C. E. CHAPMAN.

COUNTING AND LISTING MACHINE.

APPLICATION FILED JULY 22, 1915.

1,222,359.

Patented Apr. 10, 1917.

3 SHEETS—SHEET 1.

Fig. 1

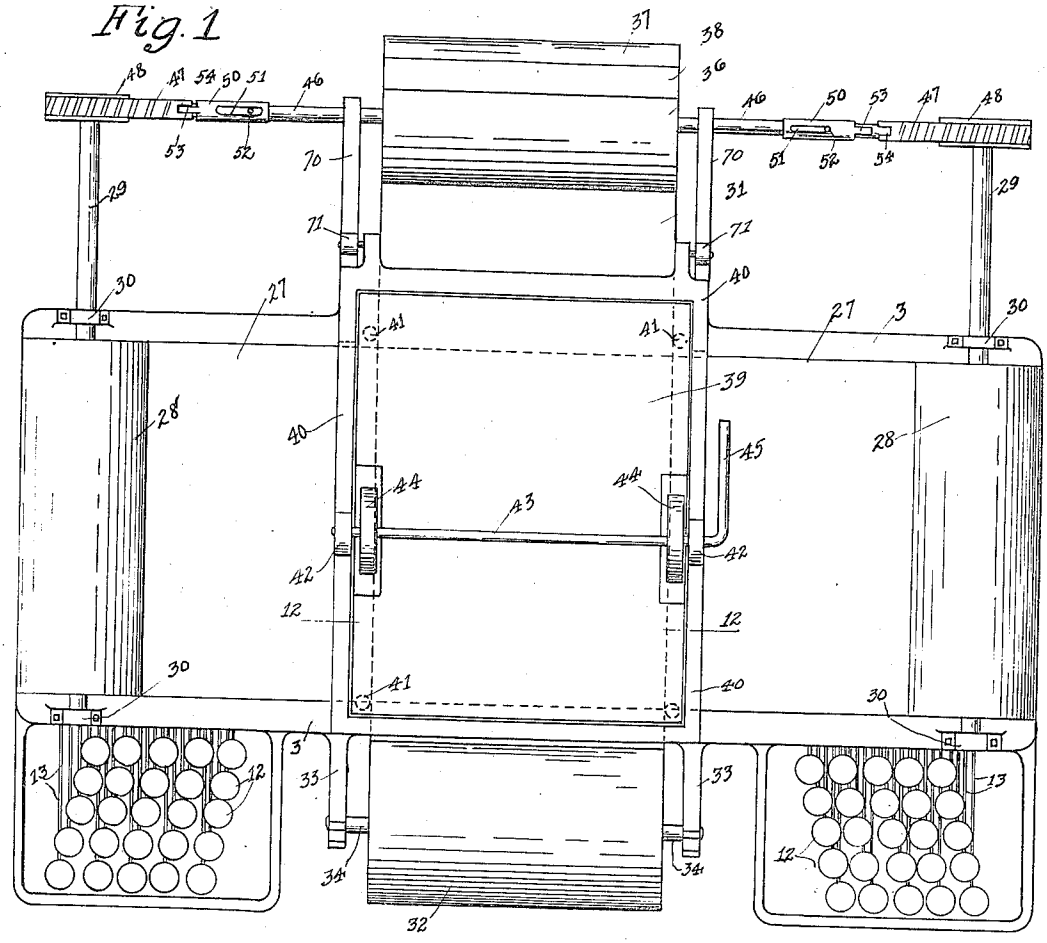
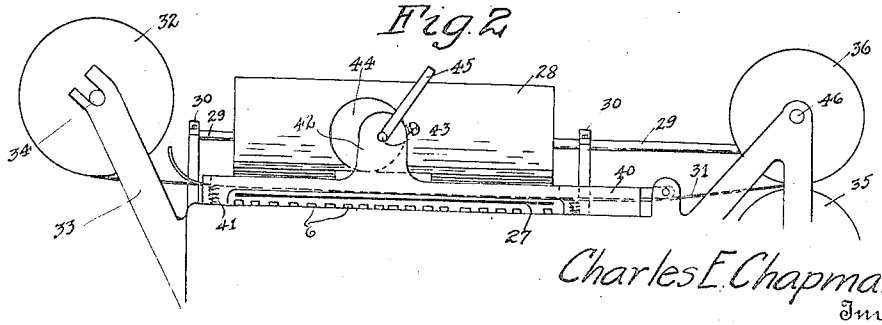


