

Oct. 14, 1930.

J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 1

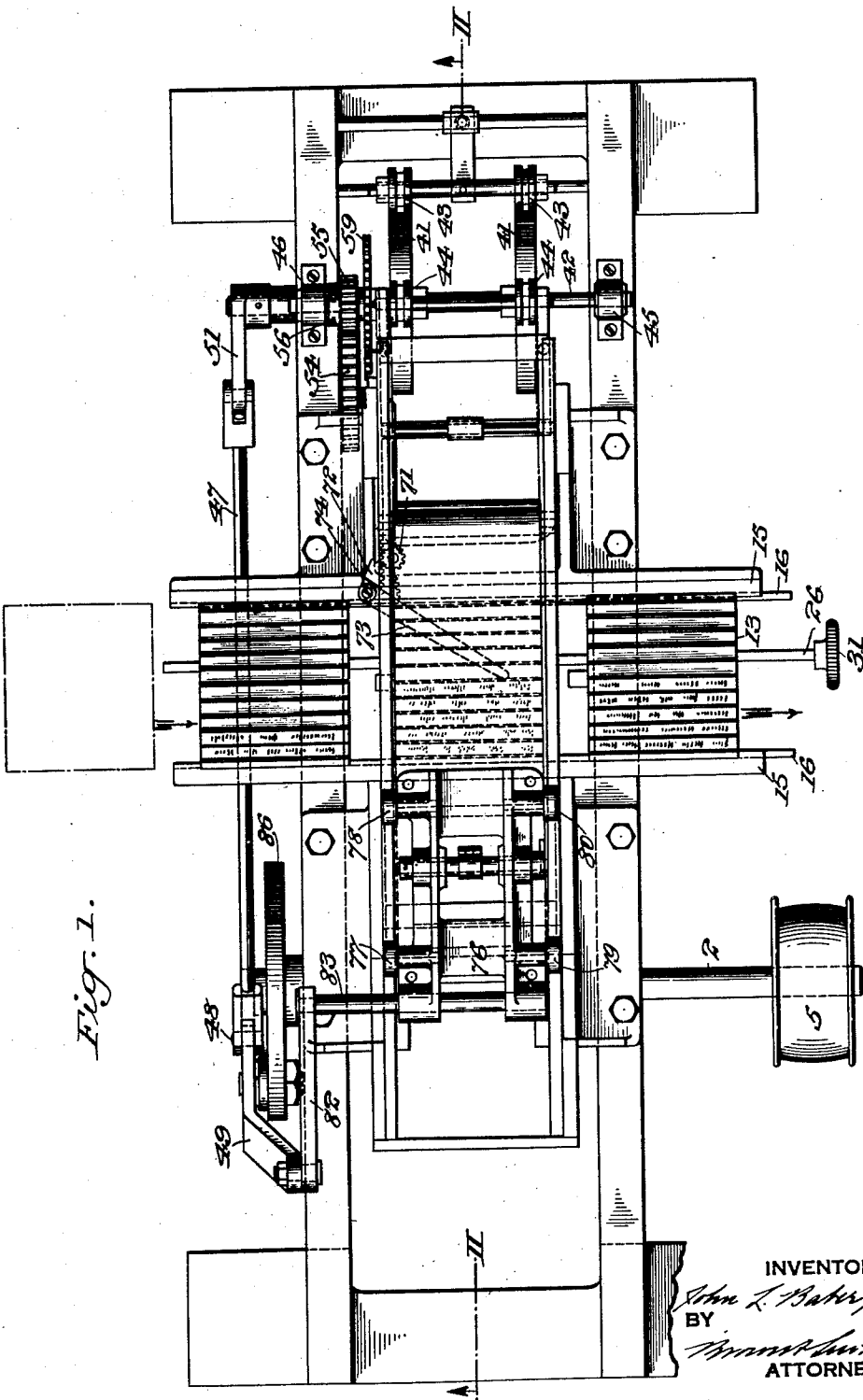


Fig. 1.

INVENTOR

John L. Baber, Jr.

BY

Bernard L. Baber

ATTORNEYS

Oct. 14, 1930.

