Oct. 6, 1936. W. ECKFORD ET AL 2,056,897

MARKING OF METALLIC EXTRUSIONS OF TUBULAR OR SOLID FORM

Filed Dec. 11, 1934 2 Sheets-Sheet 1

Fig. 1.

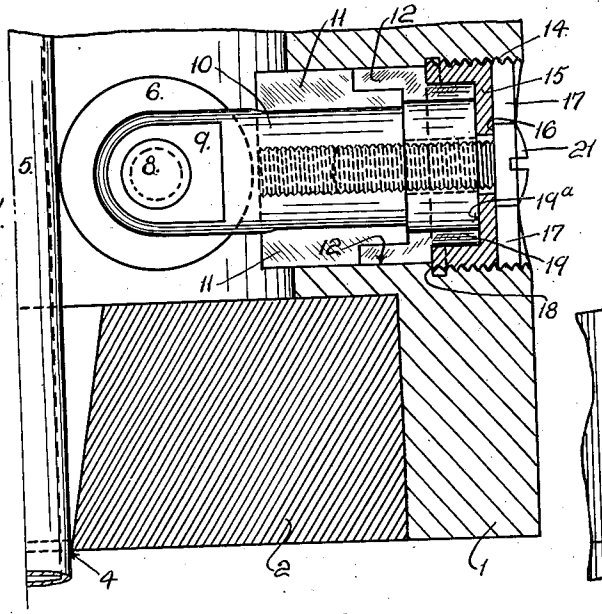


Fig. 3.

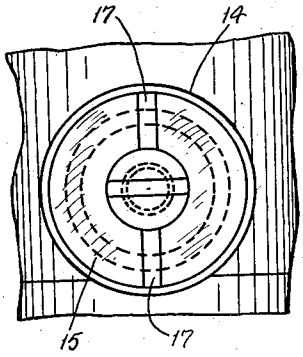


Fig. 2.

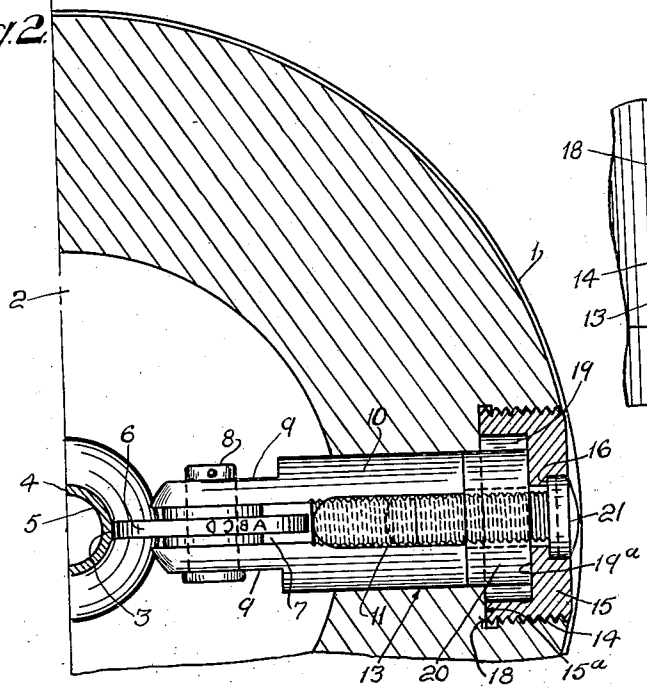
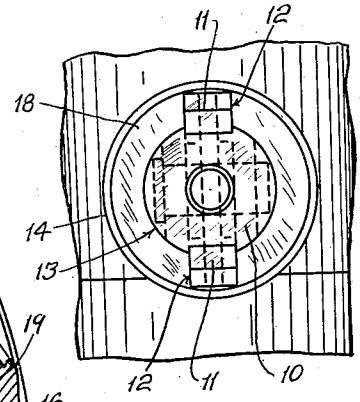


Fig. 4.



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Fig. 5.

