If the loan of an anemometer cannot be obtained, a simple form of wind-pressure meter should be used to determine the right weight (R, fig. 49) required to just hold the windmill sails at the velocity decided upon. Such an apparatus is sketched in fig. 76. It is merely a sheet of stout cardboard, 2 feet × 1 foot, hung on one of the narrow edges by a hinge of linen, the middle of the lower edge being connected as shown to a small spring letter balance capable of reading up to at least one pound. A table of wind-pressures and velocities is given below, by which any pressure registered can be converted into velocity. The pressure-board must, of course, squarely face the wind blowing at the time of the experiment. Note that the spring

balance is just at zero when no wind is impressed on the board, or a false reading may be obtained. If made to the given sizes, the

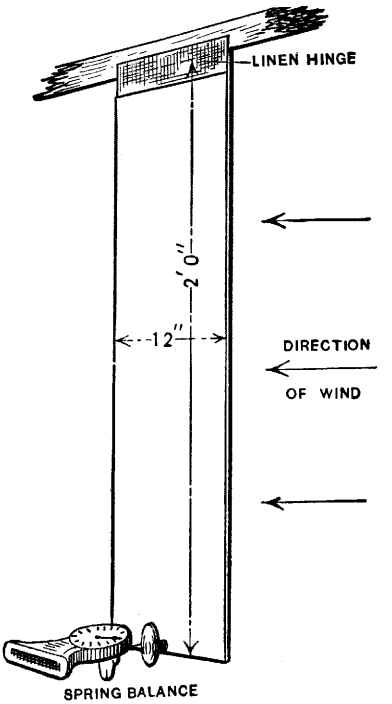

FIG. 76.—A Simple Wind-pressure Gauge.

readings will be direct measurements of the pressure per square foot.

The brake horse-power of a windmill can be taken in exactly the same way as that of a steam-engine, the only difficulty being the usual unsteadiness of the wind. At a time when the wind is fairly steady and about right in velocity,

such a test should be made, one observer watching the pressure-meter and noting the pressure, say, every half-minute, another reading the spring balance of the brake at similar intervals, the test lasting for a quarter of an hour. Average results may then be obtained, which may be extremely useful for determining the size of dynamo required, it being remembered that the power of the wind varies (theoretically) directly as the cube of its velocity. In practice the variation rate lies between this and the *square* of the velocity.

TABLE OF WIND PRESSURE AND VELOCITIES.

Miles per hour.	Feet per minute.	Feet per second.	Force in lbs. per sq. foot.	Description.
1	88	1.47	.005	Hardly perceptible.
2	176	2.93	.020	Just perceptible.
3	264	4.4	.044	
4	352	5.87	.079	Gentle breeze.
5	440	7.33	.123	
10	880	14.67	.492	Pleasant breeze.
15	1320	22	1.107	
20	1760	29.3	1.968	Brisk gale.
25	2200	36.6	3.075	
30	2640	44	4.428	High wind.
35	3080	51.3	6.027	
40	3520	58.6	7.872	Very high wind.
45	3960	66	9.963	
50	4400	73.3	12.300	Storm.
60	5280	88	17.712	Great storm.
70	6160	102.7	24.108	
80	7040	117.3	31.488	Hurricane.
100	8800	146.6	49.200	