July 3, 1928. 1,675,813

W. C. LOYD ET AL

GREASE MELTING FURNACE

Filed March 26, 1926 4 Sheets-Sheet 1

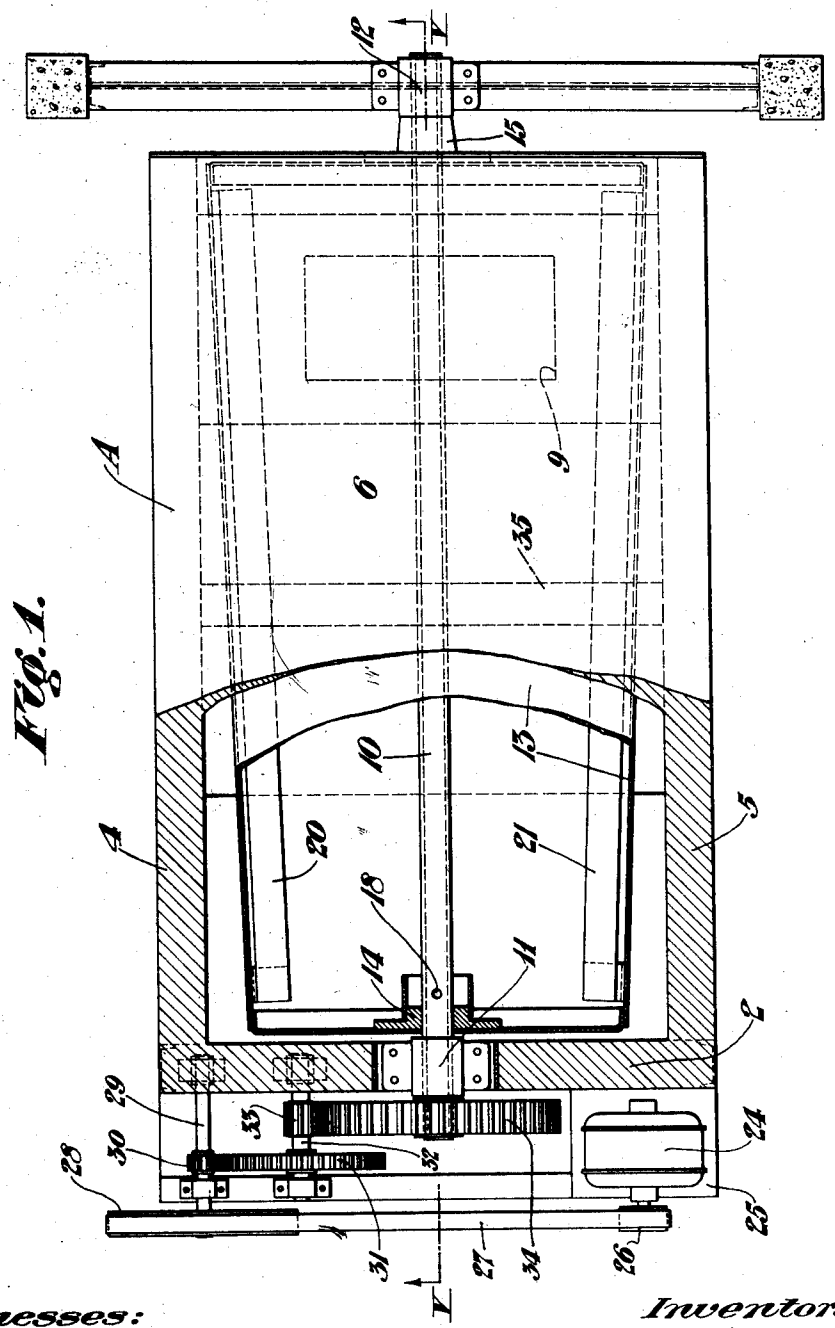

Fig. 1.

Witnesses:
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Fig. 2.