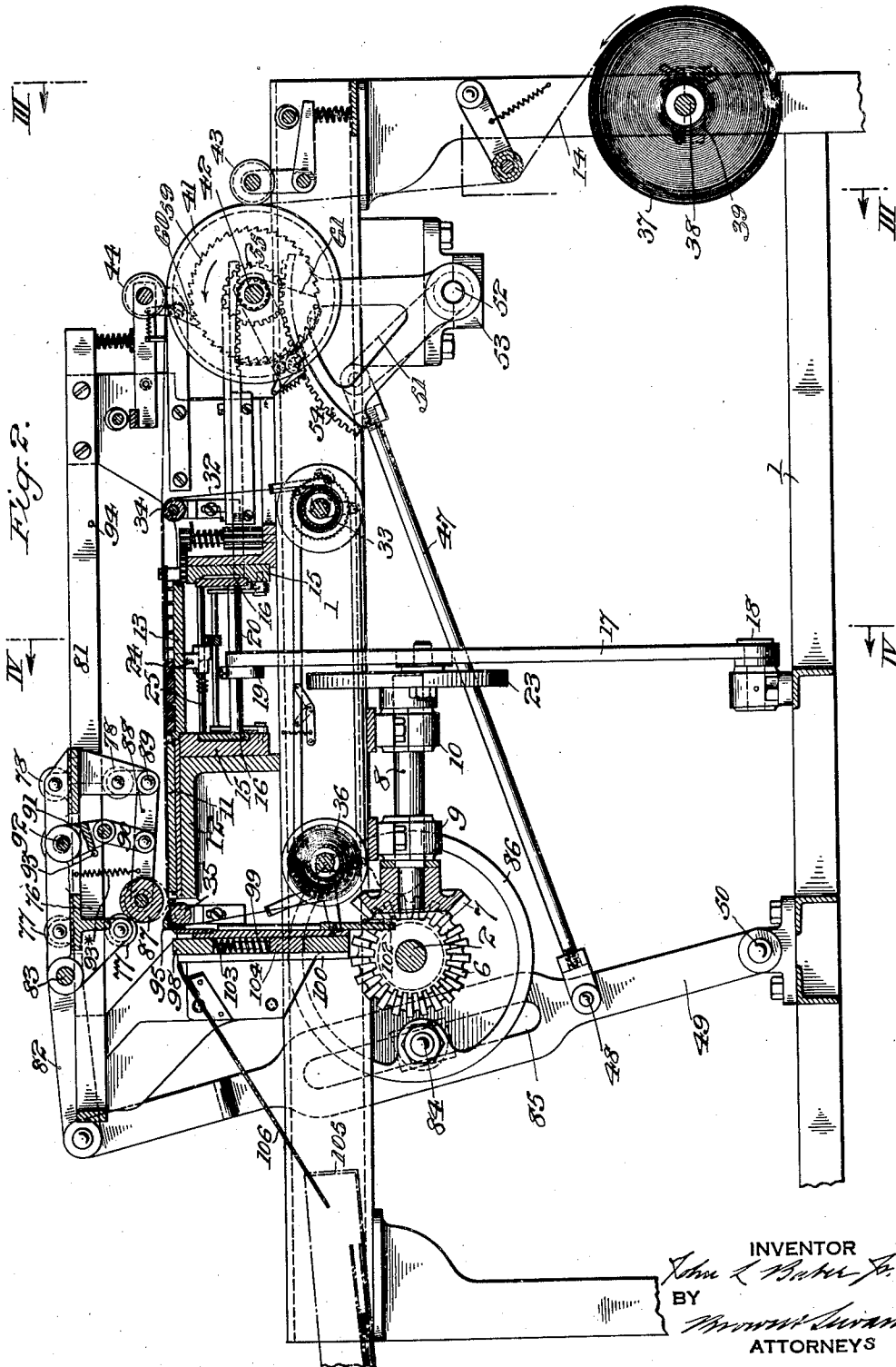
J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 2



Oct. 14, 1930.

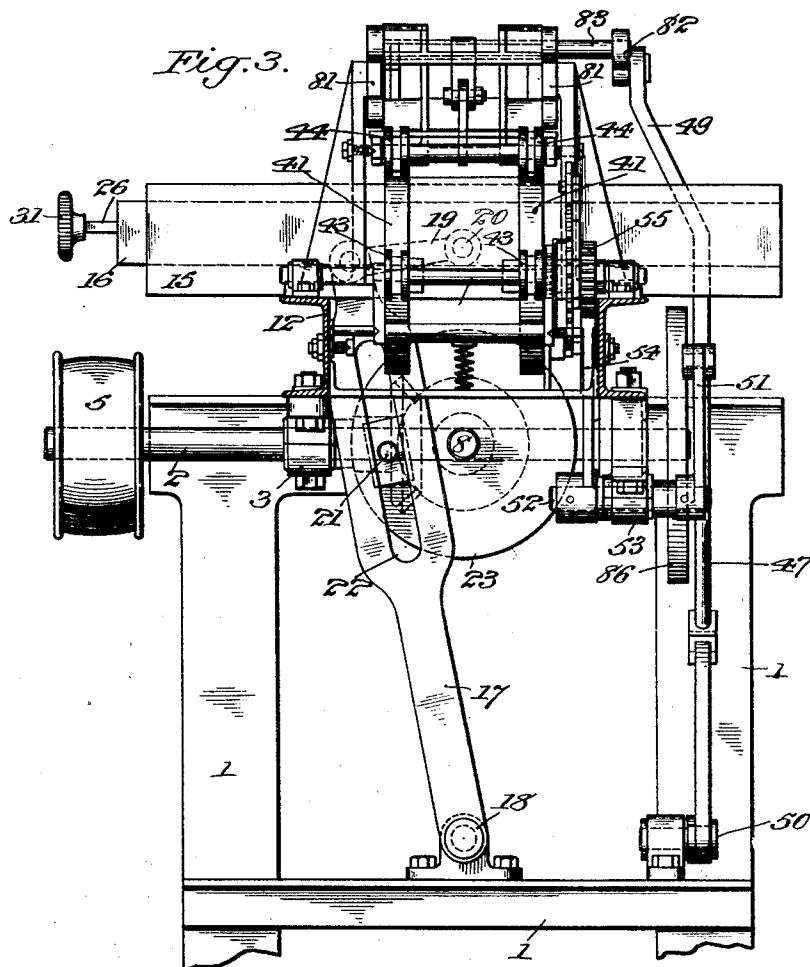
J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 3



INVENTOR
John L. Baber Jr.
BY
Marion L. Leland
ATTORNEYS

Oct. 14, 1930.

