

M. E. SPARKS.
MILEAGE BOOK.

APPLICATION FILED JUNE 6, 1910.

1,025,595.

Patented May 7, 1912.

f	a	2	g
d	1	2	XXX
e	2	3	999
	3	4	998
	4	5	997
	5	6	996
	6	7	995
	7	8	994
	8	9	993
	9	10	992
	10	11	991
h	11	12	990
	12	13	989
	13	14	988
	14	15	987
	15	16	986
	16	17	985
	17	18	984
	18	19	983

g	h	1
986	2	3
987	3	4
988	4	5
989	5	6
990	6	7
991	7	8
992	8	9
993	9	10
994	10	11
995	11	12
996	12	13
997	13	14
998	14	15
999	15	16
1000	16	17

Fig. 1.

f	a	g
d	1	2
e	2	3
	3	4
	4	5
	5	6
	6	7
	7	8
	8	9
	9	10
h	10	11
	11	12
	12	13
	13	14
	14	15
	15	16

Fig. 2.

g	h	1
986	2	3
987	3	4
988	4	5
989	5	6
990	6	7
991	7	8
992	8	9
993	9	10
994	10	11
995	11	12
996	12	13
997	13	14
998	14	15
999	15	16
1000	16	17

Fig. 3.

f	a	i	j	g
d	1	2	3	4
e	2	3	4	5
	3	4	5	6
	4	5	6	7
	5	6	7	8
	6	7	8	9
	7	8	9	10
	8	9	10	11
	9	10	11	12
	10	11	12	13
	11	12	13	14
	12	13	14	15
	13	14	15	16
	14	15	16	17
	15	16	17	18
	16	17	18	19
	17	18	19	20
	18	19	20	21
	19	20	21	22
	20	21	22	23
	21	22	23	24
	22	23	24	25
	23	24	25	26
	24	25	26	27
	25	26	27	28
	26	27	28	29
	27	28	29	30
	28	29	30	31
	29	30	31	32
	30	31	32	33
	31	32	33	34
	32	33	34	35
	33	34	35	36
	34	35	36	37
	35	36	37	38
	36	37	38	39
	37	38	39	40
	38	39	40	41
	39	40	41	42
	40	41	42	43
	41	42	43	44
	42	43	44	45
	43	44	45	46
	44	45	46	47
	45	46	47	48
	46	47	48	49
	47	48	49	50
	48	49	50	51
	49	50	51	52
	50	51	52	53
	51	52	53	54
	52	53	54	55
	53	54	55	56
	54	55	56	57
	55	56	57	58
	56	57	58	59
	57	58	59	60
	58	59	60	61
	59	60	61	62
	60	61	62	63
	61	62	63	64
	62	63	64	65
	63	64	65	66
	64	65	66	67
	65	66	67	68
	66	67	68	69
	67	68	69	70
	68	69	70	71
	69	70	71	72
	70	71	72	73
	71	72	73	74
	72	73	74	75
	73	74	75	76
	74	75	76	77
	75	76	77	78
	76	77	78	79
	77	78	79	80
	78	79	80	81
	79	80	81	82
	80	81	82	83
	81	82	83	84
	82	83	84	85
	83	84	85	86
	84	85	86	87
	85	86	87	88
	86	87	88	89
	87	88	89	90
	88	89	90	91
	89	90	91	92
	90	91	92	93
	91	92	93	94
	92	93	94	95
	93	94	95	96
	94	95	96	97
	95	96	97	98
	96	97	98	99
	97	98	99	100
	98	99	100	101
	99	100	101	102
	100	101	102	103
	101	102	103	104
	102	103	104	105
	103	104	105	106
	104	105	106	107
	105	106	107	108
	106	107	108	109
	107	108	109	110
	108	109	110	111
	109	110	111	112
	110	111	112	113
	111	112	113	114
	112	113	114	115
	113	114	115	116
	114	115	116	117
	115	116	117	118
	116	117	118	119
	117	118	119	120
	118	119	120	121
	119	120	121	122
	120	121	122	123
	121	122	123	124
	122	123	124	125
	123	124	125	126
	124	125	126	127
	125	126	127	128
	126	127	128	129
	127	128	129	130
	128	129	130	131
	129	130	131	132
	130	131	132	133
	131	132	133	134
	132	133	134	135
	133	134	135	136
	134	135	136	137
	135	136	137	138
	136	137	138	139
	137	138	139	140
	138	139	140	141
	139	140	141	142
	140	141	142	143
	141	142	143	144
	142	143	144	145
	143	144	145	146
	144	145	146	147
	145	146	147	148
	146	147	148	149
	147	148	149	150
	148	149	150	151
	149	150	151	152
	150	151	152	153
	151	152	153	154
