

(No Model.)

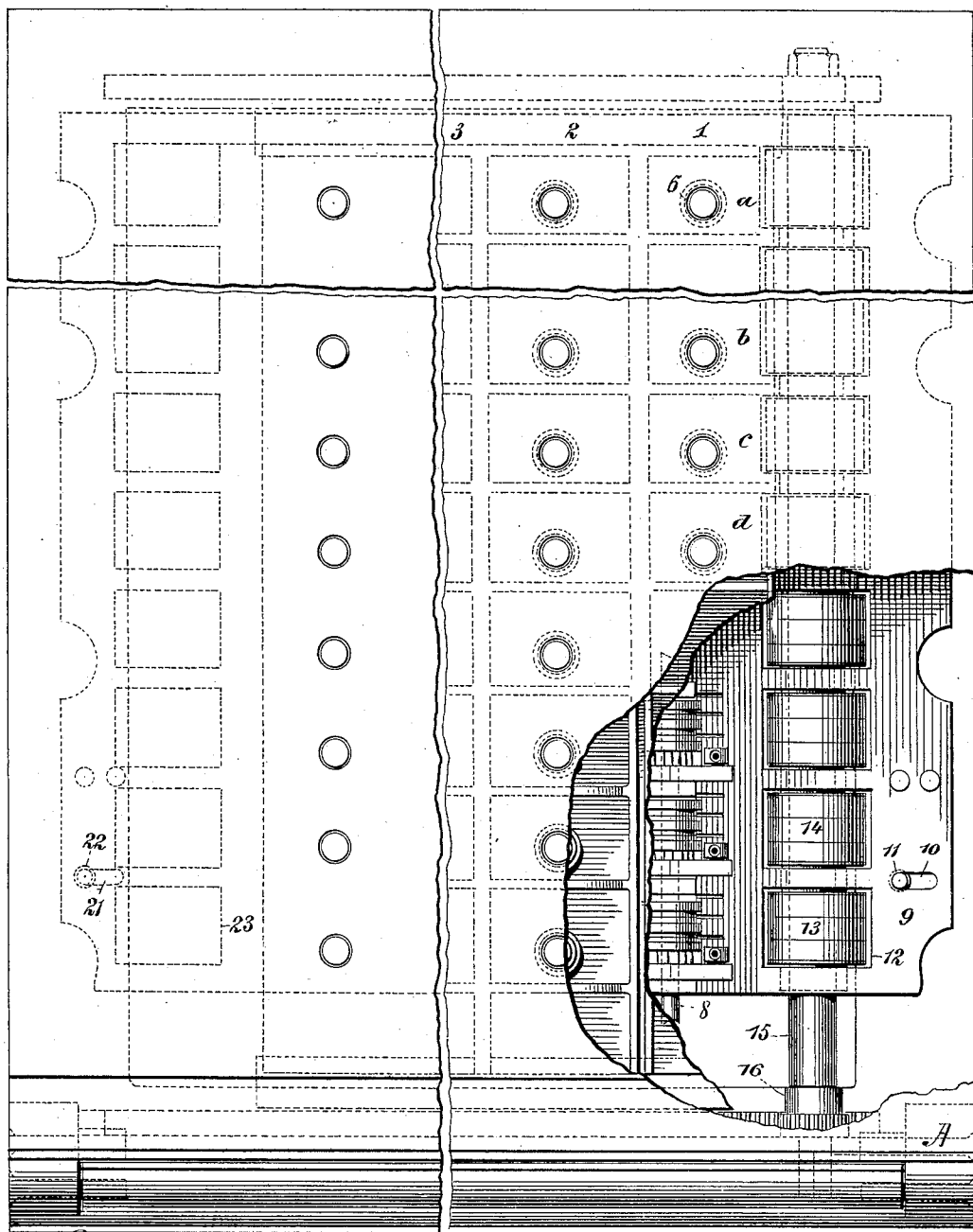
3 Sheets--Sheet 1.

F. LAMBERT & S. ARONSON.

RECORDING MECHANISM FOR VOTING MACHINES.

No. 566,459.

Patented Aug. 25, 1896.