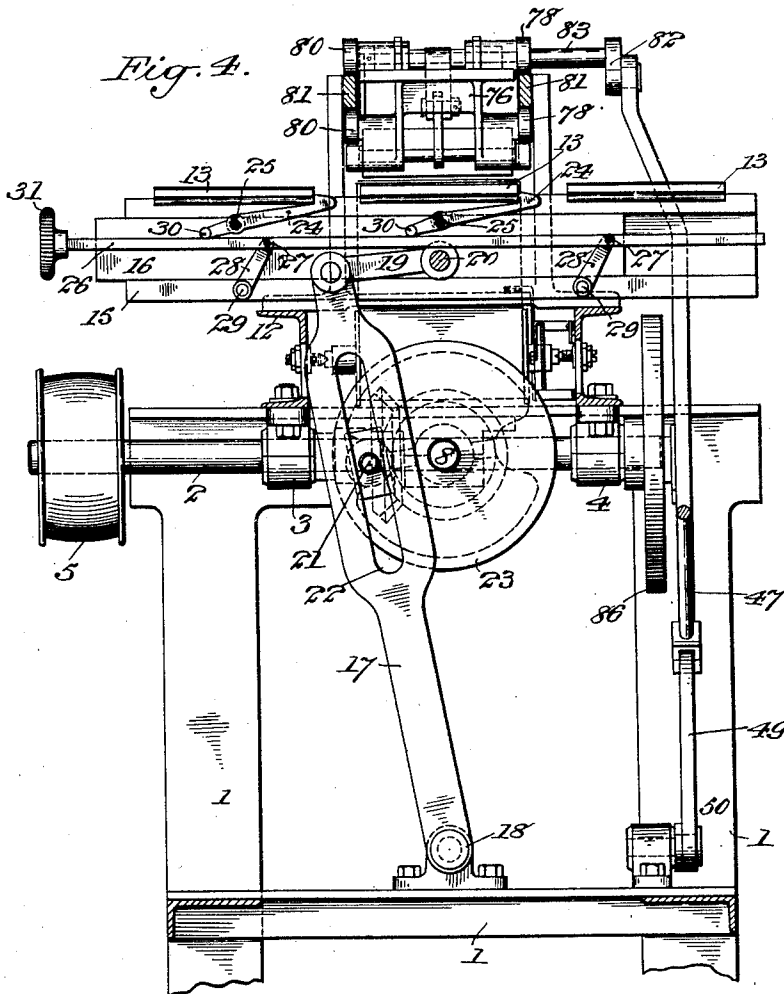
J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 4



INVENTOR

John L. Baber Jr.

BY

Thomson & Howard
ATTORNEYS

Oct. 14, 1930.

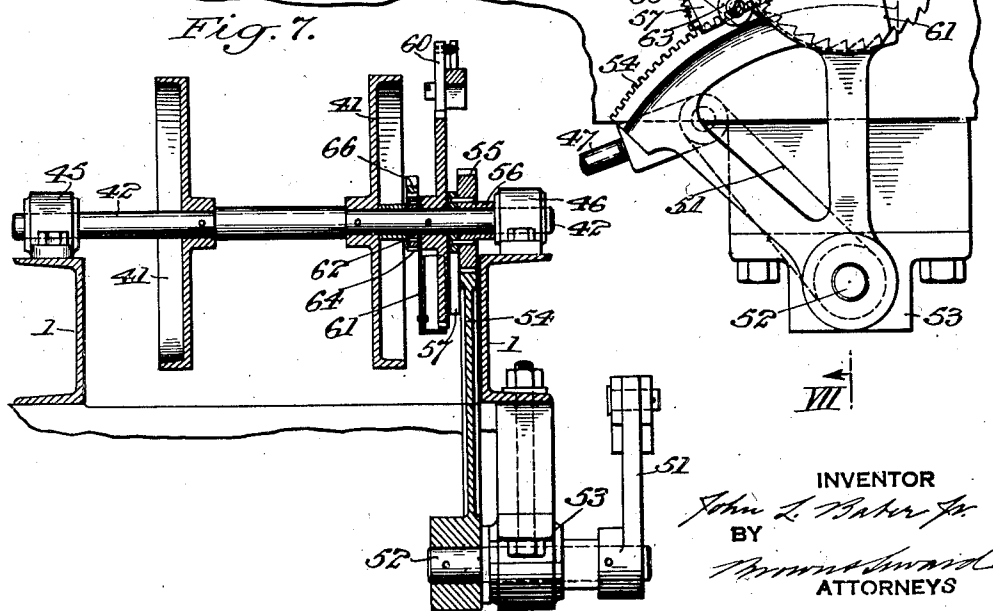
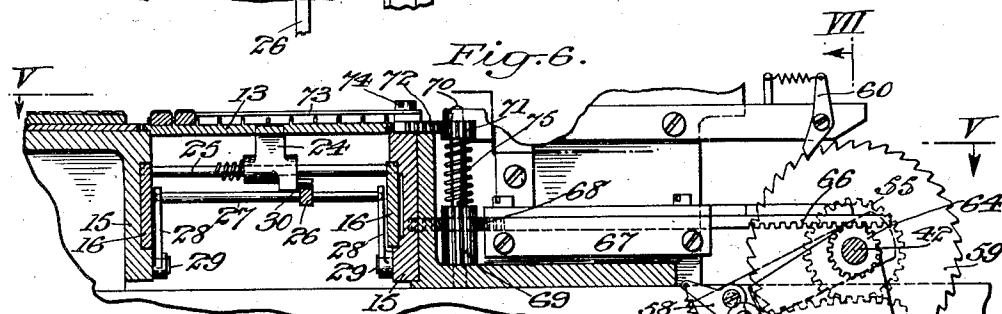
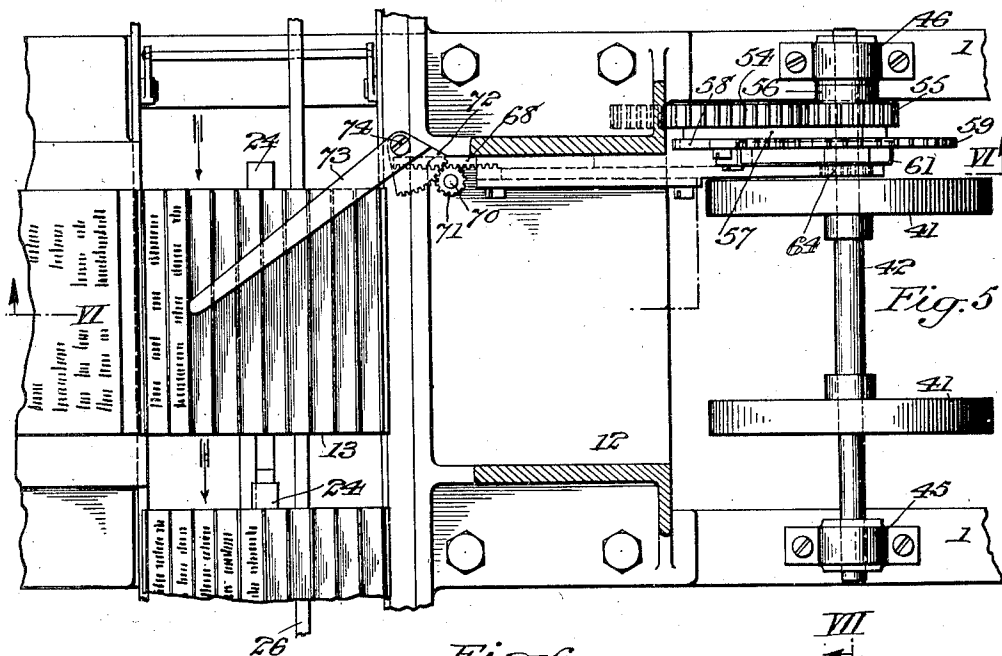
J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 5



