F. F. MAIN.

ADDING AND LISTING MACHINE.

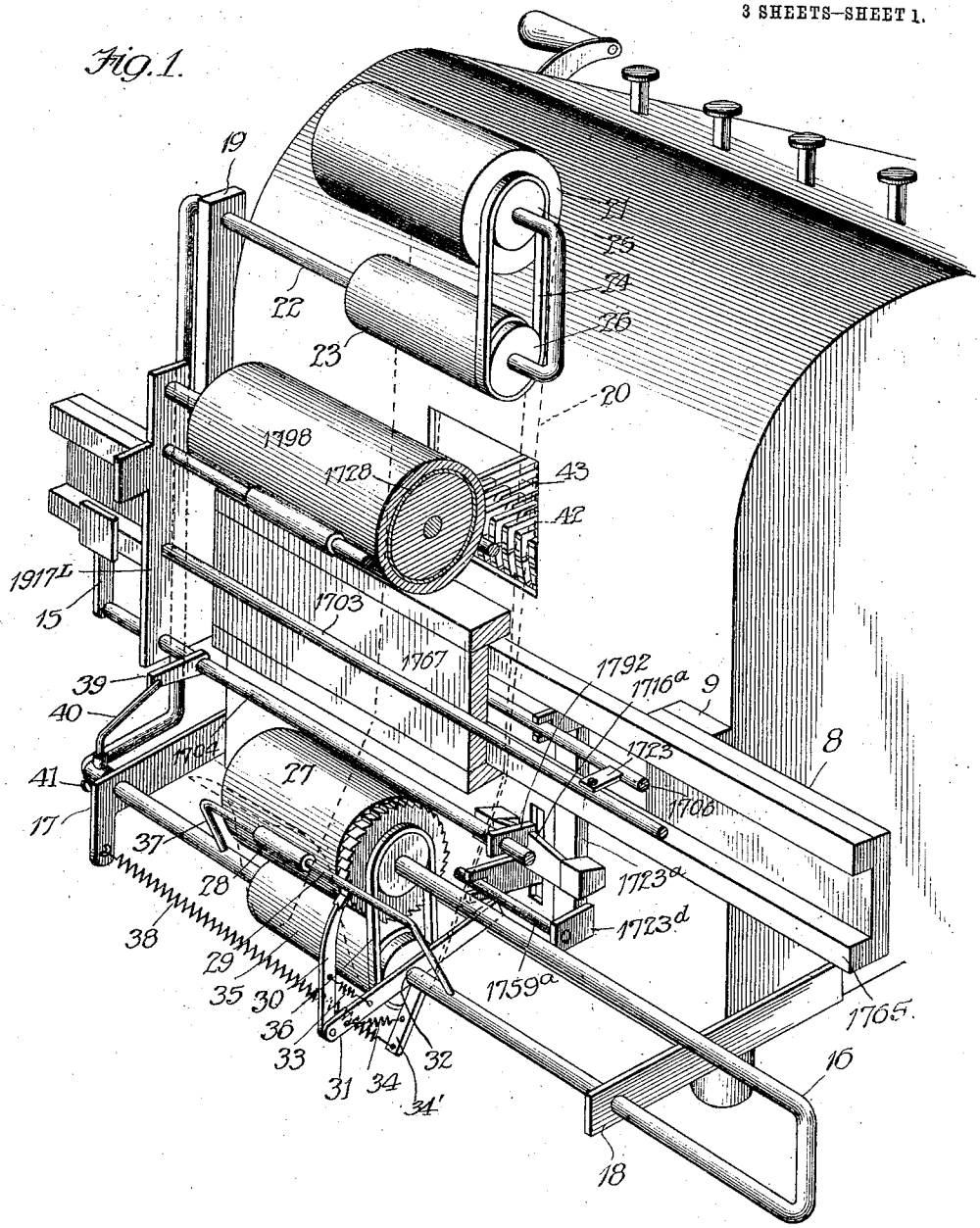
APPLICATION FILED MAY 16, 1911.

1,123,337.

Patented Jan. 5, 1915.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Martin H. Olsen.
Robert Dobberman

Inventor
Fred F. Main
By Rector, Hibben, Davis & Macauley
Atty's.

F. F. MAIN.

ADDING AND LISTING MACHINE.