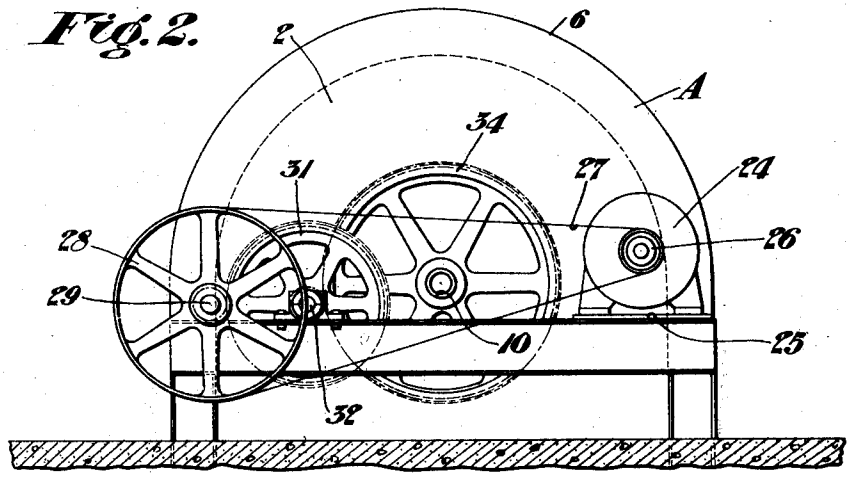
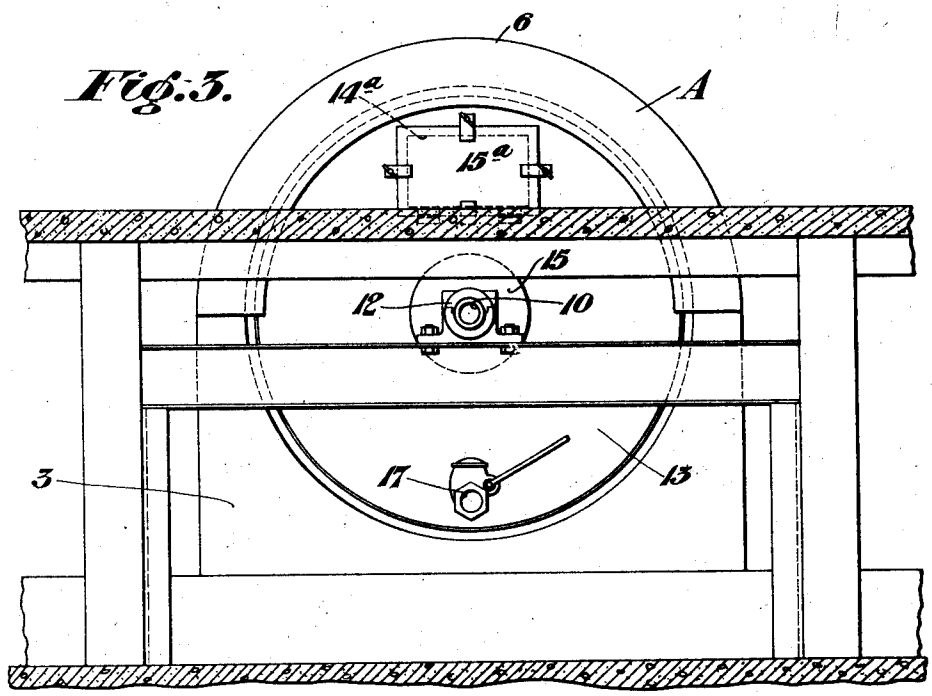


Fig. 3.