WITNESSES:
Gustav Dietrich
H. R. Mollen

Fig. 1.

INVENTORS
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(No Model.)

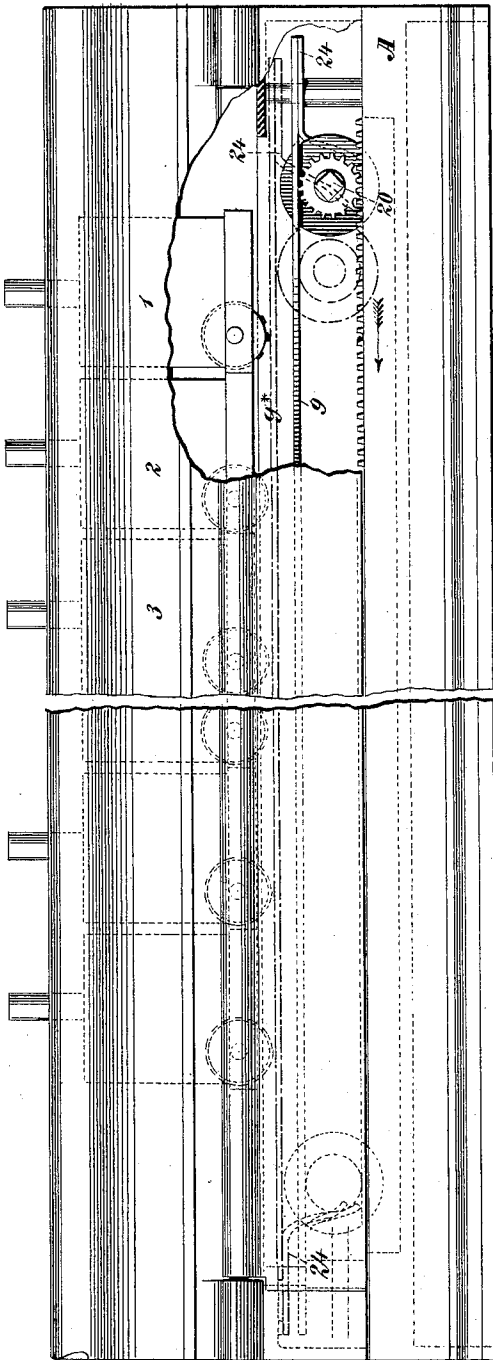
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F. LAMBERT & S. ARONSON.

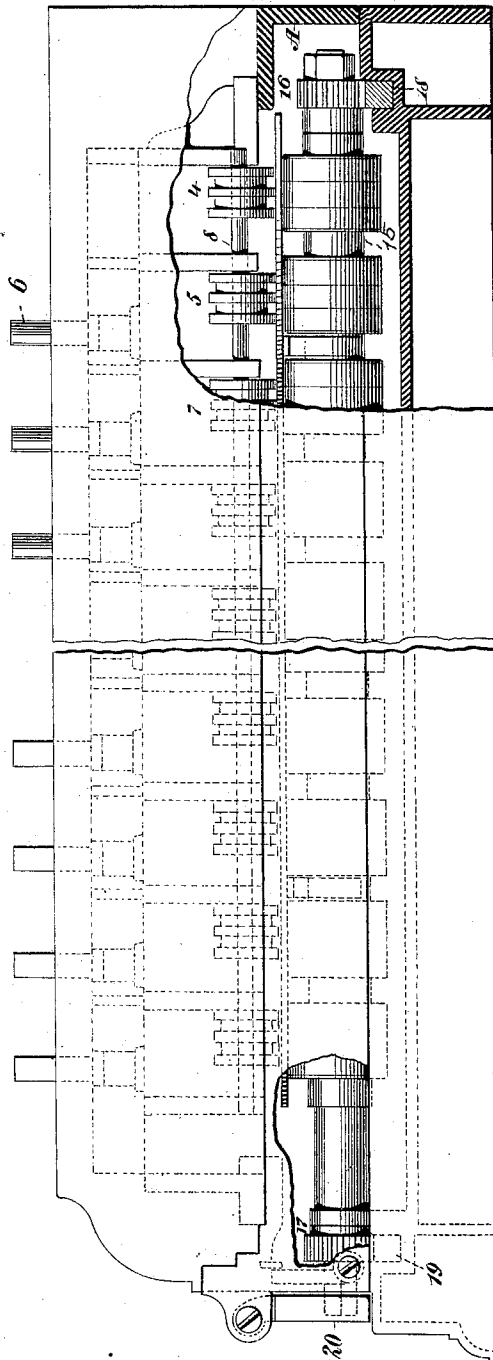
RECORDING MECHANISM FOR VOTING MACHINES.

