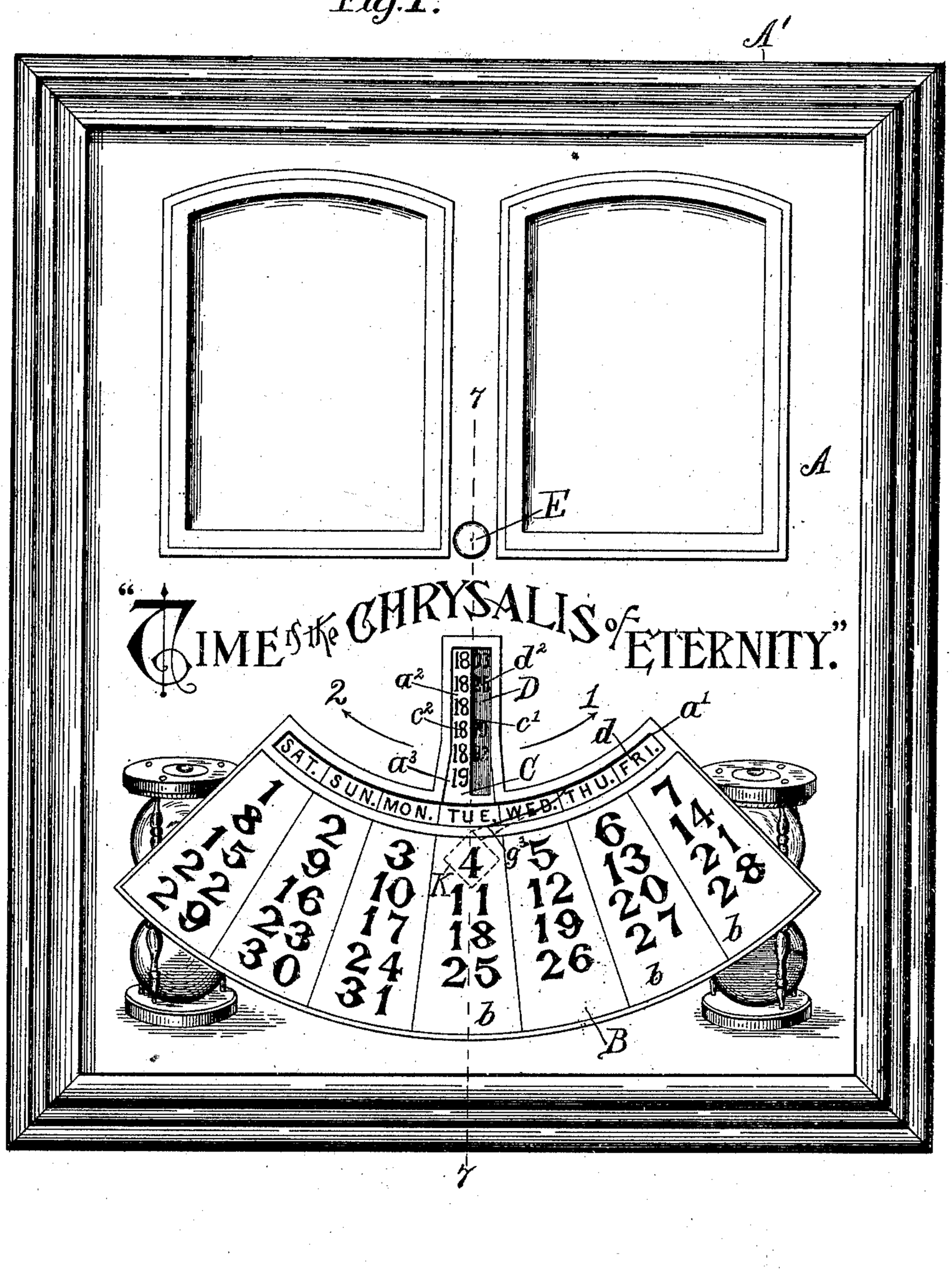
(No Model.) 4 Sheets—Sheet 1.

W. K. DAVID.

CALENDAR.

No. 502,483. Patented Aug. 1, 1893.

Fig. 1.



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4 Sheets—Sheet 2.

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No. 502,483. Patented Aug. 1, 1893.

Fig. 4.