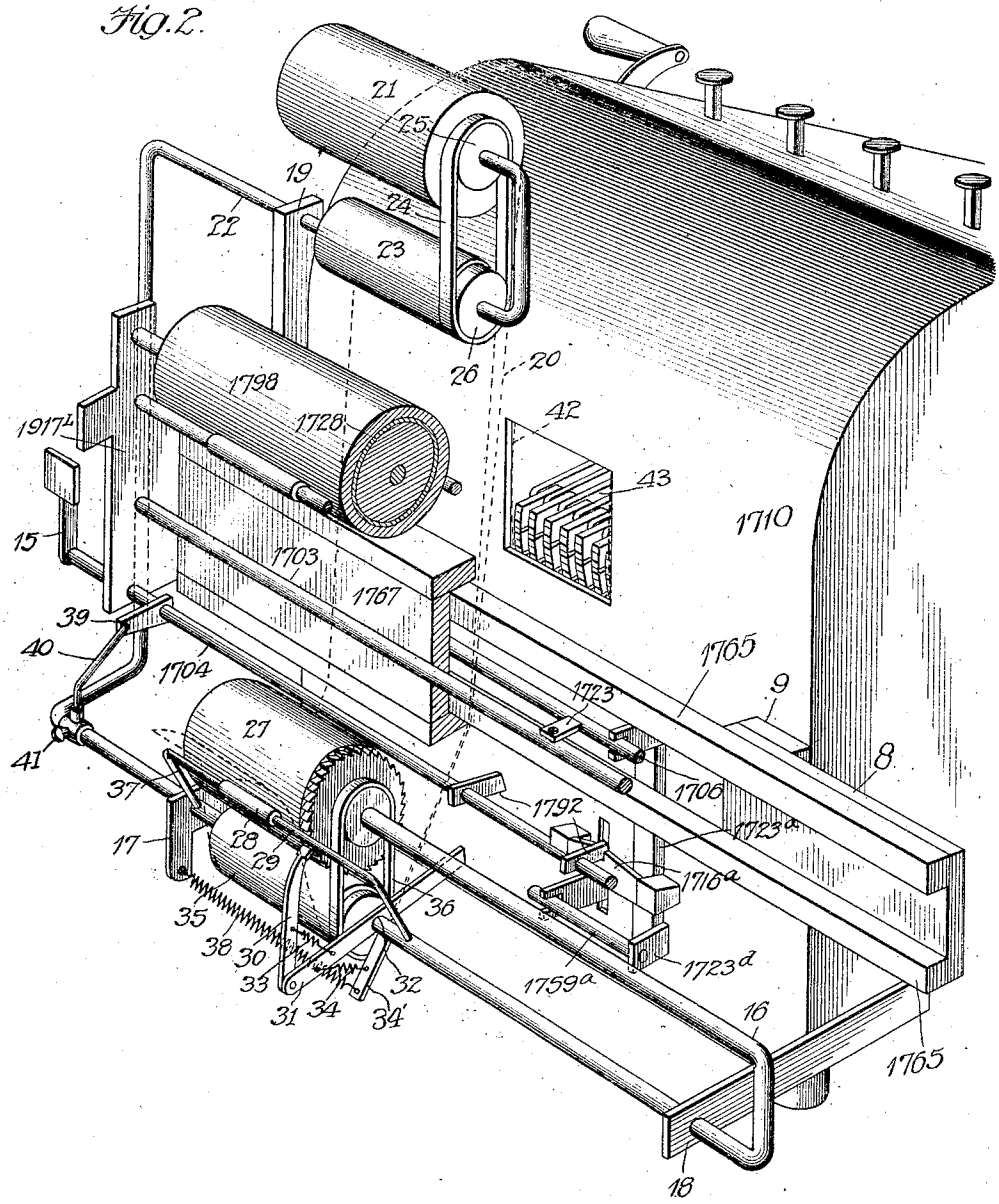
APPLICATION FILED MAY 16, 1911.

1,123,337.

Patented Jan. 5, 1915.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses
Martin H. Olsen.
Robert Dobberman

Inventor
Frank F. Main
By Rector, Hibben, Davis & Macauley
Atty's.

F. F. MAIN.

ADDING AND LISTING MACHINE.

