links, such as c and a, and thus the turning moment on a necessary to accelerate the different links may be found.

DETERMINATION OF THE STRESSES IN THE PARTS DUE TO THEIR INERTIA

The method just described may be used to find the bending moment produced in any link at any instant due to its inertia. Any part such as the connecting rod of an engine is subject to stresses due to the transmission of the pressure from the piston to the crank pin, but in addition to this the rod is continually being accelerated

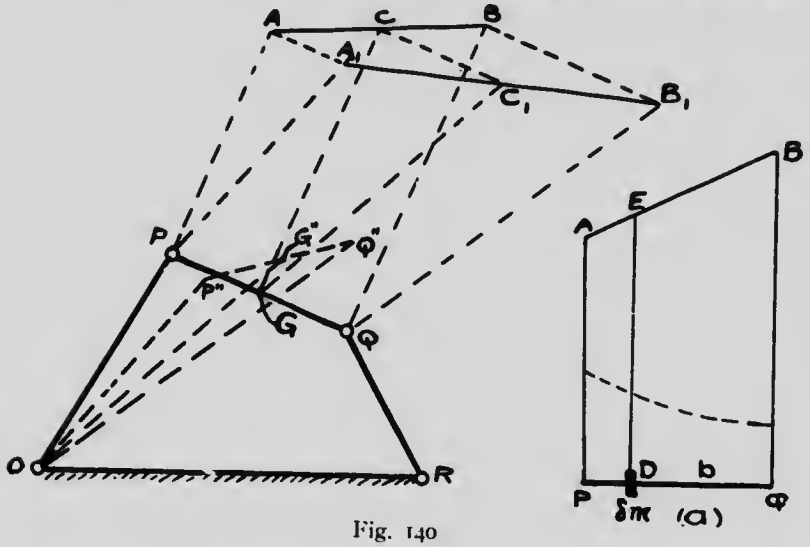

Fig. 140

and retarded, these changes of velocity producing bending stresses in the rod and these latter stresses may now be determined.

To make the case as general as possible, let $OPQR$, Fig. 140, represent a machine for which the vector acceleration diagram is $OP''Q''O$, it is required to find the bending moment in the rod b due to its inertia. Lay off at each point on b the acceleration of that point, thus make PA_1, GC_1, QB_1 etc., equal and parallel respectively to OP'', $OG,''$ OQ'' etc., obtaining in this way the curve $A_1C_1B_1$.

Now resolve the accelerations at each point in b into two parts, one normal to b and the other parallel to the link. Thus PA is the acceleration of P normal to b, and GC and QB are the correspond-