H. E. BARROLL.

PRINTING MACHINE.

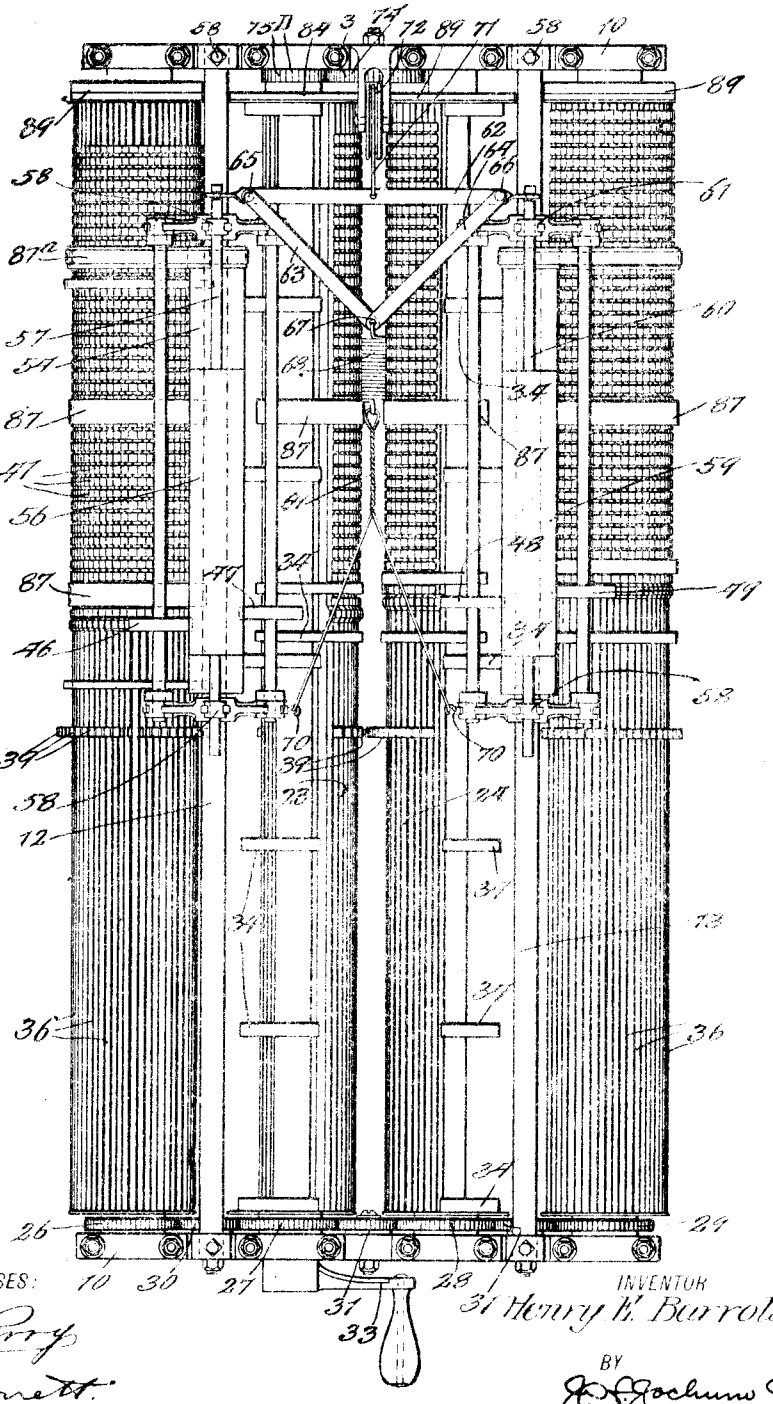
APPLICATION FILED OCT. 21, 1914.

1,196,729.