Fig. 2



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3

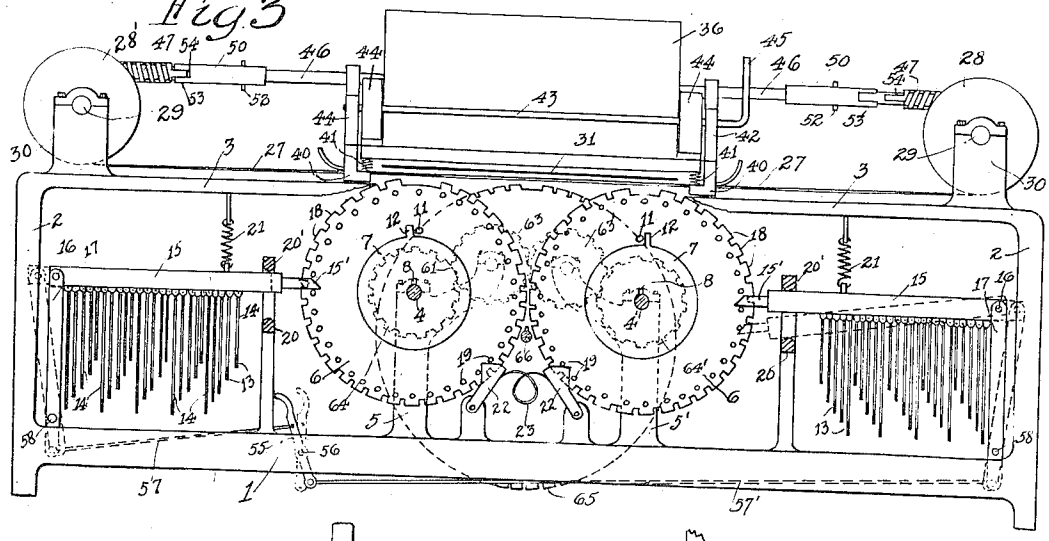


Fig. 4

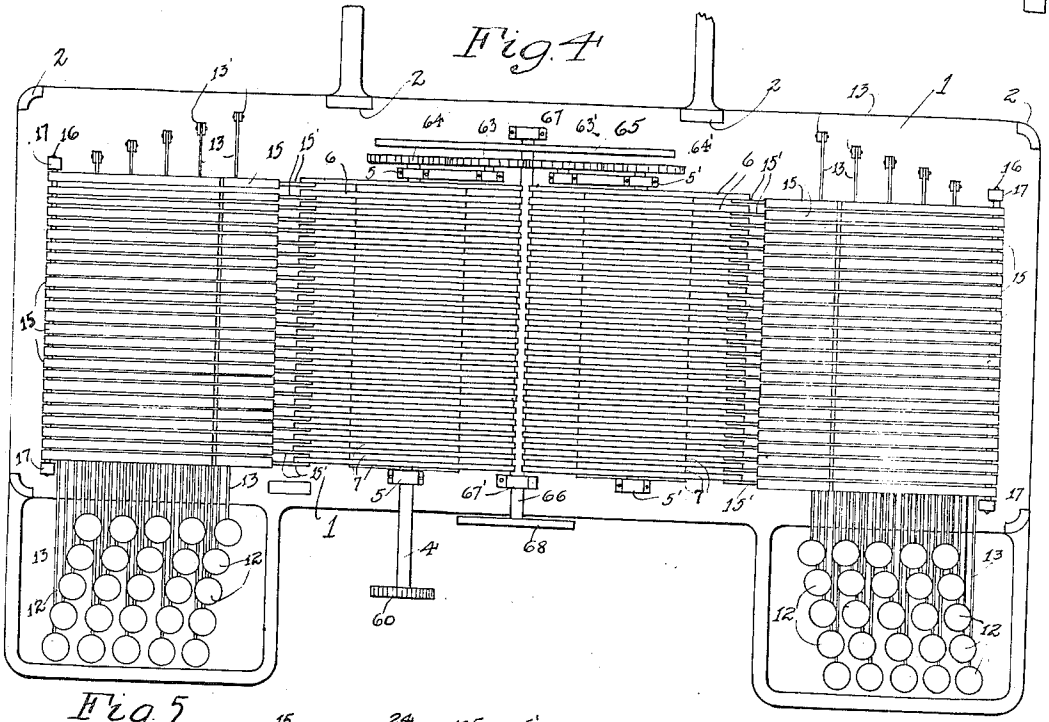
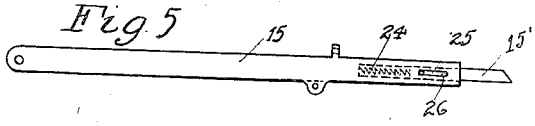