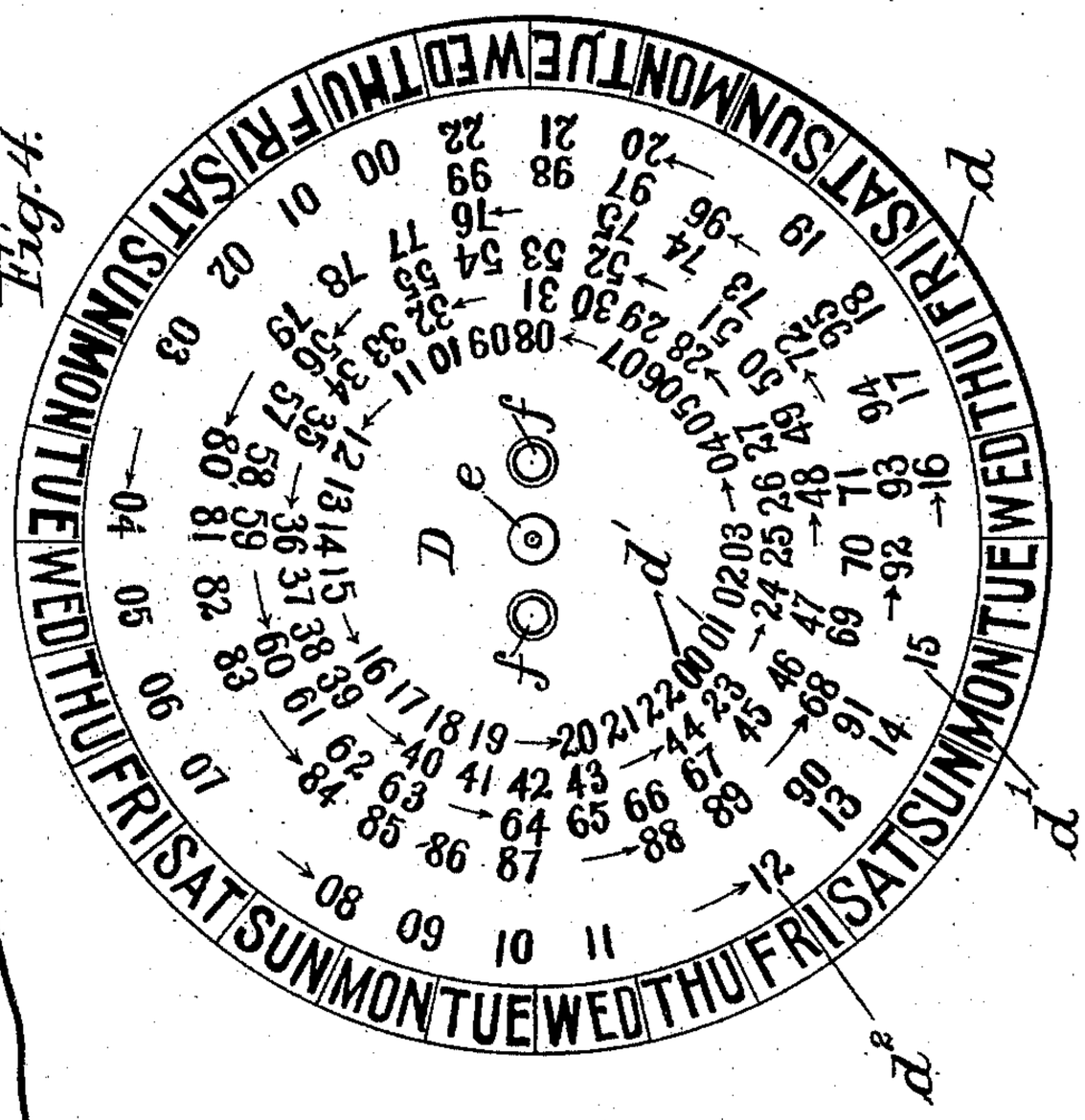


Fig. 2.

