Abstract: Defendants in patent infringement cases are permitted to defend on the grounds that the infringed upon patent is invalid. This defense, which we call a patent challenge, is intended to correct the problem that the Patent and Trademark Office may grant patents that are invalid and invalid patents impose deadweight loss without the offsetting benefit of spurring innovation. Patent challenges are intended to weed out these invalid patents. Unfortunately, patent challenges have an important cost. Often defendants challenge truly valid patents and sometimes courts mistakenly invalidate those patents. In these cases, challenges reduce the returns to valid patents and discourage valuable innovation. In this paper we ask whether it is possible to reduce the cost patent challenges impose on valid patents without hampering their utility in weeding out invalid patents. In parallel, we ask whether it is possible to discourage frivolous suits based upon invalid or uninfringed patents without hampering legitimate assertions of valid patent rights. We consider the merits of an English Rule for patent challenges and a patent extension for patent holders that prevail in patent challenges. We also consider the benefit of applying these reforms only for industries where patents are less likely to invalid, such as biotech, chemicals and machinery.