Patented Aug. 29, 1916.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

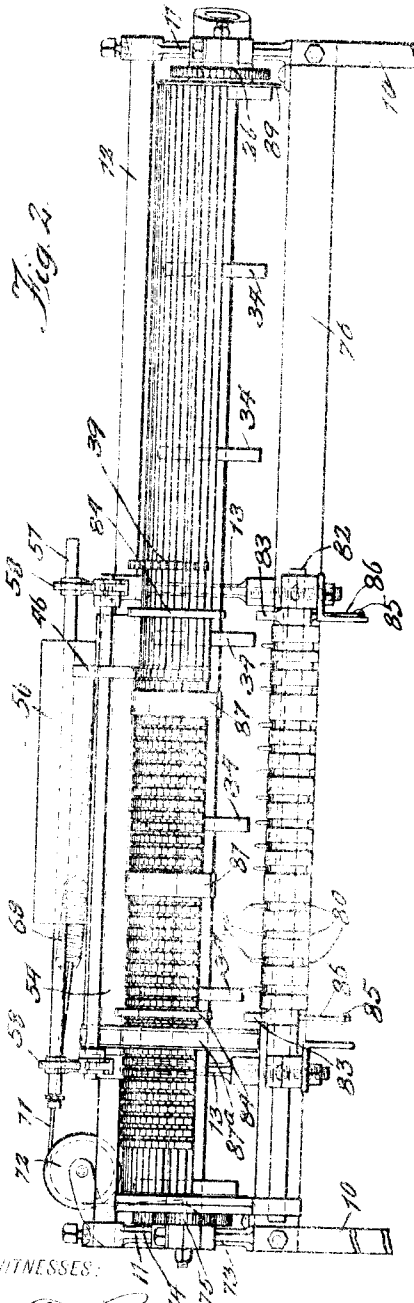
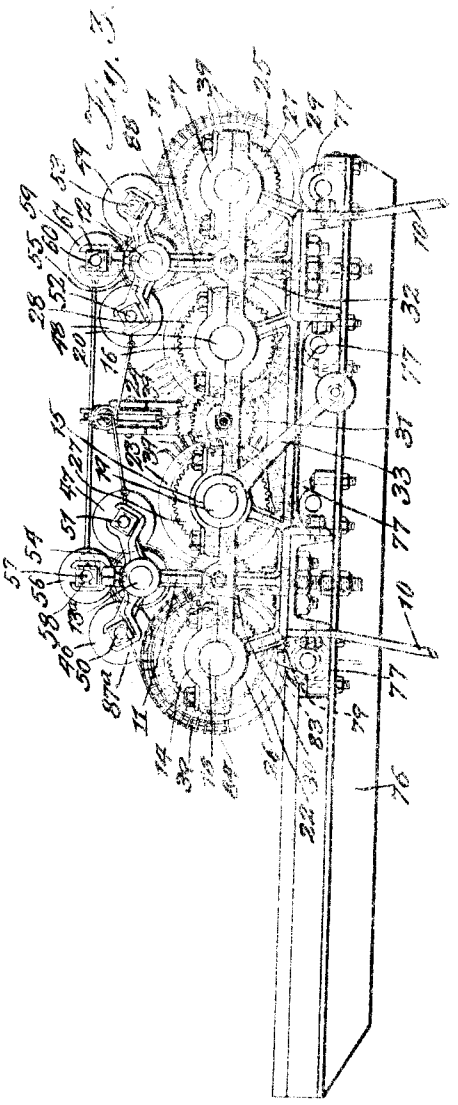


Fig. 1.



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3 SHEETS—SHEET 3.