	152	153	154	155
	153	154	155	156
	154	155	156	157
	155	156	157	158
	156	157	158	159
	157	158	159	160
	158	159	160	161
	159	160	161	162
	160	161	162	163
	161	162	163	164
	162	163	164	165
	163	164	165	166
	164	165	166	167
	165	166	167	168
	166	167	168	169
	167	168	169	170
	168	169	170	171
	169	170	171	172
	170	171	172	173
	171	172	173	174
	172	173	174	175
	173	174	175	176
	174	175	176	177
	175	176	177	178
	176	177	178	179
	177	178	179	180
	178	179	180	181
	179	180	181	182
	180	181	182	183
	181	182	183	184
	182	183	184	185
	183	184	185	186
	184	185	186	187
	185	186	187	188
	186	187	188	189
	187	188	189	190
	188	189	190	191
	189	190	191	192
	190	191	192	193
	191	192	193	194
	192	193	194	195
	193	194	195	196
	194	195	196	197
	195	196	197	198
	196	197	198	199
	197	198	199	200
	198	199	200	201
	199	200	201	202
	200	201	202	203
	201	202	203	204
	202	203	204	205
	203	204	205	206
	204	205	206	207
	205	206	207	208
	206	207	208	209
	207	208	209	210
	208	209	210	211
	209	210	211	212
	210	211	212	213
	211	212	213	214
	212	213	214	215
	213	214	215	216
	214	215	216	217
	215	216	217	218
	216	217	218	219
	217	218	219	220
	218	219	220	221
	219	220	221	222
	220	221	222	223
	221	222	223	224
	222	223	224	225
	223	224	225	226
	224	225	226	227
	225	226	227	228
	226	227	228	229
	227	228	229	230
	228	229	230	231
	229	230	231	232
	230	231	232	233
	231	232	233	234
	232	233	234	235
	233	234	235	236
	234	235	236	237
	235	236	237	238
	236	237	238	239
	237	238	239	240
	238	239	240	241
	239	240	241	242
	240	241	242	243
	241	242	243	244
	242	243	244	245
	243	244	245	246
	244	245	246	247
	245	246	247	248
	246	247	248	249
	247	248	249	250
	248	249	250	251
	249	250	251	25

UNITED STATES PATENT OFFICE.

MIRABEAU E. SPARKS, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF TWO-TENTHS TO
HERBERT McCONATHY, OF LOUISVILLE, KENTUCKY.

MILEAGE-BOOK.

1,025,595.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed June 6, 1910. Serial No. 565,256.

To all whom it may concern:

Be it known that I, MIRABEAU E. SPARKS, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Mileage-Book, of which the following is a specification.

This invention relates to mileage books or the like.

In figuring up the mileage to be "pulled" on a railroad train, the conductor usually adds the number of miles which he intends to draw to the number of miles which have already been extracted from the book and then tears out the mileage down to the proper point. This figuring is usually done with a pencil on the back of the mileage strip, and it is inconvenient not only on account of the time lost in figuring but also on account of the time lost in turning back the mileage sheet to figure on the back thereof. Moreover, the conductors frequently make mistakes and, if they discover them in time are forced to go through the train a second time to correct the error.