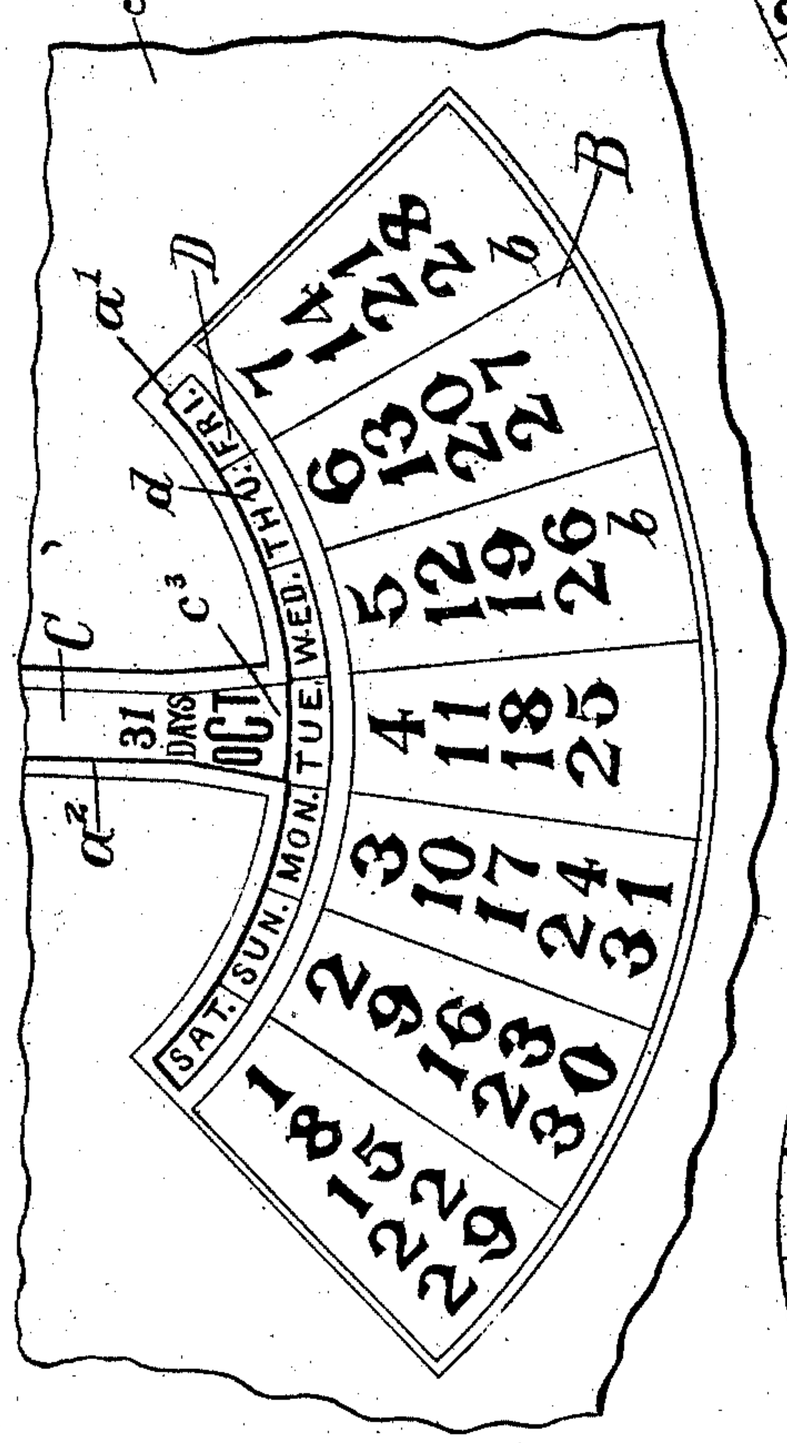
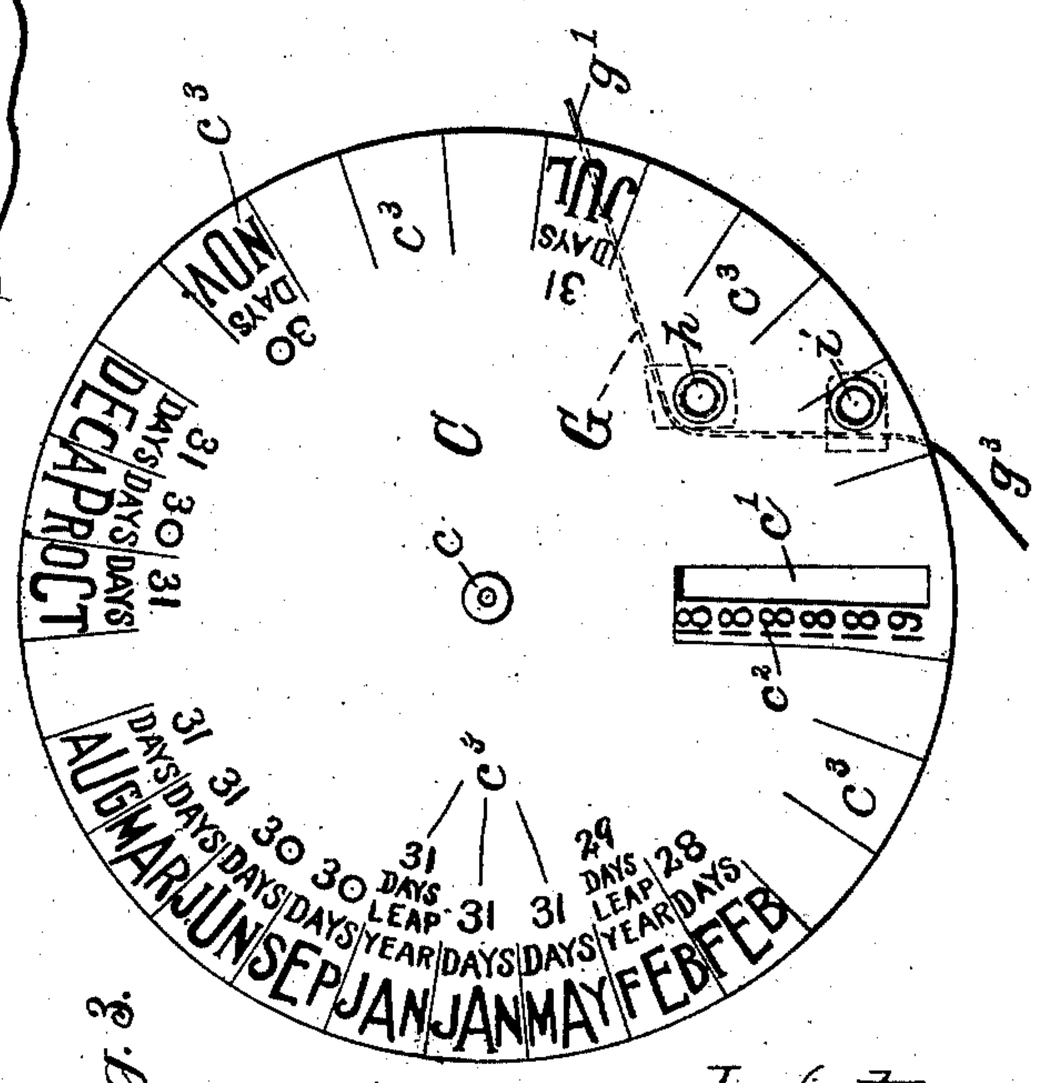


Fig. 3.



