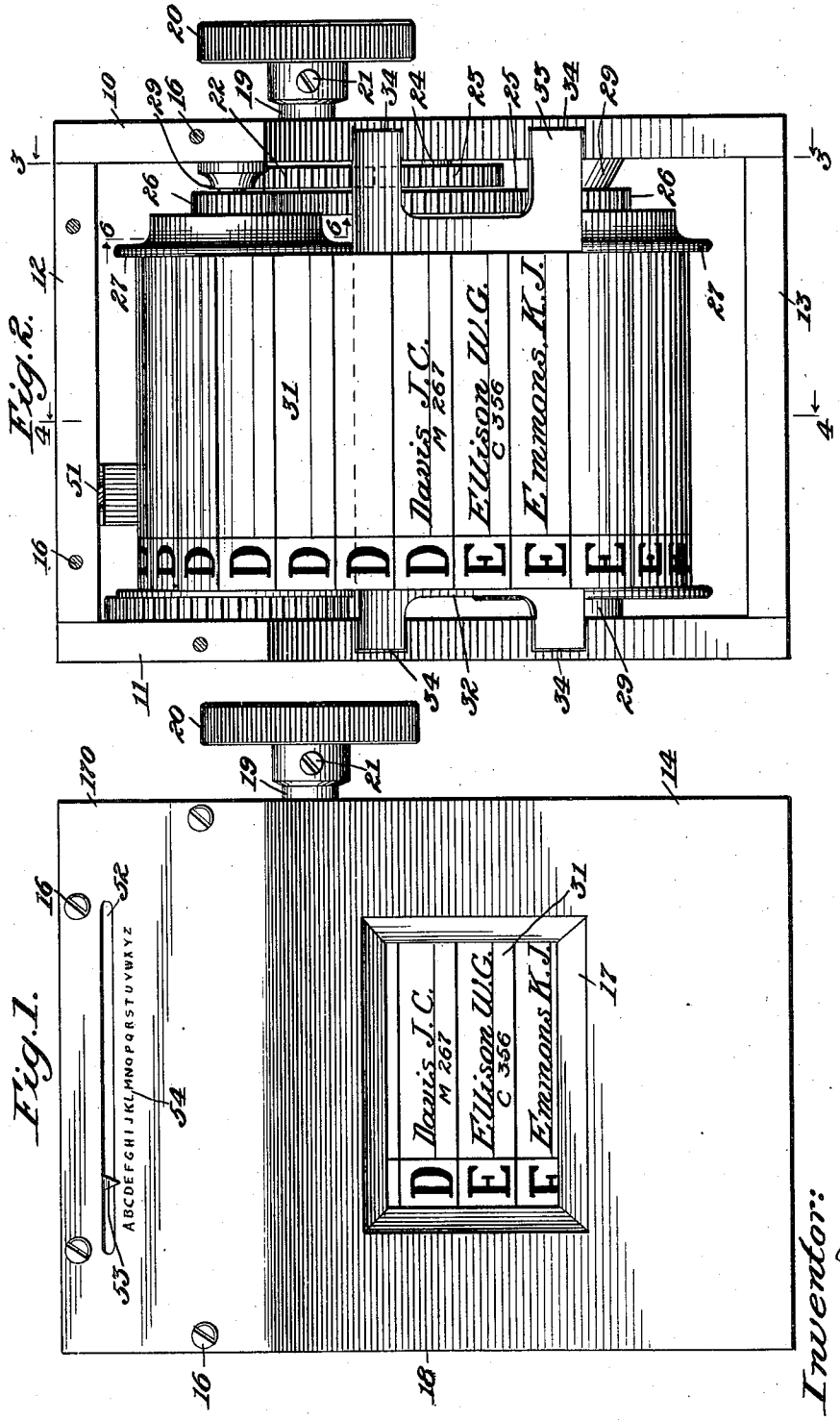
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I. BECKETT

TELEPHONE DIRECTORY OR THE LIKE

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I. BECKETT

TELEPHONE DIRECTORY OR THE LIKE

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Fig. 3.