INVENTOR

John L. Baber, Jr.

BY

Norman Howard
ATTORNEYS

Oct. 14, 1930.

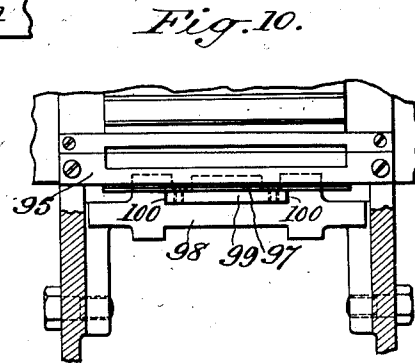
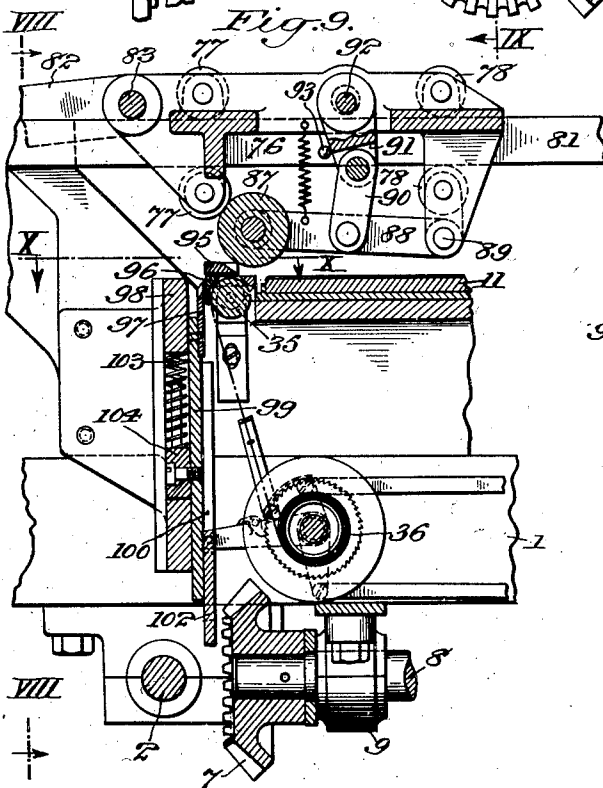
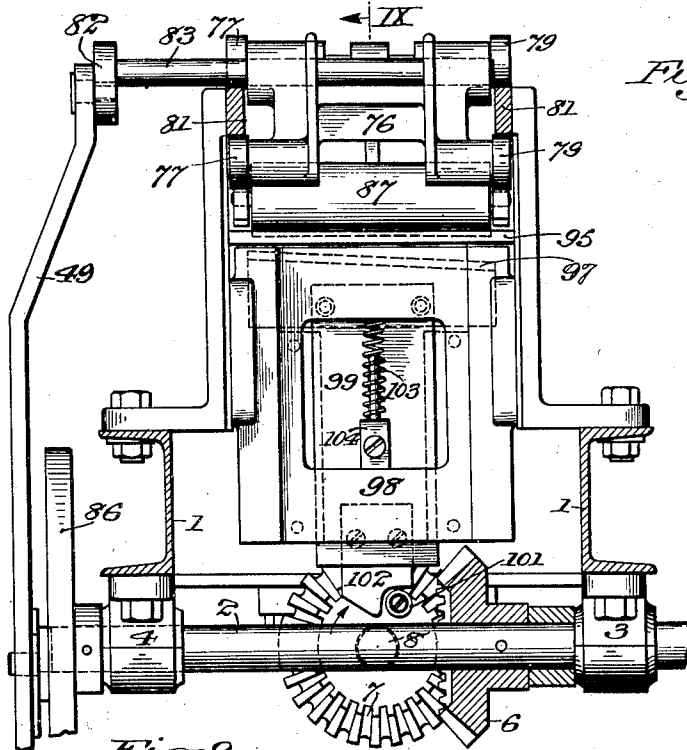
J. L. BABER, JR

1,778,178

PRINTING MACHINE

Filed Nov. 15, 1928

6 Sheets-Sheet 6



INVENTOR
John L. Baber Jr.
BY
Howard S. Baber
ATTORNEYS

UNITED STATES PATENT OFFICE

JOHN L. BABER, JR., OF NEW YORK, N. Y., ASSIGNOR TO BABER COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

PRINTING MACHINE

Application filed November 15, 1928. Serial No. 319,647.