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GREASE MELTING FURNACE

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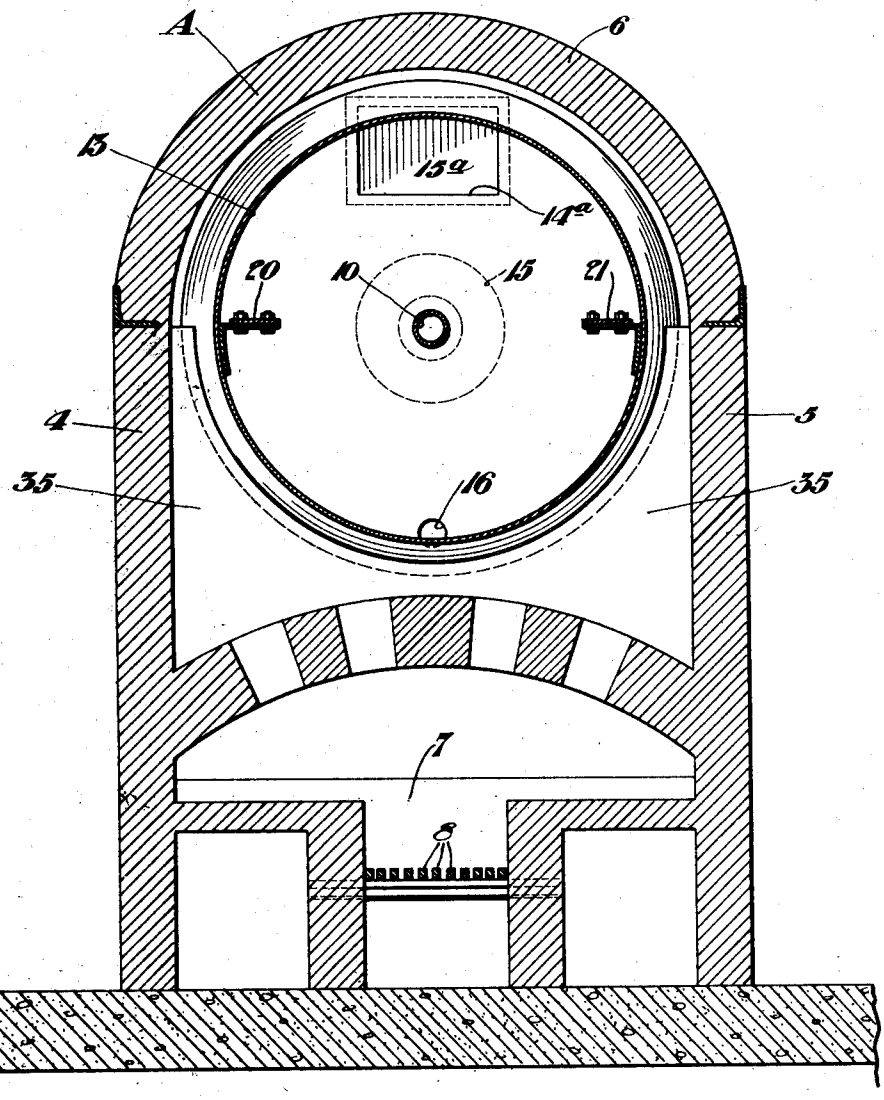
Fig. 4.



