June 5, 1923.

1,457,579

H. W. KRANZ

METHOD AND APPARATUS FOR SHAPING AND TRIMMING BRAKE DRUMS

Filed Jan. 7, 1921

2 Sheets-Sheet 1

Fig. 1

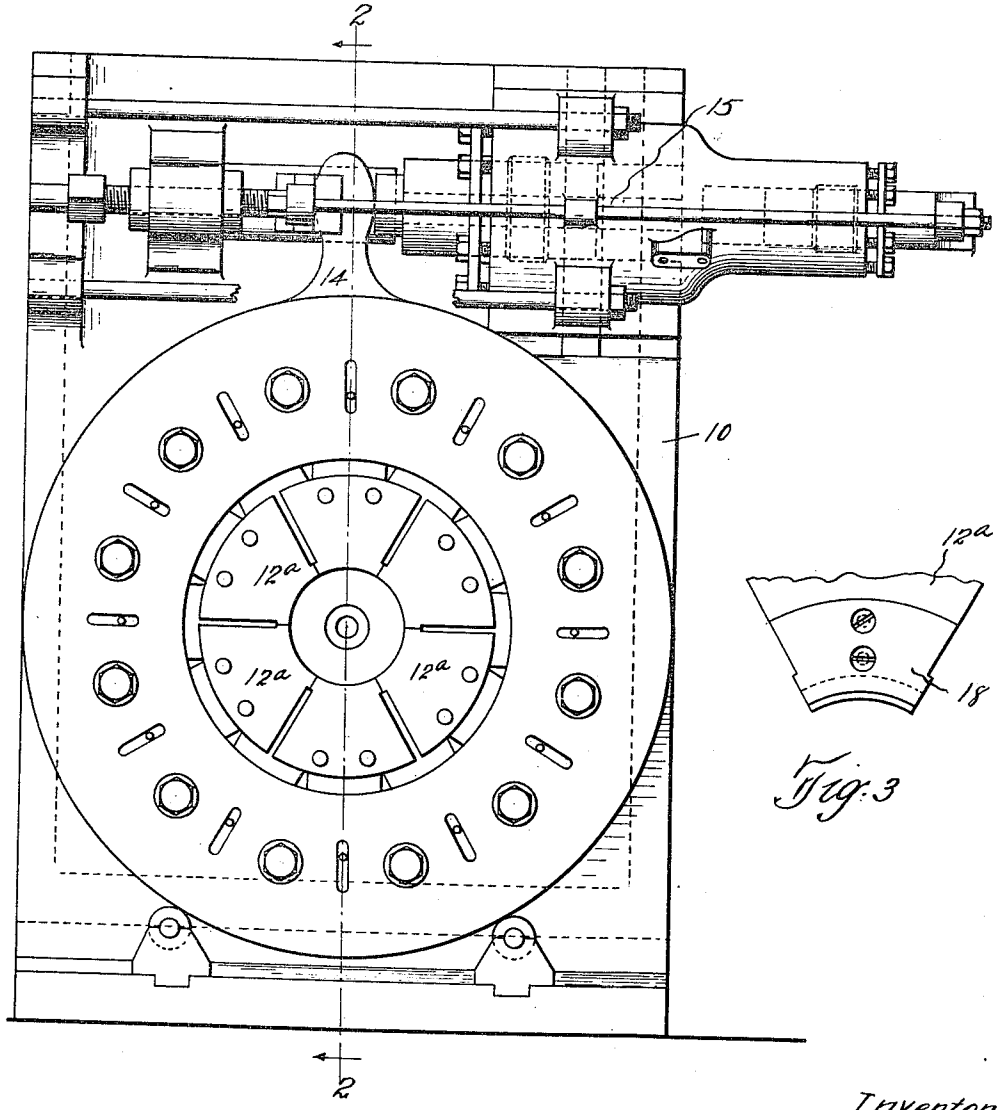


Fig. 3

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Fig. 4

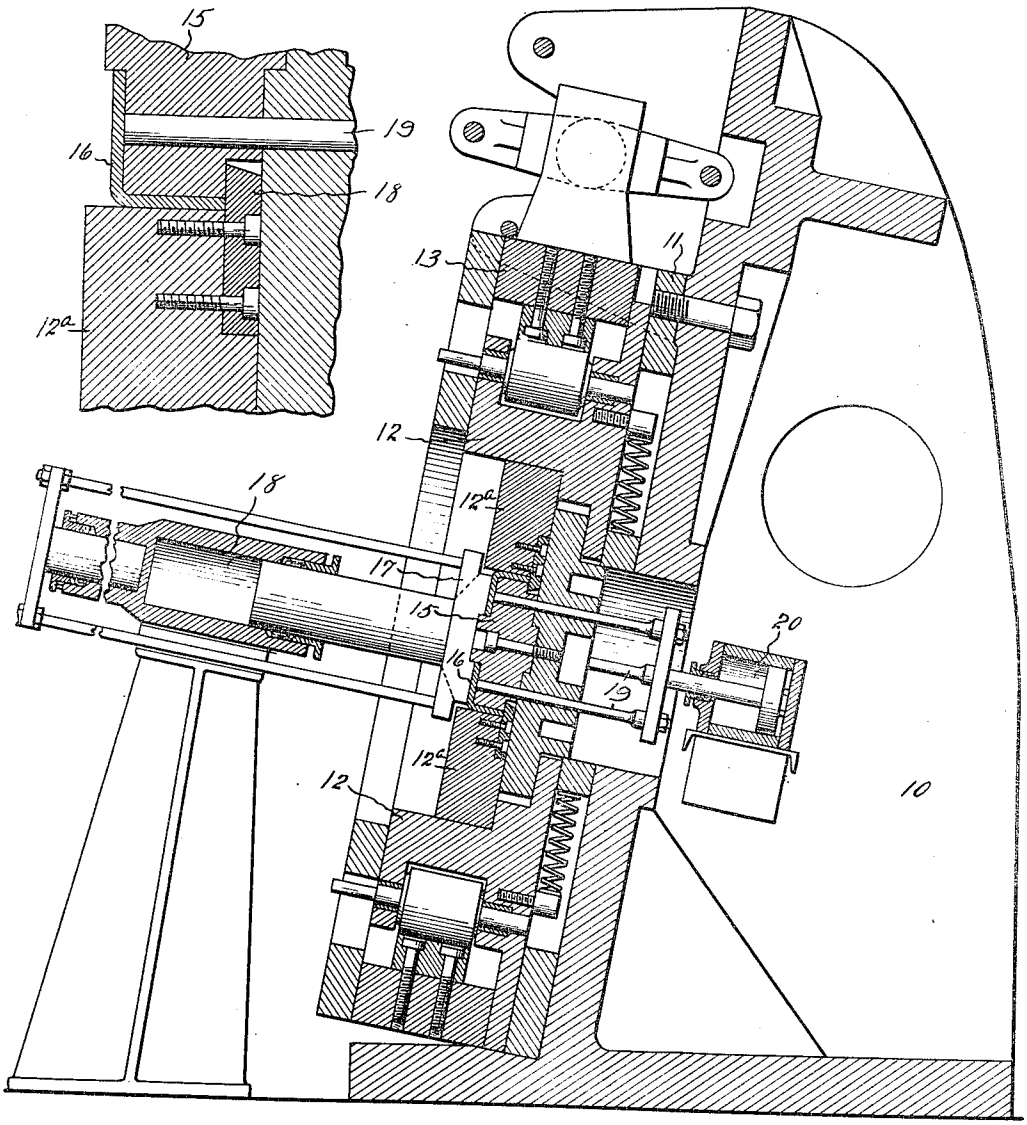


Fig. 2

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Patented June 5, 1923. 1,457,579

UNITED STATES PATENT OFFICE.

HARRY WM. KRANZ, OF CLEVELAND, OHIO, ASSIGNOR TO THE HYDRAULIC STEEL COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

METHOD AND APPARATUS FOR SHAPING AND TRIMMING BRAKE DRUMS.

Application filed January 7, 1921. Serial No. 435,655.

