which carries the wheel F ; then to the pinion *f,* upon which is the balance-wheel G, whoſe pivot runs in the pieces A called the *potance,* and B called a *follower,* which are fix­ed on the plate fig; 4. This plate, of which only a part is represented, is applied to that of fig. 3. in such a manner that the pivots of the wheels enter into holes made in the plate fig. 3. Thus the impressed force of the ſpring is com­municated to the wheels : and the pinion *f* being then con­nected to the wheel F, obliges it to turn (fig. 5.) This wheel acts upon the palettes of the verge 1, 2, (fig. 1.), the axis of which carries the balance HH, (fig. 1.) The pivot **I,** in the end of the verge, enters into the hole *c* in the potance A (fig. 4.) In this figure the palettes are represent­ed ; but the balance is on the other side of the plate, as may be ſeen in fig. 6. The pivot 3 of the balance enters into a hole of the cock BC (fig. 7.), a perſpective view of which is repreſented in fig. 8. Thus the balance turns between the cock and the potance *c* (fig. 4.), as in a kind of cage. The action of the balance-wheel upon the pa­lettes 1, 2 (fig. 1.), is the same with what we have deſcribed with regard to the same wheel in the clock ; *i. e.* in **a** watch, the balance wheel obliges the balance to vibrate backwards and forwards like a pendulum. At each vibra­tion of the balance a palette allows a tooth of the balance­wheel to eſcape ; ſo that the quickneſs of the motion of the wheels is entirely determined by the quickneſs of the vi­brations of the balance ; and theſe vibrations of the balance and motion of the wheels are produced by the action of the ſpring.

But the quickneſs or ſlowneſs of the vibrations of the balance depend not ſolely upon the action of the great spring, but chiefly upon the action of the ſpring *a, h, c,* called *the ſpiral ſpring* (fig. 9.), situiated under the balance H, and represented in perspective (fig. 6.) The exterior end of the ſpiral is fixed to the pin *a,* (fig. 9.) This pin is ap­plied near the plate in *a,* (fig. 6.) ; the interior end of the ſpiral is fixed by a peg to the centre of the balance. Hence if the balance is turned upon itself, the plates remaining im­moveable, the ſpring will extend itself, and make the balance perform one revolution. Now, after the ſpiral is thus ex­tended, if the balance be left to itself, the elaſticity of the ſpiral will bring back the balance, and in this manner the al­ternate vibrations of the balance are produced.

In fig. 5. all the wheels above deſcribed are repreſented in ſuch a manner, that you may easily perceive at first sight how the motion is communicated from the barrel to the balance;

In fig. 10. are repreſented the wheels under the dial-plate by which the hands are moved. The pinion *a* is adjusted to the force of the prolonged pivot of the wheel D (fig. 5.), and is called a *cannon pinion.* This wheel revolves in an hour. The end of the axis of the pinion *a,* upon which the minute-hand is fixed, is ſquare ; the pinion (fig. 10.) is indented into the wheel *b,* which is carried by the pinion a*.* Fig. II. is a wheel fixed upon a barrel, into the cavity of which the pinion *a* enters, and upon which it turns freely. This wheel revolves in 12 hours, and carries along with it the hour-hand. For a full account of the principles upon which watches and all time-keepers are constructed, we must refer our readers to a ſhort treatiſe, entitled *Thoughts on the Means of improving Watches,* by Thomas Mudge..

Watch-*glasses,* in a ſhip, are glasses employed to meaſure the period of the watch, or to divide it into any number of equal parts, as hours, half-hours, &c. ſo that the ſeveral stations therein may be regularly kept and relieved, as at the helm, pump, look-out, &c.

WATCHING, in medicine, is when the patient can­not sleep. In fevers it is a dangerous ſymptom, and if long continued ends in a delirium.

WATER, a well known fluid, diffuſed through the atmoſphere, and over the ſurface of the globe, and abounding in a certain proportion in animals, vegetables, and minerals.

The uſes of wate are ſo univerſally known, that it would be ſuperfluous to enumerate them in this article. It is eſſential to animal and vegetable life ; it makes eaſy the intercourſe between the most distant regions of the world ; and it is one of the most uſeful powers in the mechanic arts. It is often found combined with various ſubstances, and is then frequently beneficial in curing or alleviating diſeaſes.

Thoſe properties of water which fit it for answering mecha­nical purpoſes are explained in other articles of this Work (see Hydrostatics, Pneumatics, n⁰ 3. Resistance, and Ri­vers) ; but it still remains for us to give an account of the late celebrated diſcovery of the composition of water, and the vari­ous ſubstances which are often found chemically united with it.

The ancient philoſophers considered water as one of the four elements. During the age of the alchymists, when it was believed that different ſubstances could be converted into gold, it was alſo an opinion, adopted by many, that water could be changed into earth. Even ſo late as the time of Mr

lance by a silk fibre rolled round the cylindric axis of the balance. Mr Hooke, long after this, complained to the Society of Mr Oldenburgh’s communicating this and other things to Huyghens, with whom he had an intimate correspondence In 1665 Sir Robert Moray wrote a letter to Mr Oldenburgh, preſuming, from his intimacy with Mr Huyghens, that he would know how ſoon his watches would be ready, and desired him to ask Mr Huyghens, “ Whether he did not apply a spring to *the axis* of the balance ?” and if he ſhould say any thing to that purpose, then to tell him what *Hooke had done in that way,* and that he intended more. *N. B.* Before this time the treaty had been dropped, and there appeared to Sir Robert no farther need of concealment.

From theſe and other facts that might be produced, we think it most evident that Mr Hooke invented the regulating ſpring of a watch, by which it is made perfectly adequate to the purpoſe of finding the longitude at ſea ; that he invented it eight or ten years before Mr Huyghens thought of ſuch a thing, and fifteen years before he publiſhed it in the *Journal des Sçavans* in 1674.

Our readers cannot fail of making ſome remarks on this anecdote, which will perhaps extenuate a little Mr Hooke’s morose behaviour, and explain, and perhaps excuſe, his diſpofition to boast of his own inventions and arrogate thoſe of others. If any of the expressions in the article allotted to his name ſhould have made too unfavourable an impression, this note may help to ſoften it. We do not think that it can be inferred from thoſe facts that either Hautefeuille or Huyghens *purloined* Hooke’s invention. The one might fall upon it in the courſe of his many experiments ; and the other, from his mathematical diſcoveries of the requisites for iſochronous vibrations, might be induced to *try* whether ſprings afforded ſuch a force. But there can remain no doubt but that Hooke made the diſcovery like a philosopher. If to this Work any Supplement ſhall be given by the present Editor, he will endeavour still farther to wipe away the obloquy which has been cast upon the memory of Dr Hooke for his arrogance in claiming the merit of inventions supposed to be the property of others.