My invention relates, generally, to that class of printing machines which have a fixed printing unit and movable printing units arranged to be brought successively into and out of their printing position adjacent to the fixed printing unit so that the coating printing units may be used for printing on successively fed lengths of a web; said machines including means for cutting the successive printed lengths from the web.

One object of my invention is to provide novel means whereby varying lengths of web may be fed according to the printing lengths of the movable printing units, for ensuring a saving in the amount of web material used. This saving is very important where the material used is expensive.

Another object of my invention is to provide novel means whereby the web feeding mechanism will be controlled by movable printing units of different printing lengths so that corresponding varying lengths of web will be fed successively into position for printing.

Still another object is to provide certain improvements in the construction, form, arrangement and operation of the several mechanisms which will be hereinafter described and claimed.

My invention is more particularly directed to a machine of the above character in which the web feeding mechanism will be controlled by the number of type lines in the movable printing units for feeding varying lengths of web thereto, the web feed controlling means including a device engaged and moved by abutments on the movable printing units as they are brought into their printing position for controlling the amount of movement of the web feeding mechanism. The last type lines in the different movable printing units are herein shown as the abutments which serve to engage, move and hold a finger which controls the amount of advance movement of the web feeding means as the movable printing units are brought into their printing position.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a top plan view of so much of a printing machine of the character set forth as embodies my improvements, the parts being in the positions they assume when a movable printing unit of five type line length has been moved into its printing position adjacent the fixed printing unit, the next preceding and succeeding movable printing units being shown as of five and two type line lengths respectively: the printing and cutting operations having been completed and the web feeding and movable printing unit changing operations being about to be performed.

Fig. 2 represents a longitudinal vertical section, taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 represents a transverse vertical section at the web feed end of the machine taken in the plane of the line III—III of Fig. 2, looking in the direction of the arrows.

Fig. 4 represents a transverse vertical section at the movable printing unit advancing mechanism, taken in the plane of the line IV—IV of Fig. 2, looking in the direction of the arrows.

Fig. 5 represents a detail horizontal section on an enlarged scale, showing more clearly the mechanism which controls the amount of web fed according to the printing length of the movable printing unit, the section being taken in the plane of the line V—V of Fig. 6, looking in the direction of the arrows; the parts being in the positions they assume when a movable printing unit of two type line length has been moved into its printing position.

Fig. 6 represents a detail longitudinal vertical section taken in the plane of the line VI—VI of Fig. 5, looking in the direction of the arrows.

Fig. 7 represents a detail transverse vertical section taken in the plane of the line VII—VII of Fig. 6, looking in the direction of the arrows.

Fig. 8 represents a detail transverse section, showing parts of the printing and cutting mechanisms, the section being taken in

the plane of the line VIII—VIII of Fig. 9, looking in the direction of the arrows.

Fig. 9 represents a detail longitudinal vertical section taken in the plane of the line IX—IX of Fig. 8, looking in the direction of the arrows.

Fig. 10 represents a detail horizontal section taken in the plane of the line X—X of Fig. 9, looking in the direction of the arrows.

The machine frame as a whole, is denoted by 1. The main drive shaft 2 for the several operating mechanisms, is disposed transversely across the machine frame and it is mounted in suitable bearings 3, 4 and may be driven through its pulley 5 from any suitable source of power, not shown herein. This main drive shaft 2 is shown as provided with a bevel gear 6, meshing with a bevel gear 7 carried by a short longitudinally disposed auxiliary drive shaft 8, mounted in suitable bearings 9, 10 in the machine frame.

The fixed printing unit may be a printing form of any desired character and of any desired printing length within reasonable limits. This fixed printing unit is carried by the stationary bed frame 12 of the machine frame in position for coaction with successive movable printing units 13, to print upon successive portions of an intermittently fed web 14.

These movable printing units 13 are moved laterally with respect to the machine in the plane of the fixed printing unit 11 and they are herein represented as chases of type matter containing a varying number of type lines to suit different requirements. These movable printing units 13 are mounted to slide along the rails 15, 15 of a track disposed transversely across the machine frame and they are arranged to be brought successively into and out of their printing position adjacent to the fixed printing unit 11 on the bed frame 12. The mechanism which I have shown for bringing these movable printing units into and out of their printing position comprises a carriage having its side frames 16, 16 slidably mounted in grooves in the inner faces of the track rails 15, 15. This carriage is represented as being reciprocated from the auxiliary drive shaft 8 as follows:—A vertically disposed rock lever 17 is pivoted at its lower end on the machine frame at 18 and at its upper end it has a link connection 19 with a crossbar 20 connecting the side frames 16, 16 of the said carriage, said lever 17 being rocked through a pin and slot connection 21, 22 with a crank disc 23 carried by the said auxiliary drive shaft 8. This reciprocating carriage is shown as being provided with a pair of spring actuated hooks 24, 24 pivoted intermediate their ends on crossbars 25, 25 connecting the side frames 16, 16 of the carriage and arranged to normally project upwardly into their operative position in the path of the movable printing units 13, so that the hooks may be brought into engagement with the

corresponding far sides of two adjacent movable printing units for simultaneously bringing one printing unit into its printing position and the preceding printing unit out of its printing position on the advance stroke of the carriage.