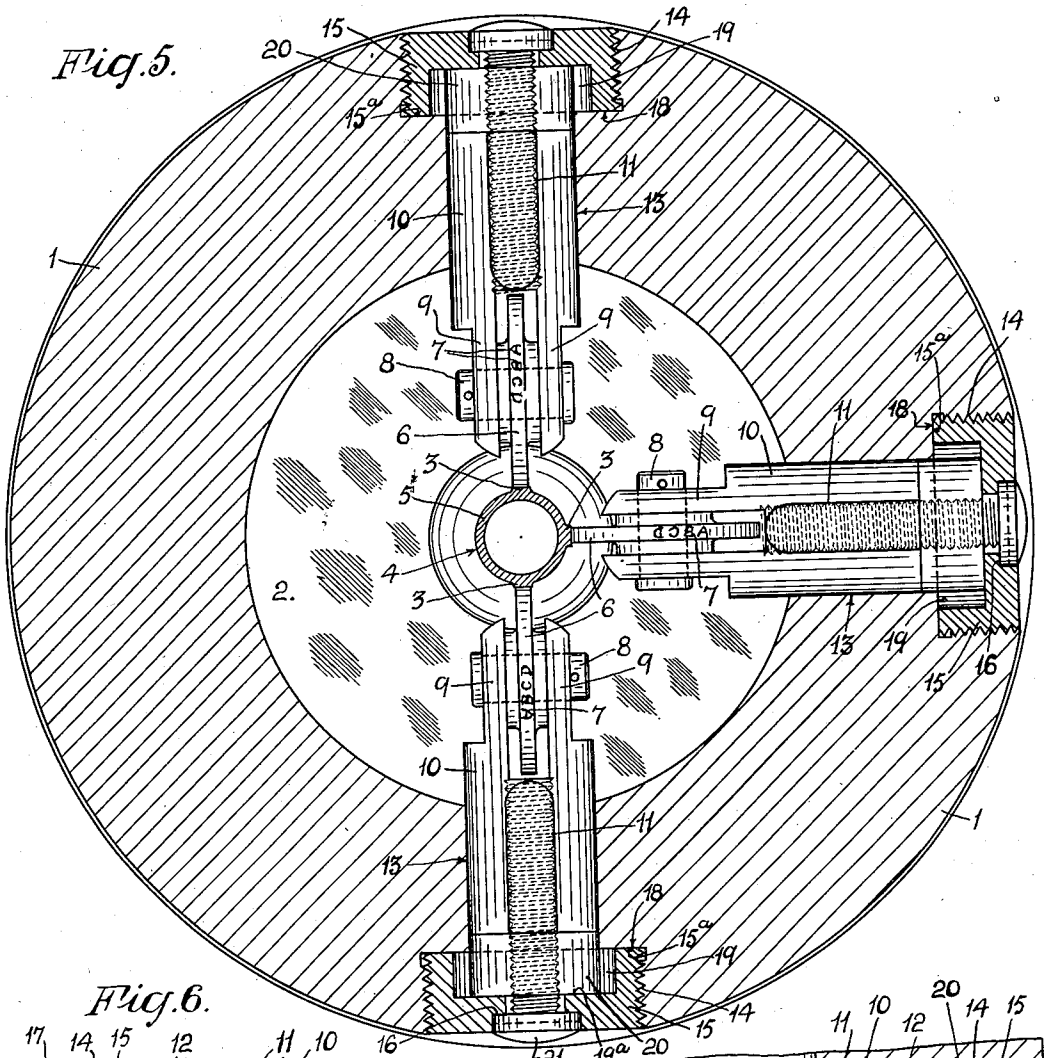
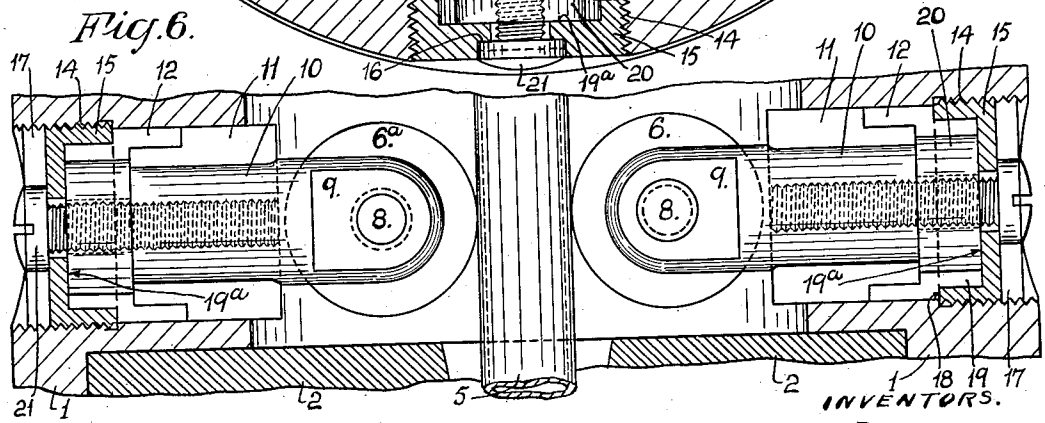