Fig. 5



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3 SHEETS—SHEET 3.

Fig. 6

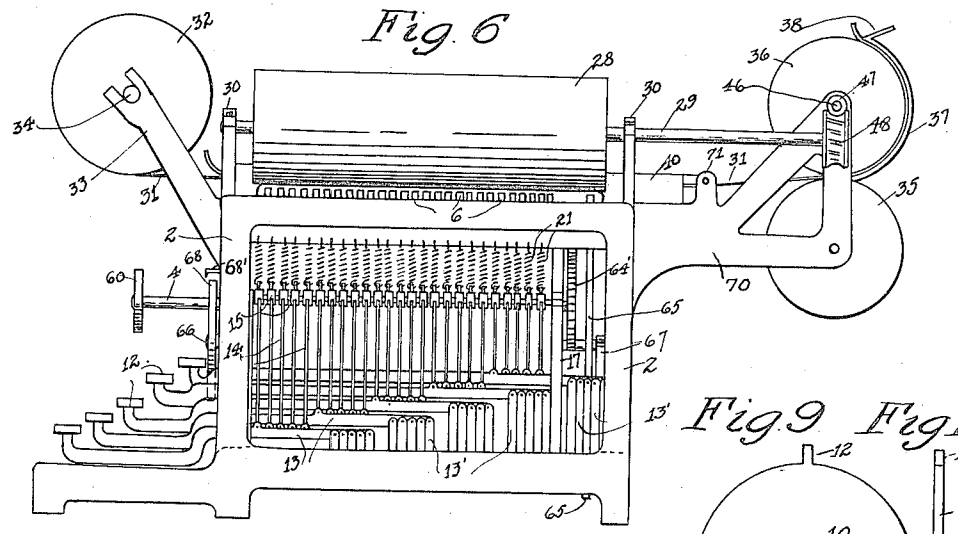


Fig. 9

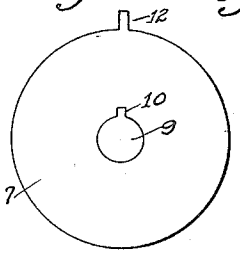


Fig 10

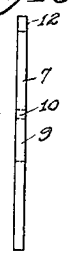


Fig. 7

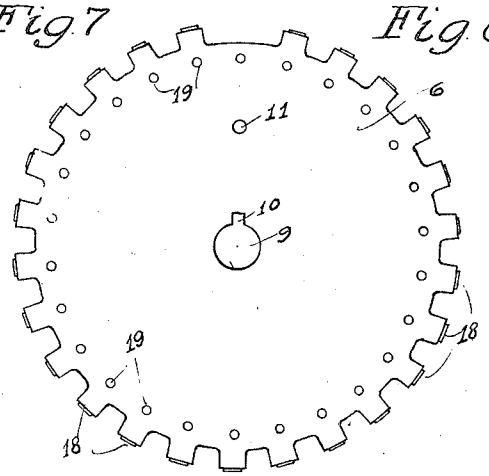


Fig. 8

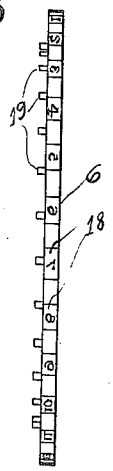


Fig 11

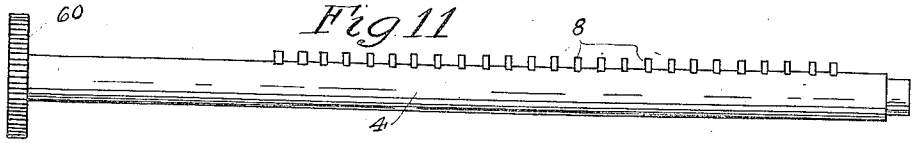
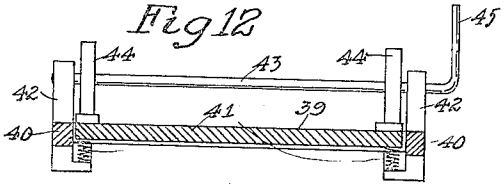


Fig 12



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UNITED STATES PATENT OFFICE.

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COUNTING AND LISTING MACHINE.

1,222,359. Specification of Letters Patent. Patented Apr. 10, 1917.

Application filed July 22, 1915. Serial No. 41,403.

To all whom it may concern:

Be it known that I, CHARLES E. CHAPMAN, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented new and useful Improvements in Counting and Listing Machines, of which the following is a specification.

My invention relates to improvements in indicating and recording machines, and refers more particularly to a device for counting and listing miscellaneous articles.

The principal object of the invention is to construct a machine of simple character by means of which a number of pieces of miscellaneous material may be properly counted and recorded in an orderly and correct manner, the present embodiment of the invention being designed for use in laundries whereby the contents of a bundle of laundry may be counted and listed.

With the foregoing general object in view, together with other important advantages which will be apparent from the following specification, my invention comprises the new and useful details of construction and arrangement, which will be hereinafter fully described, illustrated in the annexed drawings, and pointed out more specifically in the appended claims.

In the accompanying drawings, wherein I have shown the preferred embodiment of my invention, like reference characters refer to like or corresponding parts throughout the several views.

