In this paper, it is shown, using a geometrical approach, the isotropy of the velocity of light measured in a rotating frame in the Minkowski space-time, and it is verified that this result is compatible with the Sagnac effect. Furthermore, we find that this problem can be reduced to the solution of geodesic triangles in a Minkowskian cylinder. A relationship between the problems established on the cylinder and on the Minkowskian plane is obtained through a local isometry.