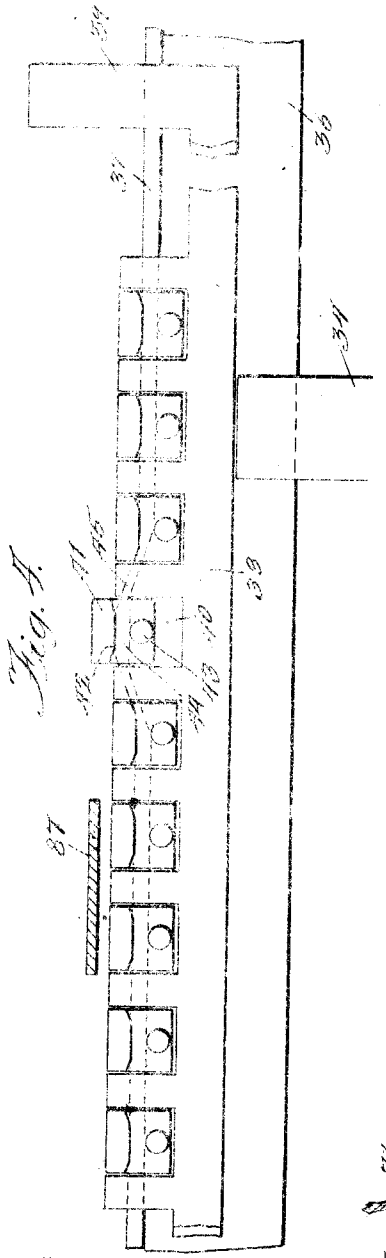


Fig. 4.

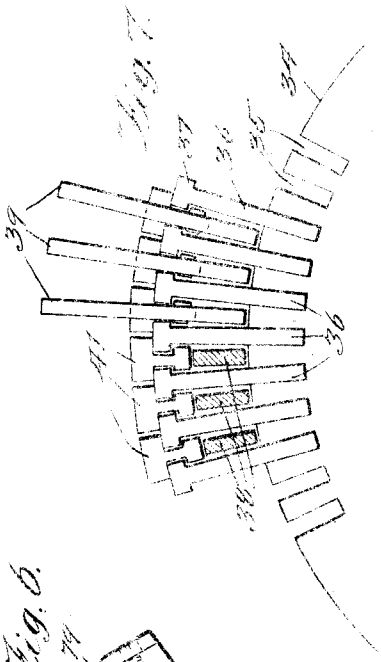


Fig. 7.

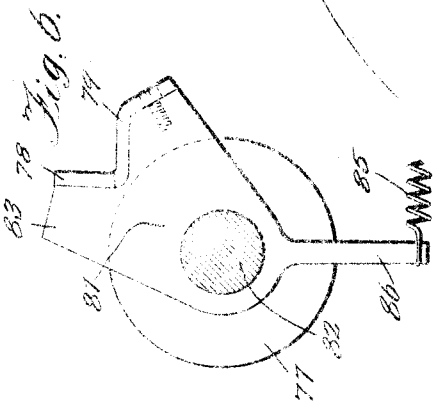


Fig. 6.

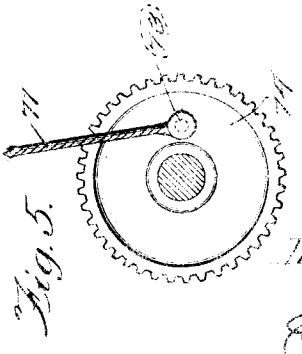


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY E. BARROLL, OF WINNETKA, ILLINOIS.

PRINTING-MACHINE.

1,196,729. Specification of Letters Patent. Patented Aug. 29, 1916.

Application filed October 21, 1914. Serial No. 867,769.

To all whom it may concern:

Be it known that I, HENRY E. BARROLL, a citizen of the United States, residing at Winnetka, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

This invention relates to improvements in printing machines, particularly adapted, though not necessarily limited in its use for printing the necessary headings, order number, name, town, State, route, etc., on tags, order blanks, etc., where it is necessary to produce a number of copies containing the same information, and one of the objects of the invention is to provide an improved simple and efficient machine of this kind, embodying a series of type or printing elements, each of which series is adapted to be shifted to bring the necessary printing element in the particular series into printing position, and as readily shifted to bring the other elements into and out of printing position to change the data to be printed.

