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APPARATUS FOR PRODUCING FLUTED COLUMNS OF SHEET METAL.

APPLICATION FILED DEC. 16, 1920.

1,420,608. Patented June 20, 1922.

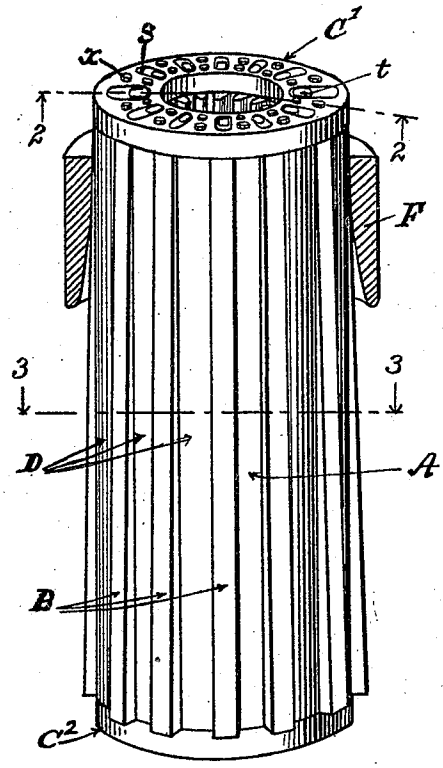


Fig. 1.

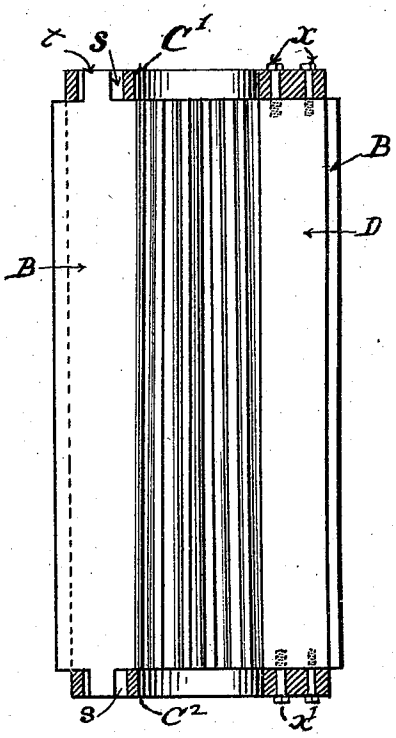


Fig. 2.

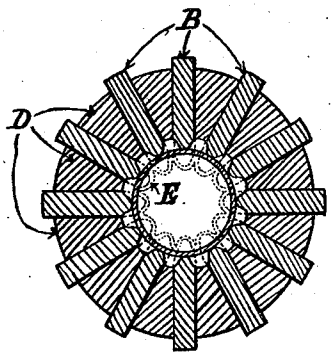


Fig. 3.

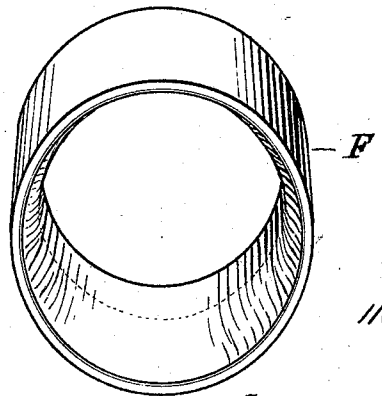


Fig. 4.

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APPARATUS FOR PRODUCING FLUTED COLUMNS OF SHEET METAL.

1,420,608. Specification of Letters Patent. Patented June 20, 1922.

Application filed December 16, 1920. Serial No. 431,196.

To all whom it may concern:

Be it known that I, WILLIAM ANDREW, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Apparatus for Producing Fluted Columns of Sheet Metal, of which the following is a specification.

The lamp-posts in common use for street lighting and analogous use, have usually been formed by foundry casting, involving considerable expenditure of material and also of labor in machining and otherwise dressing to produce the proper finish.

My invention is designed to produce such posts largely of sheet metal in which the "fluting" effect is preserved and utilized as a means of strengthening the column; and is co-ordinated with a suitable cast metal base, and also with a cast ornamental head piece.