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(No Model.) 4 Sheets—Sheet 3.

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CALENDAR.

No. 502,483. Patented Aug. 1, 1893.

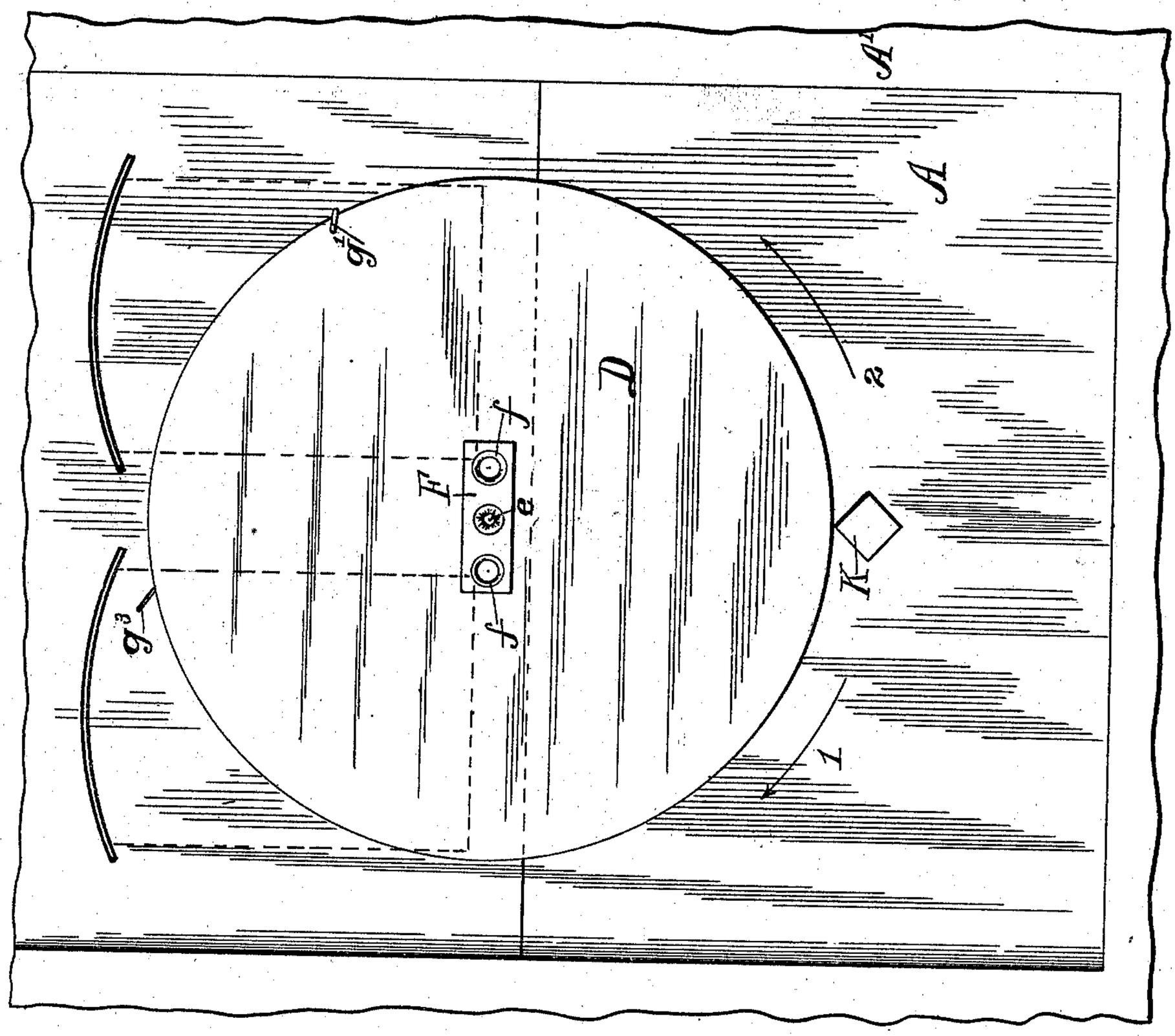

Fig. 5.

