

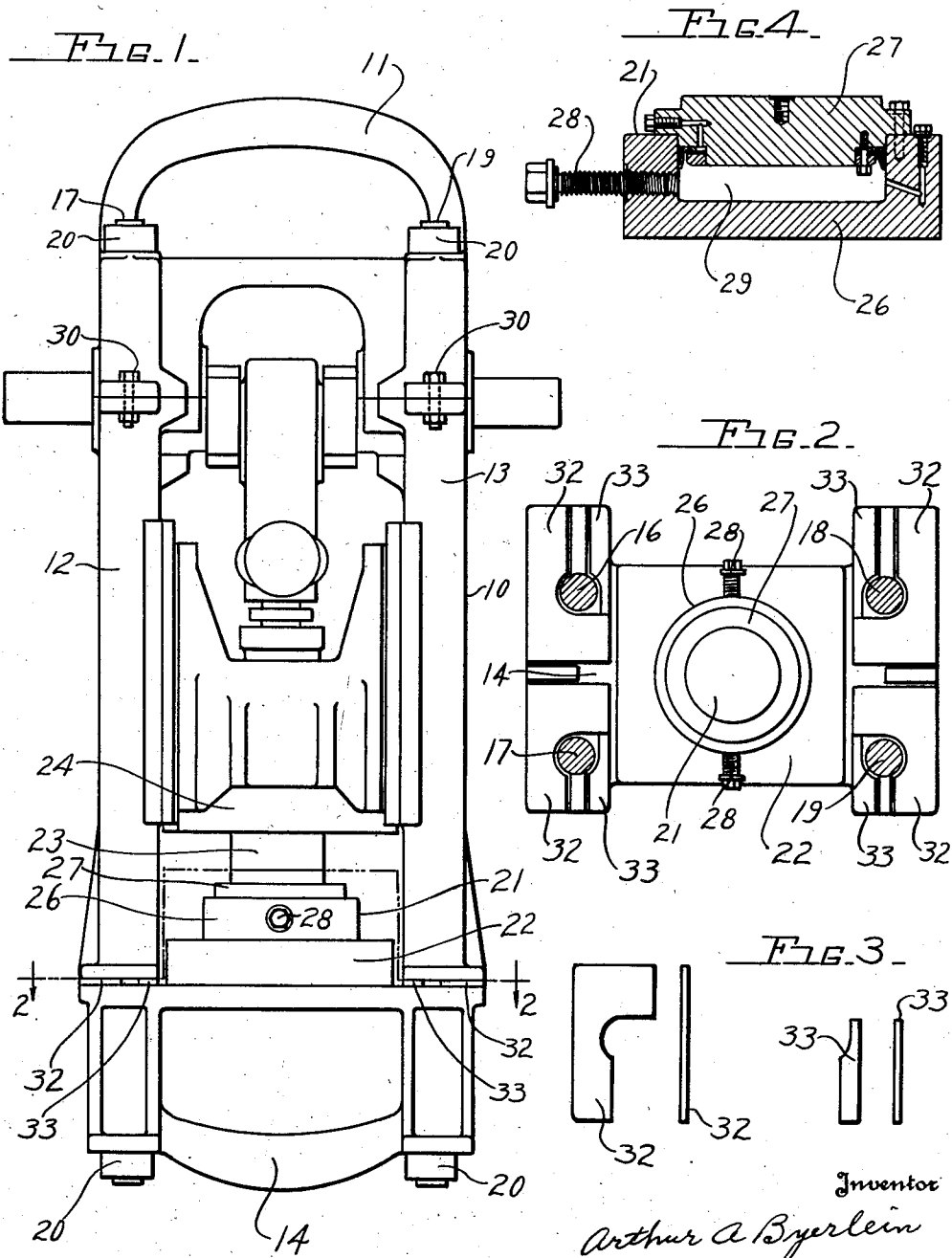
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A. A. BYERLEIN

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PRESS

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Inventor
Arthur A Byerlein
By Marechal & Noe
Attorney

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ARTHUR A. BYERLEIN, OF DETROIT, MICHIGAN, ASSIGNOR TO GENERAL MACHINERY CORPORATION, OF HAMILTON, OHIO, A CORPORATION OF DELAWARE

PRESS

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This invention relates to presses and more particularly to the method of assembling the press sections together.

One object of the invention resides in a novel method of assembling the several sections of a drawing press or the like, in which assembly rods are provided to hold the several sections together, which comprises forcing adjacent sections apart so as to stretch the assembly rods, and then filling the space between the separated sections so as to maintain a desired elongation of the assembly rods.