Figure 1 is a top plan view of my counting and listing machine. Fig. 2 is a fragmentary side elevation of the upper portion of my machine, one of the ribbon rollers being removed for clearness of illustration. Fig. 3 is a front elevation of my device, the forward structure being removed. Fig. 4 is a plan view of my machine, the top of the machine being removed to more clearly illustrate the underlying mechanism. Fig. 5 is a detail elevation of one of the disk actuating levers. Fig. 6 is a side elevation of my device. Fig. 7 is a front elevation and Fig. 8 a side elevation of one of the type disks. Fig. 9 is a detail front elevation of one of the spacing disks and Fig. 10 is a side elevation of the same part. Fig. 11 is a detail side elevation of one of the shafts upon which the type disks are mounted. Fig. 12 is a vertical sectional view through the pressure plate and frame carried on the top of my machine, the section being taken on line 12—12 of Fig. 1.

Referring now to the drawings, numeral 1 designates the rectangular bed plate upon which my machine is mounted, a framework 2 being erected thereon to support a top 3 parallel to the bed plate.

Between the top 3 and the bed plate 1, I have mounted two parallel horizontal shafts 4 and 4′ on bearing pedestals 5 and 5′, said shafts being spaced on each side of the center line of the width of the machine. Upon said shafts, I have mounted a plurality of type disks 6, freely revoluble on said shafts, the periphery of said disks provided with a plurality of consecutive numeral printing type 18. Just inside of said type, I provide a series of pins 19 projecting from the forward face of disk 6, for a purpose which will be hereinafter explained. Spacing disks 7 are disposed on shafts 4 and 4′ between each of said type disks and the next adjacent disk. The shafts are provided with a plurality of alined key pins 8, spaced on the shafts to engage each of the spacing disks 7, each of said disks being provided with a central perforation 9 for the shaft, and a key-way 10 to admit the key pin 8. Likewise I have provided each type disk 6 with a central perforation 9 for the shaft, and a key-way 10 to allow said disks to slide over the key pins 8 when being assembled. The forward face of each of disks 6 are provided with a projecting pin 11, and each of the spacing disks 7 are provided with a radially projecting tooth 12, positioned to be engaged by pin 11 on disk 6, when the type disk is rotated forward on its shaft. It will be seen that spacing disk 7 will thus be rotated, and that the shaft upon which that disk is mounted will also be rotated forward by reason of the engagement between key-way 10 on the spacing disk with the corresponding key-pin on the shaft.