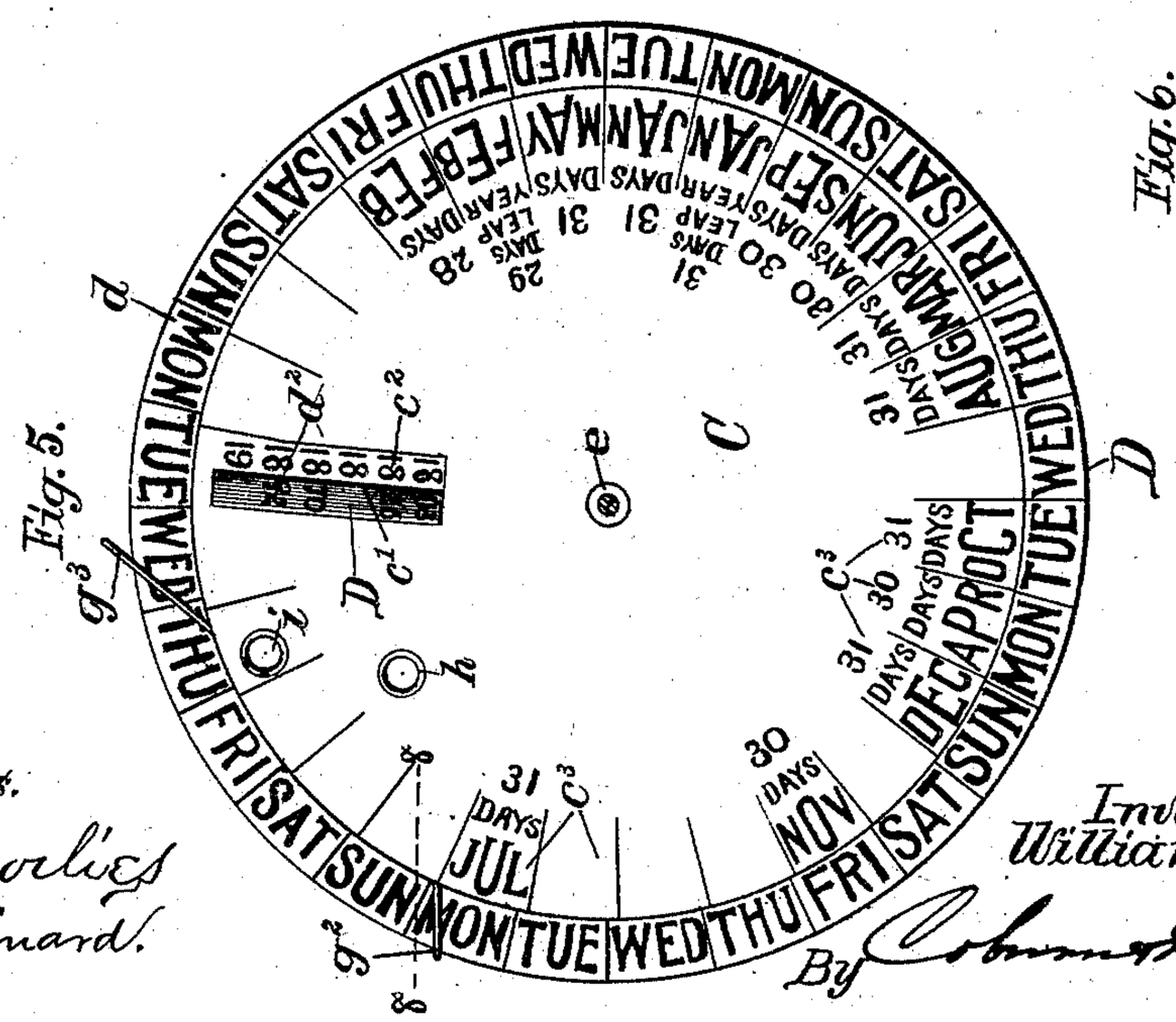

Fig. 6.

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CALENDAR.

No. 502,483. Patented Aug. 1, 1893.

Fig. 7.

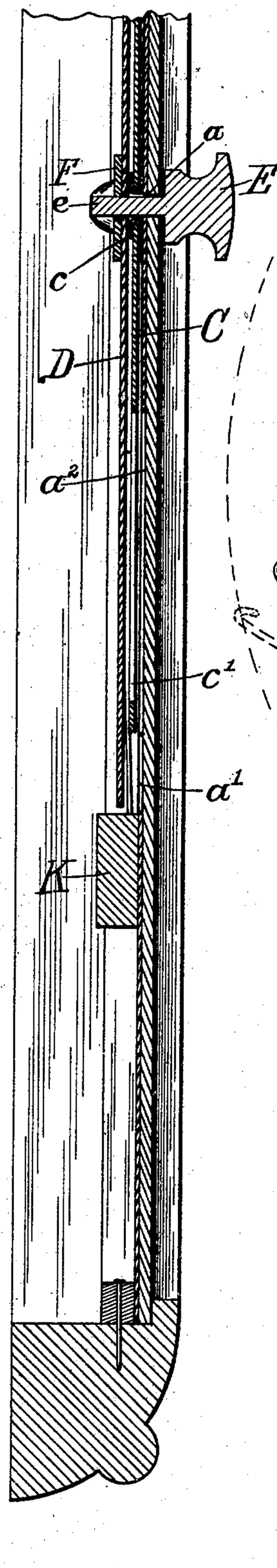
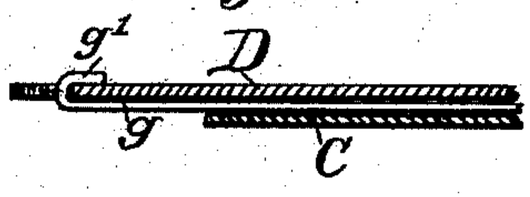


Fig. 8.