Fig. 6.



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Patented Oct. 6, 1936

2,056,897

UNITED STATES PATENT OFFICE

2,056,897

MARKING OF METALLIC EXTRUSIONS OF TUBULAR OR SOLID FORM

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Application December 11, 1934, Serial No. 757,040
In Great Britain January 9, 1934

11 Claims. (Cl. 207—1)

This invention relates to the manufacture of extruded metallic sections such, for example, as pipes, conduits, rods and the like, of any desired section or metal but is herein described in detail in reference to the manufacture of pipes of lead or lead alloy composition.

It is an object of the present invention to provide an improved arrangement for marking upon extruded metallic sections when produced in a continuous manner in a press of the type provided with a hollow ram carrying a die so that metal extruded through the die passes through the hollow ram.

Other objects of the invention will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by persons skilled in the art, we have in the accompanying illustrative drawings and in the detailed following description based thereupon, set out several embodiments of the same.

In these drawings:

Figure 1 is a detail horizontal section through the hollow ram of a metal extrusion press illustrating partly in section a holder for a marking wheel, all of which is mounted within the ram.

Figure 2 is another detail section through the hollow ram taken at right angles to Figure 1.

Figure 3 is a detail plan view of a portion of the ram showing in elevation the means for retaining the marking device within the ram.

Figure 4 is a similar view having the plug of the retaining means for the marking device removed therefrom.

Figure 5 is a cross sectional view through the ram illustrating the application of a plurality of marking devices, and

Figure 6 is a detail sectional view through the ram showing a further modification of the invention.

Referring now more particularly to the drawings, and especially to Figures 1 to 4 inclusive:

1 designates the ram of a press in the end of which there is positioned a die 2 having a central bore 4 encompassing an extrusion 5 of lead in pipe form which moves into and through the bore of the ram 1.

The external surface or a ridge 3 on said pipe 5 in its travel contacts with a rotary wheel 6 having letters of the alphabet or other markings 7 adapted to impress like characters successively in a continuous line on the pipe ridge in the movement of the pipe through the ram 1.

The said wheel 6 is revolubly mounted upon a pin 8 carried by bifurcated lugs 9 of a cylindrical carrier 10 provided with feather keys 11 arranged to co-operate with keyways 12 constructed in a portion of a laterally positioned bore 13 formed in the wall of ram 1 and adapted to contain carrier 10; the other portion of said bore 13 is of larger diameter and screw-threaded at 14 to receive a plug 15 constructed with a recessed face 16 in the outermost part whereof are slots 17 into which a correspondingly shaped key may be conveniently entered to effect the entry and withdrawal of said plug 15 into or out of said bore 13. The inner face 15^a is arranged to abut against the shoulder or step 18 formed by the reduced diameter of that part of bore 13 containing carrier 10 in such manner as to lock plug 15; and in said inner face 15^a there is formed a recess 19 having a face 19^a adapted to abut against the adjacent end of a cylindrical collar or distance-piece 20 in such manner that when plug 15 is screwed against step 18 and set-screw 21 is turned, cylindrical carrier 10 is drawn up against the other end of distance-piece 20 which is tightened against the inner face 19^a of plug 15, and as the head of set-screw 21 is drawn against the recessed face 16 thereof rigidity of the marking wheel 6 is ensured.