A further object is to provide a machine of this character embodying a plurality of shiftable elements, and a plurality of type controlled thereby and responsive in their movement to the movement of the respective elements, and means whereby the desired type of a predetermined series will be shifted with respect to its particular element as that type reaches the printing plane and which type will be again shifted out of printing position when the said element is again shifted to cause another type of the same series to assume a printing position.

A further object is to provide improved means for inking the printing elements when the latter assume a printing position.

A further object is to provide an improved device of this character which will be simple and durable in construction and effective and efficient in operation.

To the attainment of these ends, and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the invention and in which:

Figure 1 is a top plan view of an improved machine of this character constructed in accordance with the principles of this invention. Fig. 2 is a left hand elevation of Fig. 1. Fig. 3 is a right hand elevation of Fig. 2. Fig. 4 is an enlarged detail view of one of the series of printing elements and the shifting element for positioning the printing elements. Fig. 5 is an enlarged detail view partly in elevation and partly in section of the means for vibrating the ink distributing roll. Fig. 6 is an enlarged detail view partly in elevation and partly in section of the stop and its support, for the article to be printed. Fig. 7 is an enlarged detail view partly in end elevation and partly in section of a portion of one of the rotatable supports showing the type and the shifting elements in position.

Referring more particularly to the drawings and in the present exemplification of this invention, the numeral 10 designates a supporting structure upon which the mechanism is mounted and mounted adjacent each end of the support are spaced uprights 11, which may be connected in any suitable manner, preferably by means of bars 12, connecting the rear uprights and the bars 13ª connecting the front uprights. Arranged intermediate the respective uprights 11 are additional uprights 13 and the bars 12 pass through these uprights 13.

Rotatably supported in suitable bearings 14, 15, 16 and 17 to extend substantially the entire length of the supporting structure and by means of shafts 18, 19, 20 and 21, are drum like supports 22, 23, 24 and 25 and connected with the shafts of these drums are gears 26, 27, 28, 29, the gears 26, 27 meshing with an intermediate gear 30, the gears 27, 28 meshing with an intermediate gear 31, and the gears 28, 29 meshing with an intermediate gear 32, so that when the shaft 19 and the drum 23 as well as the gear 27 connected therewith is rotated by the handle 33, a simultaneous rotation will be imparted to all of the drums. The construction of each of these drums is the same and therefore, the specific description of one will apply equally as well to them all.

Secured to the shaft 21 and spaced longitudinally thereof, are a series of supports 34 (see particularly Figs. 4 and 7), which supports are provided with recesses 35, opening through the periphery thereof and arranged in these recesses to extend lengthwise of the shaft are a series of members 36 having laterally projecting portions 37

at the upper ends thereof to form a reduced opening to the space between the spaced members.

Movably supported in each of the spaces between two adjacent members 35 is a bar or adjusting element 38, having a handle 39 at one end thereof, and being provided with a plurality of recesses or seats 40 opening through the top thereof, and this member 38 is preferably of a height to project above the portion 37 of the members 36.

Seated within each of the recesses 40 of each of the members 38 is a printing element 41 which may be of any desired configuration, but is here shown as being provided with a lateral lip 42 and a laterally projecting portion 43 spaced from the lip 42 to form a space 44 into which the overhanging edge or portion 37 of the member 36 projects, so that when the member 38 is moved longitudinally in the space between the members, the printing elements will be moved along the overhanging portion 37.

The drum like support is preferably of a length substantially equal to twice the length of the member 38 so that the member may be adjusted to move each of the printing elements 41 successively into and out of a predetermined position, and which position is the printing position. This element 38 also constitutes a selective mechanism, for selecting the printing element to be printed from and placing it in printing position while the remaining elements of the series will be maintained out of printing position. In order therefore, to accomplish this, and in the present form of the invention, the overhanging portion 37 of the members 36 is provided with a deflected or off set portion 45 somewhat in the nature of a cam surface, and this deflected portion is arranged in the printing plane. It will therefore be manifest that in order to position any particular type of the series in printing position, all that is necessary is to move the respective element 38 longitudinally of the support and as the type approach the printing position and move therefrom, the deflected portion 45 will first move the type radially with respect to the drum and into a plane above the plane of the remaining type of the series and will maintain the type in such position after being once adjusted. When it is desired to change the type all that is necessary is to again move the element 38 in one direction or the other and this will first move the type which is in a printing position out of the printing plane and the next advancing type will be moved into the printing plane as will be understood.