To this end the invention consists in the method of and apparatus for forming a fluted, slightly tapering, column from a sheet metal "blank" of conical form. The blank is formed as a tube by being bent over a suitable former and is of sufficiently enlarged diameter to allow for the reduction effected by the "take up" of the fluting process, and is preferably united by electric welding or otherwise at the meeting edges of the blank when bent to initial form. The flutes or corrugations provided as herein set forth are relatively shallow.

The column thus formed is fitted to enter and engage a permanent base, and likewise to a head piece usually of ornamental form, and these may be securely held to the column by tie-rods bolted to the head and base through the central aperture of the column; but, as these form no part of my invention, they are not shown herein. It will of course be understood that the corrugations act as stiffeners to the column, and thus a practical lamp-post is formed at a considerable reduction of expense both for material and labor, and in certain features of apparatus adapted to act upon the blank and produce the fluted effect.

Drawings illustrating the invention are appended hereto as part of this specification, in which—

Fig. 1 is a perspective elevation of the general apparatus showing the casing in full, and the compression-ring diametrically sectioned;

Fig. 2 is an axial cross section of the casing on the line 2—2 of Fig. 1, showing the bars of the casing and the compression-slides operating radially between said bars;

Fig. 3 is a horizontal mid-section through the casing and its parts on the line 3—3 of Fig. 1, showing the position and relation of the compression-slides to the work; and

Fig. 4 is a perspective end-view of the compression-ring detached.

Referring now to the drawings; A designates a cylindrical casing having equidistant radial openings extending nearly the entire length as parallel "slots" to admit the compressing slides B severally therein, with radial movement. The casing is preferably made up of flat rings C^1 C^2, constituting the ends or heads of the casing, with a series of parallel braces D fixedly secured by screws x at their opposite ends to and between the casing heads C^1 C^2, leaving continuous parallel slots from end to end terminated by the heads C^1 C^2 and admit the compression slides B to a close sliding fit sidewise in a radial centripetal movement. At their inner sides the compression slides are curved or beveled to an approximate V-shape, intended, by centripetal pressure of the slides exerted simultaneously upon the blank by the converging radius contacts of the inner edges of the adjacent slides upon the blank, causes the material of the blank to "buckle" outwards into the space between the slides, each forming a continuous longitudinal arch constituting the "rib" of the corrugation.

The heads C are provided with short radial equidistant slots s (Fig. 2) intervening between the braces D in which enter short tongues t projecting at each end of the compression slides as guide and retaining members, and allow sufficient movement for the compressing action.

The compression ring F is an externally cylindrical ring, internally cylindrical for part of its length, to fit and move axially upon the external surface of the casing and the outer surface of the slides; and is thence expanded slightly outward to ease the sliding engagement of the ring upon the slides in centripetal compression as it forces them gradually inward flush with the exterior of the casing.

Suitable means exist (as in apparatus for applying hydraulic pressure) to move the compression ring F downward upon the cas-

ing thereby forcing the inner edges of the compression slides B against the blank E centripetally to produce the corrugated effect as in Fig. 3. In addition to the blank E a suitable "former" having an externally fluted surface may be employed, in which the V-shaped edge of the compression slides may move into the depressions of the former; but such former is not regarded as a necessity. It will be noted that by this process the metal is forced to occupy less circumferential space and is thus condensed and consequently rendered stronger to resist strains.

The term "fluted," as used herein, includes a column whose cross section may be a pentagon in which the outer angles constitute a fluting effect in the nature of corrugations.

I claim as my invention and desire to secure by Letters Patent of the United States:

1. In an apparatus for fluting sheet metal for street lamp supports and other uses, the combination of a hollow cylindrical casing adapted to receive a sheet metal blank bent approximately to cylindrical form; said casing being provided with closely associated equi-distant slots through said casing parallel to its axis; a corresponding series of slides adapted to be moved radially in said slots as guides and impinge upon said blank; and means for applying external pressure centripetally to the slides simultaneously.

2. A mechanism for "fluting" or "corrugating" sheet metal columns comprising a hollow cylindrical casing having closely associated equi-distant slots parallel to the longitudinal axis of the casing; a corresponding series of slides having beveled or curved inner edges and radially movable in said slots; and a circumferential compression ring having a sliding fit exteriorly upon the slotted casing and the outer edges of the slides whereby a longitudinal movement of the compression ring forces the slides centripetally inward simultaneously against a centrally disposed blank which is thereby caused to "buckle" in corrugations.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM ANDREW.

Witnesses:

NORMA D. BERGER,

CARL PHARES.