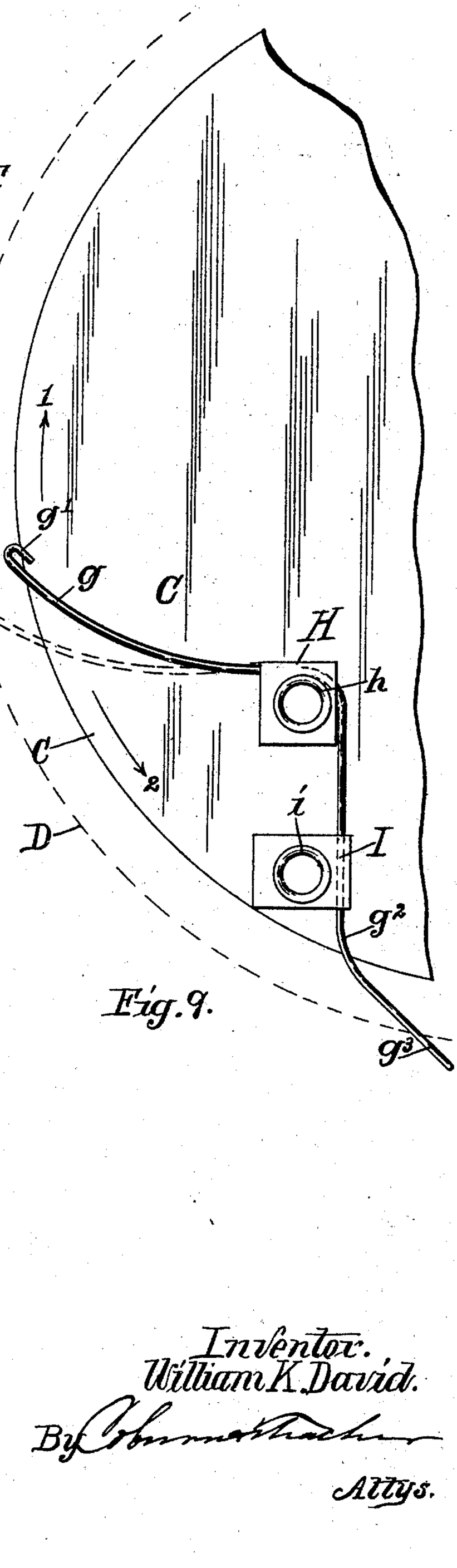


Fig. 9.

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UNITED STATES PATENT OFFICE.

WILLIAM KING DAVID, OF PHILADELPHIA, PENNSYLVANIA.

CALENDAR.

SPECIFICATION forming part of Letters Patent No. 502,483, dated August 1, 1893.

Application filed October 26, 1892. Serial No. 450,041. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KING DAVID, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Calendars, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of a calendar embodying my improvements, with disks adjusted to show the year; Fig. 2, a detail of the same elevation, with the disks adjusted to show the month; Fig. 3, a front view of the outer or smaller disk detached; Fig. 4, a similar view of the larger or inner disk; Fig. 5, a front view of the two disks detached from the calendar frame, but applied to each other in working position, and adjusted for the indication shown in Fig. 2; Fig. 6, a rear elevation of Fig. 1, partially broken away; Fig. 7, a detail section taken on the line 7—7, Fig. 1; Fig. 8, a detail section taken on the line 8—8, Fig. 5; Fig. 9, a detail back view of the disk shown in Fig. 3. Figs. 1 to 6 inclusive are upon one and the same scale; the remaining figures are upon one scale, but considerably enlarged from that of the first mentioned figures.

My invention relates to what are generally known as universal calendars, such as is shown and described in my prior Letters Patent, No. 375,736, dated January 3, 1888; and the present invention may be considered as an improvement upon the structure shown and described in the said patent.

I will now describe in detail the construction and operation of a calendar in which I have embodied my invention in working organization, and the particular improvements, which I believe to be new and wish to secure by Letters Patent, will be pointed out more definitely in claims.

In the drawings A represents the stationary front of the calendar. It may be of stiff card board, or may be of any construction adapted to the purpose. In the drawings it is shown as composed of a glass front with a thin paper, containing the required indications, pasted upon the back thereof. This stiff front is shown in the drawings mounted in a suitable frame A′; but this is only for illustration, as the calendar may be finished in a variety of forms. A pivot aperture *a* is made near the center of this front, and some distance below this is a segmental slot *a′* struck through the aperture *a*, as a center. Immediately below this segmental slot is a segmental space B, laid off with reference to the same central point as the slot and divided into radial spaces *b* within which are arranged the days of the month in columns, the same as in my previous patent mentioned above. Above the segmental slot *a′* there is also a second and wider slot a^2 leading upward from the slot *a′;* the opening of this slot is intended to correspond in width to one of the radial spaces *b*, but the border lines, or edges, thereof are not carried inward or upward on said radial lines, or, at least, not for the entire depth of the slot. In the drawings these edges a^3 are shown carried inward, or upward, a slight distance on radial lines, but then they are deflected from a radial direction and are extended in directions parallel to each other, and on lines which projected would place them outside of the pivotal center *a* and on opposite sides thereof, as seen in Fig. 1. This precise form, however, is not necessary, as the edges may be carried inward from the commencement of the slot on parallel lines, but this would provide an opening wider than necessary. I use two calender disks in this instance, the same as in my patent previously mentioned, namely, a front or outer disk C, and an inner or back disk D. The radius of the inner disk D is about the same as the greater radius of the segmental slot *a′*, while the radius of the outer disk C is about the same as the smaller radius of said slot, thus making the front disk somewhat smaller than the back. These disks are both mounted on and supported by a pivot pin E; the stem *e* of which is passed through the pivotal aperture *a* of the calendar front and the disks are mounted thereon back of said front, as seen in Fig. 7. It will be seen that the pivot pin E is free to rotate in the aperture *a* as a bearing; the larger disk D is fixed on this pivot pin so as to always turn with it, while the smaller disk C is arranged immediately in front of the former and loosely

