F. S. RICHMOND.

DIRECTORY.

APPLICATION FILED JULY 27, 1912.

1,069,292.

Patented Aug. 5, 1913.

Fig. 1.

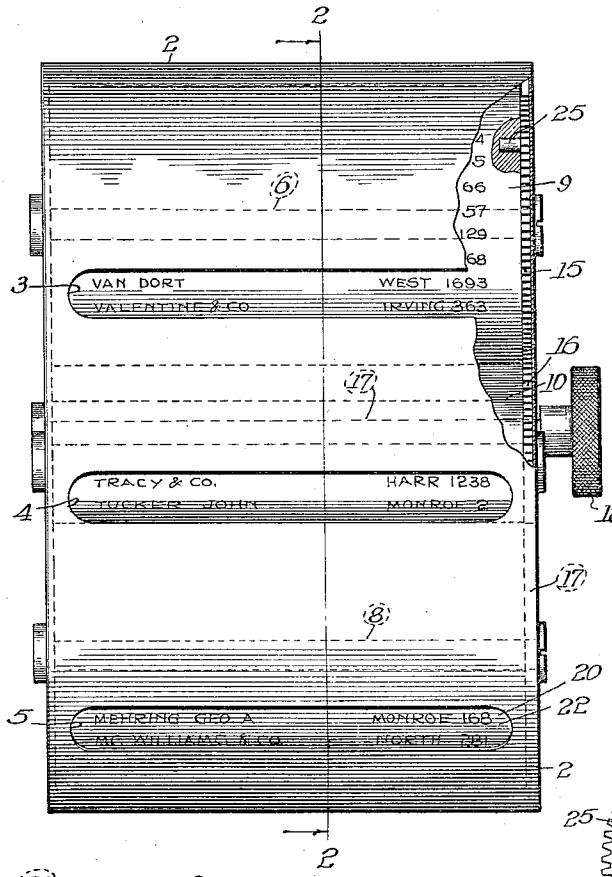
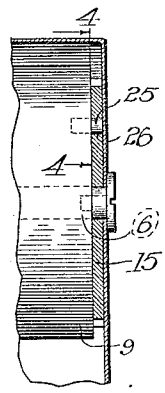


Fig. 3.



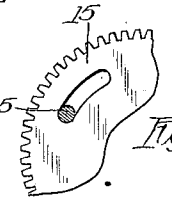
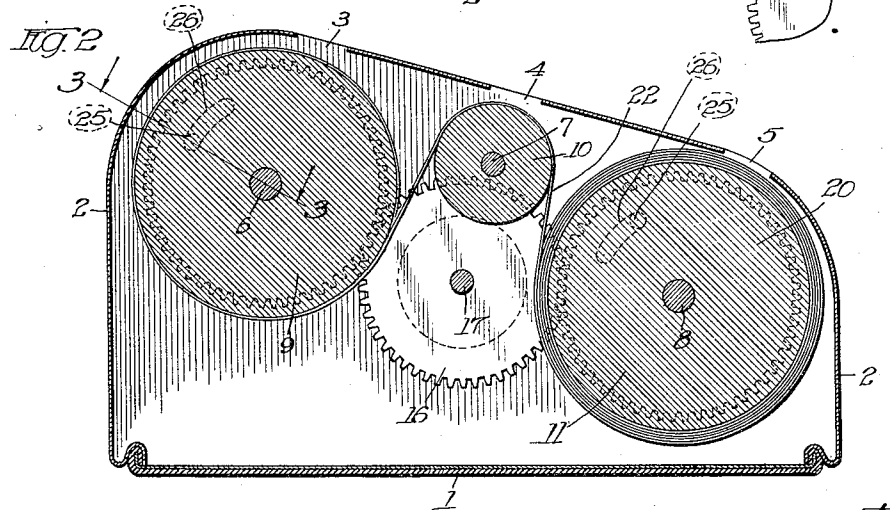


Fig. 4.

Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

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DIRECTORY.

1,069,292. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed July 27, 1912. Serial No. 711,855.

To all whom it may concern:

Be it known that I, FREDERICK S. RICHMOND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Directories, of which the following is a specification.

My invention relates to directories, more especially mechanical directories adapted to exhibit such information as names and telephone numbers of persons or their names and street addresses.

The object of my invention is to provide a device which shall be compact in size and easily manipulated and at the same time capable of readily exhibiting any desired item in a large quantity of data.

It will be understood that in certain types of mechanisms, such as station indicators for street railway cars and the like, the names of the streets or stations are carried upon a strip of paper or woven fabric and wound upon drums or rollers. In such cases the information is called for *seriatim*, one station following another in regular sequence, in my device, however, the items are not ordinarily required in succession, but it is necessary to turn first to one portion of the strip and then to another located possibly at some distant portion of the strip.

It is my purpose to provide such construction that the desired item may be readily and quickly found whether located adjacent to the one last exhibited or at a distance therefrom.

Another object of my invention is to provide means whereby both sides of the strip may be available for use without demounting the strips from the rollers. This not only doubles the capacity of the machine for a strip of any given length, but renders the mechanism especially applicable for use as an advertising device. For example, paid advertisements may be printed on one side of the strip, while personal data, such as the particular customers of the business house by which the device is used, may be typewritten upon the other side of the strip.

As to structural details, one of the objects of my invention is to provide means for compensating for the variations of rotation of the rollers due to the various relative amounts of the strip contained thereon when the strip is at the different positions.

It is my purpose also to provide other improved structural details which will be hereinafter more particularly described and claimed.