In order to provide a greater capacity for my device I have provided two bilaterally symmetrical sets of counting devices for my machine. But one of such sets of mechanism will be described, it being understood that the opposite set is identical in operation and construction.

On the forward side of my machine I

provide a series of keys 12, extending upward from a set of horizontal key bars 13, said key bars being pivoted at the rear ends to bearings 13'. Each key bar is provided with an upright link 14, pivoted at its lower end to the key bar, and at its upper end to an actuating lever 15. Levers 15 are pivoted at their outer ends to a shaft 16 mounted in pedestals 17 above the base, the inner ends of said levers being provided with a slidable catch pin 15' adapted to register with the spaces between the disk 6 on shaft 4. Pin 15' extends between the disks sufficiently far to engage consecutively the pins 19 thereon, the under side of the catch pin engaging the upper side of the pins 19. It will thus be seen that as key 12 and its key bar 13 is pressed down by the operator, link 14 will draw the inner end of actuating bar 15 downward, and catch pin 15' will engage one of the pins 19 on the respective disk 6. When the lever 15 has traveled downward to the predetermined limit of its travel, the lower stop bar 20 will engage the under side thereof. Upon the release of key 12, the actuating bar will be drawn upward by spring 21 against the upper stop bar 20'. As the lever 15 travels upward, the tapered upper side of catch pin 15' will engage on the under side of the next adjacent pin 19, and the catch pin 15' will be telescoped into the end of bar 15. This action is made possible by the provision of a series of locking dogs 22 pivoted above the bed plate to engage between the pins 19, on the opposite side of the disks. Springs 23 normally press said dogs into engagement, holding the disks in stationary position until acted on by the superior force exerted by the actuating lever 15. The end of lever 15 being slotted, the catch pin 15' will readily travel backward into said slot, against the normal outward pressure of a coil spring 24 positioned in said slot between the inner end thereof and the end of catch pin 15'. The wall of the lever is provided with elongated perforations 25 therethrough and a pin 26 is carried in catch pin 15' to prevent the pin from passing out of the slot in the bar.

Each of the keys 12 on the forward face of my machine is labeled to indicate some piece of laundry. For instance, one key indicates towels, another napkins, etc., the entire set of keys being preferably sufficient in number to indicate all of the various articles in any bundle of laundry. By use of my device, an operator may sort such a bundle, pressing the required key as the pieces are being separated. Since the machine is set with each of the disks 6 with the blank upward, and with the numeral type numbering from one on consecutively around the disk on its outer edge it will be seen that with each impression of the key 12, the disk will be rotated counter clockwise, numeral 1 thus first assuming the uppermost position, and then two, etc., consecutively, with each subsequent actuation. Since each key is in operative engagement with one of the disks, the total number of pieces of that particular kind will be indicated by the uppermost numeral type on that corresponding disk.

The recording and listing device comprise an inked ribbon 27 carried directly above the type disk, and positioned to roll from one roller 28 to opposite roller 28'. Rollers 28 and 28' comprise the roll of ribbon carried about shafts 29, said shafts being mounted to revolve in pedestals 30 mounted on the top of the machine. Directly above ribbon 27, and extending at right angles thereto, I provide a printing web 31. Web 31 is previously printed with the laundry list thereon in the usual well known manner, the items being spaced apart to correspond with the spacing of the disks 6 on my machine.