The construction of bore 13 is such that upon the removal of plug 15 the whole of said marking device (viz:—wheel 6, cylindrical carrier 10 and distance-piece 20) may be withdrawn through said bore 13 from the exterior of the ram 1 when it is desired to mark extruded metallic sections of varying sizes necessitating corresponding adjustment of the marking wheel 6 in relation to the particular size of extruded metal being dealt with, such regulation being effected by exchanging distance-piece 20 for a thinner or thicker piece—according to the die 2 used—re-inserting the marking device within ram 1 and securing same as hereinbefore described.

Referring now to the modification illustrated in Figure 5, the extrusion 5 is acted upon by three marking wheels 6 which may be radially disposed at any desired angular relationship.

In the modification illustrated in Figure 6, a wheel 6a but without marking characters thereon is provided in diametrical opposition to the marking wheel 6 and prevents possible displacement of the extruded metal during the marking operation.

From the foregoing, it will be understood that during the operation of the extrusion press the metal articles 5 are produced substantially in a continuous manner through the central bore or channel formed within the ram 1 and these metal

articles or pipes 5 are formed to the design corresponding with that of the die 2 having ridges 3 formed upon the peripheries thereof upon which is applied suitable markings. The articles 5 may be provided with one ridge as is better illustrated in Figure 2 of the drawings or they may have a plurality of ridges formed thereupon as is shown in Figure 5 of the drawings. The marking wheels 6 are to be forced into marking contact with these ridges whereupon suitable markings may be placed upon the articles. The radially extending bores or openings 13 are of a diameter sufficient to receive the carriers 10 and the latter are provided with the keys 11 so as to prevent the rotation of the carriers within the openings 13. When the carriers are properly positioned within the openings of the ram, the marking wheels 6 will align themselves with the ridges 3 formed upon the articles 5 and in order to retain the wheels 6 in marking contact with the ridges 3, the plug 15 is provided. According to the diameter or size of the articles 5, the collars or spacing pieces 20 are arranged between the plug 15 and the carrier 10. The plugs 15 are readily accessible from the exterior of the ram in order that the marking wheels may be readily adjusted with respect to the ridges 3 of the articles being formed and the diameter of the wheels 6 together with that of the carrier 10 are smaller than that of the bore 13, whereupon the carrier and the marking wheels may be bodily removed through the bores 13 when it is desired to replace or repair the same.

From the foregoing, it will be obvious that the carriers and the marking wheels may be readily adjusted transversely to the line of movement of the extruded metal or articles 5 and such adjustment of the carriers is effected by means accessible from the exterior of the ram. The marking wheels may also be adjusted into the desired relationship to the surface of the extruded metal or articles and may also be readily brought into proper relationship with the various sizes of extruded sections when the dies in the ram are changed.

What we now claim as our invention and desire to secure by Letters Patent is:—

1. In an extrusion press of the type provided with a hollow ram carrying a die, a marking wheel adapted to act on the extruded metal coming from the die, said wheel being located inside the hollow ram beyond the die, a carrier removably disposed in the ram, said wheel being mounted within said carrier, and means accessible from the outside of said ram whereby said carrier may be adjusted transversely to the line of movement of the extruded metal.

2. In an extrusion press of the type provided with a hollow ram carrying a die, a marking wheel adapted to act on the extruded metal coming from the die, said wheel being located inside the hollow ram beyond the die, a carrier located in a bore extending through the thickness of the wall of the hollow ram so as to be removable from the outside of the ram and said wheel being rotatably mounted upon said carrier.

3. In an extrusion press of the type provided with a hollow ram carrying a die, a marking wheel adapted to act on the extruded metal coming from the die, said wheel being located inside the hollow ram beyond the die, a carrier located in a bore extending through the thickness of the wall of the hollow ram so as to be removable from the outside of the ram, said wheel being mounted within said carrier, and means whereby said carrier and said marking wheel may be adjusted transversely to the line of movement of the extruded metal.

