

Chapter IV

SELF-PROPELLED AGRICULTURAL STEAM ENGINES

ALTHOUGH the portable steam engines were fairly satisfactory for threshing grain during the third quarter of the nineteenth century, they possessed one serious mechanical weakness: they were not self-propelled.¹ Unable to move under their own power, their use was necessarily limited to belt operations, leaving all draft work to be performed by oxen or horses. That successful self-propelled machines failed to reach the farms until the 1870's was not due to deliberate neglect on the part of inventors; in fact, efforts to build engines capable of traveling over common roads or pulling implements across fields were almost as old as the steam-engine industry itself. As early as 1769, Nicholas Cugnot drove a steam carriage through the streets of Paris.² By 1833 there were about twenty road locomotives in England which were transporting passengers over the highways at fifteen miles an hour.³ However, unreasonable legal restrictions imposed by Parliament tended to discourage the use of steam carriages, and inventors devoted more attention to railroad building.⁴

As railroad locomotives and steamboats demonstrated their practicality, farmers in Great Britain in growing numbers became interested in the possibility of securing self-propelled farm engines for plowing and cultivating the soil. More power appeared essential, especially during the fall plowing season which followed harvest and preceded the autumn rains. One farmer tilling four hundred acres of heavy clay soil complained in 1840 that he needed seventy horses for plowing during August and September, but fifteen could do all the farm work the rest of the year.⁵ During the 1850's, the Royal Agricultural Society offered a prize of £500 to the person who built a successful steam plow.⁶

Meanwhile numerous inventors were at work on this problem. Mr. Heathcothe, of Tiverton, tried in 1832 to plow with an ingenious system of ropes and pulleys powered by a stationary engine, but the machinery was too complex to merit adoption.⁷ James Boydell demonstrated a self-propelled engine near Louth in 1857, where, accord-