I prefer to provide the list in rolls 32, the same to be carried on the forward face of my machine in brackets 33, a shaft 34 being provided in the rolls for engagement with said brackets. The web is drawn above ribbon 3 rearward of the top of the machine and inserted between two tension rollers 35 and 36 mounted on parallel brackets 70 at the rear of the machine. The end of the web passes around the rear portion of the upper roller 36, a guard 37 being provided to so direct the web. A knife 38 is positioned adjacent the top of the roller 36, whereby the perfected web may be torn off.

The recording is accomplished by means of a pressure plate 39, which is mounted directly above the web 31, and parallel therewith. Said pressure plate is carried by a frame 40, hinged to lugs 71 carried by brackets 70 and positioned to allow frame 40 to rest loosely upon the top of my machine. The pressure plate 39 is normally spaced upward from the bottom of said frame by means of coil springs 41 positioned adjacent the corners of the plate and seated on a supporting flange 40' carried by frame 40. Adjacent the center of the frame 40, I provide a pair of bearing pedestals 42, positioned one on each side of said frame, on which is mounted a crank shaft 43 running longitudinally of the machine. Just inside of the pedestals 42 and keyed to shaft 43 are spaced apart cams 44, said cams being in contact with the upper face of pressure plate 39. Cams 44 are positioned on shaft 43 so that the pressure plate will be in engagement therewith, and with the center line of the cam in front of and parallel to shaft 43. By rotating crank 45 upward, the cams 44 will be swung around shaft 43, actuating the pressure plate 39 downward. The

printed web and the ink ribbon will thus be forced downward against the numeral type on the counting device, giving an impression to the web in a well known manner.

In order to feed the inked ribbon from one ribbon roller to another, I have provided an extension on shaft 46 upon which tension roller 36 is mounted. Adjacent the ends of shaft 46 I provide a worm 47 which is in engagement with a worm gear 48 carried by shaft 29 of the ribbon roller. It will be seen that when the operator draws the list through the tension rollers, said roller will be rotated, the upper roller transmitting such rotation to the worm, thus rotating the ribbon roller. In order that the ribbon rollers may be rotated in one direction at a time, and in order that such direction may be reversed, I provide each of the shafts 46 with a sliding engagement between such shafts and the worm. This device is shown in Fig. 1, wherein a sliding sleeve 50 is provided on shaft 46, said sleeve being provided with a longitudinal slot 51 and the shaft with a pin 52. It will thus be seen that the rotating sleeve may be slid backward and forward on shaft 46, and that the teeth 53 thereon may be engaged with the slots 54 on the worm, it being understood that worm 47 is also cylindrical and is loosely mounted upon the shaft 46.

In order to re-set my device, after counting and recording a bundle of material, it is necessary to withdraw the several actuating levers and their catch pins 15′ from engagement with the pins 19 on the several disks 6. This is done by rotating lever 55 in a clockwise direction around its pivoting point 56 on the inner side of the forward face of the frame. Pedestals 17 upon which actuating levers 15 are pivoted at the upper ends of said pedestals are also pivoted adjacent their lower ends at points 58. By the actuation of lever 55 pedestals 17 will thus be drawn outward at their upper ends, links 57 and 57′ being pivoted to extensions carried downward from the pivoting points 58 of said pedestals. Link 57 is pivoted to lever 55 at a point above the pivoting point 56, while link 57′ is pivoted to said lever at a point below its pivoting point.

By rotating shaft 4 in a clockwise direction by means of the head 60 mounted on the forward end thereof, the several key pins 8 in said shaft will engage the spacing disks 7, which in turn will engage the pins 11 on each of the type disks, actuating said disks with shaft 4, which actuation will continue until the disks are all rotated to the starting position. In order to transmit such actuation from one shaft 4 to the opposite shaft 4′, I have provided two intermediate gears 63 and 63′, the same being in mesh with gears 64 and 64′ mounted on shafts 4 and 4′, respectively. It will be readily seen that such actuation will be readily transmitted, reversing the opposite set of mechanism in an apparent manner. As a means for preventing said mechanism from being actuated backward farther than the starting position, I have provided an enlarged tooth 61 on gear 64 which will not mesh with gear 63 at this point, preventing further actuation in that direction.

