

C. WORTH.  
RAILROAD TIME INDICATOR.

No. 517,943.

Patented Apr. 10, 1894.

Fig. 1.

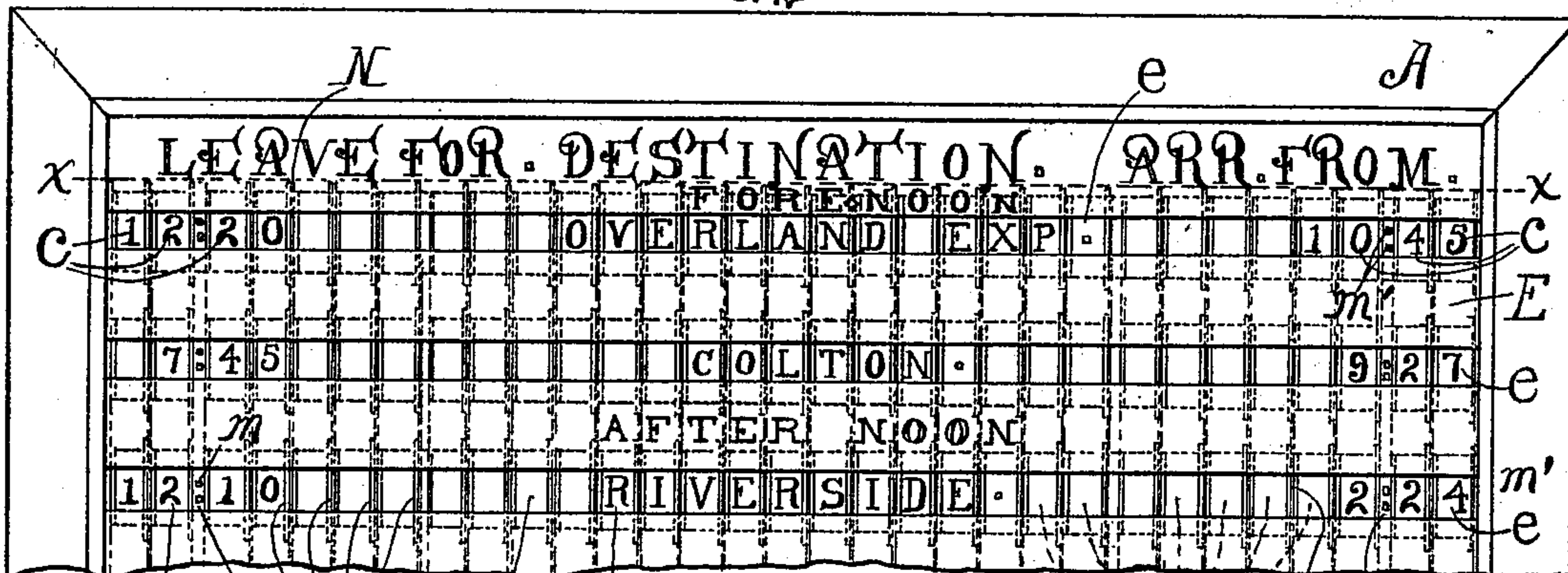


Fig. 2.

