No. 695,515. Patented Mar. 18, 1902.

G. WILCOX.

CAN FUSING MACHINE.

(Application filed June 7, 1900. Renewed Oct. 29, 1901.)

(No Model.) 3 Sheets—Sheet 1.

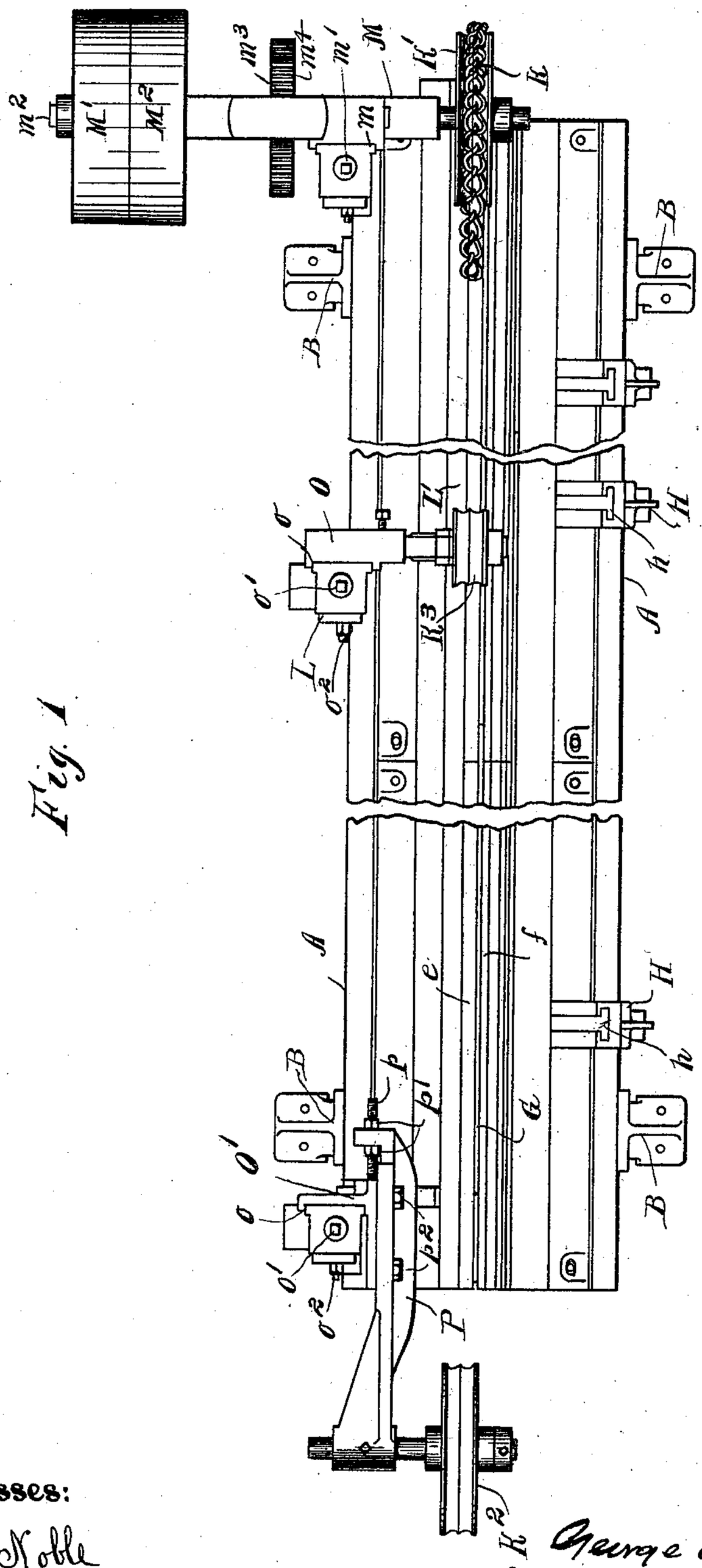

Fig. 1

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(No Model.) 3 Sheets—Sheet 2.

