1,237,271.

Patented Aug. 21, 1917.

Fig. 1

JAN.	FEB.	MAR.	APR.	MAY	JUNE	DATE	JULY	AUG	SEPT.	OCT.	NOV.	DEC.
336		277	246	216	185	30	155	124	93	63	32	2
29		88	119	149	180		210	241	272	302	333	363
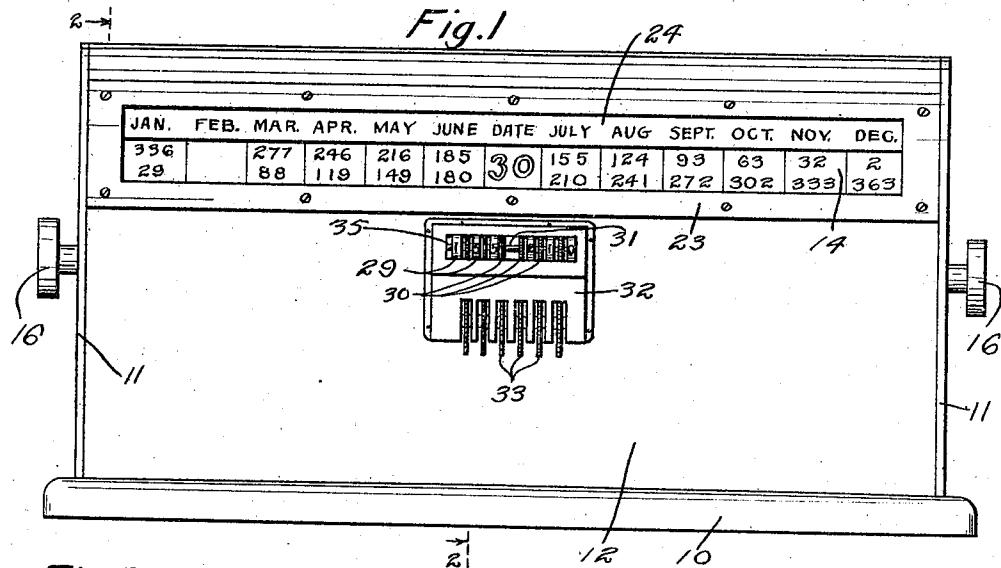
Fig. 2
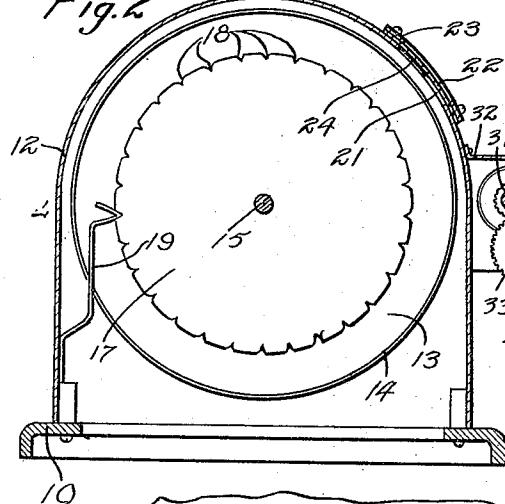
Fig. 3

	126	95	65	34	4
	208	239	270	300	331	361
	156	125	94	64	33	3
	209	240	271	301	332	362
	155	124	93	63	32	2
	210	241	272	302	333	363
	154	123		62		1
	211	242		303		364
	184	153	122	92	61	31
	181	212	273	273	304	334
	183	152	121	91	60	30
	182	213	244	274	305	335
	182	151	120	90	59	29
	183	214	245	275	306	336
		150	119	89	58	28
		215	246	276	307	337

Fig. 4
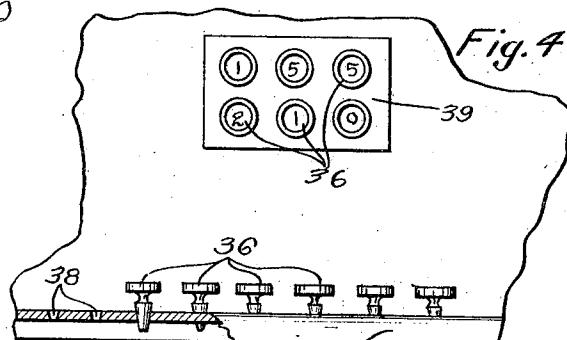
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UNITED STATES PATENT OFFICE.

HENRY H. ALLISON, OF SAC CITY, IOWA.

TIME-COMPUTER.

1,237,271.   Specification of Letters Patent.   **Patented Aug. 21, 1917.**

To all whom it may concern:

Be it known that I, HENRY H. ALLISON, a citizen of the United States, residing at Sac City, in the county of Sac and State of
5 Iowa, have invented certain new and useful Improvements in Time-Computers, of which the following is a specification.

My invention relates to time computing devices, and has for its object to provide a
10 device for indicating the number of days from one date to another or for determining the date a specified number of days from a certain chosen date. Certain numerals are read on a rotatable cylinder, and by a single
15 addition or subtraction the desired results can be obtained. The computations can be extended into a number of years with equal facility.

A device of such a character would be es-
20 pecially beneficial in banks, real estate offices, lawyers' offices, etc., where the forenamed computations would be requisite in determining interest over a period of time, and generally in keeping count of the dates
25 of expiration and the like.

The full objects and advantages of my invention will appear in connection with the detailed description thereof and are particularly pointed out in the claim.

