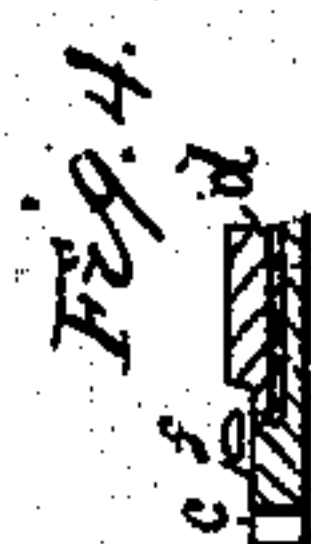
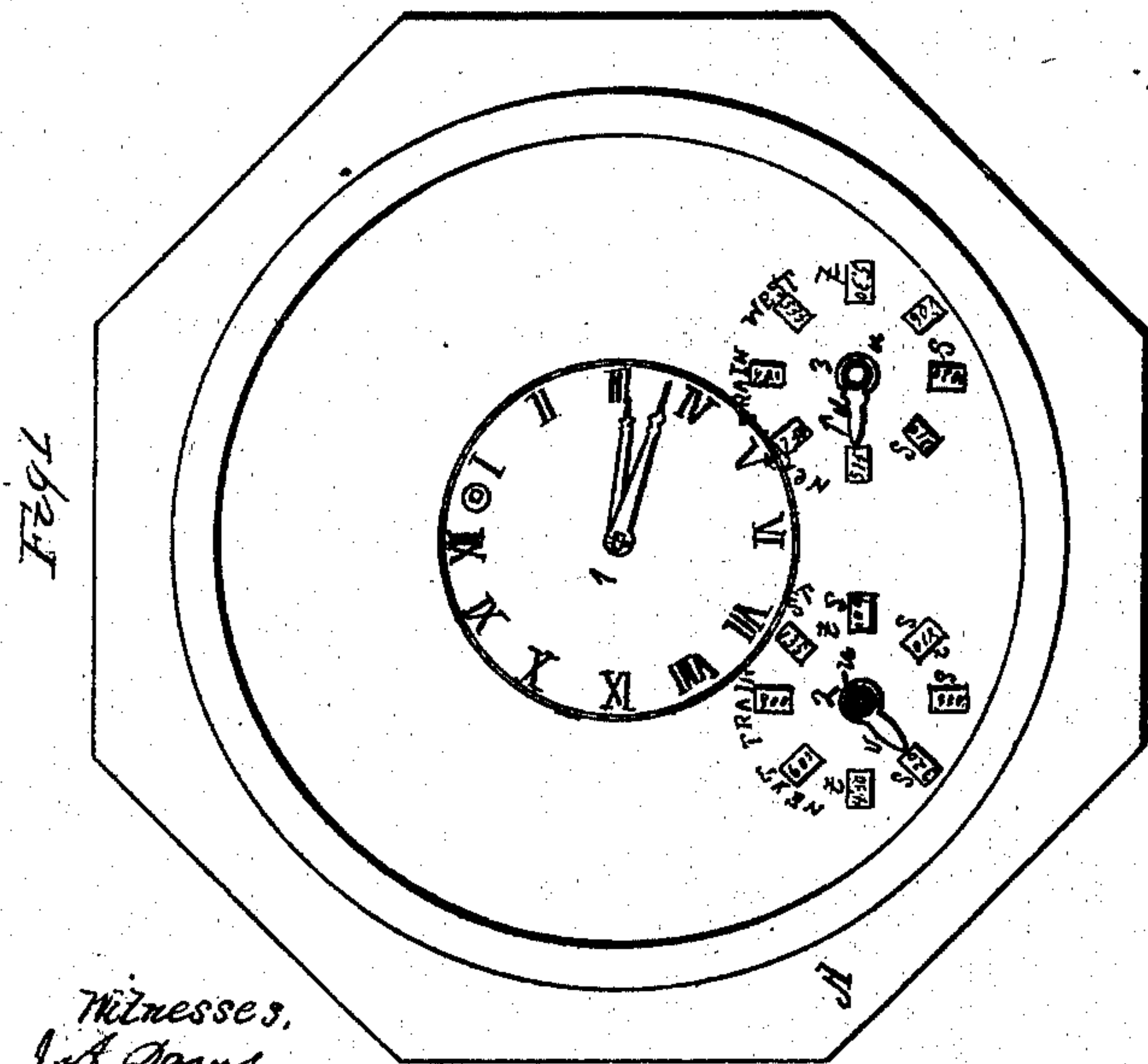