on the pivot pin, being provided with an eyelet *c* which makes a durable bearing. In the disk C there is cut a slot *c'* which commences near the outer edge of the disk and extends inward toward the center thereof, but not on radial lines, the edges of the said slot being parallel to each other, thus corresponding with the edges of the slot, or opening, a^2 in the calendar front, but the slot in the disk is only about one-half the width of the said slot in the front. At the left of this slot *c'*, the first two figures of the century are arranged in a column c^2 parallel with the slot, and the slot and column of figures together are intended to occupy a space of substantially the same width as the slot a^2 in the front. The outer part of the face of this disk C is divided into short radial spaces c^3 in which are arranged the designations of the month and the days in each month, including duplicate spaces for January and February for leap years, and all arranged as seen in Fig. 3. The inner disk D is secured to the pivot pin by means of a small plate F, which is fastened to the back of the disk by eyelets *f;* the pivot pin passes through the disk and is secured to the said plate in any suitable way, thus fixing the disk to the pin so that it will turn with it. On the face of the disk D an annular space *d* is marked off at the outer edge, which contains the designations for the days of the week, being divided into spaces each of which is marked for one such day. Figures representing the years of a century are also arranged on the face of this disk in concentric rows *d'*, the beginning of the century commencing on the inner row, as seen in Fig. 4. The entire figures of the several years are not contained in these rows, but only the last two figures of each year, as will be seen in Fig. 4 of the drawings. These year indications are also arranged so as to group certain indications of several rows to form columns d^2, extending from the week day circle inward toward the center of the disk, but these columns are not arranged exactly on radial lines, but on lines which projected will pass just a little to one side of the center. A clutch is fastened to the outer disk and adapted to engage with the inner disk in such a way as to connect the two disks together to cause them to move together, when turned in one direction, but provide for a separate or independent movement of the said disks, when turned in the other direction. As shown in the drawings this clutch is an elastic wire G, which is bent, in the first place, nearly at right angles, and is secured to the back of the front disk at the bend by means of a loop H, of any light fabric, which is fastened to the disk by an eyelet *h*, the wire passing through the closed end of the loop, as seen in Fig. 9. One arm *g* of this spring extends outward on a secant line at the back of the disk and terminates in a hook *g'* at its outer end which is adapted to hook over and clasp the outer edge of the inner disk. The length of this arm is about equal to the shortest distance from the point of attachment of the spring to the outer edge of the inner disk. Normally this arm of the spring lies a little out of the said straight line of shortest distance to the edge of the disk, as seen in full lines in Fig. 9,. but, when depressed, toward the said straight line, it will be thrown outward until finally the hook may be caught over the edge of the inner disk, as seen in dotted lines in the said Fig. 9. The other arm g^2 of the spring is also carried outward on a secant line to the edge of the disk to which it is attached, and near the said edge is secured in place by means of a loop I, similar to the loop H and fastened to the disk by an eyelet *i*. The arm g^2 passes through the closed end of this loop, as seen in Fig. 9, and is extended outward beyond the edge of the disk, but its projecting end g^3 is bent outward, or away, from the angle of the wire to form a stop arm extending beyond the circumference of the larger disk, and operating, as will be described presently. A small block K is fastened upon the back of the front A of the calendar, just below and about in line with the slot a^2 in the front, as seen in Fig. 6.

The operation is as follows: The disks are mounted upon the front of the calendar as described above and shown in Fig. 7, and are connected by springing downward, or outward, the hook arm of the spring clutch, as seen in Fig. 8 and dotted lines, Fig. 9. It is obvious that if the pivot pin is turned to the left, the disks will be connected by the spring clutch and must rotate together, moving in the direction of the arrow 1 of Figs. 1 and 6; but if the pivot pin be turned to the right and the loose outer disk be stopped, the inner disk may still be rotated independently of the outer disk, moving in the direction indicated by the arrow 2, Figs. 1 and 6, though the connection between the disks is such that they will rotate together in this direction always, unless some obstacle is interposed. The stop block K is this obstacle, for it is arranged in the path of the bent projecting end g^3 of the spring clutch, so that, when the disks are rotated in the direction of the arrow 2, the extreme end of this bent arm will finally strike directly against this block and thereby stop the further movement of the clutch and outer disk, to which it is attached, in that direction; when moving in the other direction, however, the disks will always move together for the projecting end g^3 passes over the stop block, yielding upward for this purpose. The stop block and stop arm are so arranged that the outer disk will always be stopped when the slot *c'* and column of part-year figures, at the left thereof, are brought directly in front of the opening a^2 in the front A of the calendar, as seen in Fig. 1, the width of these two being intended to be about the same as the width of the said opening so as to substantially fill the same, as seen in Fig. 1.

