

narrow case *NN* will regard the point from whence the wind blows: and the vane wheel *A* being set in motion, will move the wheels *F* and *M*, whose office is to moderate the coiling of the string *p/t* upon the axle *p*, which by means of the said string gives motion to the wheel *H* in the case *NN*, about which it is coiled. And thus a different number of degrees ascend above the index *n*, according to the different quantity of air that passes: So that tho' the observer be absent, the greatest velocity of any wind may be known. When the scale of divisions on the limb of the wheel *H* is compleated, pull aside the spring from the string, that the wheel *M* with its axle *p* may be put out of contact with the pinion *b*, and the wheel *H* be brought into such a position that the index *n* may point at the beginning of the divisions; then let go the string, so that the wheel *M* may come again in contact with the pinion *b*, in order to be moved by it. When the wind blows and the wheel *H* turns from *n* towards *y*, depresses the orifice *ty* of the tube *xy*, and so the quicksilver will drop out from the tube into the case *NN*, and out of that, thro' the hole *k* into that cavity of the point of the compass, which answers to the quarter from whence the wind blows. And, as the wind varies, the mercury, according as the aperture *y* is depressed, will flow into the cavities of the compass answering to the quarters whence the new winds blow. When all the mercury is thus discharged out of the tube, the wheel must be turned anew, as above, and the tube again filled therewith, by the help of a funnel, and the hole *K* presently stopped. The mercury may be collected from the several cavities of the compass by means of the cocks *z*, first noting the quantity in each. Lastly, open the hole *k*, that the mercury may again run from the glass tube thro' the same into the cavities of the compass, as before.

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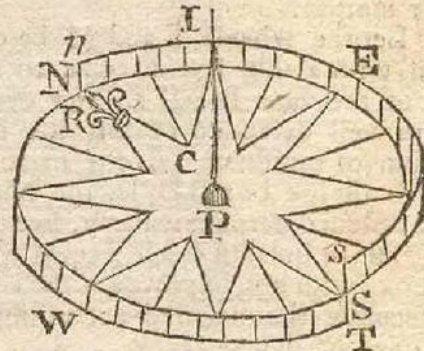
The Description of an Azimuth Compass of a new Contrivance.

Besides several other defects of the common azimuth compass, it has two very considerable ones. The first is, that it requires two observers, one to see the object through the sights, the other to note what degree of the circumference the horizontal thread answers to at the same moment. The motion of the ship renders this latter observation exceeding delicate, through

the difficulty of the two observers agreeing in the same instant, for it is not sufficient that each be justly taken; 'tis necessary that they should be contemporary too. The second defect is that the compasses in use are hardly fit for any thing but taking the sun when rising and setting, where he is the oftenest hid by clouds or vapours.

These two inconveniences I have endeavoured to remove in the construction here propos'd. I take a common azimuth compass and on the chape,

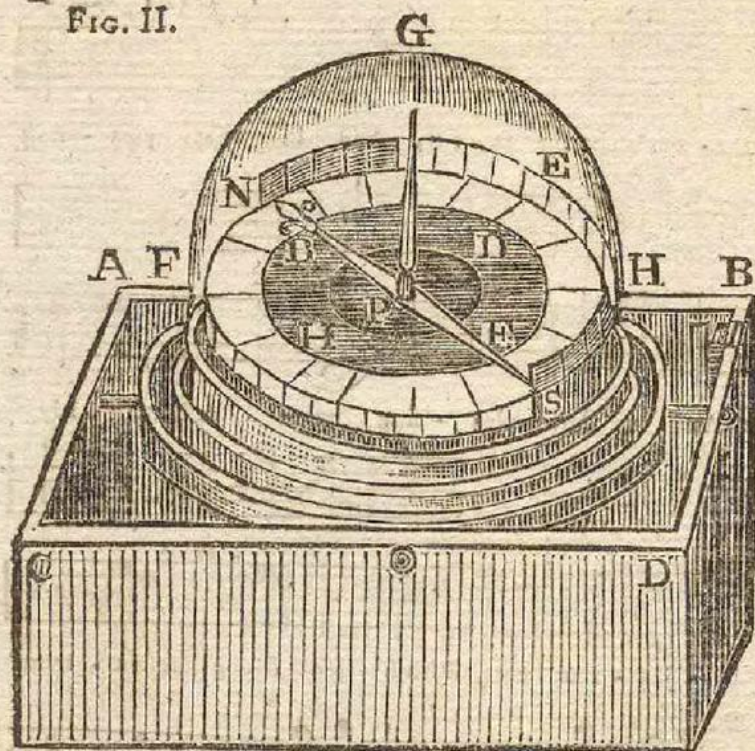
FIG. I.



