

PATENTED AUG. 6, 1907.

G. H. BENEDICT.

CALCULATING DEVICE.

APPLICATION FILED FEB. 20, 1905.

2 SHEETS—SHEET 1.

76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
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Witnesses
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No. 862,232.

PATENTED AUG. 6, 1907.

G. H. BENEDICT.
CALCULATING DEVICE.
APPLICATION FILED FEB. 20, 1905.

2 SHEETS—SHEET 2.

Fig. 2.

Fig. 4.

Gte. per Week			\$4	
75c	25c	50c		
.01	.00	.01	1	.08
.03	.01	.02	2	.16
.04	.01	.03	3	.25
.06	.02	.04	4	.30
.07	.02	.05	5	.41
.09	.03	.06	6	.50
.10	.03	.07	7	.58
.12	.04	.08	8	.66
.14	.04	.09	9	.75
.16	.05	.10	10	.83
.17	.05	.11	11	.91
.18	.06	.12	12	1.00
.20	.06	.13	13	1.08
.21	.07	.14	14	1.16
.23	.07	.15	15	1.25
.25	.08	.16	16	1.33
.26	.08	.17	17	1.41
.28	.09	.18	18	1.50
.29	.09	.19	19	1.58
.31	.10	.20	20	1.66
.32	.10	.21	21	1.75
.34	.11	.22	22	1.83
.36	.11	.23	23	1.91
.37	.12	.24	24	2.00
.39	.13	.25	25	2.08
.40	.13	.26	26	2.16
.42	.14	.27	27	2.25
.43	.14	.28	28	2.33
.45	.15	.29	29	2.41
.46	.15	.30	30	2.50
.48	.16	.31	31	2.58
.50	.16	.32	32	2.66
.51	.17	.33	33	2.75
.53	.17	.34	34	2.83
.54	.18	.35	35	2.91
.56	.18	.36	36	3.00
.57	.19	.37	37	3.08
.59	.19	.38	38	3.16
.60	.20	.39	39	3.25
.62	.20	.40	40	3.33
.64	.21	.41	41	3.41
.66	.21	.42	42	3.50
.67	.22	.43	43	3.58
.68	.22	.44	44	3.66
.70	.23	.45	45	3.75
.71	.23	.46	46	3.83
.73	.24	.47	47	3.91
.76	.25	.48	48	4.00
.00	.00	.00	10	.01
.00	.00	.00	15	.02
.00	.00	.00	20	.02
.00	.00	.00	30	.04
.01	.00	.00	40	.05
.01	.00	.00	45	.06
.01	.00	.00	50	.06