Manually operated means are provided for rendering these printing unit engaging hooks 24, 24 inoperative during both strokes of the carriage when it is desired to retain a movable printing unit in its printing position for more than a single impression in coaction with the fixed printed unit. This manually operated means is herein shown as comprising a cam bar 26 longitudinally disposed between the side frames 16, 16 of the carriage, which cam bar is movable bodily upward and downward by pivoting it to crossbars 27, 27 in the upper ends of two pairs of links 28, 28, the lower ends of which links are pivoted at 29, 29 to the track rails 15, 15 below the side frames of the carriage. The studs or rollers 30, 30 on the printing unit engaging hooks 24, 24 rest at all times on the cam bar 26. This cam bar may be provided with a suitable operating handle 31, so that when the handle is moved in one direction the cam bar 26 will be raised by the upward swinging movement of the links 28, 28, thereby swinging the hooks downwardly out of their operative position in the path of the movable printing units, thus allowing the movable printing units to be undisturbed by the reciprocation of the carriage. When the handle 31 is moved in the opposite direction the cam bar will be lowered by the downward swinging movement of the links 28, 28, thereby allowing the hooks to swing upwardly to their normal operative position in the path of the movable printing units where the hooks may bring the movable printing units successively into and out of their printing position on the advance strokes of the carriage.

The inking mechanism is herein shown as comprising an ink ribbon 32 which is passed from its spool 33 upwardly around a roller 34, then horizontally over the faces of the fixed and coacting movable printing units; then around the roller 35 and then downwardly to its spool 36. The usual step by step movement of the ink ribbon may be imparted to it by any well known or approved means, controlled in the present instance by the mechanism to be hereinafter described for cutting the printed portions successively from the web.

The web 14 is primarily drawn into position to be printed upon over the movable printing unit 13 and its coacting fixed printing unit 11 above the ink ribbon 32. Thereafter the web is automatically fed intermittently to its printing position. The shaft 38 of the web supply roll 37 is mounted in suitable bearings 39, in the machine frame.

In view of the fact that the movable printing units 13 have varying printing lengths and in order to effect a material saving in the amount of web used, I have placed the web feeding mechanism under the control of the movable printing units as they are brought successively into their printing position to coact with the fixed printing unit; so that corresponding varying lengths of the web are intermittently fed over the coacting fixed and movable printing units. The web feeding mechanism which I have shown for accomplishing this purpose is constructed, arranged and operated as follows:

The flanged discs 41, 41, of the web feed reel are fast on the shaft 42 and they are engaged by the pairs of spring pressed rollers 43, 43 and 44, 44, for positively feeding the web to the printing units. This reel shaft 42 is rotatably mounted in suitable bearings 45, 46 in the machine frame. The mechanism for advancing the web step by step a predetermined amount is herein shown as including a rod 47 having one end connected at 48 to a vertically disposed rock lever 49 pivoted at 50 to rock longitudinally of the machine frame, the other end of said rod 47 being connected to an arm 51 fast on a rock shaft 52 mounted in a suitable bearing 53, in one side of the machine frame, which rock shaft 52 has a segment gear 54 fast thereon. This segment gear 54 meshes with a pinion 55, the hub 56 of which is rotatably mounted on the feed reel shaft 42. A feed pawl arm 57 is secured to the pinion 55, which arm carries the spring actuated feed pawl 58 arranged in position to engage the teeth of a ratchet wheel 59 for a greater or lesser part of its advance movement, the hub of which ratchet wheel is fast on the web feed reel shaft 42. A lock pawl 60 mounted on the bed frame 12 engages the ratchet wheel 59 at all times and serves to prevent the reverse movement of the ratchet wheel and thereby the web feed reel when the feed pawl 58 is being returned to the limit of its rearward movement.

This feed pawl 58 is permitted to engage the teeth of the ratchet wheel 59 for more or less of the advance movement of the feed pawl to cause the web feed reel to feed varying lengths of web according to the printing lengths of the movable printing units. This is accomplished, in the present instance, by providing a segment shield 61, the hub 62 of which is loosely mounted on the web feed reel shaft 42, the laterally projecting peripheral flange of which shield overlaps the toothed face of the ratchet wheel 59 in the path of the feed pawl 58 as it advances toward the limit of its movement, a stud or roller 63 on the feed pawl, riding up on the shield flange to move the pawl out of its engagement with the ratchet wheel at the desired time to lengthen or shorten the advance

movement of the ratchet wheel and thereby the web feed reel. A pinion 64 is fast on the hub 62 of the segment shield, which pinion is engaged by the teeth disposed along one end of a rack bar 66, slidably mounted in a suitable guideway 67 in the bed frame 12. Teeth 68 are disposed along this rack bar 66 at the other end thereof, which teeth mesh with a pinion 69 fast on the lower end of a vertical shaft 70, rotatably mounted in suitable upper and lower bearings in the bed frame. The upper end of this vertical shaft 70 is provided with a pinion 71 which meshes with a toothed segment 72, carried by a horizontally swinging web feed control finger 73, pivoted at 74 on the bed frame. This web feed control finger 73 projects into position to be successively engaged, moved and held by each movable printing unit as the units are brought successively into and out of their printing position to thereby swing and hold the segment shield 61 in position to cause the feed pawl 58 to travel a greater or lesser distance in engagement with the ratchet wheel 59, in the forward movements of the pawl, before engaging the segment shield. A coil spring 75 on the vertical shaft 70 serves to yieldingly hold the finger 73 at the limit of its forward swinging movement. This web feed control finger has a sufficient range of movement to be controlled by a movable unit of any printing length within prescribed limits. In Fig. 1 I have shown the finger as engaged by the last of five type lines in the movable printing unit, which last type line serves to hold the finger and its connected segment shield in their adjusted positions until the movable printing unit is brought out of its printing position, when the finger will be engaged and moved by the next succeeding movable printing unit as it is brought into its printing position. In Figs. 5 and 6 I have shown the finger 73 as engaged and moved by a two type line containing movable printing units.

