The theory of turbines is too intricate a subject to be considered in this treatise. For a general classification of turbines, with descriptions, illustrations, and discussions of these machines, as well as for a further development of hydraulic machines in detail, the student is referred, among other treatises, to the following: Fairbairn's Millwork and Machinery, Colyer's Water-Pressure Machinery, Barrow's Hydraulic Manual, Glynn's Power of Water, Prof. Unwin's Hydraulics.

EXAMPLES.

1. In a hydrostatic bellows (Fig. 70), the tube A is $\frac{1}{8}$ of an inch in diameter, and the area DE is a circle, the diameter of which is a yard. Find the weight which can be supported by a pressure of 1 lb. on the water in A.

Ans. 82,944 lbs.

2. Describe the siphon and its action. What would be the effect of making a small aperture at the highest point of a siphon?

3. A prismatic bell is lowered until the surface of the water within is 66 feet below the outer surface; state approximately how much the air is compressed.

Ans. To $\frac{1}{3}$ of its original volume.

4. If a prismatic bell 10 feet high be sunk in sea water until the water rises half way up the bell, find how far the top of the bell must sink below the surface, the temperature remaining the same.

Assume the water barometer = 33 feet for sea water.

Ans. 28 feet.

5. In the position of the bell in Ex. 4, find how much air must be forced into it in order to keep the water down to a level of 2 feet from its bottom.

Ans. 0.72 W, where W is the weight of the air in the bell when at the surface.