which is well known and generally understood, the explanation of my invention in conjunction therewith will require less specific description and be readily comprehended.
80

What I claim is—

85 1. The combination with the paper-cylinder of a type-writing machine, of a pay-off roll carrying a continuous web of paper, a cutting or sheet-severing device traveling on a support in front of the paper-cylinder, and a supporting-strip for the paper behind the
90 line of cut, said strip lying next to and receiving support from the surface of the paper-cylinder, under the thrust of the cutting or severing-device, substantially as described.
95

2. The combination with the paper-cylinder of a type-writer, of a pay-off roll carrying a continuous web of paper, a sheet-severing device movable upon a support in front of the paper-cylinder, a strip arranged behind the
100 line of cut and lying between the web and the paper-cylinder which supports the said strip under the thrust of the cutting or severing-device, and a straight-edge for the latter lying in front of the web, substantially as described.
105

3. The combination with the paper-cylinder of a type-writing machine, of a pay-off roll carrying a continuous web, and a cutting or severing-device movable on a support in front of the paper-cylinder which sustains the
110 thrust of the same, substantially as described.

4. The combination with the paper-cylinder of a type-writing machine, of a pay-off roll carrying a continuous web of paper, a sheet-cutting or severing-device movable on
115 a support in front of the paper-cylinder, a paper-supporting strip arranged between the web and the surface of said cylinder, and a bar having a straight-edge in front of the web to guide the cutting or severing-device and
120 to receive the thrust thereof, whereby said bar is pressed against and clamps the web between its rear face and the supporting-strip, substantially as described.

5. The combination with the paper cylinder, of a type-writer, of a rotary printing roll provided with a form of type for printing upon sheets successively as they are fed to the type, and means for rotating the printing roll at intervals, substantially as described.
130

6. The combination with a type-writing machine, of a printing-mechanism, operated by and in conjunction with the paper-feeding devices, to print a letter-head, bill-head, or

other matter upon the paper, substantially as described.

7. In a type-writing machine, the combination with a paper-cylinder, of a printing-roll, or cylinder, geared thereto, and a paper-feed-lever giving an advance-movement to said paper-cylinder, substantially as described.

8. In a type-writing mechanism, the combination with a paper-cylinder and with means for operating the same, of a printing-cylinder geared thereto and making impressions upon the paper passing over the paper-cylinder, and means for temporarily arresting the revolution of the said printing-cylinder without affecting the paper-cylinder, substantially as described.

9. In a type-writing mechanism, the combination with a paper-cylinder with means for operating the same, of a printing-cylinder deriving its movement from the same, and means for disconnecting the printing-cylinder from the gear-connections to render it inoperative, substantially as described.

10. In a type-writing mechanism, the combination with a paper-cylinder and means for operating the same, of a printing-cylinder or type-cylinder having its shaft geared to the shaft of the paper-cylinder, a dog automatically locking the printing-cylinder with its shaft, and a spring-operated rider automatically engaging the dog and disconnecting the printing-roll or cylinder from its shaft, substantially as described.

11. In a type-writing mechanism, the combination with a paper-cylinder and with means for operating the same, of a printing-roll, or cylinder loose upon a shaft which is geared to said paper-cylinder to have synchronous revolution, a spring-actuated dog on one part adapted to engage ratchet-teeth on the other, to lock the printing-roll or cylinder with its shaft, a riding-roll, to release the dog from its ratchet, a lever in the end of which the riding-roll is journaled, and a spring acting on said lever, substantially as described.

12. In a type-writing mechanism, the combination with a pay-off roll, carrying a continuous web of paper, of a sheet-cutting or severing roll, having a peripheral tread upon its body-portion and a cutting-edge projecting beyond the tread, a bar lying in front of the paper on the paper-cylinder and having a straight-edge, the flat face of the cutting-roll resting upon said edge and the tread resting upon the outer face of the bar, a supporting-strip arranged in front of the paper-cylinder and between the same and the paper-sheet, and a support for the bracket carrying the cutting-roll, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOHN D. SMITH. [L. S.]

Witnesses:

BARNY GILBANT,
WALTER S. MOORE.