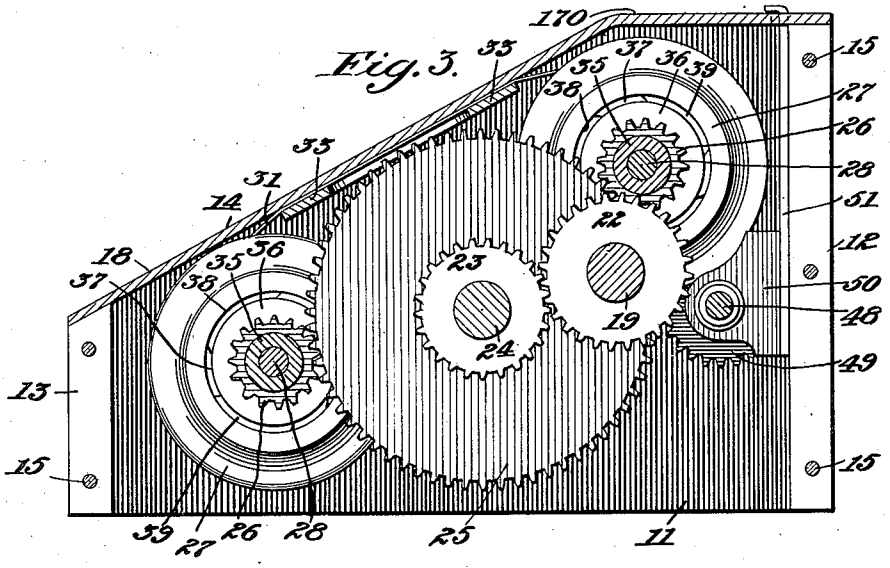
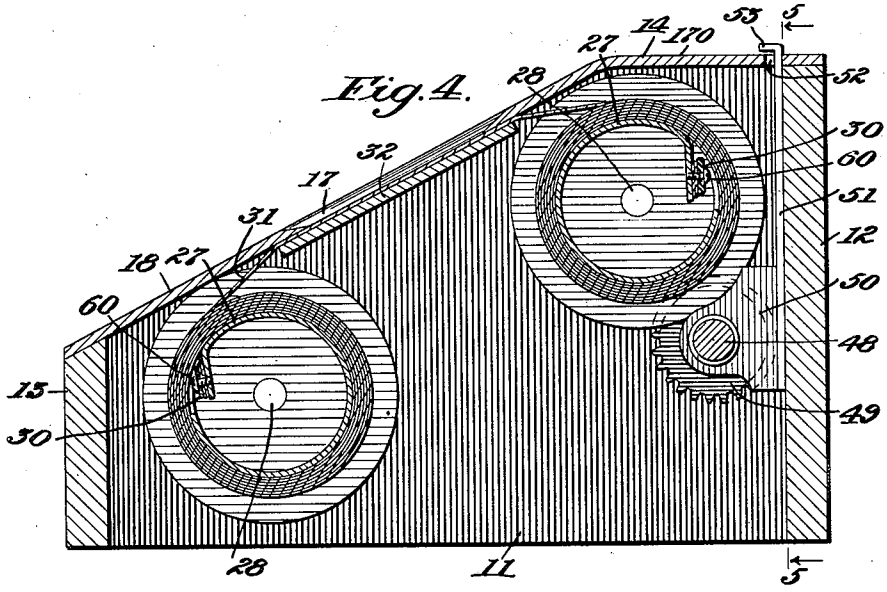


Fig. 4.



Inventor:
Ivan Beckett
By Albert Talbot
Att'ys.

June 3, 1924.

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Fig. 5.

