of a punt or lighter, riding at anchor by means of the cable DC, attached to the prow C. In this case, GQ, parallel to DC, is that part of the absolute impulse which is employed in straining the cable.

The *angle of incidence* is the angle FGC contained between the direction of the stream FG and the plane BC.

The *angle of obliquity* is the angle OGC contained between the plane and the direction GO, in which we wish to estimate the impulse.

Prop. II. The direct impulse of a fluid on a plane surface, is to its absolute oblique impulse on the same surface, as the square of the radius to the square of the sine of the angle of incidence.

Let a stream of fluid, moving in the direction DC, (Fig. 1.) act on the plane BC. With the radius CB describe the quadrant ABE; draw CA perpendicular to CE, and draw MNBS parallel to CE. Let the particle F, moving in the direction FG, meet the plane in G, and in FG produced take GH to represent the magnitude of the direct impulse, or the impulse which the particle would exert on the plane AC, by meeting it in V. Draw GI and HK perpendicular to BC, and HI perpendicular to GI. Also draw BR perpendicular to DC.

The force GH is equivalent to the two forces GI and GK; and GK, being in the direction of the plane, has no share in the impulse. The absolute impulse, therefore, is represented by GI; the angle GHI is equal to FGC, the angle of incidence; and therefore GH is to GI as radius to the sine of the angle of incidence: Therefore the direct impulse of each particle or filament is to its absolute oblique impulse as radius to the sine of the angle of incidence. But further, the number of particles or filaments which strike the surface AC, is to the number of those which strike the surface BC as AC to NC; for all the filaments between LA and MB go past the oblique surface BC without striking it. But BC : NC = rad. : sin. NBC, = rad. :