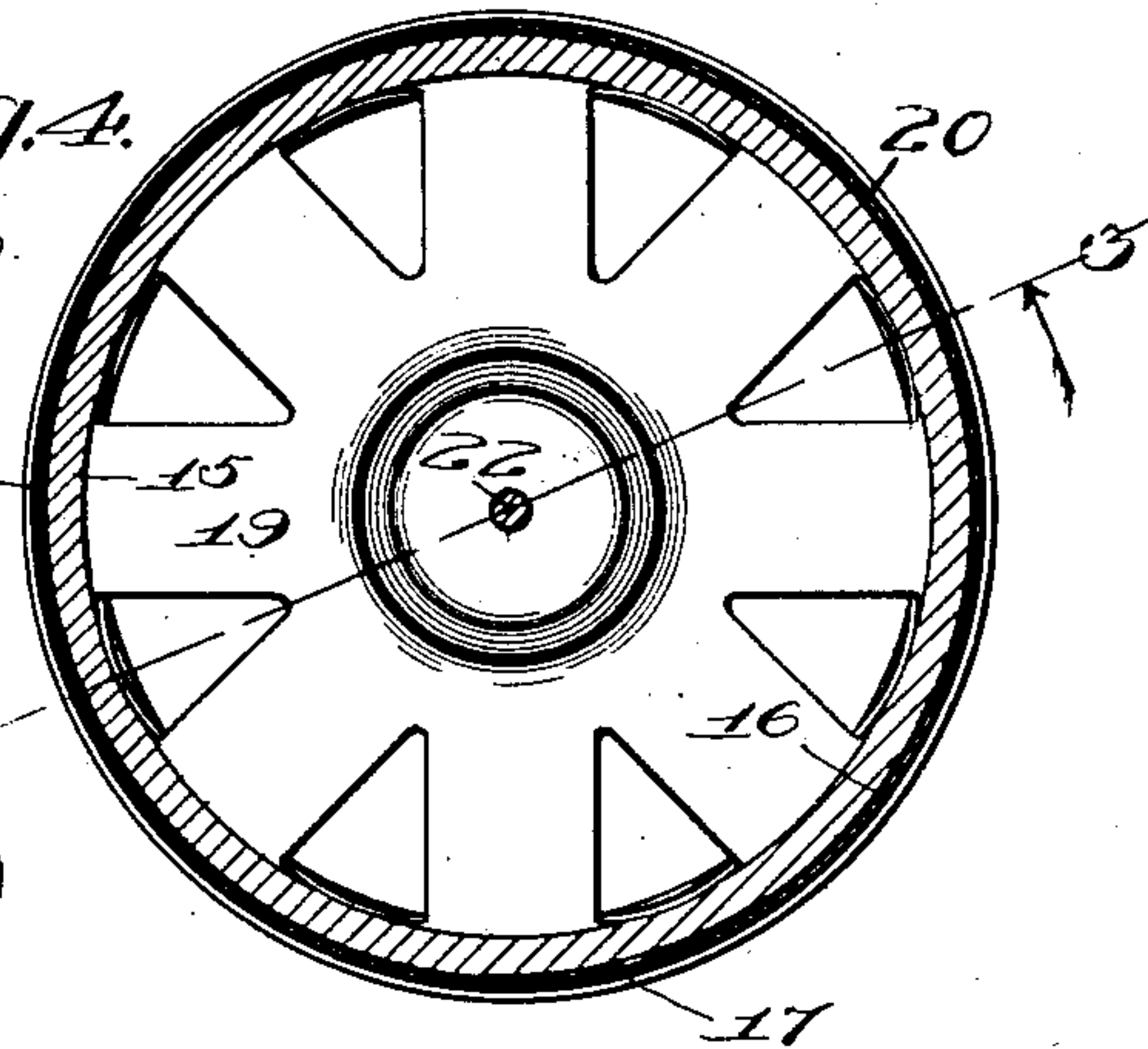


Fig. 3.