I have further provided my device with an enlarged weight recording disk 65, comprising on its periphery a plurality of consecutive numeral type. Disk 65 is mounted on a shaft 66 parallel to shafts 4 and 4′, and positioned slightly lower. Shaft 66 is mounted in pedestals 67 and 67′, and an indicating disk 68 is mounted on the forward end thereof, preferably just on the outside of the forward face of the machine. Disk 68 comprises a series of consecutive numerals, disposed thereon to correspond with the numeral type about disk 65. By setting disk 68 in relation to a fixed indicating point 68′ on the forward face of the machine, the corresponding indicated numeral will be uppermost on disk 65, and will be recorded when the other totals are recorded by the disks 6.

In bringing my machine into operation, the operator will feed the web beneath pressure plate 39, in the manner already pointed out. The weight disk 65 will be set at the previously ascertained number of pounds in the bundle to be sorted, by rotating disk 68 to the proper relation to the fixed indicating point. The pieces in the bundle will then be sorted, the operator pressing the required key once for each piece of material. When the entire bundle has been sorted the pressure plate 39 will be forced down by the actuation of lever 45, and the upper-most numerals on the several disks 6, and disk 65 will be recorded on the web, as previously explained. When the impression is made, and lever 45 rotated back to its normal position, the web may be drawn through rollers 35 and 36 and severed by knife 38. This rotation will also feed the ribbon 27, from roll 28 to 28′, or vice versa, in readiness for the next impression. The machine may then be reset for a new operation.

From the foregoing description, it will be readily seen that my invention provides an improved indicating and recording machine, especially adapted for use in laundries, whereby a number of miscellaneous pieces of material may be accurately and speedily counted and listed.

While I have herein described and shown the preferred embodiment of my invention, it is obvious that the various details of construction and arrangement may be varied in many ways, without departing from the

broad spirit of my invention. While I have provided a device especially designed for use in laundries, it will be understood that the same may be readily adapted for use in various other counting and listing operations.

Having thus described and illustrated my invention, what I claim is:—

1. In a listing machine, a shaft, a type disk having printing type thereon and mounted on said shaft, an actuating lever pivoted at its outer end and extending at right angles to said shaft, the inner end of said lever positioned to operate in an arc adjacent said disk, the inner end of said lever provided with a horizontal slot, a telescoping tapered catch pin projecting from said slot, a spring in said slot normally pressing said pin outward, teeth on said disk in engagement with the outer end of said pin, and a finger key and bar in operative engagement with said lever.

2. In a listing machine, a shaft, a type disk having printing type thereon and mounted on said shaft, an actuating lever pivoted at its outer end and extending at right angles toward said shaft, the inner end of said lever positioned to operate in an arc adjacent the disk, spaced apart stops positioned to limit the travel of said lever in each direction, teeth on the disk in engagement with the inner end of said lever, a spring fixed to a stationary point on the machine to normally actuate said lever to the limit of its travel in one direction, and a finger key and bar in operative engagement with said lever whereby the lever may be manually actuated to the limit of its travel in the opposite direction.

3. In a listing machine, a shaft, a type disk having printing type thereon mounted on said shaft, an actuating lever pivoted at its outer end and extending at right angles toward said shaft, the inner end of said lever positioned to operate in an arc adjacent the disk, teeth on said disk in engagement with the inner end of said lever, a bar pivoted at its inner end, a link pivotally engaged to the bar and to the actuating lever, and a finger key on said bar providing means for manually actuating the actuating lever and disk.

4. In a listing machine, a shaft, a plurality of type disks having printing type thereon and mounted loosely on said shaft, key means for rotating said disks, spacing disks keyed to said shaft between each of said type disks, a radial tooth projecting from each of said spacing disks, a pin projecting from one face of each of said type disks in the path of the radial tooth on the adjacent spacing disk, said pin positioned to actuate said spacing disk and shaft upon the rotation of the disk, and a manually operable crank disk fixed on one end of said shaft whereby said shaft and thereby the type disks may be counter-rotated when resetting the machine.

