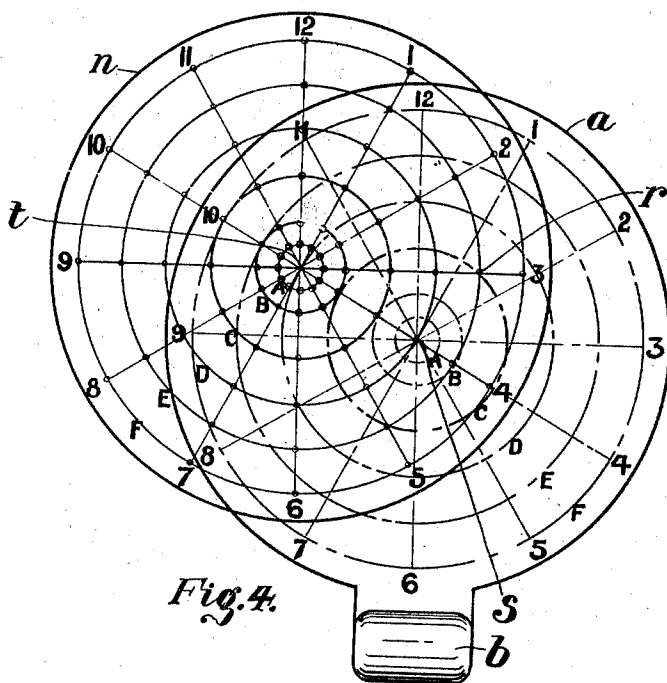
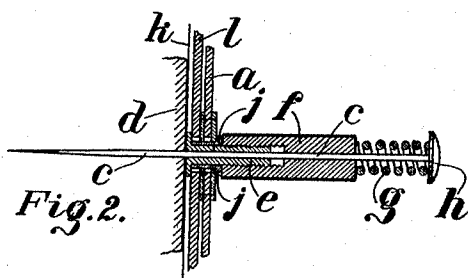
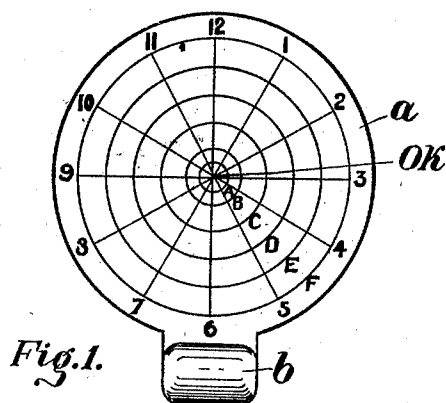


1,311,995.

R. FITZ POWER.
SIGNALING DEVICE.
APPLICATION FILED APR. 9, 1918.

Patented Aug. 5, 1919.
2 SHEETS—SHEET 1.