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(No Model.)

3 Sheets—Sheet 3.

F. LAMBERT & S. ARONSON.
RECORDING MECHANISM FOR VOTING MACHINES.

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Fig. 4.

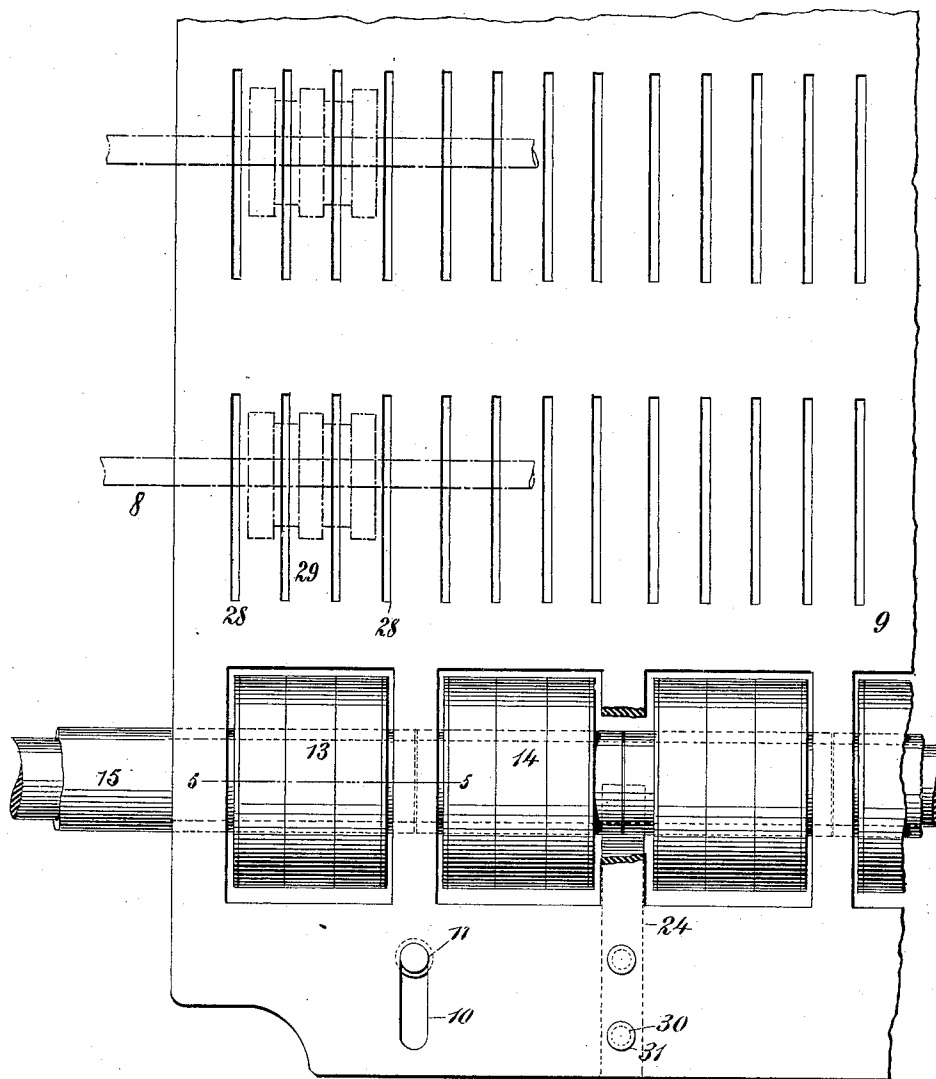
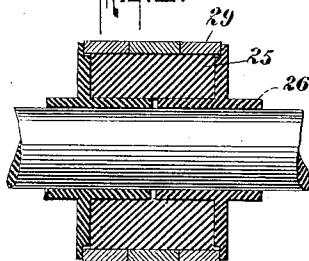


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK LAMBERT AND SAUL ARONSON, OF BROOKLYN, NEW YORK.

