March 29, 1949. D. C. CAMPION, SR 2,465,511

ANNEALING MACHINE

Filed May 3, 1946

FIG. 1.

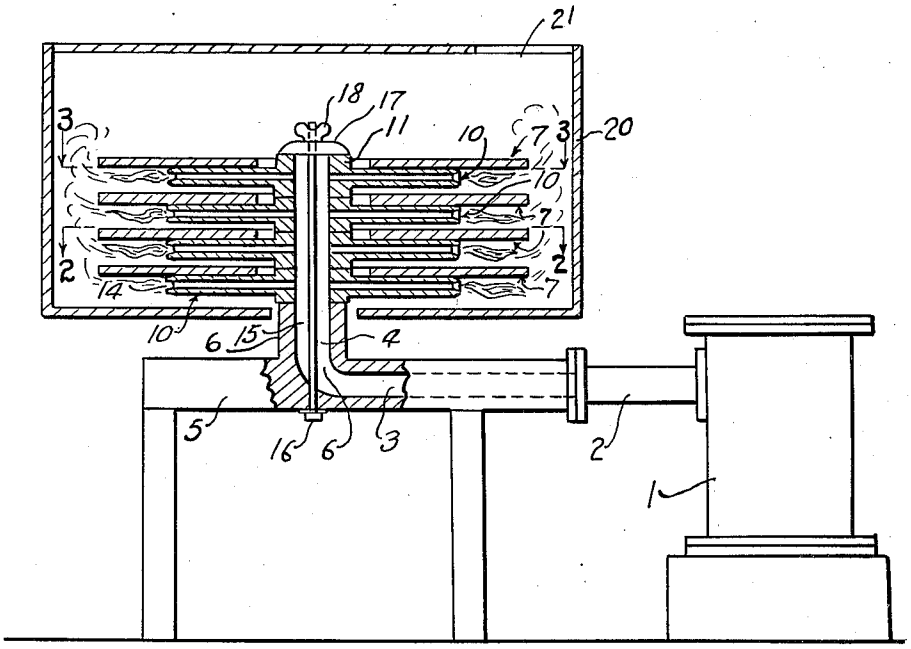


FIG. 2.

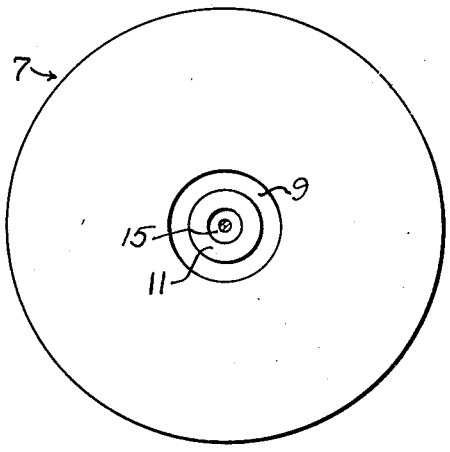
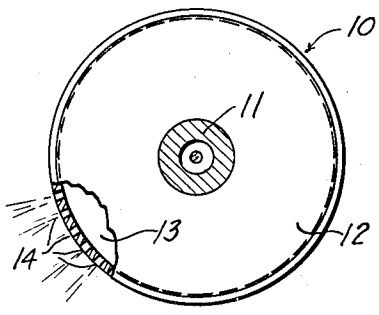


FIG. 3.



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2,465,511

ANNEALING MACHINE

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12 Claims. (Cl. 263—5)

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This invention relates to an annealing machine and more particularly to an annealing machine for discs such as automotive wheel discs.

It is an object of this invention to produce a machine for annealing metal objects, such as disc wheels, which is simple in form, efficient in operation and which provides facile and expeditious handling of the work.

Fig. 1 is a vertical section through my machine.

Figs. 2 and 3 are sections along the lines 2—2 and 3—3 of Fig. 1.

Referring more particularly to the drawing, it will be seen that my device comprises a gas mixer 1 in which a charge of combustible gas, such as manufactured or natural gas, is mixed with air. The gas mixer 1, of course, is connected with a source of combustible gas and mixes this gas with air in the proper proportions to support efficient combustion. The gaseous charge is conducted through pipe 2 and conduit 3 to outlet 4 in work support table 5. Outlet 4 is provided with a circumferential flange 6 which acts as a center for the disc wheels, generally designated 7, which are being annealed. Each disc wheel has a central opening 9.

My annealing machine utilizes a plurality of disc burners, generally designated 10, and each comprising a hub 11 and a flange 12. The disc flange 12 is hollow to provide a gas chamber 13 and is provided with a plurality of jets or orifices 14 around its circumference through which the gas mixture flows and burns. The diameter of burner 10 is less than that of the wheel 7.

In utilizing my machine a plurality of burners and wheel discs are stacked in alternate relation one upon the other so that the burner hubs are in axial alignment and cooperate to provide a passageway 15 through which the gaseous mixture from outlet 4 flows to each of the burners 7. The disc burners and wheels are held in stack arrangement by a tie-down rod 16 which passes through an opening in table 5 centrally of outlet 4 and upwardly through the passageway 15. The upper end of rod 16 is threaded and a closure clamp 18 is screwed on to the upper end of rod 16 and turned down tightly so that closure 17 closes the upper end of passageway 15 and holds the burner hubs in substantially gas-tight junction one upon the other.

The gas now flows from conduit 3 through passageway 15 and then outwardly through chambers 13 and nozzles 14 in each of the disc burners. It will be seen that the disc wheels 7 substantially overhang the circumferential edges of the burner flanges 12 and consequently the

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burner flames strike, play upon, and heat the wheel discs 7.