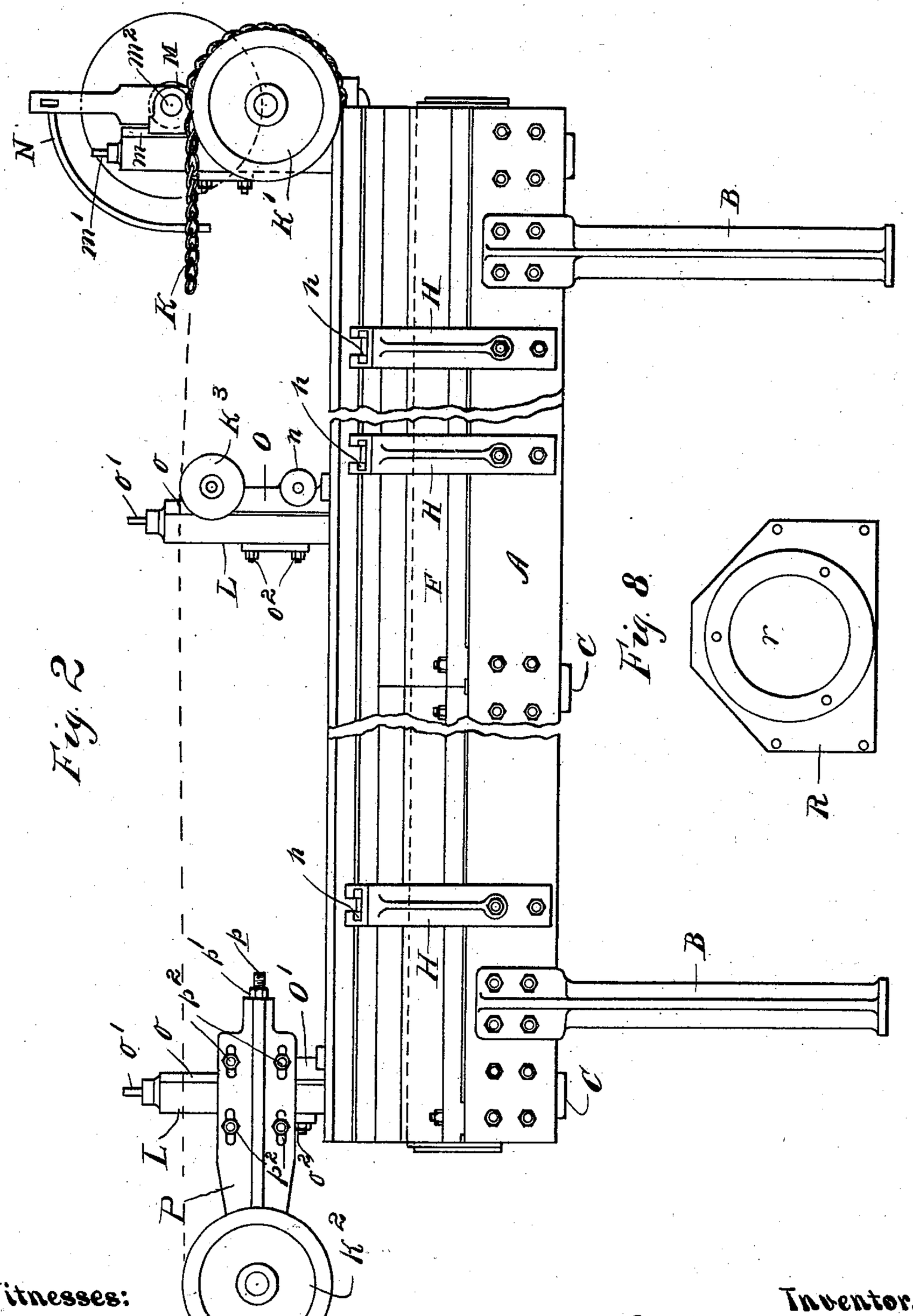

Fig. 2

Fig. 8

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(No Model.) 3 Sheets—Sheet 3.

Fig. 6.