To all whom it may concern:

Be it known that I, HARRY W. KRANZ, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Methods and Apparatus for Shaping and Trimming Brake Drums, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a novel method and apparatus for truing and shaping and trimming brake drums fashioned of heavy sheet metal. In the fabrication of these drums it frequently happens that they are somewhat non-circular in shape and also out of plane and in addition to these imperfections the flange is somewhat wider at some points than others. These imperfections require correction before the brake drum can be used upon an automobile wheel and it is with the idea of imparting the final correct shape and dimensioning the flange that the present method and apparatus has been devised. With these objects in view the invention consists broadly in arranging a sheet metal brake drum upon a suitable mandrel or support and subjecting the flange thereof to external radial pressure whereby the said flange is brought to a true and definite sized circle and at the same time pressure is applied to the face of the brake drum in order to prevent bulging and correct any inaccuracies and preferably simultaneously with the sizing and shaping operations, I provide for trimming off any surplus material from the edges of the flange of the drum. The invention consists also in certain details hereinafter fully described and set forth in the appended claims.

In the drawings forming a part of this specification, Fig. 1 is a central vertical section partly in elevation; Fig. 2 is a sectional elevation taken on the line 2—2 of Fig. 1; Fig. 3 is a detail face view of one of the shrinker block sections with the trimming or shearing knife applied thereto; and Fig. 4 is an enlarged detail sectional view of the supporting mandrel, shrinker block sections and shearing blades.

In the practical embodiment of my invention I employ a main frame 10 upon which is mounted a ring 11 which carries a plurality of segments or blocks 12 which are operated by means of a shrinking ring 13 having an outwardly extending member operated upon by a suitable hydraulic cylinder mechanism 15 so that by operating this mechanism the shrinking ring 15 is moved back and forth, which movement in turn serves to actuate the shrinker blocks 12 and their sections 12^a.

The construction of the main frame, ring and shrinker blocks form no part of the present invention, they being the same as shown and described in the application of George C. Brainard, filed January 7, 1921, Serial No. 435,654, and consequently a detailed description of these parts will not be necessary at this time.

In addition to the shrinker blocks the main frame and ring also carry a mandrel 15 upon which the brake drum 16 is adapted to fit and after the brake drum has been fitted upon this mandrel the shrinker blocks are moved radially inward so as to exert the proper external radial pressure upon the flange of the brake drum. At the same time the sizing mandrel 17 is forced against the face of the brake drum by means of a hydraulic jack 18 and in connection with each shrinker block section 12^a I arrange a trimming knife or blade 18, these parts being arranged upon the inner face of the shrinker block section and projecting inwardly a sufficient distance to engage any projecting portion of the brake drum flange and shear the same, as most clearly shown in Figs. 1 and 4; and this shearing operation preferably takes place simultaneously with the operation of the shrinker blocks and the facing mandrel so that all the inaccuracies of the brake drum are corrected at one and the same time; that is, the flange is brought to a true circle and trimmed so as to provide a flange of uniform width and the face of the drum is brought into a true and proper plane, thereby providing a perfectly accurate drum which will avoid the necessity of subsequent machining.

In connection with the supporting mandrel, knockout pins 19 may be employed, operated from the hydraulic jack 20 arranged at the rear of the main flange.

It will thus be seen that I provide a simple and efficient method and means for reshaping and sizing sheet metal brake drums.

Having thus described my invention what I claim is:

1. The herein described method of finishing brake drums which consists in arranging said drum upon a suitable support, subjecting the face and flange of said drum to external pressure, and simultaneously trimming the edges of said flange.

2. In a device of the kind described the combination with a supporting mandrel, of radially movable shrinker means surrounding said mandrel, and shearing means carried by said shrinker means.

3. In a device of the kind described the combination with a mandrel, of shrinker blocks surrounding the same, and means for operating said blocks and shearing means carried by said shrinker blocks.

4. In a device of the kind described the combination with a mandrel, of shrinker blocks surrounding the same, and having inwardly projecting shearing blades and a facing mandrel together with means for moving said blocks and said mandrel.

5. In a device of the kind described the combination with a mandrel, of shrinker blocks surrounding the same, shearing blocks carried by said shrinker blocks, means for moving said blocks radially, a facing mandrel and means for moving the same, and a knock-out device and means for moving the same.

In testimony wherof, I hereunto affix my signature.

HARRY WM. KRANZ.