The object of the present invention is to provide a mileage book by means of which the number of miles to be extracted can be easily and quickly determined by the conductor without the necessity of figuring with a pencil and paper.

A further object of the invention is to provide a backing or cover which is particularly adapted for use in connection with the mileage strip of the present invention, the mileage strip and the back thus cooperating with each other in a very effective manner.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the new and useful arrangement of the strip adapted for use as a mileage strip, and in the new and useful form of backing adapted to be utilized in connection with said strip for determining the points at which the same should be detached, and to aid in the detaching thereof, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of the claims without departing from the spirit of the invention.

In the accompanying drawings forming part of this specification:—Figure 1 is a face view of the two end portions of a mile-

age strip arranged in accordance with the present invention. Fig. 2 is a view similar to Fig. 1 showing a slightly modified construction. Fig. 3 is a similar view showing another modified arrangement of the mileage strip. Fig. 4 is a perspective view of a backing which is adapted to cooperate with the mileage strip so as to aid in determining the point at which it is to be torn off and to assist in the tearing operation.

Like reference numerals indicate corresponding parts in the different figures of the drawings.

The reference numeral 1 indicates a strip which is formed of paper or other suitable material and is intended to be pasted or otherwise secured in a suitable backing as will hereinafter appear.

In Fig. 1, the outer end of the strip is indicated by the numeral 2 and the inner end which is secured in the backing is indicated by the numeral 3. As is usual in mileage books, the strip 1 represents 1000 miles and is suitably perforated or otherwise weakened so that it can be torn off at any suitable point. The strip 1 is provided with a column lettered *a* which will be referred to as the unit column. This column contains a series of numbers running preferably from 1 to 1000. Each of these numbers is located on a horizontally detachable section of the strip. The strip 1 is also provided with a column *b* which will be referred to as the reverse unit column. While the numbers in the unit column *a* start with 1 and run to 1000, the numbers in the column *b* are reversely arranged so that they start with 1000 and descend to 1. The unit column *a* is used in the calculation necessary for detaching the appropriate amount of mileage, and the reverse unit column *b* is used to indicate the amount of mileage remaining in the book.

Each integer in the unit column *a* has associated therewith a diagonally extending column or series of digits marked *c*. The first digit of each auxiliary column preferably is located on the same mile piece or section as the unit to which said auxiliary column relates. For example, the first auxiliary diagonal column *c* in Fig. 1 starts on the first mile piece *d*, the second diagonal auxiliary column *c* starts on the second mile piece *e* and so on. The different diagonal digit columns preferably are defined or sep-

arated from each other by diagonally extending lines. These lines however may be omitted if desired as shown for example in Fig. 3 of the drawing. Moreover, the adjacent diagonal columns preferably are printed in contrasting colors. For example, the uppermost diagonal column in Fig. 1 may have the digits thereof printed in red ink, the second diagonal column may have the digits thereof printed in blue ink, the third diagonal column may have the digits thereof printed in red ink and the fourth diagonal column may have the digits thereof printed in blue ink and so on down the strip.

In addition to the unit column *a* and the reverse unit column *b*, the strip 1 preferably is provided with a decimal column *f* and a memorandum column *g*. Just after every tenth unit in the column *a*, the decimal column *f* is divided horizontally by the deep line or other suitable means *h*. The different sections of the decimal column *f* preferably are marked as indicated in the drawing. That is to say, the top section may be left blank, the second section from the top may be marked "one ten," the third section from the top may be marked "two tens," the fourth section may be marked "three tens," and so on, the purpose being to indicate the number of tens which have been torn from the book. For example, if the first decimal section remaining in the book is marked say, "six tens," it will indicate that at least sixty miles have already been torn out of the book, and in detaching further mileage it is easy to locate quickly the point at which the mileage is to be torn by adding the number of times ten is contained in the number of miles already torn to the number of times ten is contained in the number of miles to be detached, and then turning to the proper block of tens as indicated in column *f*. For example, if 64 miles have been detached, column *f* will indicate "6-10s" and if 37 miles are to be torn, the 6 tens in 64 should be added to the 3 tens in 37, and the resulting sum, 9, indicates that the computation for the detachment must be made in the block marked "9-10s" in column *f*. Or, suppose 418 miles have already been torn out column *f* will indicate "41-10s," and if 176 miles are to be torn out, 17 which is the number of tens contained in 176 should be added mentally to 41 and the resulting sum, 58, indicates that the computation for the detachment must be made in the block marked "58-10s," in column *f*. As will be further explained hereafter, the point, in the ten block, from which the computation is to be started is indicated by the right hand figure in the unit column, *a*, which must be the same numeral which appears at the right of this column (*a*) in the first untorn mileage piece; that is in the first mileage section