R. F. Power
Inventor.
per: Geo. A. Hutchinson
Attorney.

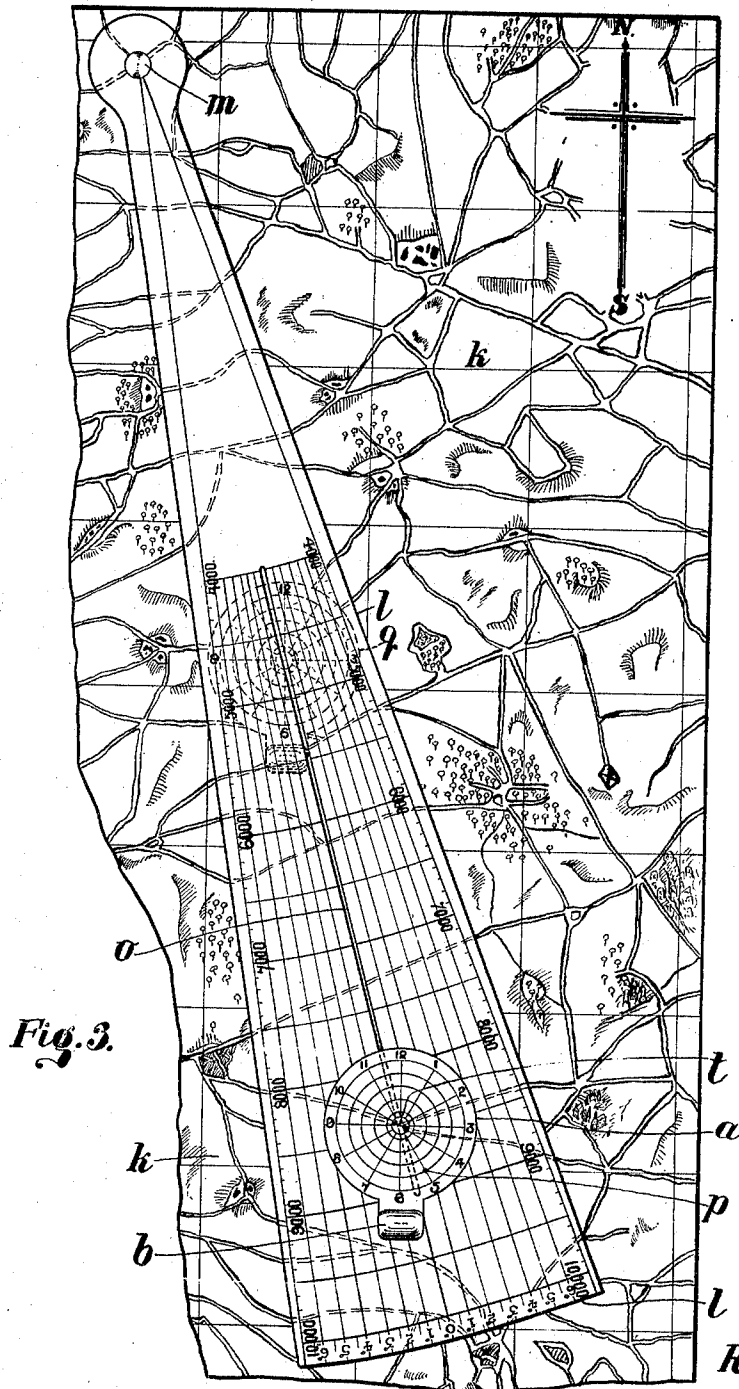
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UNITED STATES PATENT OFFICE.

RICHARD FITZ POWER, OF DOVERIDGE, ENGLAND.

SIGNALING DEVICE.

1,311,995.

Specification of Letters Patent.

Patented Aug. 5, 1919.

Application filed April 9, 1918. Serial No. 227,607.

To all whom it may concern:

Be it known that I, RICHARD FITZ POWER, a subject of the King of Great Britain, residing at Doveridge, in the county of Derby, England, have invented certain new and useful Improvements in Signaling Devices, of which the following is a specification.

This invention relates to an improved construction of plate for use in signaling by means of a clock code as commonly used by artillerymen, and to an improved method of using same.

It is usual, when signaling, say, from an aeroplane, for the observer to use the code known as the clock code to indicate, with reference to a clock face having circles of a predetermined scale, to the gunners, the position say, of a shell-burst with respect to a target at which they are aiming, with a view to their correcting their aim if not hitting the target, which corresponds in the code to the center of the clock face, and is usually termed the "O K" point.

The object of this invention is to provide a transparent plate which will automatically set itself, either for use with a ranging sector as now in use by battery officers, or for other uses in which a clock code disk may be employed requiring its 12—6 o'clock line to be set north and south.

Usually such clock code devices take the form of a celluloid disk with hour lines marked on it, and circles, according to the scale of the map in use, and it is necessary to adjust this clock face when used on a map so that the 12—6 o'clock line is parallel with the true north and south line of the map.

This invention consists in constructing a clock code face in the form of a transparent disk or plate weighted so that, when suspended about a central pivot, the 12—6 o'clock line will always swing to a position at right angles to the 9—3 o'clock line when horizontal.

In the drawings annexed to this specification,

Figure 1 shows the weighted disk marked with a clock code diagram of standard character;

Fig. 2 illustrates a pivot pin as used with the said disk;

Fig. 3 shows the method of using the disk with a gunner's ranging sector as now in use; and

Fig. 4 shows a method of using the disk with another clock code diagram.