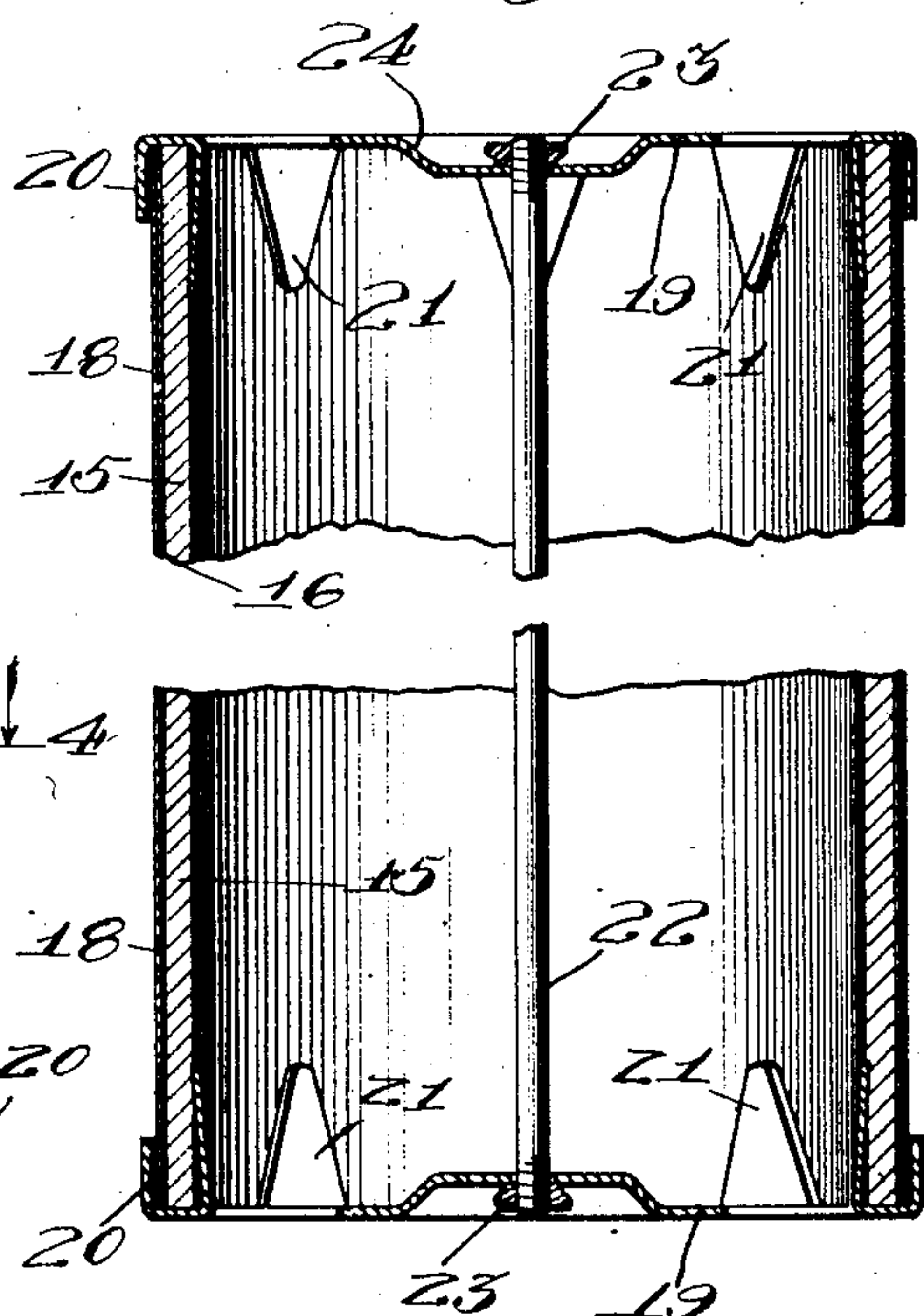
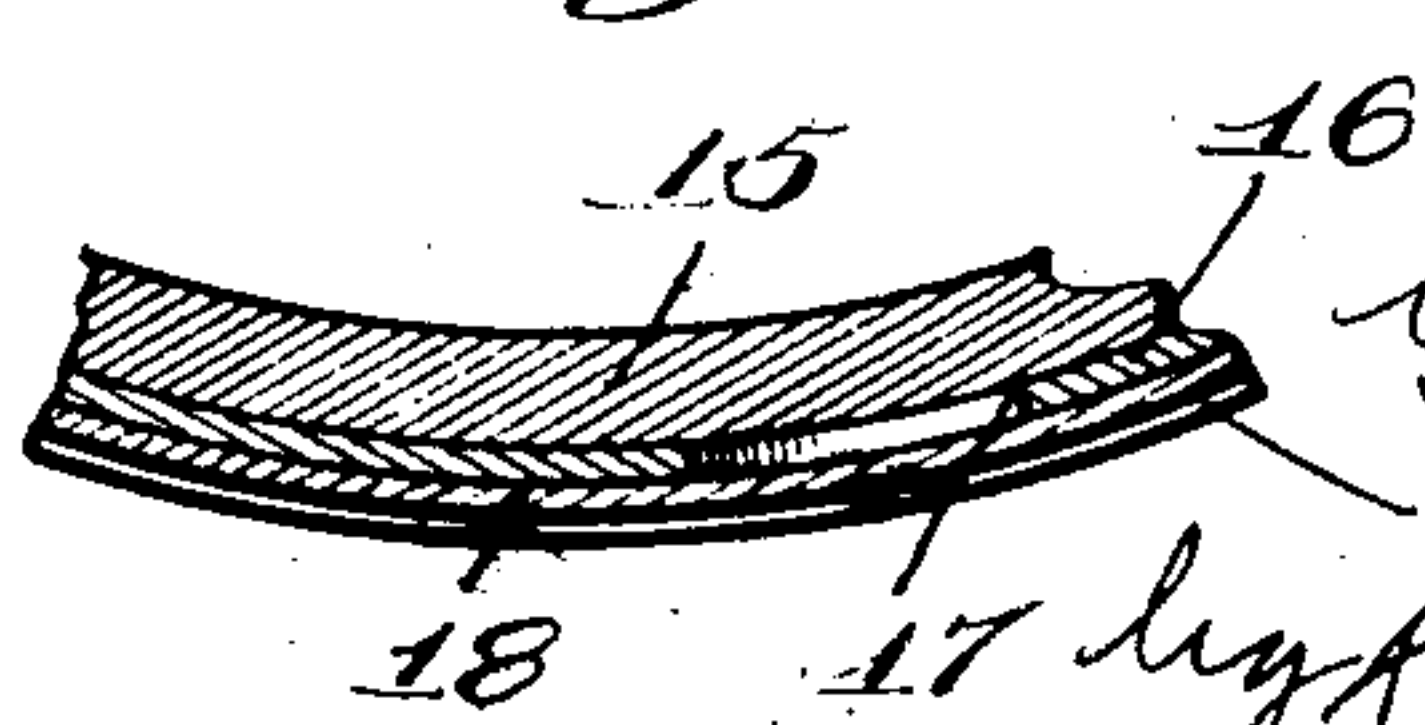