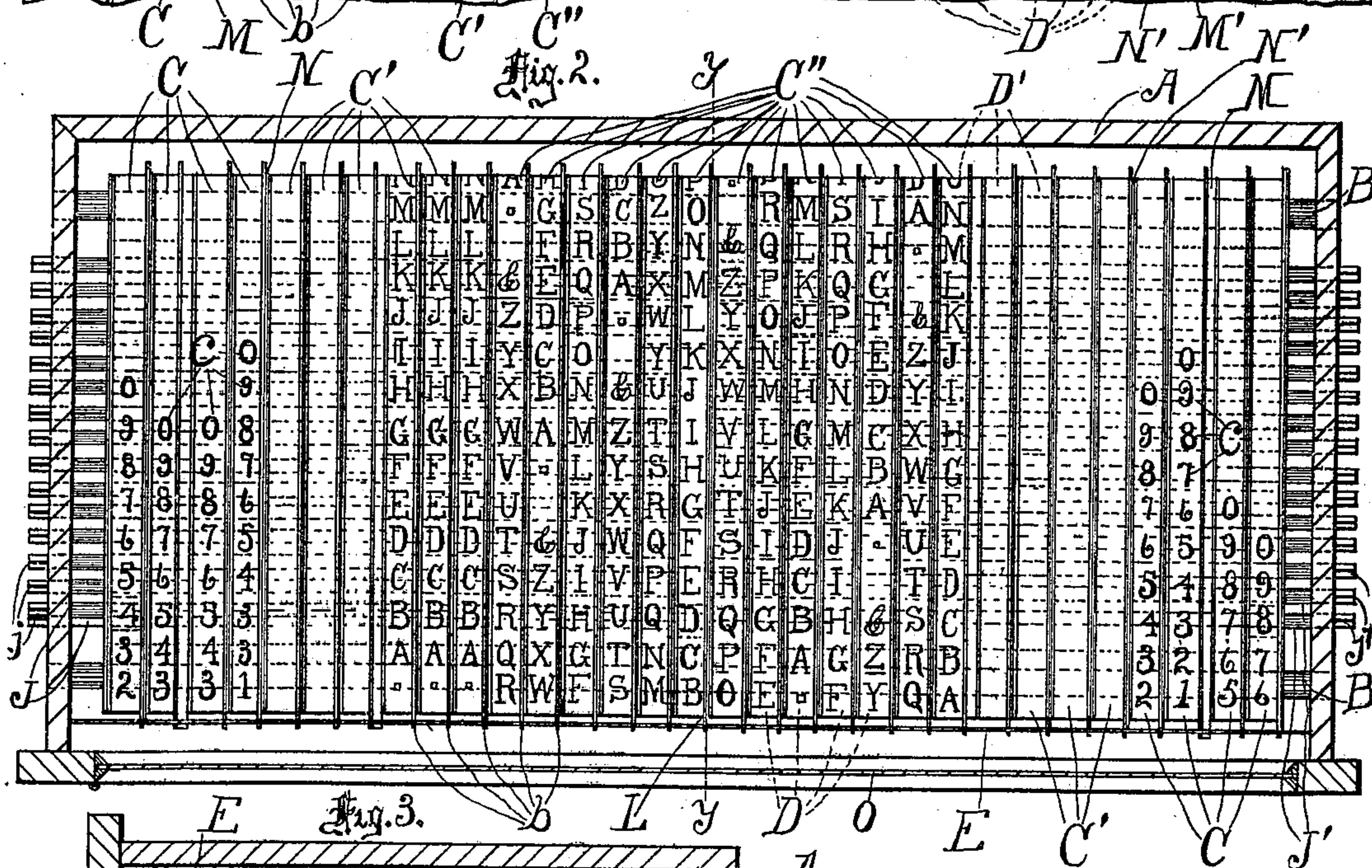


Fig. 3.

