June 25, 1940. R. L. WILCOX 2,205,585

HEADER

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Fig. 1.

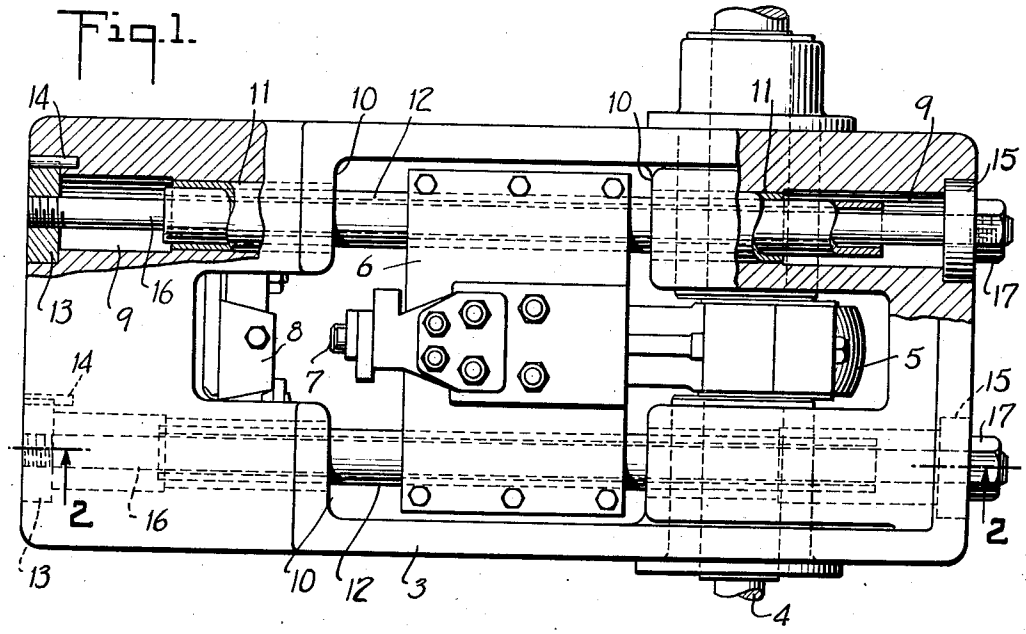
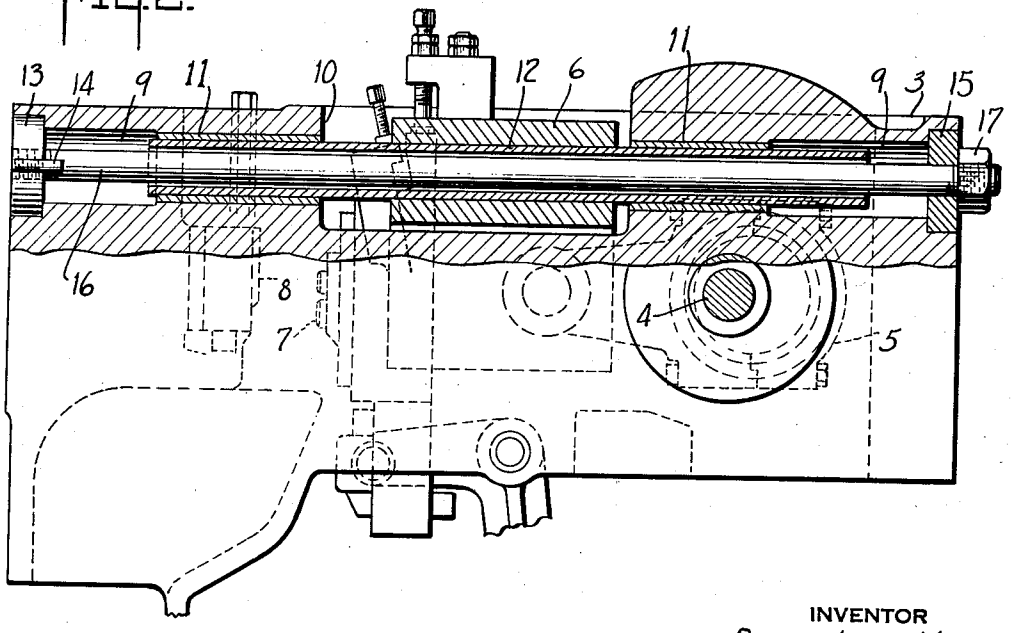


Fig. 2.



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HEADER

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8 Claims. (Cl. 78—36)

This invention relates to new and useful improvements in headers, upsetting machines or the like, and particularly to the frame thereof.

It has among its objects to provide a rigid header frame of the minimum size, that will not stretch or extend under the maximum upsetting pressure.

To these and other ends this invention consists in the header, having certain details of construction and combinations of parts, as hereinafter described and more particularly pointed out in the claims, reference being had to the accompanying drawing, wherein like numerals of reference indicate like parts in the several figures.

Figure 1 is a plan view of a header constructed according to the present invention; and

Figure 2 is a sectional elevation thereof, the parts in section being taken generally upon line 2—2 of Figure 1.

In a header, upsetting machine or the like a workpiece is subjected to pressure between the punch and die.

The major strength required in a header frame is to withstand the pressure of the upsetting of the workpiece between the punch and die at that portion between the crank shaft and the die block.

These frames have usually been made of cast iron, which is preferable to a steel cast frame, because not so easily stretched or extended. On the other hand, the cast iron frame, while it will not stretch as a steel frame, nevertheless, will break under excessive pressures. In both cases, the frame, whether made of cast iron or steel is very heavy to prevent this stretching or extension pressure.