5. In a listing machine, parallel shafts, a plurality of type disks having printing type thereon and mounted loosely on said shafts, key means for rotating said disks, spacing disks keyed to said shaft between each of said type disks, a radial tooth projecting from each of said spacing disks, a pin projecting from one face of each of said type disks in the path of the radial tooth on the adjacent spacing disk, said pin positioned to actuate said spacing disk and shaft upon the rotation of the disk, a chain of gears operatively connecting said parallel shafts, and a manually operable crank disk fixed on one end of one of said shafts whereby the shafts and type disks may be counter-rotated when resetting the machine.

6. In a listing machine, parallel shafts, a plurality of type disks having printing type thereon and mounted loosely on said shafts, key means for rotating said disks, spacing disks keyed to said shafts between each of said type disks, means carried by each of said type disks for engagement with the next adjacent spacing disk to actuate the same and thereby the shaft upon the rotation of the disk, a chain of gears operatively connecting said parallel shafts, a manually operable crank disk fixed on one end of one of said shafts whereby the shafts and type disks may be counter-rotated when resetting the machine, and one of said gears provided with an enlarged tooth positioned thereon to prevent counter rotation farther than a predetermined point.

7. In a listing machine, parallel shafts, sets of indicating disks mounted on said shafts, oppositely disposed sets of actuating levers in operative engagement with one of said disks, a pivoting shaft for each set of actuating levers, oppositely disposed pairs of spaced apart parallel bearing pedestals for said pivoting shafts, said pedestals pivoted to the machine adjacent their lower ends, one of the pedestals of each pair extending downward below said pivoting point, connecting rods pivoted to said extensions, a pivoted hand-lever, and said connecting rods pivoted to said hand-lever on opposite sides of its pivoting point.

8. In a listing machine adapted to print upon a continuous web, the combination with spaced apart disks having printing type and so positioned that the type denoting the result of the operations performed by the several disks will be in the same plane, of a pressure plate spaced from the plane of said type, tension rollers positioned to receive the web, a pair of spaced apart ribbon rollers, an inked ribbon extending across the machine between the web and type from one ribbon roller to the other, ribbon

feeding means carried by said tension rollers in operative relation to said ribbon rollers, and cams carried by the machine in position to actuate the pressure plate to impress the web and intervening ribbon against said type.

9. In a listing machine adapted to print upon a continuous web and having a plurality of numeral type positioned in the same plane to denote the results of the operations of the machine, the combination of an inked ribbon carried parallel to said plane, a hinged frame adjacent the web, a pressure plate mounted in said frame parallel to and normally spaced above the plane of said type, and cams carried by the frame in position to directly actuate said pressure plate to impress a web and the intervening ribbon against said type.

10. In a listing machine adapted to print upon a continuous web a plurality of parallel columns, the combination with parallel rows of spaced apart disks having printing type so positioned that the type denoting the result of the operations performed by the several disks will be in the same plane, a shaft parallel to said rows of spaced apart disks, a recording disk having printing type on its periphery mounted on said shaft, an indicating disk on said shaft having characters positioned in accordance with the type on the recording disk, a fixed point on the machine by which said indicating disk may be set, a pressure plate spaced from the plane of said type, tension rollers positioned to receive the web, a pair of spaced apart ribbon rollers, an inked ribbon extending across the machine between the web and type from one ribbon roller to the other, ribbon feeding means carried by said tension rollers in operative relation to said ribbon rollers, and cams carried by the machine in position to directly actuate the pressure plate to impress the web and intervening ribbon against the type.

11. In a listing machine, a shaft, a type disk having indicating type thereon mounted on said shaft, an actuating lever pivoted at its outer end and extending at right angles toward said shaft, the inner end of said lever positioned to operate in an arc adjacent the disk, teeth on said disk in engagement with the inner end of said lever, a bar pivoted at its inner end, a link pivotally engaged to the bar and to the actuating lever, a finger key on said bar providing means for manually actuating the actuating lever and disk, a locking dog pivoted adjacent said disk and comprising a tapered tooth positioned to mesh with the teeth on the disk, and a spring positioned to normally hold said dog in mesh with said teeth until the force of the spring is overcome by the superior force of the manual rotation of the disk.

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Witnesses:
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