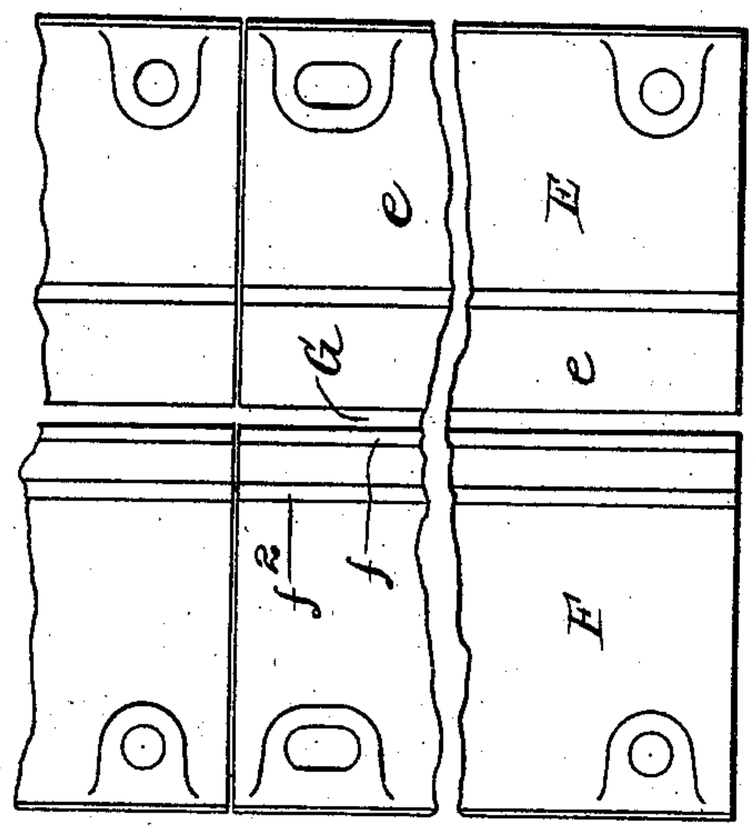

Fig. 7.

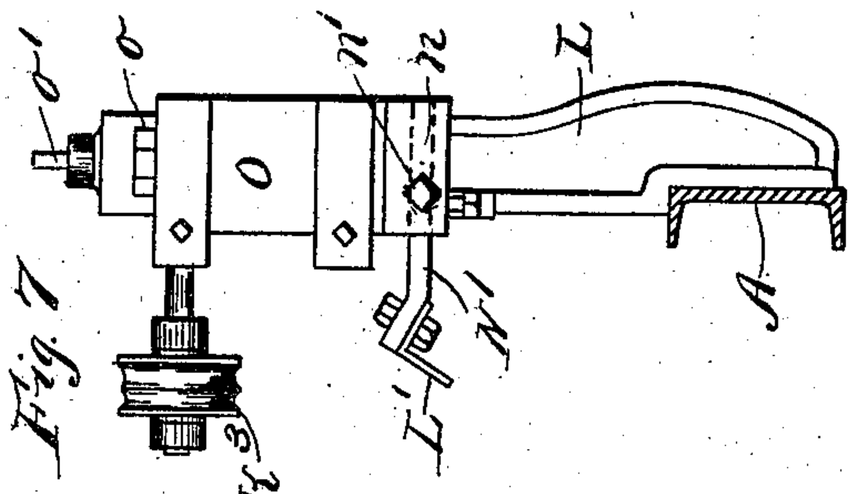

Fig. 5.

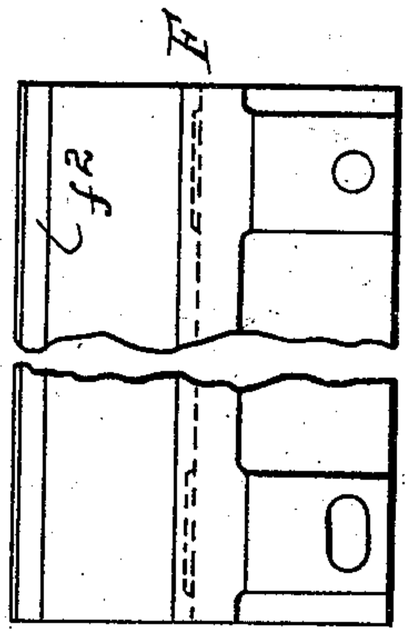

Fig. 4.

