$\pi_1(\mathcal{M}(f,g)) \cong \operatorname{colim}(\pi_1(Y_1,f(x_0)) \stackrel{f_*}{\longleftarrow} \pi_1(X,x_0) \stackrel{g_*}{\longrightarrow} \pi_1(Y_2,g(x_0)))$