(No Model.)

B. B. FARRIS.

BOILER FLUE BEADER.

No. 440,474. Patented Nov. 11, 1890.

Fig: 1.

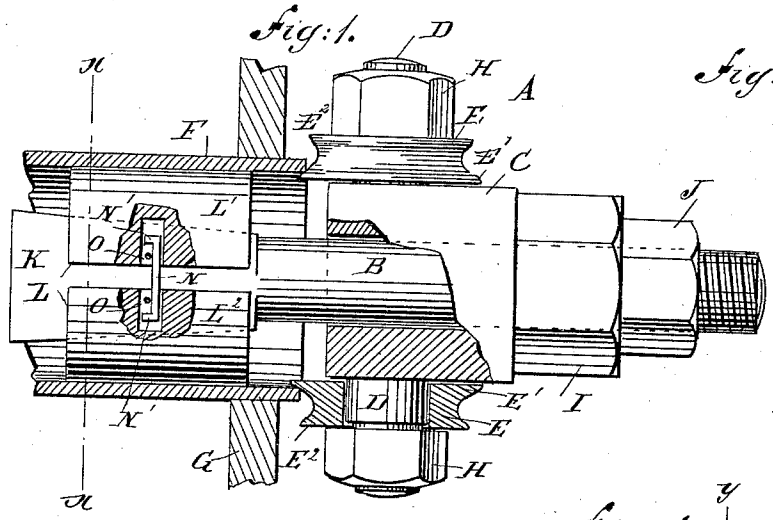


Fig: 5.

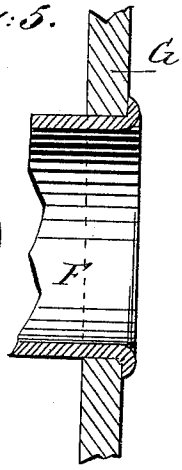


Fig: 3.

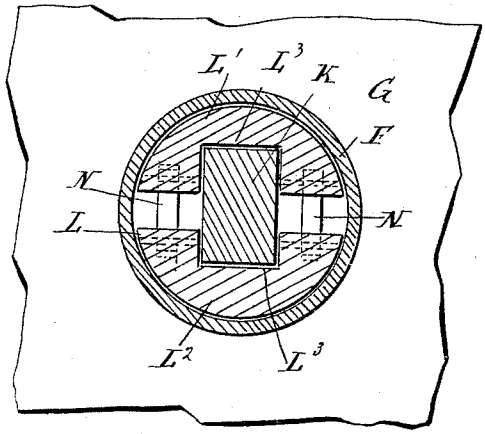


Fig: 4.

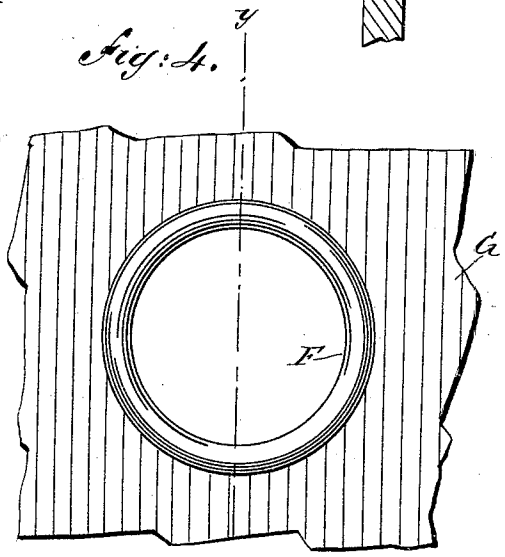
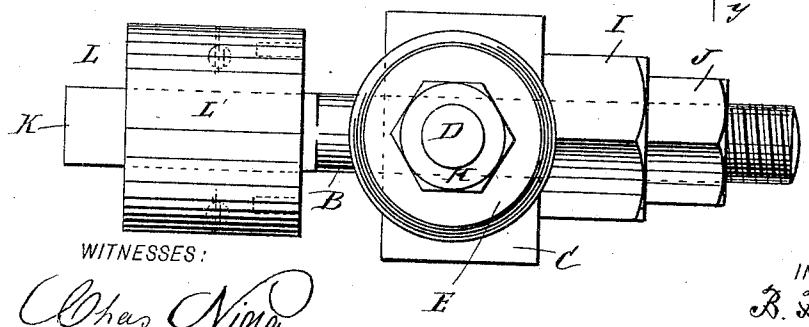


Fig: 2.



WITNESSES:

Chas Nichols.

C. Sedgwick

INVENTOR:

B. B. Farris

BY Munn & Co

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN BLANTON FARRIS, OF ROCKY FORD, GEORGIA.

BOILER-FLUE BEADER.

SPECIFICATION forming part of Letters Patent No. 440,474, dated November 11, 1890.