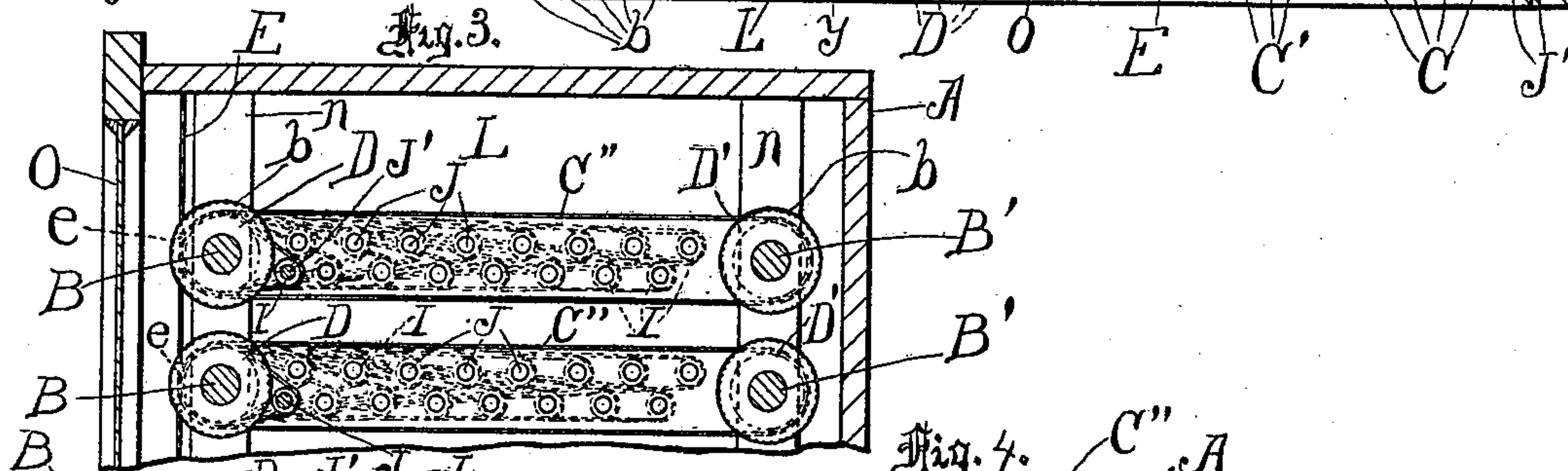
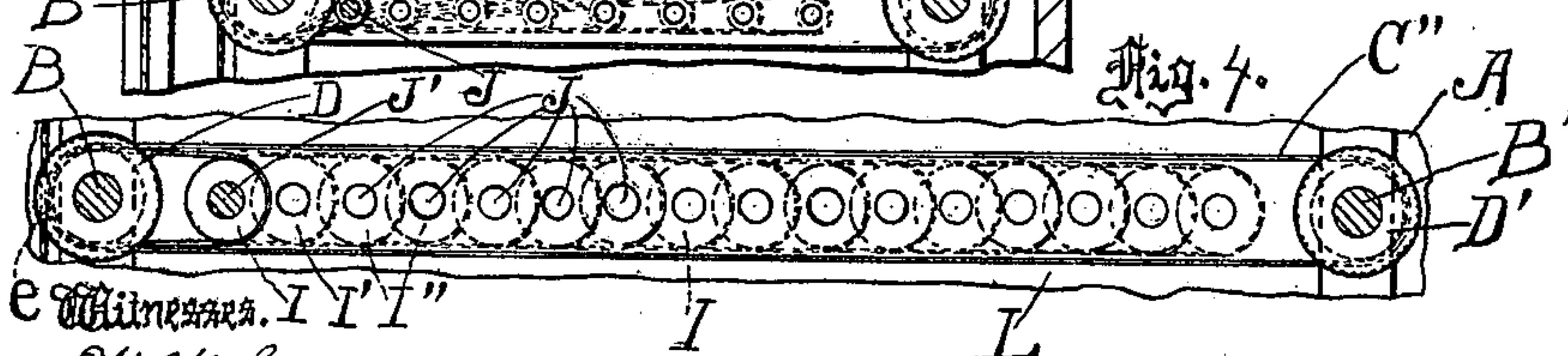


Fig. 4.



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his attys.



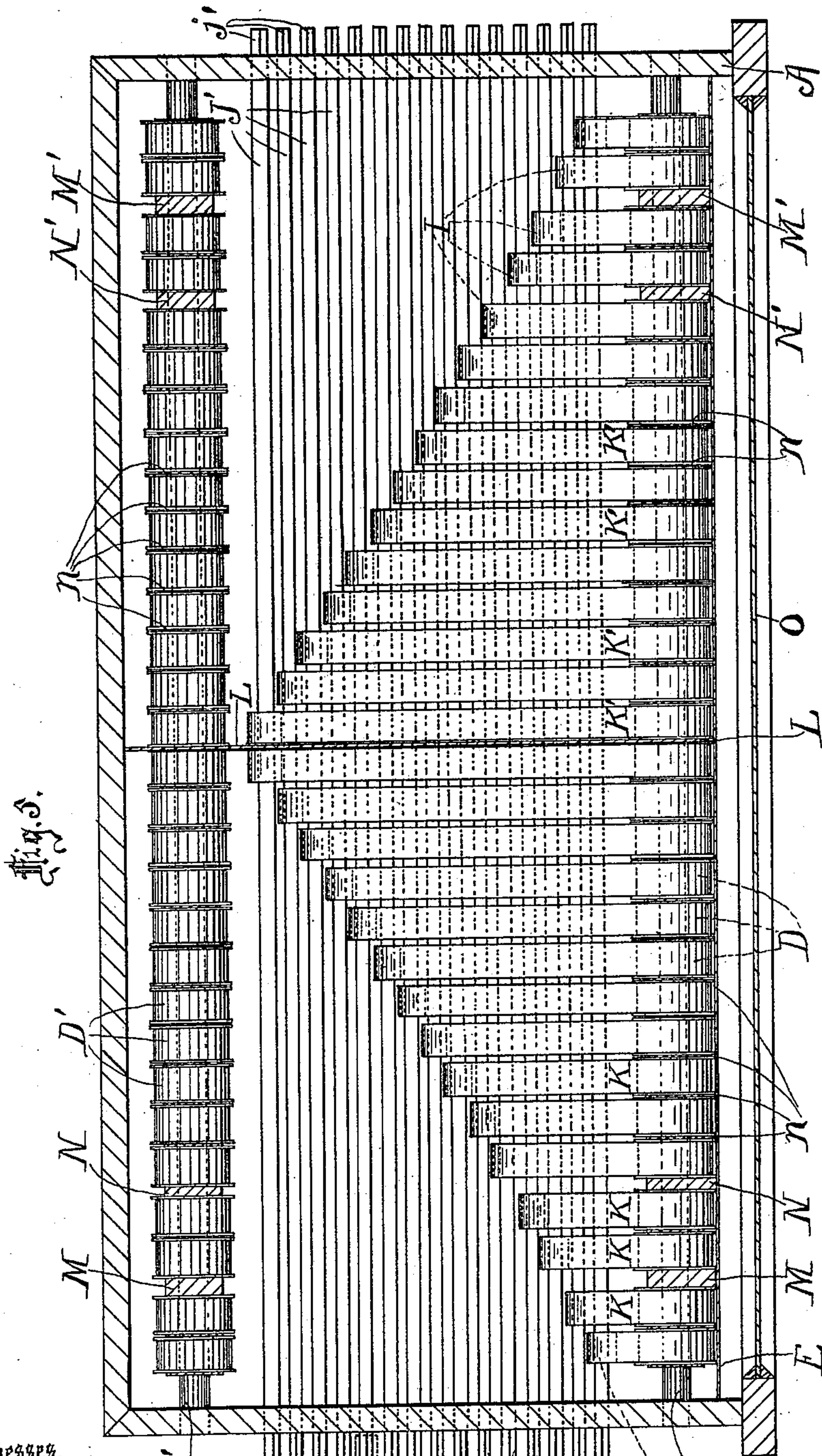
(No Model.)