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE H. BENEDICT, OF CHICAGO, ILLINOIS.

CALCULATING DEVICE.

No. 862,232.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed February 20, 1905. Serial No. 246,413.

To all whom it may concern:

Be it known that I, GEORGE H. BENEDICT, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Calculating Devices, of which the following is a full, clear, and exact specification.

This invention relates to calculating devices for various purposes but more particularly to a device for calculating or computing wages and it has for its primary object to provide for this purpose a device which shall be simple and compact and of maximum capacity.

With a view to the attainment of these ends and the accomplishment of certain other objects, which will hereinafter appear, the invention consists in the features of novelty in the construction, combination and arrangement of parts which will now be described with reference to the accompanying drawings and then more particularly pointed out in the claims.

In the said drawings—Figure 1 is a development of an example of a chart and scale used in connection with and constituting a part of my invention. Fig. 2 is a front elevation of the complete device. Fig. 3 is a longitudinal section thereof on the line 3, 3 Fig. 4. Fig. 4 is a transverse section on the line 4, 4 Fig. 2, and Fig. 5 is an exaggerated detail section taken in the same plane as Fig. 4.

In the chart or scale represented in Fig. 1, I have have computed the wages to be paid for any number of whole hours from 1 to 48 at the rate of from \$4.00 to \$30.00 per week on the basis of an eight hour day and the rate per week in each instance being an even number of dollars. The horizontal line of figures 1 represent the rates of wages per week or given time and the vertical column of figures 2 represent the hours or fractions of said given time, while the figures 3 arranged in vertical columns and horizontal lines, and which as will be seen, are also arranged in vertical series with the wage rates in the line 1 and in horizontal series with the figures in the column 2, represent the amounts due for the said fractions of time with which they are in horizontal series at the wage rate with which they are in vertical series. Thus for example, the number ten or ten cents occurring in the first horizontal line under \$5.00 in the second column represents the amount of wages due for one hour at the rate of \$5.00 per week, fractions of a cent being ignored in every instance.

It is quite evident that should it be desired to compute the amount of wages due for fractions of hours as well as hours and to arrange the numbers representing such fractions of hours immediately contiguous to each of the numbers representing the whole hours and place opposite these fractions of hours the amounts of wages due for each number of whole and fractional hours

would multiply the size of this chart or scale manifold and in fact to such a degree as to make it practically impossible to use the chart or scale as a single element in a computing or calculating machine; and to provide for fractions of dollars in addition to the whole dollars, as for example, \$4.25 per week, \$4.50 per week, \$4.75 per week and so on and to place the computed amounts opposite these various rates of wages would still further multiply the size of the scale or chart. In order that this enlargement of the chart or scale may be avoided and at the same time provision made for readily computing or calculating the amounts due for fractions of an hour as well as for whole hours and the amounts due for a given time whether a whole or a fractional hour, at a rate of wages ranging from a comparatively small fraction of a dollar to a whole dollar and throughout a comparatively wide range of whole dollar rates, I have devised an arrangement to be used in connection with the chart or scale thus far described and which will now be explained.