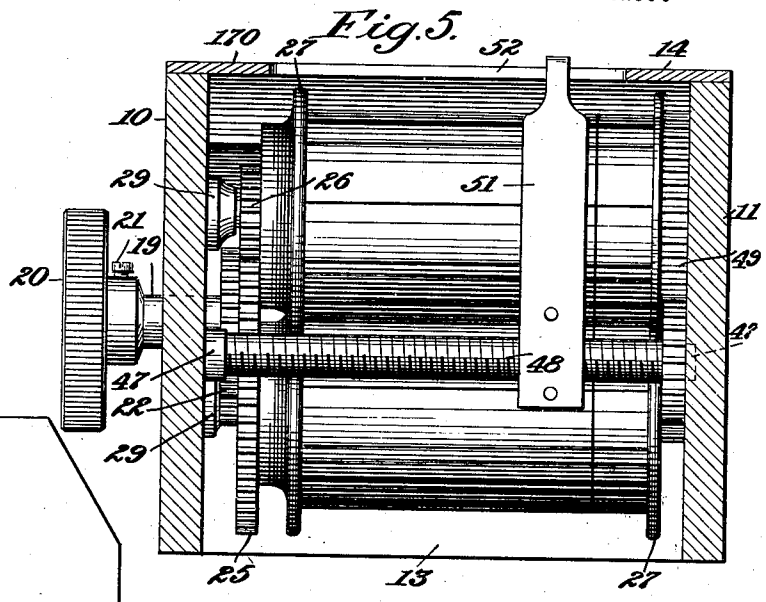


Fig. 7.

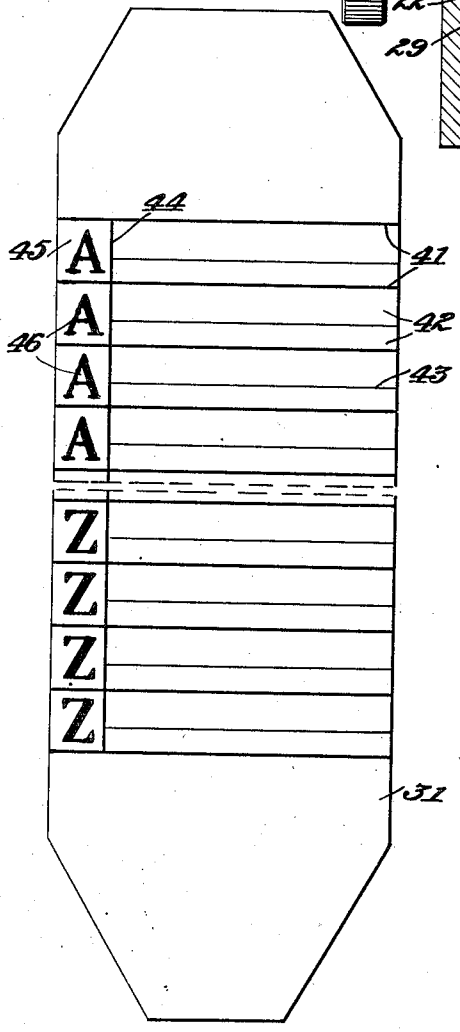
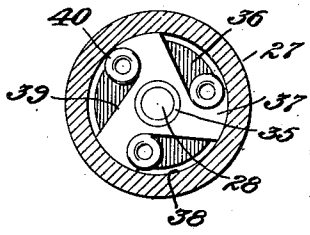


Fig. 6.



Inventor:
Ivan Beckett
By Albert Calvert
Att'ys.

Patented June 3, 1924. 1,496,515

UNITED STATES PATENT OFFICE.

IVAN BECKETT, OF NEW YORK, N. Y.

TELEPHONE DIRECTORY OR THE LIKE.

Application filed June 22, 1920. Serial No. 390,944.