RECORDING MECHANISM FOR VOTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 566,459, dated August 25, 1896.

Application filed June 19, 1895. Serial No. 553,277. (No model.)

To all whom it may concern:

Be it known that we, FRANK LAMBERT and SAUL ARONSON, both of Brooklyn, Kings county, New York, have invented a new and useful Improvement in Recording Mechanisms for Voting-Machines, of which the following is a specification.

The object of our invention is to provide an apparatus by means of which an instantaneous record can be obtained of all the votes cast during a given election, and also of the votes cast for each particular candidate, or for or against any particular question to be determined by the election.

Our invention is intended to apply more particularly to that class of voting-machines in which the votes are registered by the displacement of type-wheels or by the successive placing of printing-type, so that each vote is mechanically added to those which precede it as fast as it is registered. By reason of such an arrangement at the close of the voting certain type stand exposed all in the same plane, so that a record-sheet may be pressed against them and an imprint thus obtained.

We intend our invention more particularly for use in connection with a voting-machine for which application has already been made for Letters Patent by Saul Aronson, Serial No. 550,068, filed May 21, 1895. In that machine there are a number of cells or compartments, one cell being appropriated to each candidate. In each cell there is a registering mechanism which is operated by a press-button. This registering mechanism includes, say, three type-wheels disposed on the same shaft and so geared together that ten revolutions of the first wheel cause one revolution of the second, and ten revolutions of the second cause one revolution of the third. At each full inward movement of the press-button the first type-wheel is advanced one number ahead. The relation of the wheels is therefore that of a well-known counting-train capable of showing all numbers from "1" up to "999" when three wheels are used. If, therefore, the type on the lowest point of the wheels be taken as the registry, it is evident that by pressing a sheet against these type when suitably inked or when a carbon-ribbon is interposed an imprint may be taken from

said type which will be the record of the type-wheels of any one cell, and therefore will show the number of votes cast for the candidate represented by that cell. If, furthermore, there be a multiplicity of such cells containing similar type-wheels similarly arranged, obviously by pressing a large sheet against all of these type-wheels the records of all of these cells will be imprinted upon the single sheet, and therefore the number of votes cast for every candidate will be simultaneously recorded upon said sheet. In the aforesaid application of said Aronson a mechanism is described for carrying such a sheet upward and into contact with the type-wheels arranged in compartments above it. Said mechanism there shown consists, substantially, in a platen disposed beneath the record-sheet and caused to move upward and so to move the sheet into contact with the type-wheels by means of two shafts carrying eccentrics which bear against the underside of the platen. The said shafts are geared together, so that both may be operated simultaneously when one is turned, and in this way the pressing of the sheet against the type is effected.

Our present invention is intended to accomplish the same result by more improved means, and also to accomplish another result, which is the obtaining of an imprint from the type-wheels before the voting commences, and then a final imprint after the voting is concluded, so that a registry of the wheels can be compared and any error which may follow from a previous displacement of one of the wheels thus obviated. This involves, obviously, the making of these two imprints at different places on the same sheet, and therefore our invention includes a construction of the device to effect this purpose.

Our invention consists more particularly in the mechanism hereinafter described, whereby the platen which carries the sheet, instead of being moved bodily against the type-wheels, is moved in that direction first at one end and then progressively along its length until the other end is reached, so that the platen is given a tilting motion, as will hereinafter be more especially described; and also in the devices whereby the platen is displaced in a lateral direction between the ini-

tial and final printings, so that the impress of the type-wheels is made at different points.

In the accompanying drawings is illustrated so much of the aforesaid machine of said 5 Aronson as is necessary for the understanding of our present invention in its relation thereto.

Figure 1 is a plan view of the face of said machine, showing various parts broken away 10 to exhibit our recording device from above. Fig. 2 is an end view, and Fig. 3 is a side view, of said machine also with parts broken away to exhibit side and edge elevations of our said recording device. Fig. 4 is a plan view 15 in detail of a portion of the platen, and Fig. 5 is a section on the line 5 5 of Fig. 4.