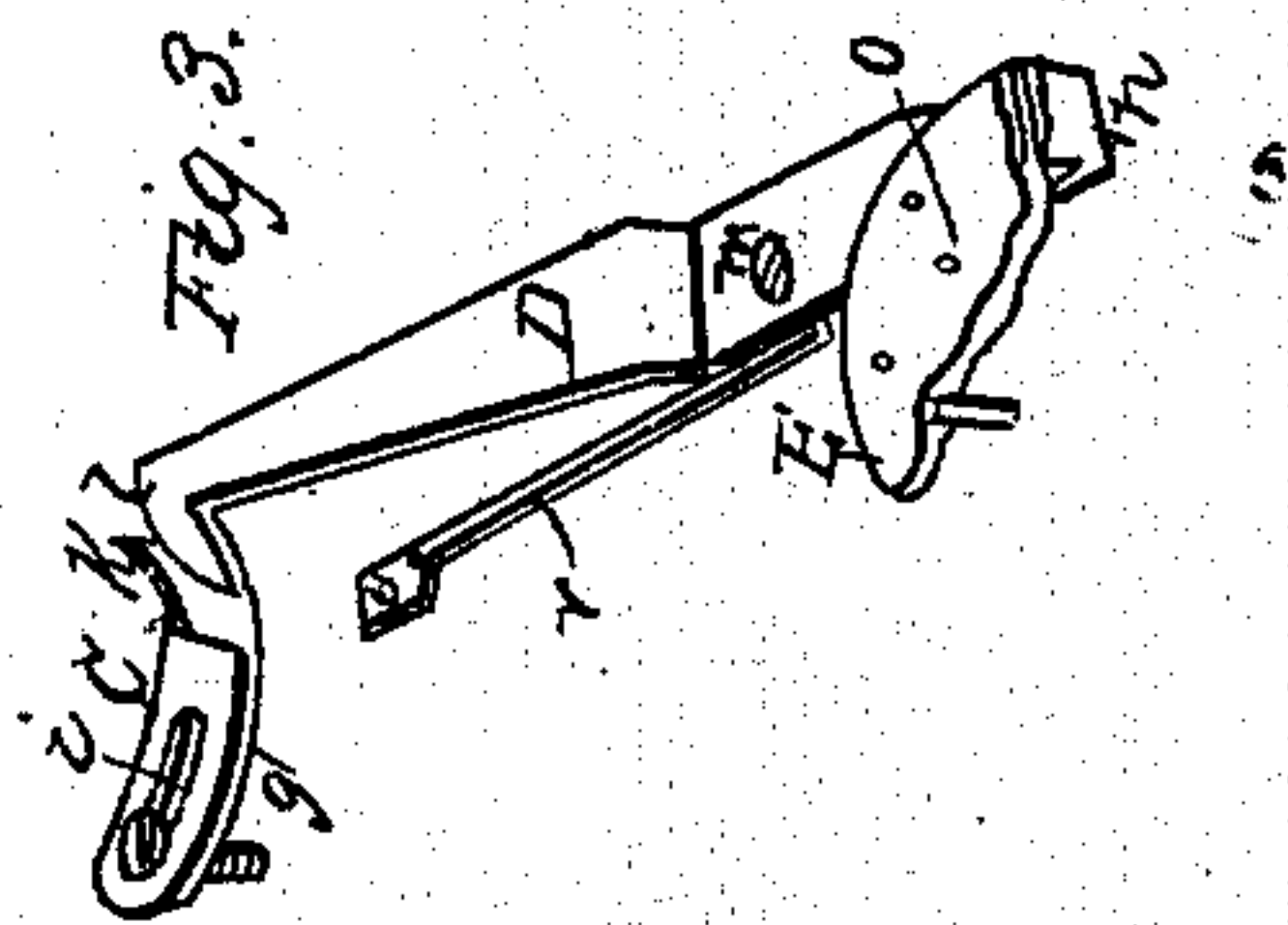
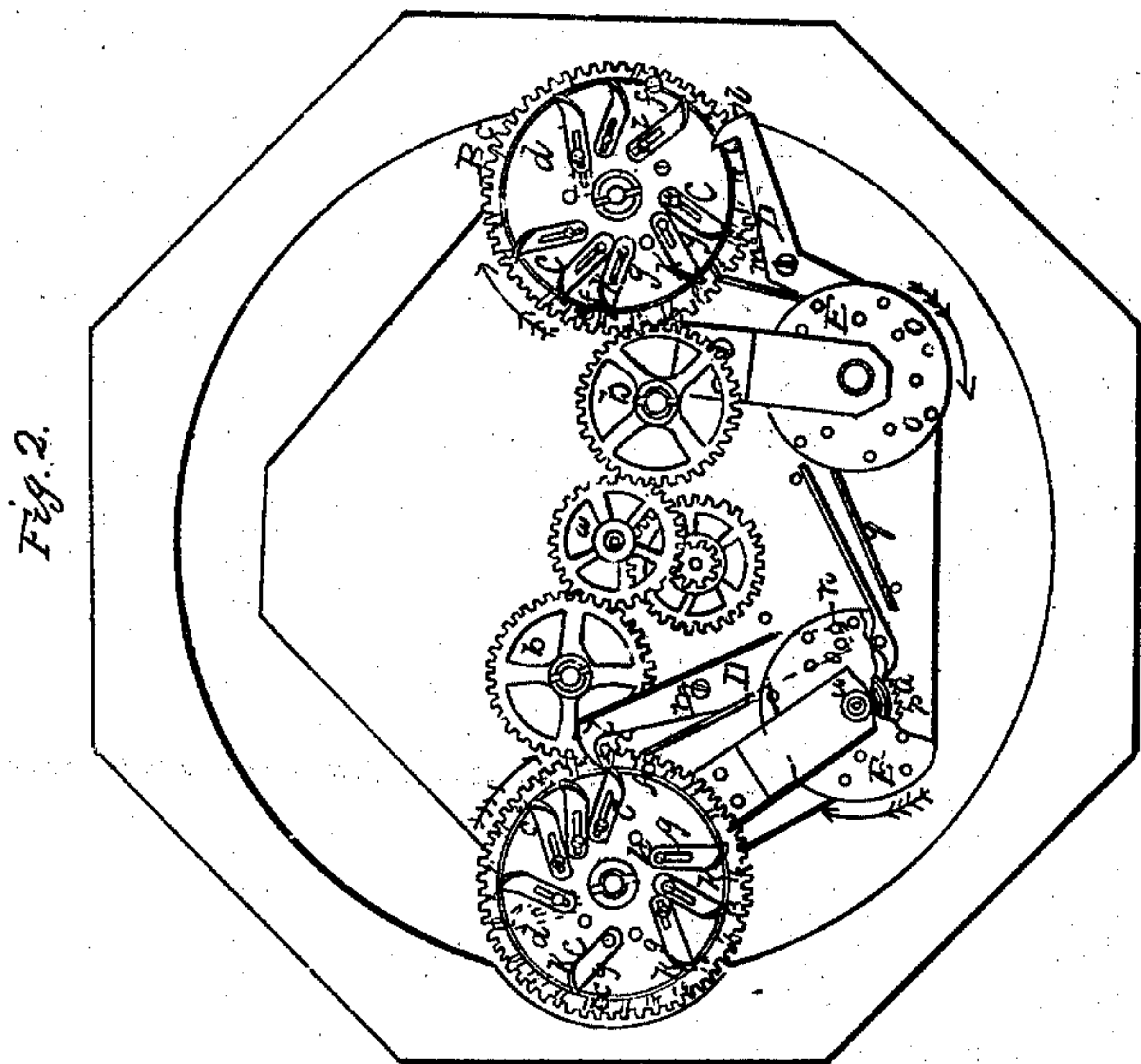