Now, in using the calendar, the pivot pin

is first turned to the right until the outer disk C is stopped, as described above, in the position shown in Fig. 1. If the two remaining figures of the year required are not then in the column on the disk D appearing through the said slot in the disk C, the pivot pin is turned still farther to the right and the inner disk D is thus moved alone in the direction of the arrow 2, Fig. 1, until finally the column appears at the opening containing the last two figures of the year required; as seen in Fig. 1, the column is thus brought to view in which the last two figures of the present year, 1892, are found, together with those of three other years in the century. The pivot pin is now turned to the left and the disks move together by the action of the clutch, and in the direction of the arrow 1, Fig. 1. This movement is continued until that one of the spaces c^3 on the disk C, indicating the month required, is brought into view at the opening a^2 in the front, as seen in Fig. 2, in which October is brought to the said opening. The days of the month and corresponding days of the week will now be accurately indicated by the columns of figures in the segmental space B, and the week day indicated on the inner disk D, showing through the segmental slot a' of the front A, as seen in Fig. 2, which shows a correct indication for the month of October 1892, and also for the other years of the century found in the same column, as indicated in Fig. 1. It will be understood, of course, that the arrangement of the part year figures in columns on the disk D is a matter of calculation by which those years, in which the days of the week and days of the month will correspond, are brought together in the same column; which calculation it is not necessary to explain here. This separation of the year figures of a century, arranging the first two in short columns on one disk and the remaining two in circles and columns on the other disk, is a very desirable improvement, for it saves a great deal of space in marking the years of a century and so enables me to bring the whole matter on to comparatively small disks; if the entire figures of a century are put upon a single disk, the latter is either so large as to be very objectionable, or the figures must be made so small as to make it difficult to distinguish them.

In some details of construction changes may be made, such for instance as the device by which the two disks are temporarily connected together, and I do not wish to be understood as limiting myself to all the details of construction herein shown and described, though I have found the devices thus constructed very satisfactory in practical operation.

The construction of the calendar, herein shown and described, also enables me to extend the calendar, so that, it may be used for more than one century. In order to adapt the calendar to such use, it is only necessary to provide an additional slot and column of figures c', c^2, the first two figures of another century being used for the column. Obviously, as many slots and century columns, for this purpose, may be provided in the disk C, as the size of the disk will permit. It is obvious that the same result may also be obtained by enlarging the two disks and correspondingly extending the slot and figure column on the disk C and the figure columns on the disk D, so as to carry them forward into other centuries.

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

1. In a calendar, an outer disk provided with a straight slot extending inward from the outer edge toward the center and with the two first century figures arranged in a column at one side of said slot, in combination with an inner disk having the remaining two figures of the said years arranged in columns on lines corresponding to the century slot in the outer disk, and a stationary front provided with a slot of a width corresponding to the combined width of the slot and figure column in the first disk whereby the adjustment of one of said disks with reference to the other will bring any one of said columns on the inner disk to exposure at the slot in the outer disk and so complete the year indications at the slot in the stationary front, substantially as described.

2. In a calendar, the stationary front A provided with the slot a^2 having substantially parallel edges, in combination with the disk C provided with slot c' and column c^2 of half-year figures at one side thereof, an inner disk D having upon its face columns d^2 of the two remaining year figures, and mechanism whereby said disks may be adjusted to bring two half-year columns together side by side at the opening a^2 to form complete year indications, substantially as described.

3. In a calendar, the stationary front A provided with segmental slot a', slot a^2 running inward therefrom, and segment B containing the days of the month, in combination with the outer disk C provided with slot c' and column c^2 of half-year figures, the inner disk D provided with annular space d containing the days of the week and columns d^2 containing the last two figures of the year and mechanism whereby the said disks may be rotated together, or one independently of the other, substantially as described.

4. In a calendar, an inner disk D secured to a pivot pin E, in combination with an outer disk C mounted loosely on said pivot pin, a clutch device connecting the two disks to rotate together positively in one direction and permitting the inner disk to be rotated in the opposite direction independent of the outer, and a stop device to arrest the movement of the outer disk on the said reverse rotation at a fixed point, substantially as described.

5. In a calendar, the inner disk D, in combination with a pivot pin E to which it is secured, an outer disk C mounted loosely on

said pivot pin, and a wire clutch G secured to the front disk and provided with an arm g extending outward on a secant line and having a hook g' at its extremity adapted to engage the outer edge of the inner disk D, substantially as described.

6. In a calendar, an inner disk D, in combination with a pivot pin E to which it is secured, an outer disk C mounted loosely on said pivot pin, a spring wire clutch G fastened to the disk C and having a hooked arm g extending outward on a secant line to engage the edge of the inner disk and another arm g^2 extending outward in the opposite direction and provided with bent extremity g^3, and a stop block K arranged in the path of the said bent end g^3, substantially as described.

7. In a calendar, the stationary front A provided with segmental slot a' and slot a^2 leading inward therefrom, and the monthly day segment B, in combination with a pivot pin E mounted in said front, an outer disk C mounted loosely on said pivot pin and provided with a slot c', half-year column c^2 and month spaces c^3, an inner disk D secured to said pivot pin and having on its face the week day annulus d and straight columns d^2 of half-year figures, the wire clutch G fastened to the disk C and having a hooked arm g and stop arm g^2, and the stop block K fastened to the back of the front A just below the slot a^2, substantially as described.

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