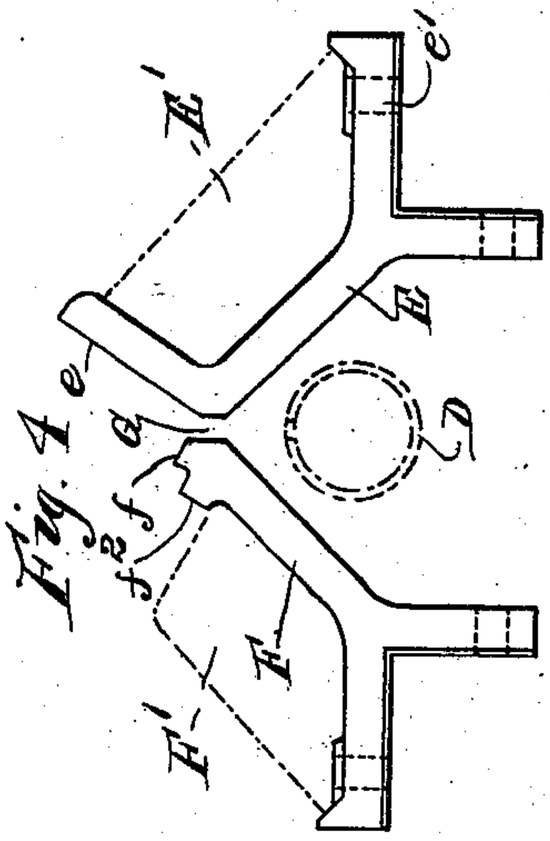

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE WILCOX, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO AMERICAN CAN COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CAN-FUSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 695,515, dated March 18, 1902.

Application filed June 7, 1900. Renewed October 29, 1901. Serial No. 80,457. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WILCOX, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Can-Fusing Machines, of which the following is a specification.

My invention has reference to mechanism for fusing the heads upon the bodies of cans, near each edge of which a rib of solder has previously been applied by dipping and inverting, as in an application filed by me in the Patent Office of the United States on the 9th day of March, 1900, Serial No. 7,955, or in any other way; and it consists in certain combinations and details of construction whereby the rib of solder at the lower end is exposed to the direct action of soldering-flame while the can is rolled in an inclined position, head downward, along a way, and the rib at the upper end is insulated or shielded from the effect of the flame, all as hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view of a machine embodying my invention broken away in the middle to bring it within the compass of the sheet. Fig. 2 is a side elevation thereof, likewise broken away in the middle. Fig. 3 is an end elevation of said machine. Figs. 4, 5, and 6 are enlarged detail views of the fusing-way and burner-shields, respectively, in end elevation, side elevation, and top plan. Fig. 7 is an enlarged detail of one of the adjustable brackets for the chain-feed, and Fig. 8 an enlarged detail of the end cover or cap for said shields to permit inspection of the flames.

The main frame or bench of the machine is composed of two longitudinal channel bars or rails A, supported upon legs B and united at suitable intervals by tie-brackets or bridge-castings C, fitting into the opposing channels of the bars and bolted thereto. The bridge-castings are centrally depressed to afford room for the burner-pipe D, which is perforated on top and extends practically the whole length of the machine.

Bolted to the bridge-castings on that side of the machine which I shall hereinafter denominate the "rear" or "back," being the right-hand side in Fig. 3, is a shield bar or bars E, inclining upward and inward toward a central longitudinal line over the burner-pipe and approximately at that point terminating in an upwardly and rearwardly inclined longitudinal flange *e*, which supports the heads of the cans and will therefore be termed the "head-rest." A lining E′ of fire-brick fills the channel in said bar embraced between flange *e* and the horizontal flange *e′*, by which it is bolted to the bridge-castings.

To the bridge-castings opposite the rear shield-bar is bolted the front shield bar or bars F, likewise inclining upward and inward to the central line over the burner-pipe, but terminating just short of contact with the edge of the rear bar in a track *f*, described on a plane at right angles to the plane of the head-rest. Fire-brick F′ line the channel between the horizontal flange of this front bar and a second flange f^2, outstanding therefrom adjacent to the track. This latter or front shield-bar is designed to prevent the flames from sweeping up along the can-body and prematurely melting the rib of solder at the top. By this construction a narrow throat or flame-slot G, extending the length of the machine, is provided immediately above the burners, so that cans rolling over the way and supported in an inclined position thereon, end downward, will have the lower rib of solder at that end exposed to the direct action of the flames.

The purpose of the fire-brick E′, covering the rear burner-shield E and head-rest *e*, is to prevent radiation of heat from the metal, so that when once heated it will require less expenditure of flame to maintain the fusing heat. The purpose of the fire-brick F′, covering the front burner-shield, is twofold. It not only maintains the heated condition of the track *f*, adjacent to the rib of solder, in an economical way, but it seems to insulate the upper end of the can from radiated heat, which otherwise might fuse the rib of solder or the already-completed seam at that end, causing the melted alloy to run down the can, either making it impossible to form a finished seam at that end in its turn or destroying the one already formed.

Secured to the front rail of the frame are

upstanding brackets H, inclined at the top in a plane parallel with but below the plane of the track *f* and having undercut or T-grooves *h* in their inclined faces to receive the heads of bolts *h'*, whereby a guide-bar H' for the upper ends of the cans may be set in position or adjusted in or out to accommodate longer or shorter cans. This guide-bar is also provided with a narrow track h^2 in the same plane as the track *f*, forming, with the said latter track, the rolling supports for the cans.