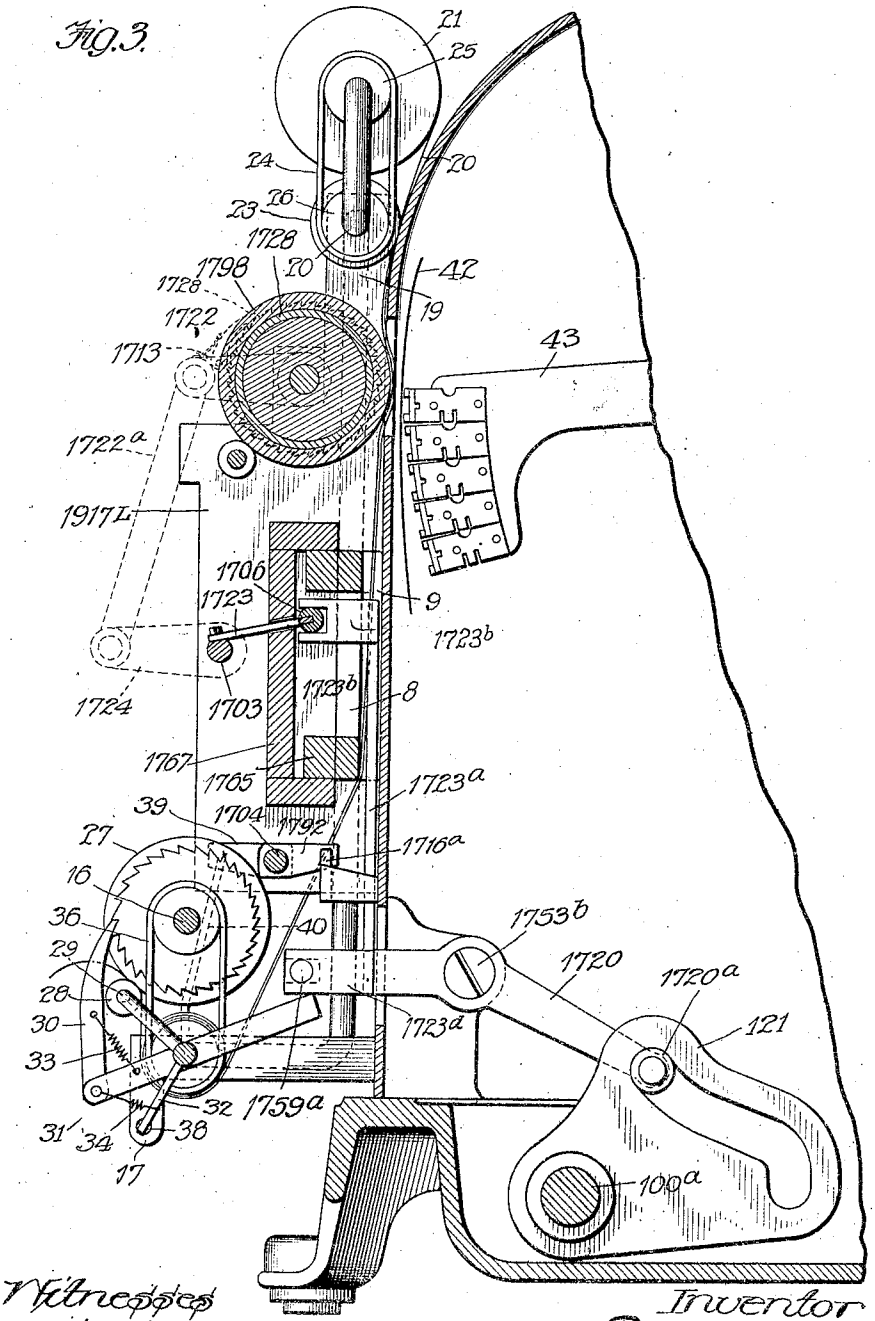
APPLICATION FILED MAY 16, 1911.

1,123,337.

Patented Jan. 5, 1915.

3 SHEETS—SHEET 3.

FIG. 3.



Witnesses
Martin R. Olsen.
Robert Dobbenmon

Inventor
Fred F. Main
By Richardson Davis Thacher & Co.
Attys.

UNITED STATES PATENT OFFICE.

FRED F. MAIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ADDING AND LISTING MACHINE.

1,123,337. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed May 16, 1911. Serial No. 627,516.

To all whom it may concern:

Be it known that I, FRED F. MAIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adding and Listing Machines, of which the following is a specification.

In the work for which such machines are intended and adapted it is sometimes convenient or desirable to form a list or record of some of the items printed in the main or complete list and having some common characteristic. Thus, for example, where sub-totals are printed from time to time in the main or complete list or lists, a separate list of such sub-totals is useful in checking up work done on the machine. Or again, in statement work, commercial billing, and the like, it is usually desired to have a list or record of the totals of the separate bills or statements. Or, if the work in hand be posting accounts, the individual totals of the credits and debits may be needed for checking purposes and unless some special provision be made, it is necessary to review the entire work to secure these totals.