Referring first to Figs. 1 and 2, *a* is a transparent disk of celluloid, or other suitable material, marked with a standard clock code diagram, and provided with an extension opposite the 6 o'clock point which carries the weight *b*; if therefore a pivot pin *c* is passed through the center of the disk *a* into a vertical support *d*, the disk, owing to the action of gravity on the weight *b*, will swing into final position with the 12—6 o'clock line vertical. When therefore the pivot *c* is stuck in an ordinary map, say, for example, at a target at which a gun is being aimed, any point sent in by an observer working on the clock code system may be immediately located on a map (vertical) with regard to the target without having to set an ordinary clock code disk specially for that point, and without drawing a clock code diagram around the said target as is sometimes done; this facility of setting applies to any point on the vertically supported map, since the weight *b* automatically insures the correct setting of the disk with regard to any point.

With reference to Fig. 2, *c* is the pivot pin; *e* is a sleeve, threaded at one end, and *f* is a long nut with a milled, or otherwise serrated, surface for ease in handling, which is screwed on to the end of *e* and grips a thimble eye *j* between itself and the wall *d*, thereby forming a firm bearing for the center of the disk *a*; the thimble *j* is made with sufficient clearance to allow of a second member *l* (hereinafter described) and the disk *a* being accommodated thereon without any binding effect on the latter, thin flanges preferably being used at the center of the disk *a*, the inner one serving to separate the main surfaces of the members *a* and *l*.

k indicates a map which is pinned on the support *d*. The spring *g* is provided between the end of the head *h* and the nut *f* to keep the parts snug against the wall.

Referring to Fig. 3, *k* represents part of an ordinary map, and *l* an ordinary transparent ranging sector, both as used by battery officers at the present time, except that for use with this invention the sector *l* has the slot *o* cut along its zero line. The sector shown is marked with range circles from 4,000 to 10,000 yards (shorter and longer ranges may be marked) to a scale corresponding to that of the map *k*, and also with radii emanating from a point *m* about which the sector is pivoted, and which represents

the location of the battery; the zero line 0° is set as the direct line to the target t , and the radii to right and left of same indicate angular degrees to right and left of the zero line. The map k with the target t marked thereon being pinned to a vertical wall, the sector l , pivoted about the gun position m , is moved until its zero line passes through t , at which point the pivot c of the disk a is also passed through the slot o and the point t on the map into the wall d .

Being free on its pivot the 12—6 o'clock line on a immediately moves to the vertical position which according to the clock code indicates the north—south line. It will readily be seen that supposing an aerial observer sends to the battery officer's dug-out (say, by wireless) that a shell has burst at the point p , *i. e.*, at E 5, by clock code, it is immediately apparent to the officer that the coincident point on the sector beneath, in terms of range and direction, is roughly 100 yards over and 3° to the right of the target, which is the correction he would send to the battery.

In practice the sector is accurately subdivided, the sub-divisions being omitted from the drawing for the sake of clearness.

For nearer targets, of course, the disk a is inserted at a different spot, for instance as shown (dotted) at q for a range of 4,700 yards. By this means, when a map is fixed on an upright wall with its north and south line from the top to the bottom of the map, if the clock code disk be attached to the map by a pivot pin through its center, the 12—6 o'clock line will always be parallel with the north and south line without any adjustment, and if the pin is placed in the map where the target is represented, the clock code face is instantly in position for translating clock code signals with reference to such target whatever may be the direction from which the guns are fired.

It must be understood that, though referred to herein as a disk, which is the ordinary form, the clock code face may be a weighted plate of any other shape that is found convenient.

The commander of a battery using this method, if interested, may ascertain the exact position on the ground of each shot reported by the observer, by noting the point on the map covered by the clock code intersection signaled.

With regard to the use of the term "vertical" in this connection, it should be understood that this may be approximate as regards the fact that the wall upon which the map is mounted may be only approximately vertical, and that the 12—6 o'clock line will take a position at right angles to a horizontal line through the 9—3 o'clock line which is the position which is required, although the said supporting wall for the map, and,

consequently, the 12—6 o'clock line of the clock face, may be some small amount out of the vertical, such that it will not affect the swinging of the weighted disk by reason of friction due to the want of verticality between the map and disk surfaces.