2 Sheets—Sheet 2.

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Witnesses.  
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# UNITED STATES PATENT OFFICE.

CONRAD WORTH, OF LOS ANGELES, CALIFORNIA.

## RAILROAD TIME-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 517,943, dated April 10, 1894.

Application filed October 18, 1892. Serial No. 449,251. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD WORTH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Changeable Time-Table for Railroads, &c., of which the following is a specification.

The object of my invention is to provide a time table whereby the time of leaving, the destination, and time of arrival of trains, vessels, &c., may be conveniently changed at the pleasure of the operator, in each line so that any and all changes in the arrival and departure of any or all trains may be made without the expense of printing a new time card.

My invention comprises the features of construction hereinafter described and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a front view of a fragment of a time table embodying my invention. Fig. 2 is a horizontal sectional view looking down on top of the same. Line  $x-x$  Fig. 1 indicates the line of section. Fig. 3 is a transverse vertical section of a fragment of the upper portion. Line  $y-y$  Fig. 2 indicates the line of section. Fig. 4 is a sectional fragmental view illustrating a different arrangement of the wheels adapted to operate the bands to cause different characters to be exposed at the front of the time table. Fig. 5 is an enlarged plan view like Fig. 2 except that the indicator bands are removed to expose the band shifting mechanism.

A represents the case.

B represents the front roller-carrying shafts which respectively support the front band wheels or rollers of each series.

B' represents the rear shafts which respectively support the rear band wheels or rollers of each series.

C represents the series of indicator bands arranged around the four series of band wheels at each end.

C' represents a series of bands which may be left blank or may be provided with characters as may be desired.

C'' represents the inner or central series of bands upon which are inscribed the various characters composing the alphabet.

It is to be understood that the bands C' may

be provided with letters of the alphabet if desired, or one band may be provided with reference characters, to indicate whether the departure or arrival is daily or otherwise. Illustration of this feature is considered unnecessary as no invention is involved over what is shown.

D represents the band rollers of the front series of band rollers and D' the band rollers of the rear series. Around these rollers or wheels are trained the endless bands C or C', &c.

E represents the face of the case or frame. It is made of sheet metal or other suitable material in which is provided the slots or sight openings  $e$  arranged to separately expose the characters on each band. The band rollers, D, of the front series are arranged to present the front part of their periphery close to the plate E to expose to view through such slots, one at a time as the band roller is rotated, the characters upon the band pertaining to such roller.

