0,18085), or $\frac{1}{10}$th of the diameter. It is evident, that if only $\frac{1}{2}$ of this water were supplied to each bucket as it passes the spout, it would have been retained for 10^0 more of a revolution, and the loss of fall would have been only about $\frac{1}{18}$th.

These observations serve to show, in general, that an advantage is gained by having the buckets so capacious that the quantity of water which each can receive as it passes the spout may not nearly fill it. This may be accomplished by making them of a sufficient length, that is, by making the wheel sufficiently broad between the two shroudings. Economy is the only objection to this practice, and it is generally very ill placed. When the work to be performed by the wheel is great, the addition of power gained by a greater breadth will soon compensate for the additional expense.

The third plane CD is not very frequent; and millwrights generally content themselves with continuing the board all the way from the elbow B to the outer edge of the wheel at H; and AB is generally no more than $\frac{1}{3}$d of the depth AI. But CD is a very evident improvement, causing the wheel to retain a very sensible addition to the water. Some indeed make this addition more considerable, by bringing BC more outward, so as to meet the rim of the wheel at H, for instance, and making HD coincide with the rim. But this makes the entry of the water somewhat more difficult during the very short time that the opening of the bucket passes the spout. To facilitate this as much as possible, the water should get a direction from the spout, such as will send it into the buckets in the most perfect manner. This may be obtained by delivering the water through an aperture that is divided by thin plates of board or metal, placed in the proper position, as we have represented in Fig. 6. The form of bucket last mentioned, having the wrest concentric with the rim, is unfavourable to the ready admission of the water; whereas an oblique