On the left of the time column 2, it will be seen, I have placed three columns of figures 4, 5, 6, the figures of which are in horizontal series with the figures in the time column 2 and in vertical series with the wage rates 7, 8, 9, which are arranged in a horizontal line and represent rates of wages per week or given time, of a lower rate than the rates in line 1, and of course the numbers in columns 4, 5, 6 represent respectively the amounts due for the time indicated by the numbers in time column 2 with which they are in horizontal series at the wage rate, 7, 8 or 9 with which they are in vertical series. At the end of time column 2 I arrange a column 10 containing figures representing fractions of the smallest period of time (one hour for example) represented in column 2 (these are, for example, 10 to 50 minutes) and opposite column 10 and in vertical series with columns 4, 5, 6 I arrange additional columns 11, 12, 13 containing characters or figures representing the amounts due for the number of minutes with which they are in horizontal series at the wage rate 7, 8 or 9 with which they are in vertical series; while on the other side of column 10 and in vertical series with the wage rates respectively of line 1, I arrange additional columns 14 containing figures or characters representing the amounts due for the number of minutes in column 10 with which they are in horizontal series at the wage rate (in line 1) with which they are in vertical series.

In the use of the invention thus constructed and arranged a simple sum in addition is required to find the total of amounts due for either a length of time comprising whole and fractional hours or a rate of wages comprising whole and fractional dollars, but even at that the invention affords a more ready reference than

would be possible with prior means and arrangements. For example if it should be required to find the amount due for 24 hours and 40 minutes at the rate of \$8.75 per week, the column containing \$8.00 in line 1 is followed down to the line containing 24 hours in column 2 where \$4.00 will be found to be the amount due for the whole hours; then by following the horizontal line to the left until the 75 cents column or column 7 is reached the amount of 37 cents is found as the amount due for 24 hours at 75 cents per week; now by following down the column 3 containing \$8.00 at the top to the horizontal line containing 40 minutes in column 10, the amount of 11 cents is found as the amount due for 40 minutes' work at \$8.00 per week, and finally by consulting the figure on the left of and in horizontal series with the number 40 in the rate column 7 it is found that 40 minutes' work at 75 cents per week amounts to 1 cent. Thus by simply adding \$4.00, plus 37 cents, plus 11 cents, plus 1 cent is obtained \$4.49 the total amount due for 24 hours and 40 minutes' work at the rate of \$8.75 per week. By thus condensing the matter I am enabled to embody or incorporate it in a mechanical apparatus which I will now explain and which greatly facilitates its use.

The chart or figures contained in the columns 3 and 14 and in the horizontal rate line 1 are mounted or formed on a cylinder 15 in such a way that the rate line 1 will extend around the periphery and will be as near to one end of the cylinder as practicable. The time columns 2 and 10, the fractional dollar rate line containing the rates 7, 8, 9 and the vertical columns 4, 5, 6, 11, 12 and 13 are mounted or produced upon the outer surface of a casing 16 which incloses the cylinder 15 and is provided with a longitudinal slot exposing the cylinder and the columns 2, 10, 3 and 14 from end to end or top to bottom while exposing the numbers in the line 1, one at a time, and this slot 17 is formed immediately contiguous to the right hand side of the time column 2 so that all the numbers or figures in horizontal series on the casing 16 will register respectively with the numbers or figures in horizontal series on the cylinder 15 contained in the columns 3, 10 and 14. The casing 16, whose purpose is to mass all of the figures on the cylinder excepting those in any one of the columns 3, 10 and 14 and all but one of the rate numbers in line 1, is inclosed by a cylindrical shell 18, which is preferably composed of transparent material, such for example as celluloid, and is secured to the casing 16 in any suitable way as by means of glue or cement in order to prevent the casing from rotating with the cylinder with which it is in contact. Secured on the ends of the cylinder are caps 19 which are formed with peripheral flanges 20 overlapping and encompassing the shell 18 and thereby constituting means of holding the shell and the casing 16 against longitudinal movement while permitting the cylinder 15 to be freely rotated. These caps 19 are attached in any suitable way to the cylinder, which latter may be, if desired, composed of paste board or other suitable material, and as a convenient, efficient and inexpensive means of thus attaching them I strike up therefrom a number of tongues 21 which are pressed inwardly and have their points slightly turned into the material of the cylinder, which is preferably hollow as shown in Figs. 3 and 4 for the sake of lightness and cheapness. These caps 19 may be further se-