To all whom it may concern:

Be it known that I, IVAN BECKETT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented or discovered certain new and useful Improvements in a Telephone Directory or the like, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to apparatus for storing, displaying and rendering readily available recorded data, and particularly, although not exclusively, to mechanical directories adapted to exhibit the names of various parties and their telephone numbers. The invention has for its object the provision of a compact device of attractive appearance comprising a data carrying member, preferably in the form of a flexible strip upon which the desired data may be recorded, which strip may be of considerable length so as to be capable of receiving a large number of items, and means for storing and manipulating said strip so as to exhibit or display any desired portion thereof, said apparatus being of such a character that any desired portion of said strip may be rendered quickly available, and having provision whereby the presentation of the desired portion of the strip in exhibiting position is facilitated and the desired data readily recognized when brought into position to be read.

The foregoing and other objects of the invention, together with means whereby the same may be carried into effect, will best be understood from the following description of one form or embodiment thereof illustrated in the accompanying drawings. It will be understood, however, that the particular construction described and shown has been chosen for illustrative purposes merely, and that the invention, as defined by the claims hereunto appended, may be otherwise practiced without departing from the spirit and scope thereof.

In said drawings:

Fig. 1 is a plan view of the complete device.

Fig. 2 is a similar view with the top of the casing removed.

Figs. 3 and 4 are longitudinal vertical sections on lines 3—3 and 4—4, respectively, Fig. 2.

Fig. 5 is a transverse vertical section taken substantially on the line 5—5, Fig. 4.

Fig. 6 is a detail sectional view of one of the feed roller clutch devices, taken substantially on the line 6—6, Fig. 2.

Fig. 7 is a detail view of the record or data carrying strip.

The mechanism of the apparatus is enclosed in a suitable casing comprising side members 10 and 11, back and front members 12 and 13, and a top or face plate 14. The body of the casing formed by said side and end members may, if desired, be formed as a single integral part by die casting or otherwise, but as herein shown said members comprise separate plates suitably connected, as by screws 15, (Fig. 3). The casing may, if desired, be provided with a suitable base (not shown), but preferably, and as herein illustrated, the bottom of said casing is left open to facilitate the inspection of the mechanism therein. The face or top plate 14 is preferably detachably secured to the body of the casing, as by removable screws 16, and is provided with a sight opening 17 through which the record strip hereinafter described may be observed. The rear portions of the upper edges of the side members 10 and 11 are preferably horizontally disposed, while the forward portions thereof are forwardly and downwardly inclined, the face or top plate 14 being correspondingly shaped to provide a rear or upper horizontal portion 170 and a forward inclined portion 18 in which the sight opening 17 is formed.

Journalled in one of the side members of the casing, herein the member 10, is a short shaft 19 provided at the exterior of the casing with a suitable operating member, herein shown as a knurled knob 20 detachably secured to said shaft, as by a set screw 21. Secured to the shaft 19 within the casing is a gear 22 which meshes with a relatively small pinion 23 rotatably mounted on a stud 24 carried by and pro-

jecting inwardly from the side member 10. Suitably secured to the pinion 23, for rotation therewith, is a relatively large gear 25 which meshes with relatively small pinions 26 disposed concentric with, and operatively connected (by means hereinafter more fully described) to upper and lower feed rollers 27 having trunnions 28 rotatably journalled in sockets 29 carried by the side members 10 and 11 of the casing, said pinions 26 constituting actuators for said rollers.

It will be seen that the construction above described provides an exceedingly simple speed-accelerating mechanism for operatively connecting the knob 20 with the rollers 27, whereby rotation of said knob in either direction will result in rotation of said rollers in the same direction and at a greatly increased speed. In the construction shown, this mechanism can be easily assembled and as readily disassembled, for purposes of repair or otherwise, by removing the side plate 10, and with it the sockets 29 carried thereby, the shaft 19, stud 24, gears 22 and 25, and pinion 23, thereby permitting the ready removal of the trunnions of the feed rollers from the opposite sockets 29 carried by the plate 11.