Similar letters and numbers of reference indicate like parts.

A represents the supporting-frame of the 20 machine, on which are placed a series of separate frames, as 1 2 3, &c., each of which is divided by partitions into a number of cells or compartments, as *a b c d*, &c. In each of these compartments is arranged a mechanism 25 which is actuated by a press-button, as 6. This mechanism is not herein shown, nor is it necessary to do so. Its effect is, among other things, to actuate a type-wheel or series of type-wheels, as 4 5 7. In each frame, as 30 1, these type-wheels are mounted upon a single shaft, as 8; but each type-wheel or set of type-wheels is operated independently of all the others by means of the mechanism with which it is associated in the compartment, 35 which mechanism is, as we have stated, controlled by a press-button, as 6. The arrangement of the mechanism which controls the type-wheels, as 4, may be such as to advance the wheel one number at each pressure of the 40 button, and where there are a train of type-wheels, say, for example, three in each compartment, the relation of these type-wheels may be such that ten rotations of the first cause one rotation of the second, and ten rotations of the second one of the third, so that 45 such a train of wheels would show all numbers ranging from "1" to "999."

Now the apparatus which we are about to describe allows of an imprint to be taken 50 from the under side of all of the type-wheels in all of the compartments upon a single sheet. To this end we provide a platen 9, which is large enough to extend under all of the type-wheels. Near the ends on this 55 platen are elongated slots 10, which receive pins, as 11, projecting upward from the main frame. These pins limit any possible bodily movement of the platen to the extent of the slot 10. In the plate 9 is a series of rectangular 60 openings, as 12, through which openings enter the rollers 13 14, &c., which are fast upon the shaft 15. The shaft 15 at its ends is provided with pinions 16 and 17, which mesh with the teeth of fixed racks 18 65 and 19. The racks 18 and 19 are, as shown, received in suitable grooves in the main frame A. One end 20 of the shaft 15 is

squared, so that a crank-handle may be applied to it. It will be observed that at the opposite end of the platen 9 there is a slot 21, 70 dotted lines, similar to the slot 10, which slot 21 also receives a fixed pin 22, which projects upward from the frame.

The operation of the device is as follows: When the handle applied to the squared end 75 20 of the shaft 15 is turned to the left of the drawing Fig. 2, the shaft, with its rollers, and by reason of the engagement of the pinions 16 and 17 with the racks 18 and 19, moves forward—that is, to the left of the drawings. 80 The rollers 13 14, &c., then meet the left-hand edges of the openings 12, and their first effect is to carry the platen 9 bodily with them until the right-hand ends respectively of the slots 9 and 21 meet the pins 11 and 22. It 85 being impossible then for the rollers to move the platen 9 any farther to the left, the rollers themselves run under the platen and therefore lift it up to the position represented in dotted lines at 9' in Fig. 2. The height to 90 which the platen is elevated by this means is sufficient to press it against the lowermost type on the type-wheels 4 5 7, &c., so that if, before the operation begins, an impression of the sheet be laid upon the platen 9 with a 95 carbon-sheet above it, the said type-wheels will then produce the impression of their lowermost type upon the said sheet. It will be observed, however, that, during the operation of lifting, the whole platen or plate 9 is 100 not raised upward in a straight line, but that the right-hand end of it is raised first to meet the first series of type-wheels in frame 1, and then, as the shaft 15 travels along, the series of type-wheels in frame 2 receive the pres- 105 sure, and then in frame 3, and so on as the shaft 15 carries the rollers from one end of the machine to the other. Of course the effect is as if the whole platen had been lifted from its position at 9 to its position at 9', but there 110 is an obvious advantage in having the pressure exerted successively from one end of the platen to the other, because the pressing stress will thus be concentrated upon each series of type-wheels in turn, and thus an imprint from 115 all will be better secured. As soon as the shaft 15 has passed the last row of type-wheels, the rollers 13 and 14 enter a series of openings 23, (dotted lines, Fig. 1,) which are similar in all respects to the openings 12. The 120 platen then falls into its original or lower position, and all that remains is to withdraw the impression-sheet, if desired, from the machine. In practice, however, and in using 125 this device in connection with a voting-machine, it is necessary, as has been said, to obtain two imprints from the type-wheels of the machine, the first being taken before any voting is done on the machine, and the second after the voting is concluded. The first im- 130 print, therefore, shows the exact condition of all of the type-wheels before the machine is operated, and this, as we have stated, is very important, inasmuch as it guards against any