Suitable means are provided for rotating the band wheels D to cause them to shift the band to present the different characters on the bands to view through the slots. This means may consist of a narrow milled flange  $b$  projecting from the roller outward through the slot  $e$  where it may be engaged by the finger and rotated, thus to rotate the roller to which it is attached. The bands may thus be shifted until the proper letter or numeral is exposed to view through the slot. Another, and what I consider the preferable means of shifting the bands is illustrated in Figs. 2, 3, 4 and 5. This means consists in an auxiliary set of band shifting wheels I I', &c., secured upon independent shifting shafts J J' J' J' which are provided with angular ends  $j$  ( $j'$ ) adapted to receive a crank key P. This is indicated in dotted lines in Fig. 5. Driving bands K K' are respectively trained around such shifting wheels and around either the front or rear band wheels D or D'. As illustrated in the drawings the driving bands are shown trained around the front series D' only and further illustration of this feature is considered unnecessary. These bands are arranged under and between the indicator bands which are lettered and numbered.



The two series of shafts J and J' are independent of each other, they being arranged respectively to operate the roller carrying bands upon the left and right of the middle partition L which extends across the case from front to rear and from top to bottom. The inner ends of the shifting shafts are journaled in and supported by this partition while the outer ends are journaled in the outer side walls of the case A. By this arrangement each shifting wheel is mounted upon an independent shaft so that each driving band may be operated independently by the rotation of the shaft upon which it is trained and will thus act upon the indicator band roller to rotate it and so drive the band around until the proper character is exposed to view through the slot e.

It is immaterial whether the shifting bands are arranged as shown in Fig. 5, that is with the shortest band of each series next to the side wall of the case and the longest one next to the partition L, or the reverse from that position, with the longest band of each series next to the side wall of the case, and the shortest one next to the partition L.

M (M') is a vertical dividing strip arranged between the sets of band rollers near each end of the shafts to separate the figures exposed upon the rollers into columns and is provided upon its front face with a series of colon marks *m* (*m'*).

N N' also represent partitions a little thinner than the partitions M M' and arranged to divide the columns of numerals from the columns containing the letters adapted to indicate the destination; the partitions M (M') and N (N') may be omitted if desired without impairing the usefulness of the time table.

O represents a glass front to the case which may be provided with hinges and arranged to be locked to prevent tampering with the time table or it may be rigidly secured to the case as shown in Figs. 2, 3 and 5 and the characters shifted through the medium of the key P from the outside of the case.

*n n* represent thin strips or partitions placed vertically between the band wheels and through each of which the shafts B B' pass. These strips serve to separate the wheels from each other so that the friction of the wheels will not operate to rotate each other. In Fig. 2, these partitions are shown extending from the front series of shafts B to the rear series B', but in practice I consider the form illustrated in Figs. 3, 4 and 5 preferable, that is a thin narrow strip of metal of just sufficient width to separate the rollers from each other and arranged vertically in the case to separate the rollers into vertical rows.

In Fig. 4, the band shifting shafts J (J') are shown arranged in one row, but in the other views they are shown arranged in two rows, the shafts of one row alternating with those of the other row in order to occupy less space; this allows the case to be made of less depth than is possible where the shafts are arranged as shown in Fig. 4.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination set forth of a suitable case having a face provided with a series of sight slots or openings; a series of front indicator-band-roller-supporting-shafts arranged in such case adjacent and parallel, respectively, with the sight slots or openings; a series of rear indicator-band-roller-carrying-shafts arranged in pairs with and parallel with the front band-roller-supporting shafts; a series of independent band-rollers journaled upon each of such shafts and arranged in pairs front and back; series of independent indicator-bands trained, respectively, one band around each pair of band-rollers, and means for shifting the indicator bands.

2. A changeable time table, comprising the combination set forth of a suitable case; the front and back band roller supporting shafts arranged in such case parallel with each other; a series of independent band rollers journaled upon each of such shafts, and arranged in pairs, front and back; a series of endless indicator bands trained respectively, one around each of such pairs of rollers, and suitable means for rotating the rollers to shift the various bands with relation to each other.

3. The changeable time table set forth comprising the combination of a suitable case provided with a front and rear series of roller-carrying shafts arranged in vertical rows and parallel with each other; a series of band-carrying-rollers journaled on each shaft of each series of roller-carrying-shafts; a series of roller-shifting shafts arranged between each pair of roller-carrying shafts and journaled to revolve; a band shifting wheel fixed to each of such roller-shifting shafts; a roller-shifting band trained around each one of such band-shifting wheels and around one of each pair of band-carrying rollers; a series of bands having characters thereon, each trained around one pair of band-carrying rollers and over its respective shifting band, and suitable means for rotating the roller-shifting shafts.

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Witnesses:

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