cured by an axial rod 22 passing through the cylinder and provided with nuts 23 abutting against the ends of the caps which may be countersunk as shown at 24 to prevent the nuts from projecting an objectionable degree. The caps being attached to the cylinder 15 and detached from the casing 16 and shell 18, it will be understood that to operate the device it is simply required to hold the shell 18 in one hand and turn the cylinder by means of one of the caps, the flange 20 affording a grip for the hand.

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

1. In a device for computing wages, the combination of a horizontal line of figures representing the rates of wages per given time; a vertical column of figures representing fractions of said given time, figures arranged in vertical series with said wage rates respectively and in horizontal series with said fractions of time respectively and representing the amounts due for the said fractions of time with which they are in horizontal series at the wage rate with which they are in vertical series; a second time column of figures arranged in vertical series with the first said time column and representing still smaller fractions of said given time; figures arranged in vertical series with said wage rate figures and in horizontal series with said smaller fractions of time and representing the amounts due for the fractions of time with which they are in horizontal series at the wage rate with which they are in vertical series both of said horizontal lines of figures and vertical columns of figures being relatively movable in a direction lengthwise of the horizontal line.

2. In a device for computing wages, the combination of a horizontal line of figures representing the rates of wages per given time; a vertical column of figures representing fractions of said given time; figures arranged in vertical series with said wage rates respectively and in horizontal series with said fractions of time respectively and representing the amounts due for the said fractions of time with which they are in horizontal series at the wage rate with which they are in vertical series; a second time column of figures arranged in vertical series with the first said time column and representing still smaller fractions of said given time; figures arranged in vertical series with said wage rate figures and in horizontal series with said smaller fractions of time and representing the amounts due for the fractions of time with which they are in horizontal series at the wage rate with which they are in vertical series; a horizontal series of figures representing lower wage rates than said first wage rates and arranged at the side of said time column opposite that on which said first wage rates are arranged; figures arranged in vertical series with said lower wage rates respectively and in horizontal series respectively with the figures in said time columns and representing the amounts due for the time opposite them in the time columns at the wage rate with which they are in vertical series.

3. In a calculating device, the combination of a rotary, cylindrical body bearing figures arranged in horizontal and vertical series, a slotted casing inclosing said body and bearing figures along the edge of said slot arranged in horizontal series with the aforesaid horizontal series of figures and caps or end pieces secured on the ends of said body and having flanges overlapping and embracing said casing, one of said caps being rotatable with said body independently of said casing.

4. In a calculating device the combination of a cylindrical, rotary body bearing figures arranged in vertical and horizontal series, a slotted casing inclosing said body bearing figures arranged along the edge of the slot in horizontal series with the aforesaid figures, a transparent shell inclosing said casing and covering said slot and secured to the casing against relatively rotary movement, and means at the end of said rotary body whereby it may be rotated relatively to said casing and shell.

5. In a calculating device the combination of a hollow cylindrical body bearing characters on its periphery, a casing inclosing said body and having a slot extending

longitudinally thereof and bearing characters along the edge of said slot, a shell inclosing said casing and through which said slot and characters are visible, caps secured against the ends of said body and having flanges overlapping said shell and casing, and means passing through said body for securing said caps together.

5 6. In a calculating device, the combination of a hollow cylindrical body having characters on its periphery, a slotted casing inclosing said body and having characters
10 along the edge of said slot, a transparent, cylindrical

shell attached to and inclosing said casing whereby the casing will be held against rotary movement with the body, and caps fitted against the ends of the body and having outside flanges encompassing the ends of said shell and inside tongues gripped against the inner side of the body. 15

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Witnesses:

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