I accomplish my objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the device, a portion of the cover being broken away to reveal the parts within. Fig. 2 is a vertical sectional view taken on the line 2—2, Fig. 1. Fig. 3 is a detailed section on the line 3—3 Fig. 2; and Fig. 4 is a fragmentary detail showing a portion of the compensative connection between a roller and its gear wheel.

Similar numerals refer to similar parts throughout the several views.

In the present form the casing of the device consists of a base 1 and a cover 2, the latter having three parallel sight apertures 3, 4, 5. For convenience these sight apertures will be referred to as the upper, middle and lower sight apertures, respectively. Mounted within the casing are three parallel horizontal shafts 6, 7 and 8 upon which are loosely mounted the upper, middle and lower main rollers 9, 10 and 11, respectively. The top surface of the roller 9 is closely beneath the sight aperture 3 and the rollers 10 and 11 occupy the same positions with reference to their respective sight apertures 4 and 5.

Mounted on shaft 6 just inside of the side wall of the casing is a gear 15 which meshes permanently with a gear 16 mounted upon a horizontal shaft 17. Gear 16 is rigidly secured to shaft 17 and the latter is rotated by a hand wheel 18 located on the outside of the casing, as shown in Fig. 1. Mounted on shaft 8 in alinement with the gear 16 is a gear 20, which remains permanently in mesh with the gear 16.

A strip 22, which may be of fabric but is preferably of paper, is secured at one end to roller 9 and at the other end to roller 11.

The strip, which for convenience may be termed the "print strip", is wound in opposite directions upon the rollers 9 and 11 so that as the strip is unwound from one roller it will wind up upon the other. The middle roller 10 is in the nature of an idler, the strip merely passing over it, as shown in Fig. 2. By reference to this figure it will be apparent that the rollers 9 and 11 present to the apertures 3 and 5 one surface of the strip, while the roller 10 presents to the aperture 4 the opposite side of the strip. For convenience the surface visible through the apertures 3 and 5 will be termed the front of the strip and the surface visible through the aperture 4 the back of the strip. In this my preferred form of device the rollers 9 and 11 and their respective gear wheels 15 and 17 are not rigidly connected, but are independently rotatable within certain limits. A pin 25 projects outwardly from each of the rollers 9 and 11 and enters a slot 26 formed in the gear wheels 15 and 17 concentric with the latter. The length of the slots will depend upon the thickness of the print strip and the number of turns which the strip makes upon a roller when the latter is filled. In other words, the length of the slots will depend upon the angular difference in rotation between a roller and its gear wheel due to the fact that the gear wheels, being geared together, have constant rotation relatively to each other, while the rollers have variable rotation relatively to each other as a result of the varying differences in diameter of the rolls as one unwinds and the other winds up. The parts are so assembled that as the diameter of a roll decreases as it becomes more nearly empty, the roller is free to rotate somewhat faster than its gear wheel.

In operation let it be assumed that the front of the strip contains names in alphabetical order, and opposite to each name a telephone or street address. Let it be assumed also that the back of the strip contains, also in alphabetical order, the names and telephone numbers of advertisers who wish to keep their names and telephone addresses before the user of the device. If the user has 250 names which he wishes to put upon his list, they will normally occupy, if printed in single space typewriting, a strip three or four feet in length. This would naturally require considerable rotation of the rollers to enable the user to bring to view the required item, especially if the item were alphabetically remote from the one last used; for it must be borne in mind that my device is intended for use upon a desk and is therefore necessarily small, the larger rollers ordinarily not exceeding two inches in diameter. But in my device the front of the strip is exhibited at two rather widely separated points and consequently the operator, by glancing at the upper and lower sight apertures, can instantly determine to which aperture he must bring the desired item to accomplish it with the least amount of movement of the strip. In actual practice it occurs that the maximum movement necessary is not much more than one third of the entire length of the strip. As the user moves the strip back and forth at various times to find the items that he requires, he of necessity brings the various items on the back of the strip to a point beneath the middle sight aperture 4. If the back of the strip contains advertisements, the result will be to constantly bring said advertisements into view, and these will be specially noted if printed in ink or inks of a color different from the typewritten items on the front of the strip. If, however, the user has more items than can be placed upon one side of the strip he may employ both sides, and both sides may be brought into view without the necessity of demounting the strip from the rollers.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. In a device of the class described the combination of a print strip, rollers supporting said strip and simultaneously exhibiting both the front and the back thereof, toothed gear wheels, one concentric with one of said rollers and another concentric with another of said rollers, said gear wheels being in permanent gear with each other, and a compensating connection between one of said rollers and its gear wheel, said gear wheel having a slot concentric with its axis and said connection comprising a pin projecting from the end of the roller into said slot.

2. In a device of the class described the combination of a print strip, a casing having two sight apertures therein, independently rotatable rollers supporting said print strip and exhibiting one side of said strip at one aperture and the reverse side simultaneously at the other aperture, toothed gear wheels, one concentric with one of said rollers and another concentric with another of said rollers, said gear wheels being on permanent gear with each other, and a compensating connection between one of said rollers and its gear wheel, said gear wheel having a slot concentric with its axis and said connection comprising a pin projecting from the end of the roller into said slot.

3. In a device of the class described, the combination of a casing, two main rollers arranged parallel to each other in said casing, said rollers being independently rotatable, a print strip mounted upon said rollers to be exhibited thereby, a train of three

gear wheels permanently in mesh with each other, two of said gear wheels being concentric respectively with two of said main rollers, and a slot and pin connection between each of said rollers and its associated gear wheel whereby there is lost motion between them for the purpose described.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK S. RICHMOND.

Witnesses:

HOWARD M. COX,

ETTA L. WHITE.