Secured at its ends to the feed rollers 27, and wound upon said rollers, is the data carrying or record strip 31, operation of said rollers in one direction or the other causing a corresponding feed or travel of said strip between the top or face plate 14 and a backing plate 32. For the purpose of detachably securing the ends of the strip 31 to the rollers 27 there are herein shown (see Fig. 4) clamping strips 30 secured in recesses in said rollers by screws 60. The strip 31 is preferably composed of linen or other textile material having a suitably prepared surface upon which the desired data may be written. The backing plate 32 is located directly beneath the sight opening 17, and is preferably detachably supported in this position, as by means of projections 33 formed on the ends of said plate and received in suitably disposed sockets 34 formed in the upper edges of the side members 10 and 11, said projections being retained in said sockets by the face or top plate 14 when the latter is in position. When the removable top plate 14 is taken off the detachably mounted backing plate may also be removed, thus affording convenient access to the mechanism within the casing.

In order that, notwithstanding the continuous engagement of both pinions 26 with the gear 25, the feeding of the strip 31 by the rollers 27 may take place smoothly, irrespective of the quantity of the strip wound on the respective rollers and the consequent effective diameter of said rollers, means are provided whereby only that roller upon which the strip is being wound will be operatively connected with its pinion 26, the other roller being permitted to turn idly with respect to its pinion as the strip is withdrawn therefrom. As herein shown, said means comprise one-way clutches for operatively connecting each of the rollers with its actuating pinion, said clutches being so disposed that when a pinion is rotated in a direction to cause its roller to wind up the strip, said pinion will be operatively connected with said roller to rotate the same, but when said pinion is rotated in the opposite direction it will be operatively disconnected from its roller, permitting said roller to be turned independently by the withdrawn strip at a greater or less speed than that of the pinion, according to the circumstances. To the foregoing ends, in the construction shown, each of the pinions 26 is fast upon a sleeve 35 (see Figs. 3 and 6) rotatably mounted on the adjacent trunnion 28 of the corresponding feed roller, said sleeve having also fast thereon a disk 36 and, at the opposite side of said disk from said pinion, a hub 37, which hub is loosely received in a cylindrical recess 38 in the adjacent end of the feed roller. The hub 37 is formed with inclined notches 39 to receive rolls 40 which are retained in the recess 38 by the disk 36, and which are adapted, when the hub 37 is turned in one direction, to engage the wall of the recess 38 and thereby connect the hub and roller for rotation in unison, and when said hub is turned in the opposite direction to be forced back into said notches 39, thereby operatively disconnecting said parts. The notches 39 in the two hubs 37 are oppositely inclined, so that when the gear 25 is turned in one direction or the other one or the other only of the feed rollers will be positively actuated, to the ends above stated.

In addition to compensating for variations in the amount of strip wound on the respective rollers, as above explained, the one way clutches serve also to facilitate the rapid movement of the strip, since they permit the overrunning of the rollers, by momentum, after the movement of the gear 25 has been arrested, so that by giving the knob 20 a sharp, quick turn or twist the strip may be caused to travel a distance considerably greater than that directly corresponding to the amount of movement of the knob, such travel of the strip, however, being checked or arrested at any time by a slight movement of the knob in the opposite direction.

An important feature of the present invention resides in the arrangement of the strip 31 and the disposition of the inscriptions thereon. Referring to Fig. 7, it will be seen that said strip is divided by trans-

verse lines 41 into a longitudinally disposed series of spaces 42, each adapted to receive certain data. If, as in the particular embodiment of the invention shown, the device is to be used as a telephone directory or index, each of the spaces 42 is preferably subdivided by a transverse line 43 in order to accommodate a name and a corresponding telephone number, as shown in Figs. 1 and 2. Separated from the spaces 42 by a longitudinal line 44, is a marginal portion 45 in which are disposed, opposite the several spaces 42, a series of large and prominent index characters 46 of a nature to identify the data inscribed in the said spaces. Thus, in the construction shown, the characters 46 comprise letters of the alphabet corresponding to the initials of the names inscribed in the adjacent spaces, the same letter appearing, in most instances, a plurality of times opposite successive spaces, and the several letters or groups of letters being alphabetically arranged longitudinally of the strip.

