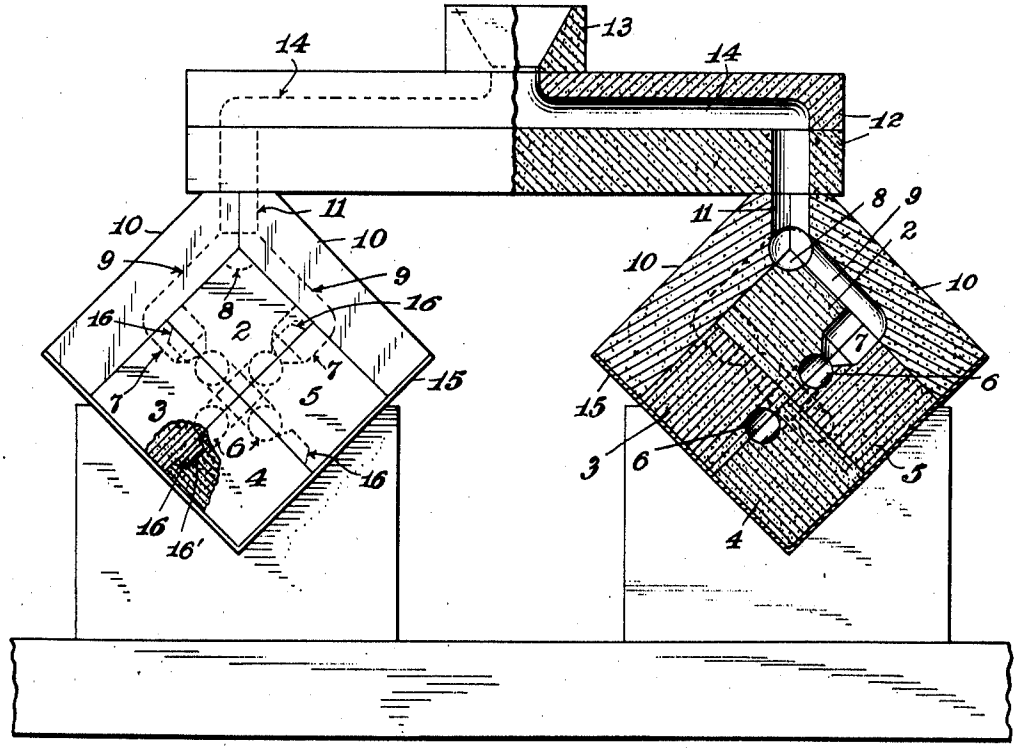
Jan. 17, 1928. 1,656,371

L. FAWCETT

MANUFACTURE OF CAST STEEL CHAIN

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Fig. 1.




INVENTOR.
Leroy Fawcett
BY Clarence O'Brien
ATTORNEY

Jan. 17, 1928. 1,656,371

L. FAWCETT

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Fig. 2.

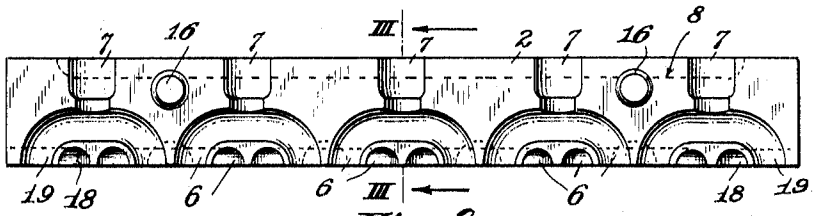



Fig. 3.

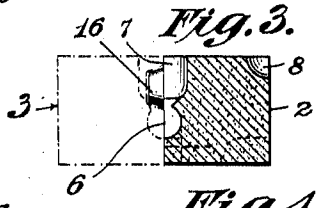



Fig. 4.