It will be noticed that there is no direct metallic connection between the upper guide-bar H' and track n^2 and the lower track *f* at the top of shield F, but, on the contrary, a wide air-gap between them, so that the heat of the lower track cannot travel up toward the upper end of the can through a solid metallic conductor. The outer fire-brick F' also lies substantially between the shield F and the upper track and guide-bar, further insuring the insulation of the latter and of the upper end of the can from the heat of the burner and shield, as above explained.

The cans, with heads slipped thereon, enter the soldering-way from any suitable runway at one end and are rolled therealong by a heavy traveling chain K, the lower ply of which rests upon said cans, and in their passage the solder is melted by direct exposure to the burners and runs down and soaks into the seam and completes the joint, the revolving motion of the can keeping the fused solder in motion until it sets, making an even and homogeneous seam. At the farther end of the machine the cans will be discharged into another suitable runway.

The chain K is carried over a driving-sheave K' at one end of the machine and over a tail-sheave K^2 at the other, this latter being adjustable to obtain the requisite degree of tension. The upper ply of the chain between the driving and tail sheaves is carried upon supporting-sheaves K^3, the number of which will depend upon the length of the machine. Standards L, bolted to the rear rail of the machine, support a chain-guide L', which holds the chain to its work on the cans along a straight line, and these standards also support the various sheaves; but as it is desirable to adjust the height of the chain to accommodate cans of different diameters the support of guide and sheaves is not direct, but through the interposition of sliding brackets adjustable on said standards.

The bracket M, which carries the drive-sheave, is adjustable up and down along ways *m* on its standard by means of screw *m'*. In this bracket is mounted the pulley-shaft m^2, having fast and loose pulleys M' M^2 and engaging by pinion m^3 with gear m^4 on the drive-sheave shaft. A belt-shipper N, also carried by the bracket, serves to throw the belt from the loose pulley to the fast pulley, or vice versa. To this bracket and to all the other sheave-brackets is also secured the aforesaid chain-guide L' by means of tang N', entering longitudinal sleeve *n* and clamped by set-screw *n'*, whereby the guide may be adjusted in or out, as may be necessary to properly position the chain.

The intermediate brackets O, carrying the supporting-sheaves for the upper ply of the chain, and the end bracket O', carrying the tail-sheave, are adjusted upon their standards in the same way as the bracket M—that is to say, by means of ways *o* and adjusting-screws *o'* with clamping-bolts o^2—and are all alike, except that the tail-sheave is secured to the end bracket through carrier-block P, in the end of which it is journaled and which is horizontally adjustable by means of screw *p*, nuts *p'*, and clamping-bolts p^2 to determine the tension of the chain.

The burner-shields may be closed by end caps R, having mica windows *r* to permit inspection of the burners.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a head-rest and track for the lower end of the can, a track for the upper end thereof, a burner-shield F, arranged to leave on the one hand a narrow flame-slot between said track *f* and the head-rest, and on the other a wide heat-insulating gap between said track and the upper track, and the burner-pipe extending beneath and parallel with said flame-slot.

2. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a head-rest for the lower end of the can, a track for the upper end thereof, a burner-shield F, terminating in a track *f* for the lower part of the body of said can and arranged to leave on the one hand a narrow flame-slot between said track *f* and the head-rest, and on the other a wide heat-insulating gap between said track and the upper track, and the burner-pipe extending beneath and parallel with said flame-slot.

3. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a rear burner-shield terminating in a head-rest for the lower end of the can, a front burner-shield terminating in a track for the lower part of the body of the can, and separated from the rear shield and head-rest by a narrow flame-slot, a burner-pipe between said shields beneath said flame-slot, and a track for the upper end of the can separated from the front shield and lower track by a wide heat-insulating gap, a burner and heat-insulating material interposed between said front shield and the upper track.

4. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of the rear burner-shield, having head-rest for the lower end of the can, a jacket of heat-insulating material

covering said rear shield and the head-rest, the front burner-shield with its track for the lower part of the can-body and leaving a narrow flame-slot between said track and the head-rest and rear shield, the burner-pipe between said shields beneath the flame-slot, the upper track separated from said lower track by a wide gap, and the heat-insulating block or jacket covering the front shield and interposed between it and the upper track.

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Witnesses:
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