It must be understood that the weighted clock code disk may be used with advantage in any case where it is necessary to have the 12—6 o'clock line located true north and south with regard to the north and south line of a map by simply hanging such map on an upright wall, when the 12—6 o'clock line immediately takes a parallel direction with the north and south line by swinging into the vertical position about its pivot, the map of course being of ordinary character with its north to south line parallel with the vertical side of the map. For instance, the weighted clock code disk may be used as shown in Fig. 4, for indicating the position of shots fired at a secondary target such as s located at some distance from the primary target t at the center of a clock code diagram n .

The ordinary clock code diagram is marked on the instructor's board (vertical) and as before, the transparent weighted disk a is superimposed over the primary diagram n , both being in the vertical position; if now the instructor having indicated to the pupil that the secondary target is at s —say, some prominent feature on the instruction map—and then by means of the operating arm of the instruction apparatus he shows a shell-burst at r , *i. e.*, at E 3 on the primary diagram, he can see at once that the reading on the secondary disk a is approximately C at half past one, and this is the position the pupil is being instructed to estimate by means of any known method of artillery observation.

It should be noted that the disk when not in use remains preferably attached to the sector, which always hangs from the pin in the battery position. Also that means are provided, in connection with the pivot pin, for insuring close contact between the wall and the map, the map and sector, and the sector and disk.

It will be seen, therefore, that the invention offers a very expeditious and certain method of translating positions according to one system into those of another system, and is especially useful in connection with aerial observations.

What I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is:—

1. The combination, in a device for translating signals from one system to another, of a transparent plate having position identification lines marked thereon of predetermined scale, one of which lines is intended to correspond to a north to south line, and a

weight attached to the said plate opposite one end of the said north to south line, for the purpose set forth.

2. In a device of the class described, the combination of a transparent plate marked with position identification lines of predetermined scale one of which lines corresponds to a north to south line, a pivot adapted to support the said plate so that it will swing freely in a substantially vertical plane, and a weight attached to the said plate whereby the line corresponding to north to south is constrained to take a vertical position.

3. In a device of the class described, the combination of a transparent disk marked with position identification lines in the form of a clock code diagram with radial lines indicating the hour number positions, a pivot freely supporting the said disk in a substantially vertical plane, and a weight attached to the said disk opposite the lower end of the 12—6 o'clock diameter.

4. In a device of the class described, the combination of a transparent disk marked with position identification lines of predetermined scale one of which lines corresponds to a north to south line, a weight attached to the said plate opposite the lower end of the said north to south line, a pivot pin adapted to freely carry the said disk on a substantially vertical support, the said pin having a flanged and threaded sleeve, and a threaded nut engaging same, a spring disposed between the head of the pin and the said nut, and a thimble eye disposed between the other end of the nut and the flange of the said sleeve, all substantially as and for the purpose set forth.

5. In a device for translating a point on a secondary system of identification lines into

terms indicating a co-incident point on a ranging sector provided with radial lines one of which is a zero line, the combination with a ranging sector having a longitudinal slot corresponding to its zero line, of a transparent plate carrying a secondary system of identification lines marked to the same scale as the said ranging sector, a line of the said system corresponding to a north-south line, a pivot at the center of the said north-south line adapted to pass through the slot of the ranging sector, and a weight attached to the transparent plate opposite one end of the said north-south line.

6. In a device of the class described, the combination with a ranging sector provided with radial lines one of which is a zero line and having a longitudinal slot corresponding with its zero line, of a transparent disk marked with position identification lines in the form of a clock code diagram to the same scale as that of the sector, and having radial lines indicating the hour number positions, a weight attached to the said disk opposite the lower end of the 12—6 o'clock diameter, a substantially horizontal pivot pin passing through the point of origin of the sector lines, a substantially horizontal pivot pin passing through the center of the clock code diagram and through the zero line slot of the sector, the said latter pin having a flange and threaded sleeve and a threaded nut engaging same, a spring disposed between the head of the said latter pin and the said nut, and a thimble eye disposed between the other end of the nut and the flange of the said sleeve and freely supporting the ranging sector and the clock code disk.

In testimony whereof I affix my signature.

RICHARD FITZ POWER.