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GREASE MELTING FURNACE

Filed March 26, 1926 4 Sheets-Sheet 4

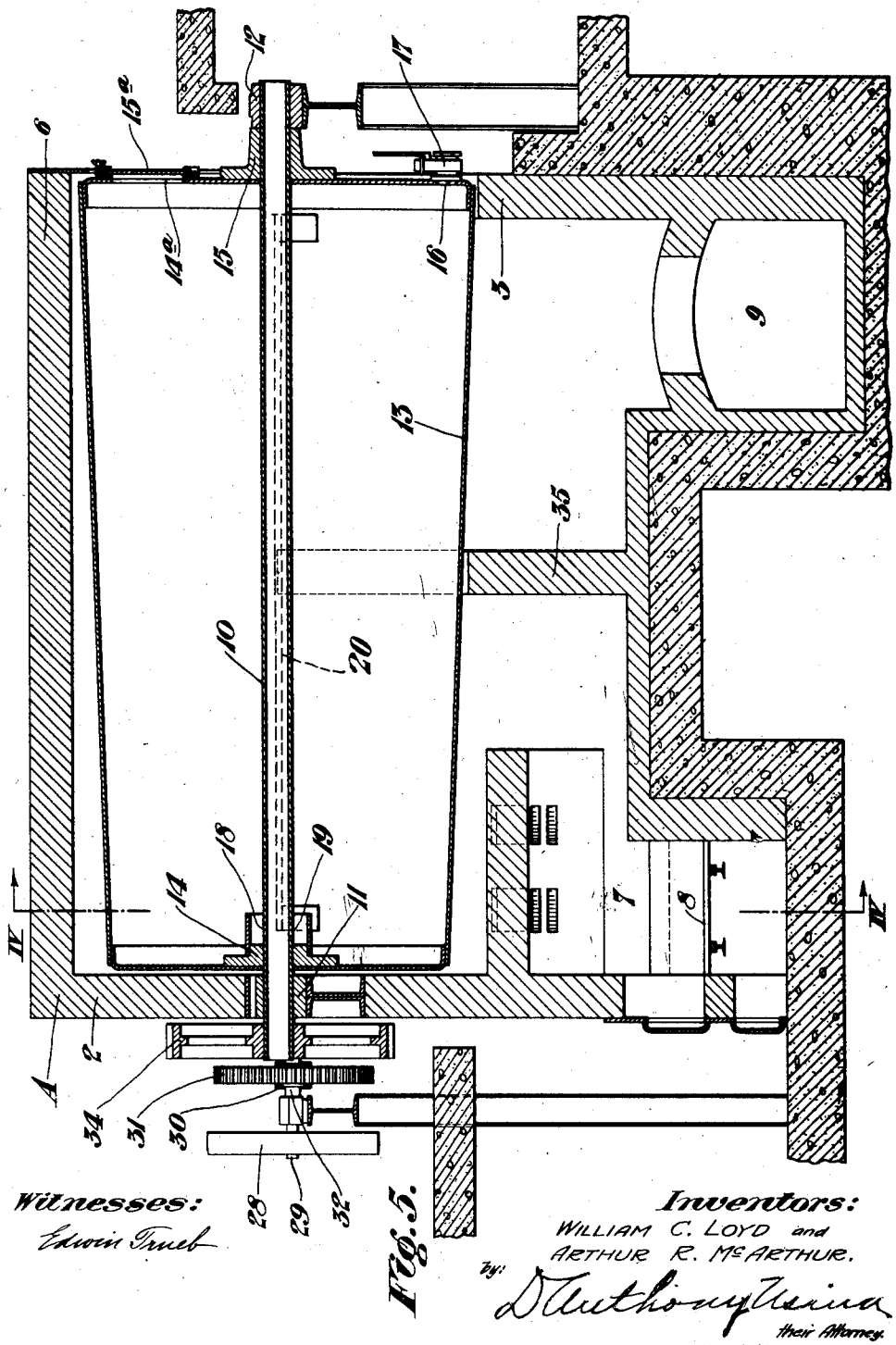

Fig. 5.

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Patented July 3, 1928. 1,675,813

UNITED STATES PATENT OFFICE.

WILLIAM C. LOYD AND ARTHUR R. McARTHUR, OF GARY, INDIANA, ASSIGNORS TO AMERICAN SHEET AND TIN PLATE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

GREASE-MELTING FURNACE.

Application filed March 26, 1926. Serial No. 97,672.

This invention relates to furnaces and more particularly to grease melting furnaces for melting the grease used to lubricate the necks of the hot rolls in a tin mill, and has for its object the provision of a novel form of furnace which will melt the grease in much less time than the furnaces heretofore used and which will prevent the burning of the grease.

Heretofore pots for melting and mixing the grease used to lubricate the necks of the hot rolls in tin mills have consisted of a stationary pot or pan of about 12 feet wide, 14 feet long and 3 feet deep, built over a furnace and have the entire top open for filling and stirring with a hand paddle. These pots required a great amount of manual labor, and the fact that heat does not travel well through heavy grease caused the grease to become overheated at the bottom, which formed coke and materially lessened the lubricating qualities of the grease.

The present invention provides a motor driven rotary pot, having baffles for stirring and mixing the grease and, therefore, overcomes all the objections to the old style pot, and in addition the furnace and pot of this invention will melt the grease in much less time than the apparatus heretofore used.

In the drawings:

Figure 1 is a plan view of a furnace embodying our invention.

Figure 2 is an end elevation thereof.

Figure 3 is an elevation of the end opposite that shown in Figure 2.

Figure 4 is a transverse sectional view taken on line IV—IV of Figure 5.

Figure 5 is a longitudinal sectional view taken on the line V—V of Figure 1.

Referring more particularly to the drawings, the letter A designates the enclosing structure or housing of the furnace as a whole, which is composed of end walls 2 and 3, side walls 4 and 5, and an arched roof or top wall 6.

A fire box 7 is provided at one end of the furnace housing and is provided with grates 8 for supporting a coal fire. However, it will be understood that any other form of gaseous, liquid, or solid fuel may be used, and the fire box 7 may be altered to accommodate such fuels without departing from our invention.