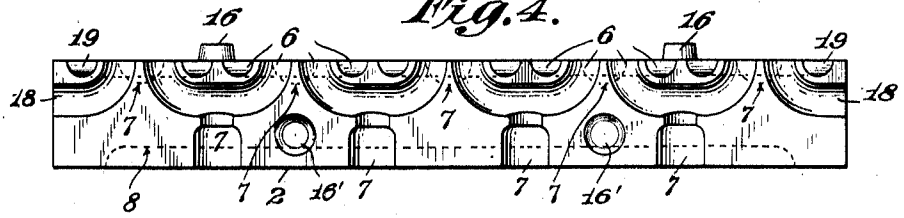
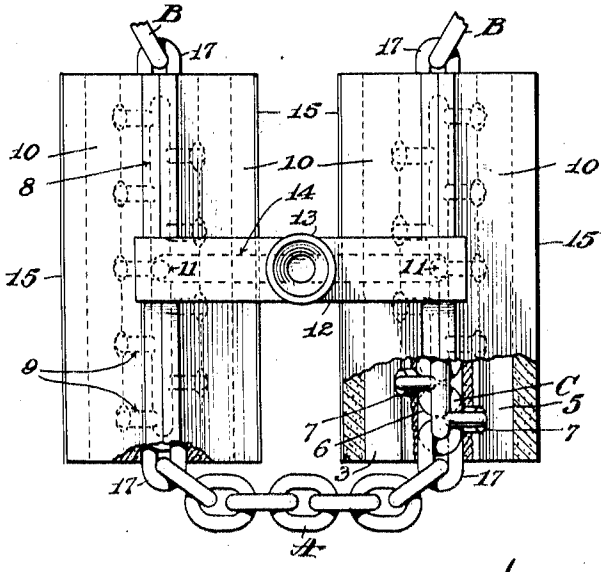



Fig. 5.




INVENTOR.
Leroy Fawcett
BY Clarence O'Brien
ATTORNEY

Patented Jan. 17, 1928. 1,656,371

# UNITED STATES PATENT OFFICE.

LEROY FAWCETT, OF SHARON, PENNSYLVANIA, ASSIGNOR TO NATIONAL MALLEABLE AND STEEL CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## MANUFACTURE OF CAST-STEEL CHAIN.

Application filed June 14, 1924. Serial No. 720,036.

Fig. 1 is an elevation partly in section of mold sections employed in and embodying my invention; Fig. 2 is a side elevation of one of the mold sections; Fig. 3 is a section on lines III—III of Fig. 2, the position of one of the complementary sections being indicated in dotted lines; Fig. 4 is an elevation of another side of the mold section shown in Figs. 2 and 3; and Fig. 5 is a plan of assembled mold sections showing the connection of preformed chain sections by the casting of intermediate sections.

My invention relates to the making of cast steel chain links in the form of a continuous chain for which the mold parts are so arranged that a plurality of series of links may be poured at one time, the various series being secured together by other links or series of links to form a continuous chain. My invention also comprises the various features which I shall hereinafter describe and claim.

Referring to the drawings, in Fig. 1 I have shown my invention applied to the simultaneous casting of two series of chain links or sections of chain, each set of molds being arranged to receive a section of chain comprised of nine links, which may be all poured at the one time. The molds are comprised of the mold sections 2, 3, 4 and 5, which are of the quarter section type, in which similar part link impressions 6 of a number of links are all formed upon the face of a section. The top section 2, as is shown in Figs. 1, 2, 3 and 4, has two series of feeder part-impressions 7; the intermediate sections 3 and 5 have each one series of feeder part-impressions 7 complementary to the part-impressions 7 in the section 2, while the bottom section 4 has none. Arranged in the top edge of the mold section 2 is a runner cavity 8, which leads, through the cavities 9 in the cover sections 10, to the feeder impressions 7 for each link. Each pair of the cover sections 10 has a sprue 11 leading downward into the runner cavity 8. If desired, two sections of chain may be poured at the same time by arranging a pair of mold sections 12 with a pouring cup 13 mounted thereon bridging the space between the sets of sections. Extending through the bridge sections 12 is a runner cavity 14 connecting with the sprues 11 of each set of molds. This arrangement permits the pouring of two sections of chain simultaneously.