The impression mechanism which I have shown for printing successive portions of the web as they are fed intermittently and in the desired lengths in position over the coacting fixed and movable printing units, is constructed, arranged and operated as follows:

A reciprocating impression roller carriage 76 is provided with pairs of upper and lower traction wheels 77, 78 and 79, 80 respectively, arranged to travel along the tops and bottoms of the rails 81, 81 of a track disposed longitudinally of the machine above the coacting fixed and movable printing units.

This impression roller carriage 76 is reciprocated from the main drive shaft 2 through the rock lever 49 hereinbefore described, the upper end of which lever is connected by a link 82 to a crossbar 83 of the carriage; the lever having a pin and slot con-

nection 84, 85 with a crank disc 86 fast on the main drive shaft 2.

The impression roller 87 is rotatably mounted in the free ends of rock levers 88, 88, pivoted at 89, 89 in the impression roller carriage 76. These levers 88, 88 have a toggle link connection 90, 91 with the crossbar 92 of the carriage, which toggle link connection is engaged by a pin 93 projecting from one of the track rails 81, 81 to throw the toggle link past center in one direction to raise the impression roller 87 from its printing contact with the web at the end of the advance stroke of the carriage. A spring 93* serves to hold the impression roller away from the web during the return stroke of the carriage. This toggle link connection is also engaged by a pin 94 projecting from the same track rail 81 to throw the toggle link in the opposite direction on center to lower the impression roller into printing contact with the web at the end of the return stroke of the carriage and hold it in such position during the advance stroke of the carriage. It will thus be seen that the impression roller is engaged with the web for printing on the same, during the forward stroke of the carriage.

The means which I have shown for cutting successive printed portions from the web is constructed, arranged and operated as follows:

A stationary knife 95 is secured to the bed frame 12 beyond the fixed printing unit 11, which knife extends across the bed frame and is spaced above the crossbar 96 sufficiently to permit the passage of the web between the said stationary knife and said crossbar. A vertically reciprocating knife 97 extends across the machine frame at the end of the bed inside a vertical cross frame 98, in position to coact with the stationary knife 95 to sever successive printed portions from the web. This knife 97 is carried by a head 99, fitted to slide vertically in side guides 100, 100 in the vertical cross frame 98. The knife head 99 is reciprocated at the proper intervals to cause the knife 97 to coact with the knife 95 to cut successive printed portions from the web while the web is stationary; by providing the gear 7 on the auxiliary drive shaft 8 with a stud or roller 101 which intermittently engages a cam 102 on the knife head. A spring 103 engages a block 104 secured to the knife head 99 for yieldingly holding the cam 102 in the path of the stud or roller 101.

The successive printed sheets as they are cut from the web are directed to a suitable receptacle 105 by an inclined table 106 leading from the cross frame 98.

The movable printing units 13 are successively slid along their track 15 into and out of their printing position through their engagement with the hooks 24 carried by the reciprocating carriage 16. The web feeding mechanism will intermittently operate to feed

successive portions of the web to and from their printing position and the successive impressions will be made upon the web. These web portions with their successive impressions will be severed by the knives 97, 95 of the cutting mechanism. The lengths of the web which are fed to the printing units are controlled by the successive movable printing units, as hereinbefore explained, by the coaction of each movable printing unit with the finger which controls the advance movement of the web feeding mechanism. If it be desired to use a particular movable printing unit for more than one impression, it may be permitted to remain in its printing position for the number of impressions desired, by manipulating the cam bar to move the unit engaging hooks out of their operative position.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, hence I do not wish to be limited to the particular embodiment herein shown and described, but what I claim is:

1. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing them successively into their printing position, and means for automatically feeding varying lengths of web to the printing units in accordance with the varying printing lengths of the printing units.

2. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing them successively into their printing position, and means controlled by the printing units for feeding varying lengths of web thereto.

3. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing them successively into their printing position, means for automatically feeding varying lengths of web to the printing units in accordance with the varying printing lengths of the printing units, and means for cutting the printed portions from the web.

4. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing them successively into their printing position, means controlled by the printing units for feeding varying lengths of web thereto, and means for cutting the printed portions from the web.

5. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the printing units into their printing position, and means controlled by the number of type lines in the printing units for feeding varying lengths of web thereto.

6. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the printing units into their printing position, means controlled by the number of type lines in the printing units for feeding varying lengths of web thereto, and means for cutting the printed portions from the web.

7. In a printing machine of the character set forth, a fixed printing unit, movable printing units having varying printing lengths, means for bringing them successively into coactive relationship with the fixed printing unit, and means controlled by the movable printing units for feeding varying lengths of web to the fixed and movable printing units.

8. In a printing machine of the character set forth, a fixed printing unit, movable printing units having varying printing lengths, means for bringing them successively into coactive relationship with the fixed printing unit, means controlled by the movable printing units for feeding varying lengths of web to the fixed and movable printing units, and means for cutting the printed portions from the web.