4. In an extrusion press of the type provided with a hollow ram carrying a die, a marking device adapted to act on the extruded metal coming from the die, said marking device being located inside the hollow ram beyond the die, a carrier located in a bore extending through the thickness of the wall of the hollow ram so as to be removable from the outside of the ram, and means accessible from the outside of said ram whereby said carrier and said marking device may be adjusted transversely to the line of movement of the extruded metal.

5. In an extrusion press of the type provided with a hollow ram carrying a die, a marking wheel adapted to act on the extruded metal coming from the die, said wheel being located inside the hollow ram beyond the die, a carrier located in a bore extending through the thickness of the wall of the hollow ram so as to be removable from the outside of the ram, said wheel being mounted within said carrier, a plug provided in said bore outside the carrier, means for retaining said plug against outward thrust, and a readily replaceable distance-piece located between said plug and carrier.

6. In an extrusion press of the type provided with a hollow ram carrying a die, a marking wheel adapted to act on the extruded metal coming from the die, said wheel being located inside the hollow ram beyond the die, a carrier located in a bore extending through the thickness of the wall of the hollow ram so as to be removable from the outside of the ram, said wheel being mounted within said carrier, a plug provided in said bore outside the carrier, means for retaining said plug against outward thrust, a readily replaceable distance-piece located between said plug and carrier, and means whereby said carrier and marking wheel may be adjusted transversely to the line of movement of the extruded metal.

7. A machine for marking articles formed from metal comprising a ram, a die arranged within said ram for producing a ridge upon the articles so formed, a marking device, means for adjustably supporting said marking device within said ram, and means accessible from the exterior of said ram for controlling said adjustably supporting means whereby said marking device may be brought in marking contact with the ridge upon the article formed.

8. A machine for marking articles formed from metal comprising a cylindrical ram having a central opening therein, a die mounted within said ram, said ram having a plurality of radially extending openings formed therein, a supporting member detachably mounted within each of said radially extending openings, a marking wheel carried by each supporting member and positioned within the central opening of said ram in order to have marking contact with the articles being formed therein, and means accessible exteriorly of the ram for adjusting said supporting members within the radially extending openings of said ram.

9. A machine for marking articles formed from metal comprising a ram having a central bore and a plurality of radially extending openings extending through the ram and communicating with the bore thereof, a carrier arranged within each opening, a marking wheel rotatably mounted upon the inner end of each carrier and extending within the bore of the ram, means for operatively connecting each carrier with the ram to

prevent the rotation thereof within its radially extending openings, means for radially adjusting each carrier within its opening of the ram, and locking means for retaining each carrier in its adjusted position.

10. A machine for marking articles formed from metal comprising a ram having a central opening therein through which may pass the articles being formed, said ram having a radially extending opening formed therein communicating with the central opening thereof, a carrier comprising a cylindrical casing slidably mounted within said radially extending opening, a marking wheel rotatably mounted upon one end of said carrier and positioned within the central opening of the ram, a plug detachably mounted within said radially extending opening of said ram for controlling the movements of said carrier, a spacing collar arranged between said plug and said carrier and a set screw working in said carrier and having its head against the outer face of said plug for drawing said plug, collar and carrier into an adjustable but firm relation with each other.

11. A machine for marking articles formed from metal comprising a ram having a central opening therein through which may pass in a continuous manner the articles being formed and a radially extending opening communicating with the central opening of said ram, a tubular carrier slidably mounted within said radially extending opening, keys carried by said carrier and cooperating with the ram to prevent the rotation of the carrier within the radially extending opening thereof, a marking wheel rotatably mounted upon one end of said carrier, a plug detachably mounted within said radially extending opening of said ram for controlling the movements of said carrier, a spacing collar arranged between said plug and said carrier and means for adjustably connecting said carrier and spacing collar to said plug for firmly holding said carrier in position.

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