It is the object of my invention to provide an attachment for adding machines and the like whereby a record may be made of the items of a particular character, such as totals or sub-totals, and the like on a separate strip of paper, printing them thereon by the same operations of the machine by which they are printed on the main sheet. For this purpose I mount upon the adding machine a carriage which is adapted to be moved into position to present a strip of paper carried thereby to the type of the machine, whenever it is desired to make a record thereon of any of the items being printed on the main sheet, said carriage or holder being shiftable relatively to the main paper carriage of the machine between printing and non-printing positions. I further provide means for line-spacing the strip whenever an item is to be printed thereon but which is inoperative at all other times.

Ordinarily for statement work or for commercial billing a form of adding machine is employed in which a platen of sufficient length to receive the blanks or sheets of the bills is movable transversely of the printing mechanism to print the various items on the sheet in their proper respective columnar positions. Thus, for example, the totals of the bills are ordinarily printed in a separate column at the right of the various items, and in the form of machine referred to provision is made for adjusting the platen carrying the bill to the proper columnar positions to receive the items and sub-totals respectively. The Burroughs Adding Machine Company manufactures a machine of this character, a form of which is substantially shown in Patent No. 913,738, granted to Kreis, March 2, 1909, and assigned to that company.

In the accompanying drawings and specifications I have shown and described my invention in connection with a machine which is substantially of this form. It is to be understood, however, that my invention is limited neither to this particular type of machine nor to the specific mechanism disclosed, but is capable of use in connection with other types of machine and in other forms, the specific disclosure herein being for the purpose of exemplification only.

In the claims following the specific description I have endeavored to define the scope of the invention as distinguished from the prior art so far as known to me, though it is to be understood that it is not my intention to relinquish or abandon any part or feature thereof.

In the accompanying drawings Figure 1 is a perspective view showing a form of the well known Burroughs adding and listing machine substantially like that of the Kreis patent, with my invention applied thereto and in operative position to receive an impression on the tally roll, parts being broken away, as hereinafter explained, to more clearly reveal the mechanism; Fig. 2 is a similar view but with the parts to which my invention more particularly relates, in inoperative or non-printing position; Fig. 3 is a transverse vertical section substantially through the center of the machine, so much only of the adding machine proper being shown as is necessary to an understanding of my invention.

In the several views each part is designated throughout by the same character of reference and where parts are shown which are also found in the machine shown in the Kreis patent referred to above, I have designated them by the same reference symbol.

Before proceeding to a detailed description of the machine it may be well to state the general construction. Upon an adding machine of the character above described provided with an elongated longitudinally shiftable platen carriage, a second carriage is movable independently of the first and carries rolls mounted above and below the platen for the feed of a record strip and ink ribbon between the printing mechanism of the adding machine and the platen, the ink ribbon being next the platen so that the sheet of paper upon the platen is printed thereby while the strip from the tally roll receives its impression from the regular ink ribbon of the adding machine. The strip and ribbon feed mechanism are normally out of position at one side of the printing opening of the adding machine, but when it is desired to print any item, such as subtotal or the like on the strip, the tally roll carriage is shifted with the main or platen carrying carriage to a position in front of the printing mechanism. Line-spacing mechanism for the strip feeding rolls is also mounted in the carriage and brought into engagement with the platen line-spacing mechanism when the tally strip is in printing position, to be operated thereby.