which should be made as low as may be; I solder or screw a fine brass wire or stile (*Fig. I.*) *CI*, whose height is equal to the semidiameter of the compass, and set truly perpendicular to the plane of the card. On the edge of the needle, to the south *S*, along the half *NE S*, I fix an half border of paper *N n S s*, rising vertically near a quarter of an inch above the plane. I likewise fix another *N R S T* on the semicircumference *N W S*, which falls as much below the said plane, as the former rises above it. These two half borders must be divided into degrees corresponding with those on the circumference of the card. This done, I place it upon its pin and hang it in the box *ABCD*, (*Fig. II.*) and throwing a side the plane glass and the ordinary threads, I cover the compass with a semiglobular glass *AGH*, under which the vertical style may play freely.

Here the shadow of the vertical style, which would be hardly visible on an horizontal plane, may be very distinctly seen, even at the sun's rising and setting, on the vertical border. If the border had rose wholly above the plane of the card, one side thereof would have projected a shadow on the other, and obliterated that of the stile, which inconvenience is avoided by turning half of it downward, and its small weight will not affect the veering, and the middle part *BDHE* may be cut quite

FIG. II.



quite out to heighten the card if needful.

It is manifest that an instrument of this construction requires no more than one observer. The eye sees at once, by the shadow of the style on the border, at what degree the sun rises or sets, as the hour is seen on a dial. The ship may be in motion all the while; for if the needle veers well, it will preserve the same direction, and the vertical border will continue to be cut by the shadow of the style at the same degree. So much for the first advantage of this contrivance.

The second consists in the opportunity of observing the variation at any time of the day, provided

the sun be not very near the zenith, and this as readily as at the horizon, and with far more certainty than with the common compass, a very little calculation only being required therein.

A correspondent who signs *Lawrek* earnestly recommends *reflection* as an operation of the mind, which will prevent many of the calamities, and secure many of the enjoyments of life. By *reflection* he seems to mean a deliberate estimation of the whole of things, in opposition to a sudden choice of present good, which is often fallacious and momentary, the cause of regret, remorse, disease, and indigence, of every evil, both of mind, body, and estate: but as this principle is inculcated in every tract of practical morality, and as our correspondent has not urged it by any new motive, or illustrated it by any new example, the mere difference of expression will not atone for its length nor justify the publication.

A correspondent who signs *Publicus*, hopes that as a general election of members of parliament is at hand, the constituents will recommend to those whom they chuse, the procuring a law for the more easy recovery of small debts, the present method being such as produces the utmost oppression and distress, among a very numerous and useful part of the community. The bulk of every nation are below the middle class, and small debts, considered in a public view, are of more importance than large ones, because those with whom they are generally contracted suffer more by the loss of 8 or 9 pounds than those whose trade requires large credit, do by the loss of 500*l.* *Publicus* lately sued a creditor for 9*l.* after many writs had been taken out, and half a year lost in fruitless attempts to serve a copy on his person, the suit commenced, and though it did not proceed either to trial or judgment, *Publicus's* lawyer's bill amounted to seven pounds, which being taxed by the defendant was reduced to four; so that *Publicus* had 3*l.* 15*s.* to pay; and after almost a year's delay, he received only 5*l.* 5*s.* for nine pounds.

A letter signed *Yorkshire Man*, complains that being churchwarden he was put to great trouble and expence to get 1*l.* 9*s.* 9*d.* church rate of a quaker; but as the quaker paid 13*s.* besides his assessment, for an order of the Justices to distrain it, his punishment may perhaps be thought adequate to his offence; especially if his refusal to pay it voluntarily arose from the scruple of an erroneous conscience, which those, whose consciences are better informed, are in charity obliged to believe, till the contrary can be proved.

(GENT. MAG. March 1754.)

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To

When fond, you Da-mon's charms re-cite, And in that plea-sing  
 name de-light, And in that plea-sing name delight, My  
 heart, in-flam'd by jea-lous heats, With si-lent strong resent-ment  
 beats; From my pale cheeks the co-lour flies, From my pale  
 cheeks the co-lour flies, And all the man with-in me dies, And  
 all the man with-in me dies.

By turns, my hidden grief appears;  
 In rising sighs and falling tears;  
 That show too well the warm desires;

The silent, slow consuming fires;  
 Which on my inmost vitals prey,  
 And melt my very soul away.