R. C. TAYLOR.  
Railroad Time Indicator.

No. 61,961.

Patented Feb. 12, 1867.



Witnesses,  
J. A. Darny  
R. C. Taylor

Inventor  
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By J. Francis & Co  
Attys



# United States Patent Office.

R. C. TAYLOR, OF BROCKPORT, NEW YORK.

*Letters Patent No. 61,961, dated February 12, 1867.*

## IMPROVEMENT IN RAILROAD TIME INDICATORS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, R. C. TAYLOR, of Brockport, in the county of Monroe, and State of New York, have invented a certain new and useful Improvement in Railroad Time-Table Indicators; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is an outside face view of my improved indicator.

Figure 2, a view of the gearing inside.

Figure 3, a diagram showing the arrangement for operating the escapement-wheels.

Figure 4, a-section of a portion of one of the cam-wheels, showing more particularly the connection of the two parts of which it is composed.

Figure 5, view showing the method of inserting and holding the tablets.

Like letters of reference indicate corresponding parts in all the figures.

My improvement is intended to indicate the time of departure of trains from a railroad station, and the apparatus is connected with an ordinary clock. The invention consists more especially in the construction and arrangement of the cam-wheels, hereinafter described, whereby, by the employment of adjustable cams, the changes are readily made to correspond with changes in the time of departure of trains; and also, by the employment of adjustable centres to the said wheels, the indicator can readily be turned forward or backward, to adapt the same to the various stations on the route without changing the cams.