With this general statement of the character of my improvement I will proceed to describe the same in detail. As heretofore stated, it is shown in connection with a Burroughs adding machine, which is provided on the back panel 1710 with a horizontal track 1765 composed of an upper and a lower rail secured together by suitable tie plates 8 and spaced from the machine by spacing blocks 9; but one of these blocks is shown but it will be understood that there is one at each end of the machine. The carriage 1767 has upper and lower flanges embracing the track and slides horizontally upon the same, and comprises end plates 1917^{L}, supporting the roller platen 1798, which may be of well known or approved design. As shown in Fig. 3 the platen is provided with an ordinary form of line-spacing mechanism comprising an arm 1713 pivoted concentrically with said platen, carrying a pawl 1722 and connected at its outer end by a link 1722^{a} with an arm 1724 upon a shaft 1703 extending longitudinally of the carriage. The just mentioned parts are shown in Fig. 3 mainly in dotted lines as they are actually present on that portion of the machine which is in front of the picture plane of said view. Shaft 1703 is journaled in said end plates on the carriage, and oscillated from a box cam 121 within the machine casing, which cam is mounted upon a shaft 100^{a}, common to machines of this type, and oscillates lever 1720 pivoted at 1753^{b} within the machine casing and extending through an opening in the rear panel, beyond which it is slotted or notched to engage a pin 1759^{a} upon a slide 1723^{a} to be presently described, the inner end of the lever carrying a roller 1720^{a} engaging the slot of the box cam referred to above. The slide 1723^{a}, as seen more particularly in Figs. 1 and 2, is formed at its lower end with a lug 1723^{d} carrying the pin 1759^{a} which engages the lever above described, and at its upper end is formed with a bifurcated lug 1723^{b} which projects rearwardly and engages a horizontal rod 1706 carried by arms 1723 mounted upon the oscillating shaft 1703 heretofore described. The shaft 100^{a} is oscillated with each printing action of the machine and through the arm 1720 gives a vertical reciprocation to the slide 1723^{a}, which in turn, through the connections just described, oscillates the shaft 1703 and through the medium of the pawl 1722 and a ratchet 1728 upon the end of the platen, rotates the latter the space of a line for each printing action. A stop rod 1704 is journaled in the side plates 1917^{L} and provided with stops 1792 which engage the catch plate 1716^{a} mounted on the rear panel of the machine, and a handle 15 by which the stops may be swung into and out of the notch of said catch plate. It will be understood that there is one of these stops mounted upon the stop rod for every column of numbers the machine is designed to print upon a sheet of paper and whenever a stop is in the notch of the catch plate the platen carriage is in the corresponding columnar position. The construction thus far described is substantially old and disclosed in the Kreis patent referred to above, and is of course not claimed as of my invention, though it coöperates therewith in a manner to be presently described.

My tally roll mechanism comprises, as heretofore stated, a second horizontally shiftable frame which is movable with and independently of the platen carriage and, in the particular form disclosed, consists substantially of a heavy wire rod 16 doubled upon itself at the lower part of the machine and extending at one end upward and then horizontal and doubled back upon itself as clearly shown in Figs. 1 and 2. Obviously the particular form of this frame is unessential as its function is to form a horizontally movable support for the parts to be presently described. The rod is guided for horizontal movement transversely of the machine in perforated guides 17—18 attached at the bottom of the machine to opposite sides thereof and a somewhat similar guide 19 secured to one side of the machine near its top. Upon the wire rod are mounted the spools or rollers for receiving and feeding a paper strip and an ink ribbon.

The paper strip 20 is originally wound upon the supply spool 21 upon the upper-

most leg or horizontal length of the wire rod and extends downwardly therefrom betweeen the rear panel of the adding machine and the platen to the take-up mechanism mounted at the bottom of the carriage. Beneath the spool 21 and upon the second longitudinal length 22 of the wire rod is mounted an ink ribbon supply reel or spool 23 which is rotated by a belt 24 from the paper spool 21, the spools having the belt rollers 25—26 at their adjacent ends for this purpose. Strip take-up roll 27 is mounted upon the rod 16, as shown, and serves in conjunction with the pressure roll 28 to line-space the paper strip at each operation of the adding machine. For this purpose the roll 27 is provided at one end with a ratchet 29 which is engaged by a pawl 30 carried by a lever 31 pivoted upon the rod 16 at 32. The pawl is held into engagement with the ratchet by spring 33 and the outer end of the lever normally depressed by spring 34 connected at its opposite ends to a lug 34′ secured to frame rod 16 and the lever respectively. When the secondary carriage is moved to bring the paper strip opposite the printing opening in the adding machine the lever 31 is brought to a position with its end beneath the projecting end of the lever 1720 by which the slide 1723 is operated. Thus, when the lever 1720 is oscillated by the cam, it strikes pawl-carrying lever 31, on its downward stroke and gives a jog to the paper feed roll 27. Beneath the roll 27 and upon the lowermost length of the frames of the rod is journaled an ink ribbon spool 35 which is rotated from the feed roll 27 by means of a belt 36 and takes up the ink ribbon substantially as it is taken up in typewriters and other machines of similar character.