at the top of that portion of the mileage slip which is still left in the book. For instance, in the above illustration, 64 miles have been detached, then 65 is the first untorn mileage section, and of course 5 is the right hand numeral, and there being 37 miles to be torn, the computation must be made from the "9-10s" block (in column *f*) and from the unit number 95, and the portion must be detached on the horizontal line immediately under the numeral 7 in the diagonal column *c* leading from the unit 95 in unit column *a*. Further examples of the mode of using the book are hereinafter given.

The memorandum column *g* is intended to receive any suitable memorandum such, for example as the initials of the railroad on which the mileage is pulled, where mileage is capable of use on more than one road, or the initials of the conductor or any other desired information depending upon the rules of the particular railroad on which the mileage is pulled.

In the arrangement shown in Fig. 1 the digits in each of the diagonal computing columns *c* run from 1 to 9 inclusive. The modified construction illustrated in Fig. 2 is exactly the same as that shown in Fig. 1 except that the digits in the diagonal computing column are the same as the integers to which they relate in the unit column *a*. In other words all of the digits in the diagonal column relating to the number 1 in the unit column are numbered 1 and all those relating to the number 2 in the unit column are numbered 2.

In the construction illustrated in Fig. 3, the columns *a*, *b*, *f* and *g* are exactly the same as shown in Fig. 1. Each mile piece or section *d'* *e'*, etc., is provided with a horizontally extending series of digits running from 1 to 9. In addition to the horizontally extending digits, the mileage strip is also arranged with diagonally extending digits. For instance, in the first vertical column marked *h'*, to the right of the unit column *a*, it will be seen that the second mile piece contains the digit 1 corresponding to the number of the preceding mile piece. The third mile piece or section in the second column marked *i* contains the numeral 1. The fourth mile piece or section in the vertical column marked *g* contains the numeral 1 and so on down in diagonal series. It will be seen therefore that the arrangement of strips shown in Fig. 3 contains vertically, horizontally and diagonally extending series of digits. The purpose of the horizontally extending digit is to indicate or distinguish the different computing columns. For instance the vertical column marked *h'* is the first computing column, the vertical column marked *i* is the second computing column, the vertical column marked *j* is the third computing column and so on according to

the digit at the upper end thereof. It is to be noted particularly in Fig. 3 that the diagonally extending series of numbers do not staft over each time they reach 9 in number.

5 As shown at the lower end of Fig. 3, the integer 998 is carried down in diagonal series and the integer 999 is carried down in diagonal series and this arrangement is carried out throughout the entire length of the strip.

10 The mode of using the construction illustrated in Fig. 3 is as follows:—In each instance, the last digit in the number of miles to be detached from the mileage strip, indicates the computing column to be used. For
15 example, if the number of miles to be detached is 11, 21, 31, 41, or any number ending in the digit 1, the column used is indicated by the reference letter *h'*. In other words the first computing column in Fig. 3
20 is employed. If the number of miles to be detached is twelve, twenty-two, thirty-two or any other number ending in the digit 2, then the second computing column indicated by the reference letter *i* is used. The last
25 digit thus determines the column up to 9. If the number ends in a cipher, it is of course unnecessary to do any more than run down the first column and tear out at the proper point.