As represented in the drawings, A is a clock, having the usual clock-work for indicating the hour and minute, and governed either by a pendulum or balance-wheel. With the wheel *a* of the hour-hand gear wheels *b b*, which serve as intermediate gears to give motion to cam-wheels B B. These wheels are of such size, and have such a number of teeth relatively with *b* and *a*, that they turn just once to the hour-wheel twice, so that in twenty-four hours the cam-wheels receive a single revolution. Each cam-wheel is made of two parts, a rim, *c*, and centre, *d*, fitting accurately together, and held in any position by means of clamping screws, *f f*, or equivalent, passing through the rim and holding upon the edge of the centre. By this means the centre may be turned independently in either direction, forward or backward, for a purpose that will be presently explained. The rim of the wheel is divided into twenty-four equal parts, and indexed in two divisions up to twelve to correspond with the twelve hours of day and night, and, if desirable, the subdivisions of minutes may also be employed. The centre is provided with any desired number of cams, C C, substantially of the form shown in figs. 2 and 3, that is, they have shanks, *g*, secured to the surface of the wheel by screws, *h*, passing through longitudinal slots, *i*, and rounded heads, *k*, which form the cams proper. This construction of the cams, and their connection with the wheel, enable them to be adjusted out or in, so as to project more or less, as indicated by red lines at the right, in fig. 2, or to be set forward or back, as shown by red lines at the left in the same figure. The cams act upon the rounded ends *l* of the levers D, pivoted at *m*, and connected at the opposite end with escapement-wheels, E E, in any desired manner, so as to produce the necessary escapement. In the drawings, the escapement is represented as produced by a vertical end, *n*, of the levers, connecting with pins, *o o*, of the wheels, arranged in the zigzag or alternated manner shown, so that, as the said end vibrates by the action of the cams, it alternately releases the pins and allows the wheels to turn. The wheels receive action from springs, *p*, and are wound up by a key in the ordinary manner of clock-work, being retained by ratchets and pawls, *q*. The reaction of the levers D is produced by springs, *r*. The face of the clock, in addition to being provided with the usual dial, 1, for indicating the passage of time, has other dials, 2 3, for indicating the time of departure of trains. The number of these correspond with the number of the cam-wheels employed, and vary with the requirements of the case. In the drawings but two are shown, indicating the time of departure of trains east and west. If there are several different routes, the number of dials and cams must be made to correspond, so as to indicate each route. These dials are formed by making sockets, *s s*, in a circle, and inserting in them small tablets or slips, *t t*, on which are marked respectively the time of departure of the trains in succession, thus: 3.20, 4.50, 6.00, &c. The most convenient way to form these sockets is simply to cut slits at suitable distances apart, and then depress the portion between, so as to run the tablets through. By having a great variety of the tablets it will be seen that the changes can be easily made to correspond with the changes of the



time of departure of the trains. The escapement-wheels have bearings or shafts, *u*, passing up through the dial plate, and on these are fixed pointers, *v*, which move around the dials 2 3 to indicate the time.

The operation will be readily understood. As the cam-wheels revolve, the cams striking the ends of the levers D will throw them out, and at the moment of passing will liberate the opposite ends, so as to operate the escapement and allow the springs to throw the escapement-wheels forward one notch. This will move the pointers on the dials from one tablet to another. Thus, at the left hand, in fig. 2, the cam is on the point of allowing the lever to operate, and the next movement of the pointer will be from 3.20 to 4.50. In order to accomplish the result above mentioned perfectly, of course the cams must be set on the scale of the cam-wheels with reference to the time indicated on the dial plate, that is, the cams must be set at 3.20, 4.50, &c., otherwise they will not operate the escapement at the proper moment. In the drawings this is plainly indicated, the difference of space between the cams showing at a glance the difference in time between the trains. The ready-adjustment of the cams enables them to be adapted to the difference in time with the greatest facility. It will also be noticed that if a train is discontinued, the cam which has indicated it can be set back, as shown by red lines at the right, in fig. 1, so that it will not operate the lever. This arrangement of the cams is very simple, and by their universal adjustment I am enabled to adapt them to the difference in time very readily. In addition to this, the making of the cam-wheel in two parts, *c d*, accomplishes a very important purpose, by enabling me to set the time forward or back to adapt it to any station on the same route. For instance, if the time at a particular station is 3.20, and the time of the train at the next station is 4.50, I can adapt the same clock to the second station by simply turning the centre *d* around in the rim *c* just one hour and thirty minutes, and, since the trains are regular, all the trains will be indicated at the second station without further change.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of a series of adjustable cams C C, with a graduated cam-wheel B, and an escapement lever D, or equivalent, operating substantially as described and for the purpose set forth.
2. Making the wheel B in two parts *c d*, when combined with the cams, in the manner and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

R. C. TAYLOR.

Witnesses:

R. F. OSGOOD,

J. A. DAVIS.