The secondary carriage is normally retained in the position shown in Fig. 2 by the spring 38 which is connected at one end to the stationary bracket 17 and at the other, to the lug 34′ projecting from the rod 16 as above described. The secondary carriage might of course be moved into the position in which the tally strip is printed upon in any suitable manner, as by hand; but I prefer, where the nature of the work done admits it, to move the carriage into position automatically from the movement of the platen carriage, and a construction for this purpose, dependent upon the fact that the items to be recorded in the tally strip are in a separate columnar position from the other items, is disclosed in the drawings. Thus, upon the stop rod 1704 which carries the stops for insuring the correct columnar positions for the platen carriage, I mount an additional stop 39, for any column, the items of which it is desired to print upon the record or tally strip. In the present instance I have shown a single stop of this character, and ordinarily, as for example, where only totals or sub totals are to be printed, this will be sufficient, since such items are usually printed in a single columnar position. Upon the secondary carriage I mount a finger 40 adjustable angularly with respect to the rod on which it is mounted by the set-screw 41, which finger in the position shown is adapted to be engaged by the stop 39 when the stop rod is in position for the stops 1792 or either of them to engage the notched plate 1716ª. The stops 39 and 1729 and the finger 40 are so adjusted and arranged that when the last named stop is in the notched plate the stop 39, through the medium of the finger, holds the secondary carriage with the tally strip in the position to receive an impression. It is to be understood that the stop rod is set substantially in the position shown in Figs. 1 and 2 of the drawing before the movement of the platen carriage to the right, as viewed in said figures, so that the stop 79 is ready to slide upon and engage the notched plate 1716ª, and the stop 39 engages the finger 40 and moves the secondary carriage to the right with the platen carriage against the tension of spring 38. When the printing operation in the columnar position corresponding to stop 1729 is completed the stop rod 1704 is oscillated sufficiently to raise the stop 1792 out of the notch and at the same time cause the stop 39 to clear the finger 40, whereupon the released secondary carriage returns to its normal position under the tension of spring 38. When it is desired to move the secondary carriage independently of the platen carriage the finger 40 may be thrown out of alinement with the stop 39. It will be understood that in adding machines of this character the regular ink ribbon 42 is fed between the platen and the type carrying segments 43 within the casing and when the record strip and supplementary ink ribbon are fed between the blank upon the platen and the printing mechanism in the position shown, the blank upon the platen receives its impression from the supplementary ribbon, while the record strip receives its impression from the regular ribbon 42. Obviously, if different colored ribbons are used, the items which are printed upon the record strip will appear upon the bill, statement, or main list in a different colored ink from the remaining items thereof, so that it may be seen at once whether each of such items has been recorded upon the tally strip. In this way any omission of an item from the tally strip may be detected at once, or at any time thereafter.

The operation of the device has been described in connection with its detailed description, but it may be pointed out that the record or tally strip is line-spaced only when or after an item is printed thereon, so

that the items, though widely separated in the original main list, are closely spaced on the record strip.

I claim:

1. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position.

2. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position as an incident to columnar shift of the carriage.

3. In a machine of the class described, the combination with the printing mechanism and laterally shiftable paper carriage; of a laterally shiftable paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position.

4. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage, of a laterally shiftable paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position as an incident to columnar shift of the carriage.

5. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, a spring restraining said holder, and means for shifting said holder to printing position in opposition to the spring.

6. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, a spring restraining said holder, and means for shifting said holder to printing position in opposition to the spring as an incident to columnar shift of the carriage.

7. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a laterally shiftable paper holder relative to which said carriage normally shifts, a spring restraining said holder, and means for shifting said holder to printing position in opposition to the spring.

8. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a laterally shiftable paper holder relative to which said carriage normally shifts, a spring restraining said holder and means for shifting said holder to printing position in opposition to the spring as an incident to columnar shift of the carriage.

9. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, means for shifting said holder to printing position, and line spacing mechanism rendered operative by the shifting of the holder to printing position.

10. In a machine of the class described the combination with the printing mechanism, laterally shiftable paper carriage, and line-spacing means; of a paper holder mounted independently of said carriage, means for shifting it to printing position, and line spacing means operated by the first mentioned line spacing means when the holder is in printing position.

11. In a machine of the class described and in combination with the printing mechanism and platen thereof, and the means for line-spacing said platen, a carriage having means for supporting a record strip and carrying it into and out of printing position, line-spacing means for the record strip also mounted on the carriage and adapted to be brought into position to be engaged by the line spacing mechanism for the platen when the strip is in printing position and to be thrown out of engagement therewith when the strip is in non-printing position.

12. In a machine of the class described and in combination with the platen and printing mechanism thereof, said platen having line-spacing mechanism comprising a part movable in a vertical plane, a horizontally movable carriage having means for supporting a record strip and adapted to bring said strip into and out of printing position, and line spacing means for the record strip including a part projecting into the path of the vertically movable part of the line spacing mechanism for the platen when the record strip is in printing position and out of the path of said part when the record strip is in non-printing position.