Ink is applied to the printing elements which are in the printing plane in any suitable manner but preferably by means of a series of inking rollers 46, 47, 48 and 49, one arranged to engage the projecting type of each series and these rolls are supported by means of shafts 50, 51, 52 and 53 journaled in suitable bearings carried by the supports 13. A roll 54 is arranged between the rolls 46, 47 and a roll 55 is arranged between the rolls 48, 49 to supply ink thereto and the rolls 54, 55 are of a length somewhat greater than the length of the rolls with which they contact. A vibratory distributing roller 56, the axle 57 of which is journaled in suitable bearings 58, is arranged to engage the roll 54, while a similar roll 59, the axle 60 of which is journaled in bearings 61 carried by the uprights 13, is arranged to engage the roll 55.

The axles 57, 60 preferably project beyond the bearing 58, 61 and are connected by an element 62 (see particularly Fig. 1), and links 63, 64 are pivotally connected as at 65, 66, with the element 62, by one end and the other ends are pivotally connected as at 67 preferably by one end of an elastic member or coil spring 68. To the other end of the coil spring 68 is connected an element 69 by means of which the spring is anchored as at 70 to a fixed support, preferably the uprights 13.

A flexible member 71 is connected with the element 62 and passes over a pulley 72 supported by a fixed support, preferably one of the uprights 11, and thence downwardly to be connected with a pin 73 which is arranged eccentrically on a gear 74, and this gear 74 is preferably arranged intermediate the drums 23, 24, and a gear 75 is connected with the shaft 19 of the drum 23 and meshes with the gear 74 so that when the drums are rotated, the gear 75 and consequently the gear 74 will be rotated, and this rotation of the gear 74 will rotate the eccentric pin on the gear 73 and thereby vibrate or impart a longitudinal movement to the rolls 56, 59, against the stress of the elastic element 68, and when the pin 73 is in the proper position, the stress on the elastic member will cause the roll to move in the opposite direction and thereby impart the vibratory movement to the rolls. Arranged below the drums is a supporting structure designated generally by the reference numeral 76, and rotatably supported thereby are a plurality of rolls 77, one preferably arranged beneath each of the drums, so as to guide and support the article beneath the drums.

A stop or positioning device is arranged adjacent the front of the machine, and comprises a series of fingers 78 which are formed on a bar or element 79, (see Fig. 6), to extend lengthwise of the foremost roll, and this roll may be provided with a series of peripheral grooves 80 in which the fingers project. This bar 79 is supported by supports 81, one arranged adjacent each end of the roll 77, and is loosely pivoted upon the axle 82 of the roll. At the ends of the roll

are upwardly projecting arms or fingers 83, which are arranged in a position to be engaged by cams 84 carried by the foremost drum 22, so that after the article is positioned to engage the fingers 78 and the drums are rotated, the first operation is the tripping of the fingers by the cams 84 engaging the projections 83 to rock the supports 81 and the bar 79 against the tension of the elastic members 85 which are secured to a fixed support and also to a projection 86 extending from the supports 81.