possible erroneous adjustment of the type-wheels or any tampering with them before the voting begins. The operation, therefore, just described obtains this initial imprint, and the sheet therefore is to be left in the machine until the voting is concluded. Then the crank-handle still being applied to the end of shaft 15 said shaft is rotated to the right. In so doing the first operation of the rollers 13 and 14 is to strike the right-hand edges of the openings 23 in the platen 9, and therefore to carry the plate to the right the full distance permitted by the length of the slots 10 and 21. After this, the shaft 15 being rotated by its crank, the rollers are carried under the plate 9, as before, and so brought back to their original position, as shown in the drawings. It will be clear, therefore, that before each printing operation the platen 9 itself is bodily displaced a certain distance; that is to say, it is displaced bodily to the left before the first printing operation, and then bodily to the right before the second printing operation, and of course the consequence is that the imprints obtained do not fall upon the same places in the paper, but the two series of imprints will be separated by a distance equal to the length of the slots 10 and 21. Thus not only is it possible by this device to obtain a simultaneous print from all of the type-wheels, but two sets can be taken—one before the voting and the other afterward—the first showing the condition of the type-wheels before the voting, and the second showing their condition afterward, and the last exhibiting the whole number of votes cast—in other words, the total number of times the type-wheels in each compartment have been operated.

In order to secure a proper movement of the platen 9, I provide a series of leaf-springs 24, attached at each end thereof, which springs extend downward, so that when the shaft 15 is in extreme position at either end these springs will lie between the rollers 13 14, &c. The advantage of these springs is that the shaft 15 strikes against them as it reaches the end of its movement, and they operate, first, to prevent the jar incident to the stoppage of the shaft, and, second, as the shaft bears upon them, to move downward positively the platen 9.

Referring now to Figs. 4 and 5, in Fig. 5 we have in detail the preferred construction of a roller, as 13. This consists of a cylinder 25, of rubber, retained between flanged collars 26. The springs 24 bear upon these collars between the rollers, as shown. The periphery of each roller is made up of as many rings 27 as there are printing or type wheels in each group. In the platen 9 are made four slots 28 opposite each group of type-wheels, so that the parts of the platen, as 29, which bear upon said type-wheels, shall be supported only at the ends. By this means when a roller, as 13, runs under the platen, each of its rings 27 corresponds to a part 29

of the platen and presses that part against the type-wheel immediately above it. The effect of this arrangement is to insure better printing, since the parts 29 of the platen and the rings 27 yield slightly, and thus each part 29 and ring 27, through the yielding of the cylinder 25, adjusts itself to chance irregularities of the type-wheels pressed against. Obviously a better impression may thus be obtained from all the type-wheels than if a solid or unslotted platen were relied upon to adjust itself to the numerous type-wheels.

In order to prevent horizontal displacement of the platen when in its elevated position, we provide at any part of the main frame of the apparatus fixed pins, as 30, (dotted lines, Fig. 4,) which when the platen is in contact with the printing-surface enter suitable openings 31 in said platen.

We claim—

1. In a printing mechanism a printing-surface, a rigid platen free to be bodily moved upward and toward said surface, and a roller having a movement of rotation and translation disposed beneath said platen; the said roller operating to raise and press said platen into contact with said printing-surface, substantially as described.

2. In a printing mechanism a printing-surface, a rigid platen free to be moved bodily upward and toward said surface, a roller disposed beneath said platen and means for giving said roller a positive motion of rotation and translation beneath said platen to raise and press said platen into contact with said printing-surface, substantially as described.

