To all whom it may concern:

Be it known that I, JOSEPH SIDNEY NEWLIN, of Fairfax, in the county of Barnwell and State of South Carolina, have invented a new and useful Improvement in Locomotive-Boilers, of which the following is a specification.

My invention is in the nature of an improvement in locomotive boilers designed to secure a more perfect utilization of the fuel, and a greater amount of heat.

It consists in the peculiar means for returning the flames and hot currents through the flues of the boiler as hereinafter fully described.

Figure 1 is a vertical longitudinal section of a locomotive furnace and boiler and Fig. 2 is a detail view of one of the parts.

G and H are the flues of the boiler through which the hot currents pass from the fire box to the smoke stack. At the ends of these flues I provide what I call "return ends" F. These consist of U-shaped tubes each having its two legs or branches a' a' made tapering and provided exteriorly with screw threads of deep cut and thin threads. The outside bends of these "return ends" are made thick and heavy with a sort of anvill head to permit hammering thereon without damage to the piece. These "return ends" are designed to be driven into two adjacent fire flues G H, so as to take the currents that pass forwardly in one flue G and return them backward through the adjacent flue H, and then forward again into the smoke box through another flue G, thus securing a much longer travel of the hot currents through the boiler and a better utilization of the heat. The screw threaded ends on the "return ends" are not to be rotated or turned in, but are to be driven in by blows of a hammer delivered on the anvill heads of the "return ends," the thin screw threads under this treatment being mashed to a close fit and holding firmly to the inner edges of the flues when so driven to place.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The "return ends" F having a thickened anvill head and tapered branches having deep threads cut thereon substantially as shown and described.

2. The combination with the flues G H in a boiler of the "return ends" F having a thickened anvill head and tapered branches having deep threads cut thereon substantially as shown and described.

JOSEPH SIDNEY NEWLIN.

Witnesses:

J. W. WILLIAMS,
G. S. O'NEAL.