Other objects and advantages of the invention will be apparent from the following description, the appended claims, and the accompanying drawing, in which—

Fig. 1 is a front elevation of a press showing how the assembly rods are properly stressed or elongated, in accordance with the present invention;

Fig. 2 is a section taken horizontally on the line 2—2 of Fig. 1;

Fig. 3 shows detail views of the spacers, and

Fig. 4 is a detail sectional view of the raising jack.

Referring more particularly to the drawing by reference numerals, 10 designates generally a drawing or stamping press adapted for working sheet metal or the like. As shown, this press comprises superposed sections, namely, the arch 11, the opposite uprights 12 and 13 and the bed 14, each of which may be integrally cast or formed, these several sections being held rigidly together by means of four vertical assembly rods, designated 16, 17, 18 and 19. These assembly rods extend through vertical holes provided in the several sections, and the upper and lower ends of the rods are provided with nuts 20 in threaded engagement with the rod ends.

The nuts 20 may be tightened by means of wrenches or similar tools, but such tools are not suited to produce a desired tension or stress in the assembly rods. In accordance with prior practice, it has been the custom to stress or lengthen the assembly rods by heating them with a torch so as to cause their elongation, after which the nuts are tightened up and the rods permitted to cool. However,

when this is done, most of the elongation of the rods takes place where they have been heated, and it has been found impossible to stretch the several rods uniformly throughout their length for this reason. There is a greater reduction in sectional area of the rods at the heated portions, and when the assembly is completed, there is no way of knowing if the tension on the rods equals the safe working capacity of the press. If the tension on the rods does not equal the safe working capacity of the press the rods will be stretched somewhat the first time the press is subjected to its full load, causing the frame to open at its joints and causing frame sway with resultant mis-alignment of the dies and shaft bearings.

In accordance with the present invention the assembly rods are uniformly and simultaneously stressed to the desired degree, when the rods are cold, and no unusual reduction in sectional area takes place at any one point along the lengths of the rods. This stressing or elongation of the rods is accomplished by applying a known force so as to separate adjacent sections of the press after the nuts 20 have been tightened with a bar or spanner wrench. As a suitable means for creating this separating force, a jack 21 is placed on the bolster plate 22, and a suitable filler block 23 is applied between the top of the jack and the lower side of the slide 24, with the slide arranged in an end or dead center position. This jack, as shown in Fig. 4, may comprise a base section 26 and a movable top member 27 fitting therein and adapted to be raised by turning in the bolts 28 so that ends of the latter extend into the chamber 29 provided between the base 26 and top 27. Chamber 29 is filled with oil or other suitable liquid, and as the screws 28 are moved axially into the chamber, sufficient displacement of the liquid filling means of the jack takes place to create a desired upward pressure on the slide 24 of the press, and, of course, a downward pressure on the press bed. The result is that the arch 11 and the side frames 12 and 13, which are secured to the arch by means of bolt connections 30, are forced upwardly and separated

from the bed 14, the assembly rods being simultaneously and uniformly stretched to a desired degree sufficient to produce a determined stress or elongation. The spaces between the frame sections 12 and 13 and the bed 14 are then filled by applying spacers 32 and 33 at each assembly rod location as shown in Fig. 2, these spacers being slipped into place by moving them transversely with respect to the axis of the assembly rods. When the several spacers, which are preferably plates of steel or the like, are in place, the force created by the hydraulic jack is relieved and the jack is removed, leaving the assembly rods stretched a predetermined amount and tensioned in accordance with the requirements of the safe working capacity of the press. The several assembly rods are stretched uniformly throughout their length and there is no irregularity in reduction of cross-sectional area.

While the method herein described, and the form of apparatus produced thereby constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to this precise method and form of apparatus, and that changes may be made in either without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. The method of stressing the assembly rods of a sectional press comprising forcing adjacent sections apart with a force sufficient to cause the desired elongation of the rods, and filling the space thus obtained between the adjacent sections.

2. The method of stressing the assembly rods of a sectioned press comprising forcing adjacent sections apart so as to simultaneously and similarly elongate all of the assembly rods, and applying spacers between the separated sections so as to permanently maintain a desired elongation of the rods.

3. The method of stressing the assembly rods of a sectioned press comprising jacking the upper portion of the press away from the lower portion thereof so as to simultaneously and similarly elongate all of the assembly rods to the desired degree, and filling the spaces between the separated parts of the press.

4. The method of stressing the assembly rods of a sectioned press comprising exerting a predetermined force between the press bed and the crank shaft so as to separate adjacent sections of the press, and applying spacers between the separated sections.

In testimony whereof I hereto affix my signature.

ARTHUR A. BYERLEIN.