The castings, whether steel or iron, vary greatly in strength, even though made under like conditions, so that it is practically impossible to determine in advance whether any particular frame will resist the upsetting pressure without stretching or extending. The necessity of making the frame of great bulk and size results in the production of a cumbersome machine, difficult and costly to handle during the manufacturing process, space consuming when completed and the operative parts located in an opening in the body are not readily accessible.

To overcome these and other objections in the art is a principal object of the invention. This is accomplished by providing a body or frame of relatively small size with independent means associated therewith that will effectually resist any possible stretching or extension thereof.

In this invention rods or the like are provided and so positioned as to provide a frame, whether of cast iron, steel or other material, with the maximum insurance against stretching between the crank shaft and die block, as well as any possible breakage thereof.

In the embodiment of the form of the invention as shown herein, 3 designates the frame within which is journaled a crank shaft 4, having associated therewth a pitman 5 connected with a ram 6, carrying a punch 7, which cooperates with a die in the die holder 8, as is usual, to upset the workpiece.

Upon opposite sides of the center of the frame 3 there are openings 9 which extend from the outer ends of the frame to the intermediate walls 10.

In these openings are bushings 11, within which support members 12, secured to the ram 6, are slidably mounted. These openings are at substantially a right angle to the crank shaft, are directly thereover and the center line of the machine where all stresses are derived.

Rotation of the crank shaft 4 imparts a reciprocating movement to the ram 6, and the support members 12 associated therewith. While moving toward the die holder 8 pressure is applied to a workpiece in a well known manner. It is the application of this pressure by the punch against the workpiece that causes the stretching or extension of the frame.

While a frame as heretofore made will withstand the upsetting pressure if the workpiece is made of one type of metal, it will stretch if the workpiece is made of another type of metal.

In the outer end of some of the openings 9 is a disk 13, held against rotation by dowel pins 14 or the like, and in the outer end of the other openings are similar disks 15. These disks are connected by a rod 16, one end of which is threaded in the disk 13, and the other end projecting through the disk 15 with a nut 17 upon the outer end thereof. These rods extend through the support members 12, and may if desired, be of such size as to form a journal therefor.

With rods associated with the frame as disclosed, the latter may be relatively small in size. Any excess strain placed upon the frame is taken by the rods which will not stretch under any possible stress from the upsetting operation and hence no stretching, extension or breaking of the frame.

Within the scope of the appended claims, changes and alterations may be made within the invention without deviating from the spirit thereof. To illustrate, the collar 13 may be made in-

tegral with the rod 16, or may be welded thereon instead of threaded as herein shown, and the separate collar 15 may be entirely omitted or made an integral part of the nut 17.

What I claim is:

1. In a header or the like, a frame having spaced sides and ends connecting the sides, the ends having spaced openings on each side of the frame which aline longitudinally of the frame, a ram within the frame, a pair of elongated hollow members connected to the ram on opposite sides of the latter and having ends slidably mounted in the respective openings of the ends of the frame, a rod extending through each of the hollow members whereby to be completely housed thereby and by parts of the ends of the frame, and means to connect the ends of each rod to the adjacent end of the frame, so as to prevent stretching or extension of the latter.

2. In a header or the like, in accordance with claim 1, wherein the hollow members consist of tubes that extend through and beyond the ends of the ram and terminate within and are concealed within the spaced openings.

3. In a header or the like, including a frame having spaced sides and ends connecting the sides, the ends having spaced openings on each side of the frame which aline longitudinally of the frame, a ram within the frame, a rod extending through each pair of spaced openings, and means to connect the ends of each rod to the adjacent end of the frame, so as to prevent stretching or extension of the latter, said rods being positioned between the top and bottom of the frame and concealed interiorly of the bounding walls thereof.

4. In a header or the like, a frame having spaced sides and ends connecting the sides, the ends having spaced openings on each side of the frame which aline longitudinally of the frame, a ram within the frame, a pair of elongated hollow members connected to the ram on opposite sides of the latter and having ends slidably mounted in the respective openings of the ends of the frame, a shaft at one end of the frame, a pitman forming an operative connection between the shaft and ram, a rod extending through each pair of spaced openings and being thereby positioned between the top of the frame and the shaft bearing and between an outer wall of the frame and the pitman.

5. In a header or the like, a frame having a central opening bounded by side and end portions, the ends having spaced openings upon each side of the length of the frame, which aline longitudinally of the frame, a ram within the central opening, a pair of elongated hollow members connected to the ram on opposite sides of the latter and having ends slidably mounted in the respective openings of the ends of the frame, a shaft at one end of the frame, a pitman forming an operative connection between the shaft and ram, a rod extending through each of the hollow members and said openings, and means to connect the ends of each rod to the adjacent end of the frame so as to prevent stretching or extension of the latter, the rods being concealed within the hollow members and ends, and lying in a plane between the outside wall of the side of the frame and the adjacent wall of the said central opening.

6. In a header or the like, a frame having a central opening, and further having a pair of substantially alined openings below the top of the frame and upon each side of and substantially parallel with the longitudinal center of the frame, said alined openings being separated by a recess, the bottom of which is below the alined openings; a ram within the frame which in part moves in said recess; a pair of elongated hollow members connected to the ram upon opposite sides of the latter and slidably mounted in said openings; a rod extending through each of the hollow members and said alined openings whereby to be completely housed thereby and concealed within the bounding walls of the frame; and means to connect the ends of each rod to the adjacent end of the frame so as to prevent stretching or extension of the latter.

7. In a header or the like, in accordance with claim 1, wherein each of the hollow members is journaled on and supported by one of said rods.

8. In a header or the like, in accordance with claim 1, wherein each of the hollow members is journaled on and supported by one of said rods throughout its entire length.

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