30 The following are examples of the mode of using the form of mileage strip shown in Fig. 3: If the number of miles already detached from the strip is 24, and 11 miles more are to be detached, the decimal 10 is
35 added to the number of miles detached. In other words 10 is added to 24 making 34. The conductor then takes the first column marked *h'* and runs down the same until he comes to the number 34 at which point he
40 tears off the mileage. It will be found that the number 34 in the first computing column *h'* is on the same horizontal line with the number 35 in the unit column *a* and that 11 plus 24 equals 35.

45 As a further example, if the number of miles already detached is 25, and 37 miles more are to be pulled, add the three decimals in 30, to 25, thus making 55. Then run down the computing column No. 7 until
50 the number 55 is reached and then tear off the strip. It will be found that the number 55 in the seventh vertical computing column is on the same horizontal line with the number 62 in the mileage or unit column *a* and
55 the result is therefore the same as though the conductor had added 25 and 37 to make 62.

By reason of the fact that each mile piece or section contains the horizontally extending series of digits indicating the digit computing columns, the conductor can always
60 find the proper column to use.

It is to be understood that the mileage strip of the present invention can be printed
65 or arranged with type of any desired shape

and character and that different colors of ink can be used to distinguish the different series of numerals from each other. No attempt will be made here to specify the different characters and colors to be used as they may be varied indefinitely at will. 70

The mileage strip 1 is secured in a backing consisting of three sections, namely an intermediate section 5 to which the inner end 3 of the mileage strip 1 is pasted; an inner end member 6 hinge-connected to the intermediate member 5 at 7 and having at its outer end a tubular metal enlargement or edge 8 provided with integral flanges 9 fitted against opposite sides of the member 6; 80 and an outer end member 10 hinge-connected to the intermediate member 5 at 11 and having across the inner face of its outer end a metal strap or straight edge 12 secured at its ends 13 to the member 10. The mileage strip 1 is folded in the usual zigzag manner on the intermediate member 5 and its extreme end is passed under the straight edge 12. The inner end member 6 is then folded down on the zigzag folds of the mileage strip so as to hold them between the members 5 and 6. Said members 5 and 6 are then folded over on the member 10, so that the bulk of the mileage strip is between the members 5 and 6 and the outer end thereof extends around the tubular end 8 of the member 6 and outward between the members 6 and 10 and under the straight edge. In computing the mileage in the manner previously described, the conductor pulls
100 out the strip until the proper digit is in front of the straight edge and then tears it off.

What is claimed as new is:—

1. A mileage book marked transversely to form mile pieces, and provided with a vertical column of designating numerals arranged in arithmetical progression to designate the mile pieces, and a series of parallel diagonally extending auxiliary numbers arranged in arithmetical progression from 1 to 9, the numeral one of each series being disposed horizontally abreast of the designating numerals of the mile pieces, and in juxtaposition thereto. 105 110 115

2. A mileage book marked transversely to form mile pieces, and provided with a vertical column of designating numerals arranged in arithmetical progression to designate the mile pieces, and a series of parallel diagonally extending auxiliary numbers arranged in arithmetical progression from 1 to 9, the numeral one of each series being disposed horizontally abreast of the designating numerals of the mile pieces, and in juxtaposition thereto, each group of ten mile pieces being appropriately designated to indicate ten miles. 120 125

3. A mileage book marked transversely to form mile pieces and provided with a verti- 130

cal column of designating numerals arranged in arithmetical progression to designate the mile pieces, and a series of parallel diagonally extending auxiliary numbers arranged in arithmetical progression from 1 to 9, the numeral one of each series being disposed horizontally abreast of the designating numerals of the mile pieces, and in juxtaposition thereto each group of ten mile pieces being appropriately designated to in-

dicating ten miles and being progressively numbered.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MIRABEAU E. SPARKS.

Witnesses:

E. J. GREEN,
S. JENKINS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
