## A NOTE ON ENGINES WITH BEVEL-GEAR DRIVES

In the August-September 2010 issue of Engineers and Engines, Thomas G. Downing asked which companies used the bevel-gear drives that the Cooper firm in Mt. Vernon, Ohio, licensed to other builders of farm steam engines. Colonel George Rogers, Elias Cooper's son-in-law, filed his bevel-gear patent on October 6, 1875. He was granted the patent on February 15, 1876. The patent number was 173,498. As the Rogers gear was widely employed for a brief interval in history, the writers of Cooper ads exaggerated Cooper's claim to being the first company to produce a successful traction engine in the United States. Two of Jack Alexander's books (entitled Steam Power on California Roads and Farms and The First American Farm Tractors: Developments to 1917) prove that California firms had produced plenty of successful traction engines prior to Cooper's bevel-gear engines. Owens, Lane & Dyer in Cooper's home state had built successful traction engines before Cooper did. My research is bringing to light a considerable traction engine business in Newark, Ohio, that predated the Rogers patent by over twenty years.

Thomas, who is author of *A History of The Russell & Company of Massillon, Ohio*, acknowledges that Russell was licensed by Cooper under the Rogers patent, and he observes that the firm of Aultman & Taylor was another licensee. Thomas quotes a source as stating that five firms held licenses, and he asks readers to identify the three that he has not named.

One of them was the J. I. Case Threshing Machine Company. On page 179 of 150 Years of J. I. Case, C. H. Wendel writes, "In 1878 J. I. Case began building some traction engines. These apparently used the Cooper patented attachment by 1879."

Another was the Nichols & Shepard Company. On pages 3 through 5 and 7 in the September-October 1953 issue of *The Iron-Men Album Magazine*, Hans J. Andersen offers a history of the firm and includes a cut of the Nichols & Shepard bevel-gear engine. (Incidentally, on pages 20 through 21 of the February-March 1999 issue of *Engineers and Engines Magazine*, By Robert T. Rhode

a submission by Thomas Stebritz includes cuts of both the Russell and the Nichols & Shepard bevel-gear engines.)

A third firm that employed a bevel-gear arrangement was the Birdsall Engine Company. The Birdsall mechanism is distinctly different from that of Cooper, Case, Nichols & Shepard, and Russell. (See photographs in *The Steam Tractor Encyclopedia* that John F. Spalding and I wrote.) It is so different that I wonder whether Birdsall paid a licensing fee to Cooper. Perhaps a Birdsall aficionado can enter this conversation to clarify the matter. Meanwhile, if Thomas would report his source, we could begin to determine if the source is trustworthy in its claim that only five firms were licensed under the Rogers patent.

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Ad from an old American Thresherman Magazine. From the collection of Morris Young.