A stack flue 9 is formed at the bottom of the other end of the furnace housing A and communicates with a stack (not shown).

A hollow shaft 10 passes through the furnace and is journaled in bearings 11 and 12 supported on the end walls of the furnace.

A cylindrical grease pot 13 having bearings 14 and 15 at its opposite ends, is secured on the shaft 10 so as to rotate therewith. The end wall 3 of the furnace housing is open so as to expose the head end of the pot 13, which end is provided with an inlet or charging opening 14^a normally closed by a hinged closure or door 15^a, and an outlet opening 16 for the discharge of the melted grease, which opening is controlled by a discharge valve 17.

The pot 13 has a gradually reduced diameter from the head or material charging and discharging end toward the other end so that the melted grease will flow toward the head end of the pot.

The shaft 10 is provided with vent openings 18 and 19 within the pot 13 to permit the escape of vapors or gases from the pot during the melting of the grease.

A pair of baffle plates 20 and 21 extend longitudinally in the pot 13 and are secured to the pot and adapted to mix and stir the grease when the pot is rotated. That is, they will carry the grease up as the pot is rotated and then permit it to drop into the melted grease, thus turning, mixing and stirring the same.

The shaft 10 and pot 13 are rotated by an electric motor 24 which is mounted on motor shelf 25 and has its armature shaft provided with a pulley 26. The pulley 26 is connected by a belt 27 to a pulley 28 on a shaft 29, which shaft has a pinion 30 meshed with a gear 31 on a shaft 32. The shaft 32 is provided with a pinion 33 which meshes with a gear 34 on the hollow shaft 10.

A baffle wall 35 extends upwardly from the bottom of the furnace, intermediate its ends, to approximately the center line of the pot 13, and is adapted to cause the products of combustion to pass upwardly from the fire box 7 around one end, then along the pot 13 and down around the other end thereof to the stack flue 9, thus causing an even heat along the entire pot.

In operation the furnace will be fired and the pot 13 will be charged with cold heavy

grease through the opening 14ª. After the pot has been charged the opening 14ª will be closed by the door 15ª and the motor 24 will be started to rotate the pot 13. As the pot 13 is rotated the baffle members 20 and 21 will continually carry the grease upwardly and let it drop back into the pot, thus mixing and stirring the grease.

The baffle wall 35 will cause the products of combustion to be distributed over the entire surface of the pot and thereby heat and melt the entire charge of grease.

After the grease is melted the motor 24 will be stopped and the melted grease will be drawn from the pot through the valve 17.

While we have shown one specific embodiment of our invention, it will be understood that we do not wish to be limited thereto since various modifications may be made without departing from the scope of our invention as defined in the appended claims.

We claim:

1. A grease melting furnace comprising an enclosing structure, a hollow shaft extending through said structure, a closed frusto-conical grease pot secured on said shaft and rotatable therewith, said pot having a gradually decreasing diameter toward one end, said enclosing structure being provided with an opening in one end to expose the larger circular end of said pot, an inlet opening in said exposed larger circular end of said pot, a closure for said inlet opening, a valved outlet in said exposed larger end of said pot at a point therein substantially diametrically opposite from said inlet opening and near the periphery thereof through which melted grease may be withdrawn from said pot, a pair of diametrically opposite baffle plates secured to the inside walls of and extending longitudinally of said pot for mixing and stirring the grease in said pot during the rotation thereof, and means for rotating said shaft and said pot.

2. A grease melting furnace comprising an enclosing structure, a hollow shaft extending through said structure, a closed frusto-conical grease pot secured on said shaft and rotatable therewith, means for rotating said shaft and said pot, said shaft having its ends open to the atmosphere and being provided with at least one vent opening adjacent one end wall of the pot and intermediate its ends communicating with the interior of said pot at a point adjacent one end of said pot to permit the gases generated in said pot to escape through said shaft, and a cylindrical hood member secured to the end wall of said pot adjacent said vent opening and projecting outwardly around said shaft beyond said vent opening to prevent grease from falling from the side walls of said pot into said vent opening and clogging said opening during the rotation of said pot.

In testimony whereof, we have hereunto set our hands.

WILLIAM C. LOYD.
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