13. In a machine of the class described and in combination with the platen and printing mechanism thereof and platen line spacing means, a carriage shiftable with relation to said printing mechanism and said line-spacing means, a supply roll and a take-up roll on said carriage and situated respectively on opposite sides of the printing mechanism and adapted when the carriage is in one position to feed the strip between said mechanism and the platen, and means for operating the take-up roll by the platen line spacing means.

14. In a machine of the class described and in combination with the printing mech-

anism and the platen thereof and platen line spacing means, a carriage shiftable with relation to said printing mechanism and said line-spacing means and having supply and take-up rolls located respectively upon opposite sides of the printing mechanism and adapted to support a record strip in printing position when the carriage is in one position and in non-printing position when the carriage is in another position, ink ribbon supply and take-up rolls for the record strip, and means for operating the take-up rolls by the platen line spacing means.

15. In a machine of the class described and in combination with the printing mechanism and platen thereof, a horizontally shiftable carriage having record strip supply and take-up rolls located respectively above and below the printing mechanism, means for operating the take-up roll for line spacing the record strip mounted on said carriage, and platen operating means upon the machine with which said take-up means becomes engaged when the record strip is shifted horizontally to printing position.

16. In a machine of the class described, a printing mechanism, a rotary platen, means comprising a vertically movable part for rotating said platen to line space paper carried thereby; in combination with a horizontally shiftable carriage having record strip supporting means thereon adapted to be moved into position to support the record strip between the platen and printing mechanism, a pawl and ratchet mechanism for feeding the record strip carrying means adapted to be engaged by the vertically moving part of the platen line spacing means when the record strip is in printing position and to be out of engagement therewith when the record strip is in non-printing position.

17. In a machine of the class described having a printing mechanism, a platen, pawl and ratchet mechanism for rotating the platen and connections from a movable element of the machine to said pawl and ratchet mechanism comprising a vertically oscillating lever; of a horizontally sliding carriage, record supply and take-up rolls mounted upon said carriage and adapted to carry a record strip into and out of printing position, a ratchet upon the take-up roll, a pawl lever for operating the ratchet adapted to be engaged by said vertically operating lever when the record strip is in printing position and to be out of engagement therewith when the record strip is in non-printing position.

18. In a machine of the class described having a printing mechanism, a laterally shiftable platen and a carriage upon which the latter is mounted; of a second laterally shiftable carriage, means mounted thereon for supporting a record strip and adapted to hold the strip in registry with the printing mechanism in one position of the carriage and out of registry therewith in another position of the carriage, and means upon the platen carriage for engaging said second carriage and moving the same.

19. In a machine of the class described and in combination with the printing mechanism, laterally shiftable platen carriage and platen thereof, of a second laterally shiftable carriage, record strip supporting means mounted thereon and adapted to support a strip in or out of registry with the printing mechanism according to the position of said second carriage, means normally retaining said second carriage in position with the record strip out of printing position and means upon the platen carriage for engaging the second carriage to shift it into printing position for the record strip to be engaged by the printing mechanism.

20. In a machine of the class described comprising a printing mechanism, a laterally shiftable platen and platen carriage, means for locating said platen carriage in a plurality of columnar positions, a second laterally movable carriage, record strip carrying means mounted thereon and adapted to support a record strip in or out of printing position according to the position of said carriage, and means on the platen carriage operated by said platen locating means for engaging said second carriage and moving it into position with the record strip in printing position.

21. In a machine of the class described comprising a printing mechanism and laterally shiftable platen and platen carriage, a stop rod having one or more tabulating stops thereon, a catch plate mounted upon a stationary part of the machine and with which said stop engages, a second carriage movable laterally of the machine, means for supporting a record strip mounted on said second carriage in position to bring said strip into and out of printing position, a stop on said stop rod and an abutment on the second carriage adapted to be engaged by said stop to move the second carriage into the position in which the record strip is engaged by the printing mechanism.

22. In a machine of the class described and in combination with the printing mechanism, laterally movable platen and platen carriage thereof, of a second carriage, having means thereon for supporting a record strip and adapted to carry said strip into and out of printing position, of a stop on said platen carriage and an adjustable finger on the second carriage adapted to be thrown into and out of position to be en-

gaged by the stop on the platen carriage to move the second carriage into and out of printing position.

23. In a machine of the class described and in combination with the printing mechanism, laterally movable platen and platen carriage thereof, of a second carriage having means for supporting a record strip and adapted to move the same into and out of printing position, means for normally retaining the second carriage in position with the record strip at one side of the printing mechanism and means on the platen carriage for engaging the second carriage to move it into position with the record strip in printing position against the action of said retaining means.

