

(No Model.)

C. WHILE.
MEANS FOR MANUFACTURING CHAINS.

No. 510,748.

Patented Dec. 12, 1893.

Fig. 1

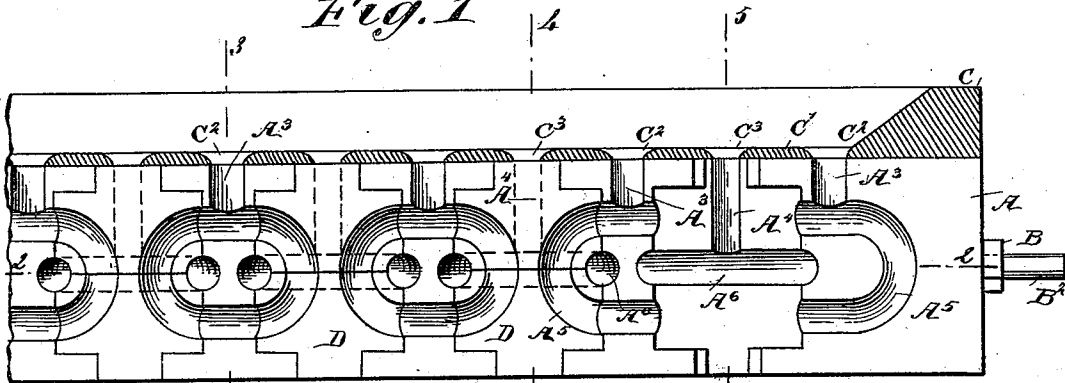


Fig. 2

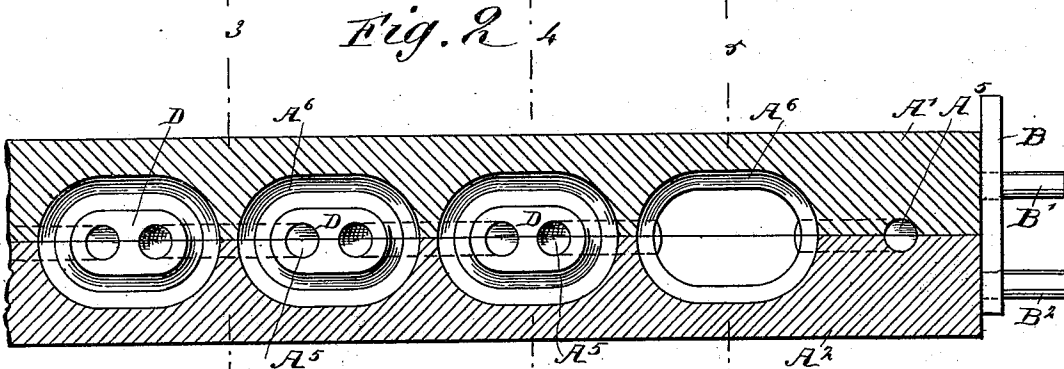


Fig. 3

Fig. 4

Fig. 5

Fig. 6

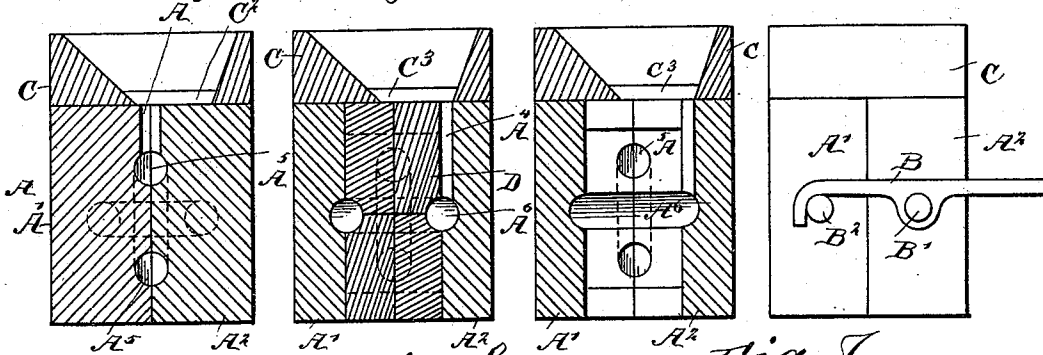
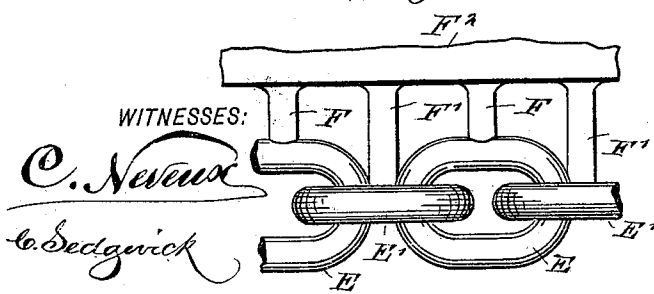


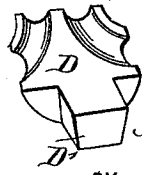
Fig. 8

Fig. 7



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES WHILE, OF BARROW-IN-FURNESS, ENGLAND.

MEANS FOR MANUFACTURING CHAINS.