By the use of the large and prominent index characters 46, the portion of the strip 31 appearing at any time beneath the sight opening 17 may be readily recognized, although the strip may be travelling at a relatively high rate of speed. The essential requirements of a practical device of this character are (1) that it be capable of containing a considerable number of names, and (2) that any one of said names may be found with a minimum loss of time. It has been found in practice that, by means of the mechanism above described, a single turn or twist of the operating knob 20 may be caused to produce a longitudinal travel of the strip of six feet or more, thus permitting the use of a relatively long strip and thereby providing a large space for names, while at the same time making it possible to bring any portion of the strip, and consequently any name, beneath the sight opening with a minimum expenditure of time and effort. As the prominent index characters are each repeated a number of times so as to form groups each consisting of a plurality of similar index characters or letters the data carrying or index strip or web 31 is necessarily a long one, requiring a long travel of said strip to bring widely separated groups into visible position beneath the sight opening 17 in the top plate 14. The long travel of the long data-carrying or index strip or web 31, from a single turn or twist of the operating knob 20, just referred to, is due to the accelerating gearing hereinbefore described and to the fact that the hub portions of the metal winding rollers 27 are thick and heavy, as clearly shown in the drawings, as also to the fact that the metal knob 20 is also thick and heavy and thus acts, in a measure, as a balance wheel or inertia wheel, Thus these heavy metal parts, together with the somewhat heavy metal gear wheels, all provide inertia means so that the larger part of the long rapid travel of the strip 31, from a single turn or twist of said knob, is due to momentum, as will be understood. It will be noted that in the groups of prominent index characters at one margin of the data-carrying strip 31, and which index characters appear successively a plurality of times in each group, the said prominent index characters are arranged in close proximity to each other lengthwise of the said strip. This is important for the reason that this close arrangement of these prominent index characters in each group keeps the said strip from being unnecessarily long, but more particularly for the reason that as the said strip is passing rapidly beneath the sight opening 17 the repetition of the index characters in each group enables the user to observe what particular index characters or initial letters are passing, so that the travelling strip may be conveniently arrested at the proper point. The rapid travel of the strip, however, renders necessary the provision of some means for readily identifying the portion desired. When the strip is travelling relatively slowly, but still too rapidly to permit reading the individual names or other data, the prominent index characters 46 will enable the operator to identify the approximate portion of the strip desired. In order, however, to make possible such identification and the stoppage of the strip at any predetermined point when said strip is travelling at the higher speeds at which the mechanism above described is capable of driving it, and which speeds render illegible even the relatively large index characters 46, means for indicating what index characters or letters are passing the sight opening are employed, such means, in the construction herein shown, consisting of the following mechanism.

Located adjacent the rear of the casing, and removably journalled at its ends in sockets 47 (Fig. 5) in the side members 10 and 11, is a feed screw 48 disposed with its axis parallel to the axes of the feed rollers 27 and operatively connected with the upper feed roller by gears 49. Mounted on the feed screw 48 is the threaded hub of a slide 50 (see Figs. 3 and 4) to which is secured an upwardly extending arm 51 projecting through a transverse slot 52 in the horizontal portion 170 of the face plate 14, the upper end of said arm being formed with a pointer 53 cooperating with a scale 54 (Fig. 1) on the outer surface of said plate. Rotation of the slide 50 is prevented by engagement thereof with the rear casing member 12 so that, as the feed screw 48 is rotated through the gearing 49 by a corresponding

