GIERAL CONDITIONS.

It is inforred, therefore, that inventors who begin by working upon an artificial motor, and who endeavor to ovolve a complete flying machine at once, are beginning at the wrong end, and are leaving behind them two very important pro-requisites.

lst. That the apparatus shall pessess sutematic stability and safety under all circustances.

and. That the apparatus shall be so light and small as to be easily controlled in the wind by the personal strength of the operator.

The general stability in the line of flight, the steering, can be obtained by a raider, but the automatic equilibrium must be secured in two directions; first transversely to the apparatus, and secondly fore and aft. Very good results have been automatically obtained for the transverse stability by imitating the attitude of the searing birds, the underlying principle of which consists in a slight dihedral angle of the wings with each other, either upward or downward, but the very best application of this principle is not yet evolved, and it requires more experimenting. Experimenters have found but little difficulty in securing stability in this transverse direction, but it must be worked out more thoroughly.

The longitudinal equilibrium is, however, the most precarious and important. I have tested three methods of securing it automatically.

First, by setting the tail at a slight upward angle