shaped. This is drawn in above the leather, and stretches it, and causes it to apply to the side of the pipe all around. There can be no leakage at this joint, because the water will press the leather to the smooth metal pipe; nor can there be any sensible friction, because the water gets at the edge of the leather, and the whole unbalanced pressure is at the small crevice, between the two metal shoulders. These shoulders need not touch, so that the friction must be insensible. We imagine that this method of tightening a turning joint may be used with great advantage in many cases.

We have only further to observe on this engine, that any imperfection by which the passage of the water is diminished or obstructed produces a saving of water which is in exact proportion to the diminution of effect. The only inaccuracy that is not thus compensated is when the jets are not at right angles to the arms.

We repeat our wishes, that engineers would endeavour to bring this machine into use, seeing many situations where it may be employed to great advantage. Suppose, for instance, a small supply of water from a great height applied in this manner to a centrifugal pump, or to a hair belt passing over a pulley, and dipping in the water of a deep well. This would be a hydraulic machine exceeding all others in simplicity and durability, though inferior in effect to some other constructions.

2. *Of Undershot Wheels.*

All wheels go by this name where the motion of the water is quicker than that of the partitions or boards of the wheel, and it therefore impels them. These are called the *float-boards*, or *floats*, of an undershot wheel. The water, running in a mill-row, with a velocity derived from a head of water, or from a declivity of channel, strikes on these