3. In a printing mechanism a printing-surface, a rigid platen free to be moved bodily upward and toward said surface, a roller and shaft disposed beneath said platen, a fixed rack, and a pinion on said roller-shaft engaging with said rack; the said roller on the rotation of said shaft being positively moved under said platen by the engagement of said pinion and fixed rack, and operating to raise and press said platen into contact with the printing-surface, substantially as described.

4. In a printing mechanism two printing-surfaces, a rigid platen free to be moved bodily upward and toward said surface, a roller below said platen and a means for giving said roller a positive motion of rotation and translation beneath said platen from one end of said platen to the other whereby said platen is moved into contact first with one printing-surface and then with the other, substantially as described.

5. In a printing mechanism, a printing-surface, a platen below said surface, guides upon which said platen has a free vertical motion, a roller below and normally entering an opening in said platen, and mechanism for imparting to said roller a positive motion of translation, substantially as described.

6. In a printing mechanism, a printing-surface, a platen below said surface having slots or openings on each side of the part normally

opposite said printing-surface, a roller below said platen and means for giving said roller a positive motion of rotation and translation beneath said platen to raise and press said part thereof against said printing-surface, substantially as described.

7. In a printing mechanism, two printing-surfaces, a platen below both and having a slot or opening between the parts normally opposite said printing-surface and also similar slots or openings adjacent to said parts, a roller below said platen and means for giving said roller a positive motion of rotation and translation beneath said platen to raise and press said parts against said printing-surfaces, substantially as described.

8. In a printing mechanism, the combination of the type-wheel 4, platen 9, having an opening 12, roller 13, shaft 15 carrying said roller, pinion 16 on said shaft and rack 18 wherewith said pinion engages, substantially as described.

9. In a printing mechanism, the combination of the type-wheel 4, platen 9, having an opening 12 and also opening 10, guide-pin 11 entering said opening 10, roller 13, shaft 15 carrying said roller, pinion 16 on said shaft and rack 18 wherewith said pinion engages, substantially as described.

10. In a printing mechanism, the combination of two or more type-wheels as 4, 5, platen 9 having opening 12, rollers 13, 14 in said openings, shaft 15 carrying said rollers, pinion 16 on said shaft and rack 18 wherewith said pinion engages, substantially as described.

11. In a printing mechanism, the combination of two or more type-wheels as 4, 5, platen 9 having openings 12, springs 20 on said platen, rollers 13, 14 in said openings, shaft 15 carrying said rollers and adapted to bear upon said springs 20, pinion 16 on said shaft and rack 18 wherewith said pinion engages, substantially as described.

12. In a printing mechanism, a printing-surface, a yielding or elastic platen below the same, guides upon which said platen has a free vertical motion and a yielding or elastic roller having a movement of rotation and

translation below said platen; the said roller operating to raise and press said platen into elastic contact with the printing-surface, substantially as described.

13. In a printing mechanism, a series of parallel type-wheels, a platen below the same having slots or openings between the parts which normally come opposite said type-wheels, and a yielding or elastic roller having a movement of rotation and translation below said platen and operating to raise and press said platen into elastic contact with the printing-surface, substantially as described.

14. In a printing mechanism, the combination of a series of type-wheels as 4, platen 9 having slots 28, and an opening 12, roller 13, shaft 15 carrying said roller, pinion 16 on said shaft and rack 18, wherewith said pinion engages, substantially as described.

15. In a printing mechanism, the combination of a series of type-wheels as 4, platen 9 having slots 28 and an opening 12, roller 13 having an elastic cylinder 25 and external rings 27, shaft 15 carrying said roller, pinion 16 on said shaft and rack 18, wherewith said pinion engages, substantially as described.

16. In a printing mechanism, a printing-surface, a rigid platen free to be moved bodily upward and toward said surface, a roller having a movement of rotation and translation below said platen, and operating to raise and press said platen into contact with the printing-surface and means for preventing horizontal displacement of said platen when in elevated position, substantially as described.

17. In a printing mechanism, a printing-surface, a platen below the same, a roller having a movement of rotation and translation below said platen and operating to raise and press said platen into contact with the printing-surfaces and fixed pins entering openings in said platen when in its elevated position and preventing its horizontal displacement, substantially as described.

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Witnesses:

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