My device is provided with a removable gas manifold 20 having an outlet 21 which can be connected with any suitable exhaust pipe for removing the waste products of combustion.

I claim:

1. A method for heating articles each having an opening therethrough comprising stacking in alternate relation a plurality of said articles and a plurality of gas burners each having an opening therethrough and a plurality of nozzles with the openings in alignment to form a passageway communicating with said nozzles, passing a combustible gaseous mixture through said passageway to supply said burners with a combustible mixture and burning said gaseous mixture at the burner outlets to heat said articles.

2. In an apparatus for heating a plurality of articles each having an opening therethrough, a plurality of gas burners each having an opening therethrough, and a plurality of outlets communicating with said opening in said burner, said burners being positioned in a stack with the openings of said burners substantially aligned to form a passageway, said stack of burners being adapted to receive between the burners and in alternate relation therewith, the articles to be heated, and a source of a combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to the outlets of said burners.

3. A method for heating articles comprising stacking a plurality of said articles with a plurality of gas burners each having a hub and a plurality of burner nozzles positioned circumferentially around said hub, positioning the burner hubs in alignment to form a passageway, passing a combustible gaseous mixture through said passageway to supply said burner nozzles with a combustible mixture and burning said gaseous mixture at the nozzles to heat said articles.

4. A method for heating articles comprising stacking in alternate relation a plurality of said articles and a plurality of gas burners each having a hub and a plurality of burner nozzles positioned circumferentially around said hub at a radius less than that of the article whereby the articles overlie the burner nozzles, positioning the gas burners and articles in alternate relation with the hubs of said burners in substantial alignment to form a passageway, passing a combustible gaseous mixture through said passageway to supply said burner nozzles with a combustible mixture

and burning said gaseous mixture at the nozzles to heat said articles.

5. In an apparatus for heating a plurality of articles each having an opening therethrough, a plurality of gas burners each having an opening therethrough and including a plurality of nozzles, said burners being positioned in a stack with the openings substantially aligned to form a passageway, said stack of burners being adapted to receive between the burners and in alternate relation therewith, the articles to be heated, means for spacing the burner nozzles from said articles, and a source of a combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to said burners.

6. In an apparatus for heating a plurality of articles, a plurality of gas burners each comprising a hub and a plurality of burner nozzles positioned circumferentially about said hub, said burners being stacked with the hubs of said burners substantially aligned to form a passageway, the said burner nozzles being in communication with said passageway, said stack of burners being adapted to receive between the burners and in alternate relation therewith, the articles to be heated, and a source of combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to said burners.

7. In an apparatus for heating, a plurality of metal discs, a plurality of gas burners each comprising a hub and a hollow disc secured thereto, said burner disc having a plurality of nozzles circumferentially spaced about said hub, the said burners being positioned with the hubs of the burners contacting and aligned to form a passageway, said burners being adapted to receive therebetween in alternate relation the articles to be heated, and a source of combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to said burner nozzles.

8. The combination as set forth in claim 7 wherein the metal discs overhang the burner nozzles and wherein the burner nozzles are in communication through the hollow disc portion of the burner with the said passageway.

9. In an apparatus for heating, a plurality of metal discs each having a central opening therethrough, a plurality of gas burners each having a central opening therethrough, a plurality of spacer rings, said burners and spacer rings being positioned in alternate contacting relation with the openings substantially aligned to form a central passageway, said burners being adapted to receive therebetween in alternate relation the said metal discs with the central openings of said discs aligned and concentric with said central passageway, and a source of a combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to said burners.

10. In an apparatus for heating a plurality of metal discs each having a central opening, a plurality of gas burners each having a central opening, and a plurality of burner nozzles positioned circumferentially about and in communication with the opening in said burner, said burners being stacked one upon the other, means for spacing the nozzles of each burner from the nozzles of the adjacent burner, said burners being positioned with the central openings substantially aligned to form a passageway, said burners being adapted to receive therebetween in alternate relation the said metal discs with the central openings of said discs aligned and concentric with said central passageway a source of combustible gaseous mixture connected into said passageway to thereby supply a combustible mixture to said burners, and means for closing at least one end of said passageway.

11. In an apparatus for heating a plurality of articles each having an opening therethrough, a plurality of burners each having an opening therethrough and arranged in a stack with the openings aligned to form a passageway, a plurality of outlets on said burners communicating with said passageway, and means surrounding the openings in said burners and spacing said burners apart a distance greater than the height of said articles, said spacing means being adapted to be received within the openings in said articles, whereby said articles may be positioned over said spacing means between adjacent burners and heated by a combustible gaseous mixture introduced into said passageway and burned at said outlet.

12. In a heating apparatus, a plurality of burners each having an opening therethrough, said burners being arranged in a stack with the openings aligned to form a passageway, a plurality of nozzles on said burners spaced circumferentially of said openings and communicating with said passageway, means spacing said burners apart whereby a plurality of apertured articles may each be positioned between a pair of adjacent burners with the apertures surrounding the passageway formed by said openings, and a source of combustible gaseous mixture connected with said passageway for supplying a combustible mixture to said nozzles.

DONALD C. CAMPION, SR.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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Certificate of Correction

Patent No. 2,465,511. March 29, 1949.

DONALD C. CAMPION, SR.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 2, lines 17 and 18, claim 1, for the words "the burner outlets" read *said nozzles*;

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of August, A. D. 1949.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.