Application filed April 18, 1890. Serial No. 348,485. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN BLANTON FARRIS, of Rocky Ford, in the county of Screven and State of Georgia, have invented a new and Improved Boiler-Flue Beader, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved boiler-flue or tube beader which is simple and durable in construction and very effective in operation, requiring no skilled labor to form a perfect and smooth bead on the end of the flue or tube.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied and with parts in section. Fig. 2 is a plan view of the improvement. Fig. 3 is a transverse section of the same on the line *x x* of Fig. 1. Fig. 4 is a face view of the bead as formed on the head, and Fig. 5 is a sectional side elevation of the same on the line *y y* of Fig. 4.

The improved boiler-flue beader A is provided with a bolt B, on which is mounted to turn loosely a block C, provided on two opposite sides with pins or studs D, standing radially to the bolt B, and on which are mounted to turn loosely grooved beading-rollers E, adapted to engage the outer edges of the tube or flue F, already expanded in the head G of the boiler. The beading-rollers E are held in place by nuts H, screwing on the threaded ends of the studs D and permitting the said rollers to revolve freely.

On the outer end of the block C is formed a square or inclined offset I, adapted to be engaged by a suitable wrench so as to impart a turning motion to the block C. The latter is free to slide on the bolt B, and is moved inward with its beading-rollers against the end of the tube F by a nut J, screwing on the outer threaded end of the bolt B and abutting against the offset I.

On the inner end of the bolt B is formed a wedge K, which is adapted to slide through a sectional collar L, preferably made of two parts L′ and L^2, each provided on its inside with a recess L^3, engaging the wedge K, as is plainly illustrated in Fig. 3.

In order to hold the sectional parts L′ and L^2, bars N are provided, extending through recesses in the parts L′ and L^2, and each provided at its ends with a flange N′, adapted to engage a pin O, held in the respective part L′ or L^2 in the recess of the same. (See Fig. 1.) The bars N permit the two sectional parts L′ and L^2 to move together or to be drawn apart without the one becoming detached from the other.

Each of the beading-rollers E is provided with an inner long annular flange E′ and an outer flange E^2, which is somewhat shorter, and between the two flanges is formed an annular groove.

The operation is as follows: In order to place the beader in position, the collar L is passed with the wedge K of the bolt B into the end of the tube F to about three-eighths of an inch beyond the outer end thereof, as is plainly shown in Fig. 1. The beading-rollers E then engage with their flanges E′ the inside of the tube F at its outer end, and when the operator now turns the block C by applying a wrench on the offset I, as previously described, and at the same time screwing up the nut J, then the beading-rollers are forced firmly in contact with the outer end of the flue or pipe F, as the bolt B, on which the block turns, is securely locked in place in the collar L by its wedge K pressing the sectional parts L′ and L^2 of the said collar apart, on which they are firmly locked within the tube, and the further outward movement of the bolt is prevented. By the operator continuing the turning of the block C and the screwing up of the nut J the beading-rollers E form the projecting end of the tube F into a bead, as is plainly shown in Figs. 4 and 5, the beading overlapping the head G and being smooth and round, as the said rollers exert an equal pressure on all the parts of the projecting end of the tube F.

It will be seen that the pressure of the beading-rollers on the end of the tube extends from the inside to the outside, so that the said end is forced to overlap the head G.

It is understood that for various-sized tubes

different-sized blocks C and beading-rollers E are employed.

When the beading has been accomplished, the nut J is turned in an opposite direction, so as to loosen the block C and its beading-rollers, after which the bolt B is moved inward slightly, so as to slide in the sectional collar L, which is thus freed from the tube F, and all the parts can now be removed from the latter.

It will be seen that the device is very simple and durable in construction, can be readily applied, and requires no skilled labor whatever to form the bead on the end of the tube or flue F. It will further be seen that it requires but a short time to form a complete and smooth bead on the end of a tube.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A flue-beader comprising the longitudinally-divided collar L, having inclined angular recesses L^3 in the adjacent faces of its sections forming a wedge-shaped bore, and the rod B, having an angular wedge K at its inner end working in said bore to expand the collar, and a rotary block mounted on the rod beyond its wedge and provided with rollers, substantially as set forth.

2. A flue-beader comprising the rod B, having an angular wedge K on its inner end, and the longitudinally-divided collar L, having the adjacent faces of its two parts provided with recesses L^3, corresponding with the shape of the wedge, and links or bars connecting the two sections of the collar to prevent it from becoming disconnected from the wedge, and a rotary block on the forward part of the bar provided with beading-rollers, substantially as set forth.

3. In a flue-beader, the block C, having a round bore of even diameter, radial studs D on its outer faces, and a polygonal outer end I, beading-rollers turning on said studs, and nuts on the outer ends of the studs holding the rollers in place, substantially as set forth.

4. A flue-beader consisting in the round rod B, having an angular wedge K on its inner end and a screw-threaded forward end, the intermediate portion of the rod being plain and of even diameter, a longitudinally-divided expansible collar L, having a bore corresponding to the shape of the wedge, a block C, mounted to rotate on the plain portion of the rod, and having radial exterior studs and a polygonal end I, and removable beading-rollers on the said studs, substantially as set forth.

BENJAMIN BLANTON FARRIS.

Witnesses:
G. W. LEE,
J. E. C. TILLMAN.