30 In the drawings, illustrating the application of my invention in one form,—

Figure 1 is a front elevational view of my computing device. Fig. 2 is a sectional elevational view of my device taken on line 2—2
35 of Fig. 1. Fig. 3 is a developed view of a portion of the surface of the cylinder bearing the computing numerals. Fig. 4 is a front elevational view of a modification of a portion of the device shown in Fig. 1.

40 The outer casing of my invention comprises a base 10, circular heads 11 and an enveloping member 12. A drum or cylinder 13 carries a paper card 14 wound around its surface and is rigidly secured on a shaft 15
45 journaled in the heads 11 and terminating in knobs 16 used for revolving said drum. A circular disk 17, having thirty-one indentations 18 equally spaced in its edge, is secured to shaft 15 between one end of drum
50 13 and the corresponding head 11, where a detent 19 engages with the indentations 18 on disk 17 to cause said drum to take a precise position when the rotation of said drum is stopped so as to place any of said inden-
55 tations 18 in close proximity with the detent 19. The construction of said detent

and indentations permits of rotation of drum 13 in either direction, as becomes evident from Fig. 2. The card 14 is covered with a plurality of numerals 20 which con- 60 stitute the computing element of the device, and will be presently explained, and rows of said numerals are visible through longitudinal slot 21 in casing member 12 covered by a transparent sheet 22 held in place by a 65 clamp 23, as clearly shown in Figs. 1 and 2. As the drum 13 is rotated in either direction different rows of numerals are exposed to view.

To the upper half of the inner surface 70 of the transparent covering 22 is pasted a narrow strip of paper 24 divided into thirteen parts. The center part has inscribed on it the word "Date"; the first six parts have inscribed on them the first six months of 75 the year; and the last six parts have the last six months of the year. The paper card 14 is continuous and is divided into thirty-one longitudinal rows 25, and thirteen circumferential rows 26 to correspond to and come 80 opposite the words on the strips 24. The central circumferential row 26 is marked with numerals "1" to "31," inclusive so as to completely fill up the central section of all the longitudinal rows 25, which numerals 85 represent the calendar dates of the months. All the other spaces, with a few exceptions, are filled with two sets of numerals 27 and 28, and each set of numerals on one longitudinal row pertains to the respective 90 months below which they are located and to the respective date visible in the central row 25. The upper numerals 27 are preferably printed in red and indicate the number of days remaining in that year from and in- 95 cluding the date specified, and the lower numerals 28 are preferably printed in black and indicate the number of days passed of the year up to the date specified, the two numerals in any space of course adding up 100 to three hundred and sixty-five, the number of days in the year. In the case of the months not having thirty-one days, blanks are left for the missing days, as indicated at 40 in Fig. 3. 105

In manipulating the device the procedure is as follows: To find the number of days between two dates in the same year, revolve the drum 13 until the right dates appear, using either the black numerals 28 or red nu- 110 merals 27, and substract the lesser from the greater. Suppose the number of days be-

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tween March 30th and November 30th of the same year are desired. The red numerals are "277" and "32" and the black numerals are "88" and "333," the subtraction of either giving two hundred and forty-five days. If the computation were to be made from November 30th of one year to March 30th of the next year, the red numeral "22" corresponding to November 30th would be added to the black numeral "88" corresponding to March 30th, giving one hundred and ten days. The reverse, or finding the date a specified number of days from a given date, is procured by adding the number of days to the black numerals for future dates and subtracting them for past dates, or vice versa, to the red numerals, and then revolving the drum 13 until the sum or difference, as the case may be, appears, reading the date directly from the corresponding day and month, bearing in mind that the number used must be of the same color as the number started with. When the sum exceeds three hundred and sixty-five, that number must be subtracted, indicating that the date extends into another year, and when the subtraction cannot be made three hundred and sixty-five must be added to the minuend, indicating that the date extends into another year, the futurity or posteriority depending upon the use of the red or black numerals.

When a given date is often referred to, as a present date, it is of special value to have the numerals relating to that date constantly visible. To this end I provide six smaller drums 29 marked with a single circumferential row from "1" to "0," inclusive, three of said rows being in red and three in black, said drums being attached to small pinions 30 rotating on a shaft 31 fastened to an inclosing case 32 on the front of member 12, said pinions 31 meshing with gears 33 extending through said case 32 and pivoted on a shaft 34 also fastened to said case 32. The case 32 is provided with a window at 35 large enough so that only

one numeral on each of said drums 29 is visible. The gears 33 are rotated by hand, and by this means desired numbers are made to show through the window 32. A modification of this portion of my invention is shown in Fig. 4. A plurality of numbered pegs 36 are stored on an extension 37 of base 10 in holes 38, and may be placed in six holes in the front of casing 12 at 39 to indicate the desired numbers.

The advantages of my invention are manifest. The device is simple to construct and operate and the computations made are accurate. It is small enough so that it can easily be moved about, and may take the place of a calendar, if the six reference numbers are each day changed.

I claim:

A device for indicating time spaces between dates of the year comprising a casing provided with a transverse slot and a heading strip bearing the symbols of the months of the year and the word "Date" centrally of said symbols positioned above said slot, a cylinder within the casing having its outside exposed to said slot, there being on said cylinder a multiplicity of circumferential lines of figures, the central line of figures falling below the word "Date" and comprising the successive numerals from one to thirty-one for the days of the month, the other circumferential lines of figures falling below the month symbols and having in each case two figures in parallel aline-ment with a single date figure representing the days elapsed from the beginning of the year and the days remaining to the end of the year, and means for rotating the cylinder to expose the sets of figures for any month day through the slot.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY H. ALLISON.

Witnesses:
H. A. BOWMAN,
ALEX LAGAARD.