SPECIFICATION forming part of Letters Patent No. 510,748, dated December 12, 1893.

Application filed February 17, 1893. Serial No. 462,710. (No model.) Patented in England October 30, 1891, No. 18,713.

To all whom it may concern:

Be it known that I, CHARLES WHILE, iron and steel works manager, of Cockin Villa, Walney Road, Barrow-in-Furness, England,

have invented a new and Improved Means for Manufacturing Chains, (for which I have obtained Letters Patent in Great Britain, No. 18,713, dated October 30, 1891,) of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and useful means for manufacturing chains, whereby a chain with endless links is formed from the molten metal in a very simple and inexpensive manner.

The mold which forms the subject matter of this application consists of a divided casing or holder with seats, and recesses in the seats, and cores set in the said seats and having non-intersecting horizontal and vertical recesses, registering with the recesses in said seats, the registering recesses of the holder and cores forming elliptical cavities for the reception of the molten metal to form the links of the chain.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement with one of the cores removed. Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1. Figs. 3, 4 and 5, are transverse sections of the same on the lines 3—3, 4—4 and 5—5, respectively, of Figs. 1 and 2. Fig. 6 is an end view of the improvement. Fig. 7 is a perspective view of part of one of the cores; and Fig. 8 is a side elevation of the chain with the runners attached.

The improved mold for casting the metallic chain is provided with a holder A made in two parts A' and A², adapted to be fastened together at their ends by catches B pivoted on pins B' projecting from the part A², the other part A' being also provided with pins B² adapted to be engaged by the hook ends of the said catches B as plainly shown in Fig. 6.

On top of the holder A is set a runner box C provided in its bottom C' with alternately arranged ports C² and C³ registering with pouring holes A³ and A⁴ leading to the cavities A⁵ and A⁶ respectively, each made in the shape of a link and the two cavities be-

ing disposed vertically and horizontally respectively, as plainly shown in the drawings. As illustrated in Fig. 3, the pouring hole A³ is formed in the faces of the two holder parts A' and A², while the pouring hole A⁴ is formed only in the holder part A², as illustrated in Fig. 4.

Now, between the holder parts A' and A² are set sets of cores D, each made preferably in four parts, as plainly shown in Fig. 4, but if desired, the core may be made in two parts. Each part is provided at one end with a dove-tailed offset or lug D' adapted to engage a corresponding recess formed in the top or bottom of the respective holder part A' or A², so as to hold the core parts in proper position when the holder parts A' and A² are fastened together. Each core forms part of the cavity A⁵ and also part of the recess A⁶, so that the two cavities A⁵ and A⁶ do not intersect each other as will be readily understood by reference to Figs. 2, 3 and 4. Each core may be made of metal or suitable refractory substance, such as sand, which will give way after the chain is cast and thus allow freedom for the contraction of the metal during the process of cooling. When the cores are in place in the holder, and the holder parts are secured together at their ends by the catches B and the runner box C is placed on top of the holder, then the metal is poured into the runner box to run through the ports C² and C³ and the pouring holes A³ and A⁴ into the several non-intersecting cavities A⁵ and A⁶, whereby endless links E and E' respectively, are cast in the said cavities A⁵ and A⁶ respectively, and arms F, F' are cast in the pouring holes A³, A⁴, respectively, leading upwardly from the links E, E' to a runner F², which is cast in the box C. Thus, when the holder parts A', A², are taken apart by unhooking the catches B from the pins B², a chain is withdrawn with runner arms and runner attached thereto, as shown in Fig. 8. The arms F and F' are then broken off the links E and E' respectively, and a finished chain is the result.

It is understood that the holders and cores may be made wholly of metal or wholly of sand or other refractory material, or a portion of the holders or cores may be made of metal, while another portion may be made of sand, but I find a useful and satisfactory mold

is had by making the whole of the holder parts A' and A² of metal, and the cores D of metal, with the lugs D' of sand, and the inner portions of the runners also of sand. Molds thus constructed are very durable; in fact, almost indestructible, with the exception of the lugs D' in the cores D, and the inner lining of the runner box, which parts have to be removed each time.

10 It is the intention to cast chains of any reasonable length by abutting or joining several molds at their ends and thus practically forming one long mold. For the purpose of joining short lengths of chain to a fresh chain 15 it is only necessary that the end link of the chain be placed into the last cavity A⁵ or A⁶ of the mold so that the new link formed in this end recess couples to the end link of the chain previously formed.

20 Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A mold for casting chains, consisting of a divided holder formed with pouring holes,

seats, and recesses in the seats, and separate 25 cores set in the said holder between the said seats and having non-intersecting cavities registering with the recesses of the holder and adapted to form elliptical non-intersecting cavities with the said recesses, substantially as shown and described 30

2. A mold for casting chains, consisting of a divided holder formed with pouring holes, seats, and recesses in the seats, and separate 35 cores made in sections and set in the said holder between the said seats, each core section being provided with recesses registering with the recesses of the opposite section and with those of the holder, and the recesses of the holder and core sections being adapted 40 to form together non-intersecting elliptical cavities the planes of which are at right angles to each other, substantially as shown and described.

CHARLES WHILE.

Witnesses:

JOHN TIMMIN,
JOHN HART.