The faces of quarter sections 2, 3, 4 and 5, in which are formed the link impressions 6, are arranged at about 45° to the vertical, which enables a uniform flow of metal into the top edge of each link impression 6 in the axial plane of such impression, and thereby results in the production of sound links. The quarter-sections 2, 3, 4 and 5 are mounted in the trough or V-shaped stands 15, so as to properly support the quarter-sections when in assembled position. As is shown in Fig. 1, the mold sections are equipped with dowels or projections 16 which seat in cooperating recesses 16′ in complementary sections to ensure the assembly of such sections in their proper relation.

With the mold sections assembled as just described and as shown in Fig. 1, the metal is then poured into the pouring cup 13 and run through the runner 14 down through the sprue 11 into the horizontal runner 8, along which the metal is distributed to the individual cavities 9 and feeders 7 and from thence into the individual link impressions 6, and thus forms, as indicated, the interconnected links of a section of chain. During the operation of casting such sections of preformed links the end impressions 18 are not in use and may, if desired, be filled with sand or omitted entirely.

To connect the chain sections A and B thus formed, the end links 17 of such sections may be placed in end link impressions 18 of the quarter mold sections, as is shown in Fig. 5. Links C which interlink with the end links 17 of the preformed sections A and B may then be cast in the impressions 19. Such connecting portion or portions C may be comprised of one or more links. For instance, assuming that the chain is cast in sections of nine links, such preformed nine-link sections A and B may then be connected together by casting other nine-link sections C interlinking with the end links 17 of such preformed sections, as is shown in Fig. 5.

My invention is particularly applicable to the rapid production of cast steel chain in which links of moderate size are used by reason of my ability to cast a plurality of sections of chain, each comprising a number of links, by a single pour of metal, and the rapidity of operation is enhanced by the simplicity of the mold sections, which are readily made and assembled.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described, or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

What I claim is:

1. The process of making continuous cast chain which comprises forming a plurality of quarter link impressions in mold sections for adjacent interconnecting links the axes of which are arranged at the same angle to the vertical, and delivering metal to the upper edges of said link impressions in each of said adjacent impressions through feeders arranged in the axial planes of the said link impressions by a single pour, whereby a uniform supply of metal is distributed to each link impression.

2. The process of making continuous cast chain which comprises forming a plurality of series of quarter link impressions in mold sections for adjacent connecting links, assembling said mold sections whereby the axes of adjacent impressions are arranged at the same angle to the vertical but approximately at right angles to each other, simultaneously delivering metal to the upper portions of each of the impressions of each such series by a single pour, then placing the links thus formed in end link impressions of similarly formed assemblies of mold sections and similarly pouring such assemblies to form a continuous chain of links.

3. In molds for casting chain, quarter mold sections, each having on faces arranged at right angles to each other a plurality of quarter link impressions for adjacent interconnecting links, said mold sections when assembled forming complete link impressions for a plurality of interconnecting links, each link impression being arranged at right angles to adjacent link impressions, a feeder for each link impression, all of said link impressions being inclined at substantially the same angle to the horizontal whereby a uniform distribution of metal in all the impressions is secured.

4. In molds for casting chain, quarter mold sections, each having on faces arranged at right angles to each other a plurality of quarter link impressions for adjacent interconnecting links, said mold sections when assembled forming complete link impressions for a plurality of interconnecting links, each link impression being arranged at right angles to adjacent link impressions, a feeder for each link impression, arranged in said mold section faces in the plane of said link impression and connecting with the upper edge of the said link impression, a cover member provided with cavities connecting each of said feeders to a common horizontal runner, and a pouring cup for supplying metal to said horizontal runner.

LEROY FAWCETT.