9. In a printing machine of the character set forth, a fixed printing unit having a fixed number of type lines, movable printing units having a varying number of type lines, means for bringing the movable printing units successively into coactive relationship with the fixed printing unit, and means controlled by the number of type lines in the movable printing units for feeding varying lengths of web to the fixed and movable printing units.

10. In a printing machine of the character set forth, a fixed printing unit having a fixed number of type lines, movable printing units having a varying number of type lines, means for bringing the movable printing units successively into coactive relationship with the fixed printing unit, means controlled by the number of type lines in the movable printing units for feeding varying lengths of web to the fixed and movable printing units, and means for cutting the printed portions from the web.

11. In a printing machine of the character set forth, printing units having varying printing lengths, adjustable abutments thereon, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a device engaged and moved by the abutments on the printing units as they are brought into their printing position, for controlling the amount of movement of the web feeding means.

12. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing the units successively into and out of their print-

ing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a web feed reel, an advancing mechanism therefor and a device for automatically controlling the amount of movement of the web feed reel advancing mechanism.

13. In a printing machine of the character set forth, printing units having varying printing lengths, adjustable abutments thereon, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a web feed reel, an advancing mechanism therefor and a device engaged and moved by the abutments on the printing units as they are brought into their printing position, for controlling the amount of movement of the web feed reel advancing mechanism.

14. In a printing machine of the character set forth, printing units having varying printing lengths, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a web feed reel, a pawl and ratchet advancing mechanism therefor and a device for automatically determining the time of the engagement of the pawl with its ratchet to control the amount of movement of the ratchet and thereby the feed reel.

15. In a printing machine of the character set forth, printing units having varying printing lengths, adjustable abutments thereon, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a web feed reel, a pawl and ratchet advancing mechanism therefor and a device engaged and moved by the abutments on the printing units as they are brought into their printing position for determining the time of the engagement of the pawl with its ratchet to control the amount of movement of the ratchet and thereby the feed reel.

16. In a printing machine of the character set forth, printing units having varying printing lengths, adjustable abutments thereon, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the printing lengths of the said units, comprising a web feed reel, a pawl and ratchet advancing mechanism therefor, a finger located in position to be engaged and moved by the abutments on the printing units as they are brought into their printing position and a pawl engaging shield operated by the finger for determining the time of engagement of the pawl with its ratchet, for

controlling the amount of movement of the ratchet and thereby the feed reel.

17. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the number of type lines in the printing units, comprising a device engaged and moved by the last type lines of the printing units as they are brought into their printing position, for controlling the amount of movement of the web feeding means.

18. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the number of type lines in the printing units, comprising a web feed reel, an advancing mechanism therefor and a device engaged and moved by the last type lines of the printing units as they are brought into their printing position, for controlling the amount of movement of the web feed reel advancing mechanism.

19. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the number of type lines in the printing units, comprising a web feed reel, a pawl and ratchet advancing mechanism therefor and a device engaged and moved by the last type lines of the printing units as they are brought into their printing position, for controlling the amount of movement of the web feed reel advancing mechanism.

20. In a printing machine of the character set forth, printing units having a varying number of type lines, means for bringing the units successively into and out of their printing position, and means for feeding varying lengths of web according to the number of type lines in the printing units, comprising a web feed reel, a pawl and ratchet advancing mechanism therefor, a finger located in position to be engaged and moved by the last type lines of the printing units as they are brought into their printing position and a pawl engaging shield operated by the finger for determining the time of disengagement of the pawl from its ratchet, for controlling the amount of movement of the ratchet and thereby the feed reel.

21. In a printing machine of the character set forth, a transversely disposed track, printing units slidable along said track into and out of their printing position, a carriage also slidable along the track, means for reciprocating the carriage, unit engaging means mounted on the carriage for bringing

successive units into and out of their printing position on the advance stroke of the carriage, and manually operated means for holding the unit engaging means out of their operative position when successive printings of a particular unit are desired, said manually operated means including a cam bar disposed between the track rails and engaging said unit engaging means, said cam bar being mounted for vertical movement on rocking levers pivoted to said track, and said rocking levers.

22. In a printing machine of the character set forth, a transversely disposed track, printing units slidable along said track into and out of their printing position, a carriage also slidable along the track, means for reciprocating the carriage, unit engaging spring actuated hooks mounted on the carriage for bringing successive units into and out of their printing position on the advance stroke of the carriage, and manually operated means for holding the hooks out of their operative position when successive printings of a particular unit are desired, said manually operated means including a cam bar disposed between the track rails and engaging said hooks, said cam bar being mounted for vertical movement on rocking levers pivoted to said track, and said rocking levers.

23. In a printing machine of the character set forth, fixed and movable printing units, movable printing unit operating mechanism, web feeding mechanism, an impression mechanism, and means for operating the mechanisms including a main drive shaft, an auxiliary drive shaft geared thereto, a lever rocked by the main drive shaft and connected to the web feeding and impression mechanisms and a lever rocked by the auxiliary drive shaft and connected to the movable printing unit operating mechanism.

24. In a printing machine of the character set forth, fixed and movable printing units, a movable printing unit operating mechanism, a web feeding mechanism, an impression mechanism, a web cutting mechanism, and means for operating said mechanisms including a main drive shaft, an auxiliary drive shaft geared thereto, a lever rocked by the main drive shaft and connected to the web feeding and impression mechanisms, a lever rocked by the auxiliary drive shaft and connected to the movable printing unit operating mechanism and a cam on the auxiliary drive shaft for operating the cutting mechanism.

In testimony, that I claim the foregoing as my invention, I have signed my name this 14th day of November, 1928.

JOHN L. BABER, JR.