24. In a machine of the class described and in combination with the printing mechanism, laterally movable platen and platen carriage thereof, of a second carriage having means for supporting a record strip and adapted to move the same into and out of printing position, a spring for normally retaining the second carriage in position with the record strip at one side of the printing mechanism, and means on the platen carriage for engaging the second carriage to move it into position with the record strip in printing position against the action of said spring.

25. In a machine of the class described, the combination with the printing couple comprising type and impression means and with paper holding means, of an auxiliary paper holder and a manifolding medium with provisions for optionally interposing the same between the members of the printing couple, said holder being movable relatively to both said members and to the first mentioned paper holding means.

26. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position as an incident to columnar shift of the carriage; with provision for returning the holder to its normal position as an incident to release of the carriage from the columnar position attained through such shift.

27. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage, of a laterally shiftable paper holder relative to which said carriage normally shifts, and means for shifting said holder to printing position as an incident to columnar shift of the carriage; with provision for returning the holder to its normal position as an incident to release of the carriage from the columnar position attained through such shift.

28. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, a spring restraining said holder, and means for shifting said holder to printing position in opposition to the spring as an incident to columnar shift of the carriage; together with provisions for releasing the holder for return thereof to normal position by its spring, as an incident to release of the carriage from the columnar position attained through the aforesaid shift.

29. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a laterally shiftable paper holder relative to which said carriage normally shifts, a spring restraining said holder and means for shifting said holder to printing position in opposition to the spring as an incident to columnar shift of the carriage; together with provisions for releasing the holder for return thereof to normal position by its spring, as an incident to release of the carriage from the columnar position attained through the aforesaid shift.

30. In a machine of the class described the combination with printing means, a laterally shiftable paper carriage, means for determining various columnar positions of said carriage comprising a rock-rod on the latter; of a laterally shiftable paper holder mounted independently of the aforesaid carriage, a spring normally withholding it from juxtarelation with the printing means, and an arm on the aforesaid rock-rod for impelling said holder into juxtarelation with said printing means when the carriage shifts to a predetermined columnar position, said arm adapted to disengage from the holder when the rod is rocked to release the carriage from such position.

31. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, said holder being itself shiftable to printing position.

32. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a laterally shiftable paper holder relative to which said carriage normally shifts.

33. In a machine of the class described, the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder relative to which said carriage normally shifts, said holder being itself shiftable to printing position, and line-spacing mechanism for the paper of said holder rendered operative by the shifting of the holder to printing position.

34. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage;

of a paper holder mounted independently of said carriage, and shiftable to present its paper to the printing mechanism.

35. In a machine of the class described the combination with the printing mechanism and laterally shiftable paper carriage; of a paper holder mounted independently of said carriage and shiftable to present its paper to the printing mechanism, and line-spacing mechanism for the paper of said holder operated by the first-mentioned line-spacing means when the holder is in printing position.

36. In a machine of the class described the combination with printing mechanism and laterally shiftable paper carriage; of a supplemental paper carriage shiftable relative to the main carriage between definite positions in and out of juxta-relation to the printing mechanism.

37. In a machine of the class described the combination with printing mechanism and laterally shiftable paper carriage; of a supplemental paper carriage shiftable as a unit relative to the main carriage between definite positions in and out of juxta-relation to the printing mechanism.

38. In a machine of the class described the combination with printing mechanism and laterally shiftable paper carriage; of a supplemental paper carriage shiftable relative to the carriage between definite positions in and out of juxta-relation to the printing mechanism, and a spring for impelling said supplemental paper carriage to one such position.

39. In a machine of the class described the combination with printing mechanism and a laterally shiftable paper carriage; of a supplemental paper carriage comprising a unitary paper supporting structure extending on both sides of the printing line and shiftable relative to the main carriage with its paper interposed between the latter and the printing mechanism.

40. In a machine of the class described the combination with printing mechanism and a laterally shiftable paper carriage having a roller platen; of a supplemental paper carriage comprising a unitary supporting structure extending on both sides of the roller platen and a supply roll on one side thereof and a take-up roll on the other, said supplemental paper carriage shiftable relative to the main carriage with its paper interposed between the latter and the printing mechanism.

41. In a machine of the class described the combination with printing mechanism and a paper holder; of a supplemental paper holder shiftable relative to the main paper holder between pre-defined positions in and out of juxta-relation to the printing mechanism.

42. The combination with recording mechanism and its work holder; of a supplemental work holder optionally interposable to present its work to the recording mechanism and maintained in movable relation to the main work holder.

FRED F. MAIN.

Witnesses:
A. M. MAIN,
RUTH MAIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."