The next operation or during the further rotation of the drums is the engagement of cam devices 87 with the article so as to grip it between the rolls, or between the cams, and an endless belt that may be provided to pass over the rolls and thereby feed the article under the drums to be printed by the projecting type or printing element. As soon as the cam devices 84 pass out of engagement with the extensions 83, the elastic members 85 will return the fingers 78 to normal position. During the rotation of the drums, the inking and ink distributing rolls are also rotated, and these may be rotated in any desired or suitable manner. In the present form of the invention, there is shown a belt 87^a which passes over the pulley connected to the drum 22 and also a pulley connected with the roll 54, the rolls 46, 56, 47 having contact with the roll 54 will be rotated by the frictional engagement of the rolls. A similar belt 88 is provided which passes over a pulley connected with the drum 24 and also over a suitable pulley connected with the roll 55, and inasmuch as the rolls 47, 58 and 49 contact with the roll 55, they will be rotated by friction.

With this improved construction it will be manifest that the data or printing elements may be readily set by simply adjusting the elements 38 and when so set, any number of copies may be produced therefrom while the data may be readily and quickly changed by simply adjusting the elements 38. The elements 38 and the type 41 are placed in position originally by removing the removable head 89 on one end of the drum.

While the preferred form of construction has been herein shown and described, it is to be understood that numerous changes may be made in the details of construction, and in the combination and arrangement of the several parts without departing from the spirit of this invention.

What is claimed as new is:

1. A machine of the character described, embodying a rotatable support, a plurality of printing element carriers supported thereby for free shifting movement with respect thereto and in any position of rotation of the carrier with respect to the support, a series of printing elements supported for movement with each of the carriers and also for movement with respect thereto, and means for shifting the said elements with relation to the respective carriers and into printing position when the said carriers are shifted with respect to the support.

2. A machine of the character described, embodying a rotatable support, a plurality of printing element carriers supported thereby for free shifting movement with respect thereto and in any position of rotation of the carrier with respect to the support, a series of printing elements supported for movement with each of the carriers and also for movement with respect thereto, and means successively shifting the said element with relation to the carriers and into and out of printing position as the carrier is shifted with respect to the support and the elements reach a predetermined point in the movement of the carrier.

3. A machine of the character described, embodying a rotatable support, a plurality of printing element carriers supported for movement therewith and freely shiftable with relation to the support in any position of rotation of the carrier with respect to the support, a series of printing elements supported for movement with each carrier and with respect thereto, and means arranged adjacent the printing plane and with which the elements successively coöperate to be moved into and out of printing position with respect to the carrier as the latter is shifted with relation to the support.

4. A machine of the character described, embodying a rotatable drum like support provided with a series of guide ways, a series of printing elements movable in each guide way, means for freely shifting the elements longitudinally of the guide way in any position of rotation of the carrier with respect to the support, and means for shifting the elements laterally in the guide way and into printing position when the elements reach a predetermined point in their movement longitudinally of the guide way.

5. A machine of the character described, embodying a rotatable drum like support provided with a series of guide ways, a series of printing elements movable longitudinally of each of the guide ways, and means for moving the elements backwardly and forwardly in directions lengthwise of the guide ways, a portion of the guide ways adjacent the printing plane being shaped to move the elements in directions radially of the support and into and out of printing position.

6. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for freely moving each of the series of elements forwardly and backwardly in directions longitudinally of the

support, and means for successively moving the elements to project them beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support.

7. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for freely moving each of the series of elements forwardly and backwardly in directions longitudinally of the support, means for successively moving the elements to project them beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support, and means for applying ink to the said projecting elements.

8. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each of the series of elements in directions longitudinally of the support, means for successively moving the elements to project them beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support, an article support, and means for advancing the article under the projecting elements as the first recited support is rotated.

9. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each of the series of elements in directions longitudinally of the support, means for successively moving the elements to project them beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support, an article support, stops for positioning the article to be printed, means for rendering the stops inactive and means for advancing the article.

10. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each of the series of elements in directions longitudinally of the support, means for successively moving the elements to project them beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support, an article support, stops for positioning the article to be printed, and means moving in unison with the first recited support and operating to trip the stops.

11. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each series of elements in directions longitudinally of the support, means for successively projecting the elements beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support and for maintaining them projected during the rotation of the support, an inking roller for applying ink to the projected elements, and a vibratory distributing roller coöperating with the inking roller.

12. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each series of elements in directions longitudinally of the support, means for successively projecting the elements of the series and into a printing position during the movement of the elements longitudinally of the support and for maintaining them projected during the rotation of the support, an inking roller for applying ink to the projected elements, a vibratory distributing roller coöperating with the inking roller, and means responsive to the movement of the first recited support for imparting a vibratory movement to the said distributing roller.

13. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each series of elements in directions longitudinally of the support, means for successively projecting the elements of the series and into a printing position during the movement of the elements longitudinally of the support and for maintaining them projected during the rotation of the support, an inking roller for applying ink to the projected elements, a vibratory distributing roller coöperating with the inking roller, means tending normally to move the distributer roll laterally in one direction, and positive means for moving the distributer roll in the opposite direction and against the stress of the last recited means.

14. A machine of the character described, embodying a plurality of rotatable drum like supports, means for rotating the same, a plurality of series of printing elements carried by each of the supports, means for freely shifting each of the series of elements forwardly and backwardly in directions longitudinally of the supports, means for shifting one of the elements of each series to project beyond the plane of the remaining elements of the respective series and when said element is moved to a printing position, means for applying ink to the projecting elements of the series, and means for feeding the articles to the projecting elements on the said supports.

15. A machine of the character described, embodying a plurality of rotatable drum like supports, means for rotating the same, a

plurality of series of printing elements carried by each of the supports, means for shifting each of the series of elements in directions longitudinally of the supports, means for shifting one of the elements of each series to project beyond the plane of the remaining elements of the respective series and when said element is moved to a printing position, means for applying ink to the projecting elements of the series, vibratory rollers for supplying ink to the inking rollers and means for feeding the articles to the projecting elements on the said supports.

16. A machine of the character described, embodying a plurality of rotatable drum like supports, means for rotating the same, a plurality of series of printing elements carried by each of the supports, means for shifting each of the series of elements in directions longitudinally of the supports, means for shifting one of the elements of each of the respective series and when said element is moved to a printing position, means for applying ink to the projecting elements of the series, vibratory rollers for supplying ink to the inking rollers, means responsive to the movement of the supports for vibrating the rollers, and means for feeding the articles to the projecting elements on the said supports.

17. A machine of the character described, embodying a rotatable drum like support, a plurality of series of movable printing elements, means for moving each series of elements in directions longitudinally of the support, means for successively projecting the elements beyond the plane of the remaining elements of the series and into a printing position during the movement of the elements longitudinally of the support and for maintaining them projected during the rotation of the support, and an inking roller shaped to supply ink only to the projected printing elements.

18. A machine of the character described, embodying a support, a series of printing elements loosely supported thereby for free shifting movement forwardly and backwardly with respect thereto, each of said elements also individually movable beyond the surface of the other and in a different direction from the direction of the first recited shifting movement, and means for successively moving each of the elements beyond the others at a predetermined point in the said shifting movement of the elements.

19. A machine of the character described, embodying a rotary support, a series of printing elements loosely supported thereby for free shifting movement forwardly and backwardly with respect thereto and in directions lengthwise of the axis of rotation of the support, each of said elements also individually movable beyond the surface of the others, and means for successively projecting each of the elements beyond the others at a predetermined point in the said shifting movement.

20. A machine of the character described embodying a rotatable support, a series of printing elements supported thereby for free sliding movement forwardly and backwardly with respect thereto in directions lengthwise of the axis of rotation of the support, and means for projecting certain of said elements beyond the others and into printing position.

21. A machine of the character described embodying a rotatable drum-like support provided with a series of guide ways, a series of printing elements freely slidable forwardly and backwardly in the guide ways, means for moving the elements, and means adjacent the printing plane for moving the elements in directions radially of the support into printing position.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 16th day of October, A. D. 1914.

HENRY E. BARROLL.

Witnesses:
CHANNING L. SENTZ,
J. H. JOCHUM, Jr.