rotation of the feed roll, the pointer 53 will be caused to traverse the scale 54. The said scale 54 is disposed transversely to the index strip 31 and is composed of index characters corresponding in nature and arrangement with the index characters 46 on the strip 51, the construction being such that when the pointer 53 is opposite any index character on the scale 54, a corresponding index character 46 on the strip 31 will be in position beneath the sight opening 17. It will, of course, be understood that the pitch of the feed screw 48 must bear such a relationship to the length of the strip 31 that the slide 50 will completely traverse the length of the screw, and the pointer 53 completely traverse the scale 54, during the passage of the inscribed portion of said strip from one end to the other beneath the sight opening 17. By reason of the removable mounting of said feed screw in its bearing sockets 47, it will be seen that said feed screw may be readily removed and replaced by a feed screw of different pitch, so that feed screws may readily be provided to correspond to strips of different standard lengths which, by reason of the detachable connection of the strip and rollers, may be readily substituted for one another in the device.

From the foregoing the operation of the device will be readily understood, but the same may be briefly reviewed as follows. It will be understood that the names of such parties as the operator of the device has occasion to call from time to time will be inscribed in the appropriate spaces 42 on the strip 31 opposite the proper index characters or initial letters 46. When it is desired to find a given name, the knob 20 is turned in one direction or the other, depending upon the relative position of said name on the strip with respect to the portion of the strip at that time beneath the sight opening 17. By proper manipulation of the knob 20 the strip 31 may be caused to travel very rapidly, as above explained, and the operator, by watching the desired letter on the scale 54, and the approach of the pointer 53 thereto, may determine when the desired portion of the strip is approaching the sight opening, whereupon the travel of the strip may be checked in order to permit clear observation first of the passing index characters 46 and then of the individual names, thereby permitting the strip to be readily stopped at the proper place.

Having thus described my invention I claim and desire to secure by Letters Patent:—

1. A mechanical directory comprising, in combination, a casing having side members and a detachable top plate provided with a sight opening, a backing plate disposed beneath said sight opening, said side members being provided at their upper edges with notches in which the ends of said backing plate are received and retained by said top-plate, a data carrying strip disposed between said top plate and backing plate, and means for feeding said strip past said sight opening.

2. A mechanical directory comprising, in combination, a casing having side members and a detachable top plate provided with a sight opening, a backing plate removably mounted on said side members beneath said sight opening and retained by said detachable top-plate, a data carrying strip disposed between said top plate and backing plate, and means for feeding said strip past said sight opening.

3. A mechanical directory comprising, in combination, a casing having a sight opening, an operating member accessible from the exterior of said casing, a long data-carrying strip, and means operated by said operating member and including speed accelerating mechanism and inertia means for causing said strip to travel rapidly and for a long distance past said sight opening, said data-carrying strip being provided at one margin with groups of prominent index characters visible through said sight opening as said strip travels by said opening, each character or letter appearing successively a plurality of times in each group to afford room on said strip for a plurality of names commencing with the same initial.

4. A mechanical directory comprising, in combination, a casing having a sight opening, an operating member accessible from the exterior of said casing, a data-carrying strip within said casing, means operated by said operating member and including speed accelerating mechanism and inertia means for causing said data-carrying strip to travel rapidly and for a long distance past said sight opening, said data-carrying strip being provided, at one margin, with groups of prominent index characters visible through said sight opening as said strip travels past said opening, each of said characters appearing successively a plurality of times in each group, a scale disposed transversely of said strip and consisting of index characters similar to those on said data-carrying strip, and means, controlled by said moving means, for indicating the position of said data-carrying strip by said scale.

5. A mechanical directory comprising, in combination, a casing having a sight opening, an operating member accessible from the exterior of said casing, a long data-carrying strip, and means operated by said operating member and including speed accelerating mechanism and inertia means for causing said strip to travel rapidly and for a long distance past said sight opening, said

data-carrying strip being provided at one margin with groups of prominent index characters visible through said sight opening as said strip travels by said opening, each character or letter appearing successively a plurality of times, in close proximity to each other, lengthwise of the strip, in each group, to afford room on said strip for a plurality of names commencing with the same initial, and to render it convenient for the user to arrest the travel of said strip at the proper point.

In testimony whereof I affix my signature.

IVAN BECKETT.