

H. L. CLARK AND J. H. SOWER,
PARAFFINING MACHINE.
APPLICATION FILED JULY 26, 1919.

1,395,258.

Patented Nov. 1, 1921.

2 SHEETS—SHEET 1.

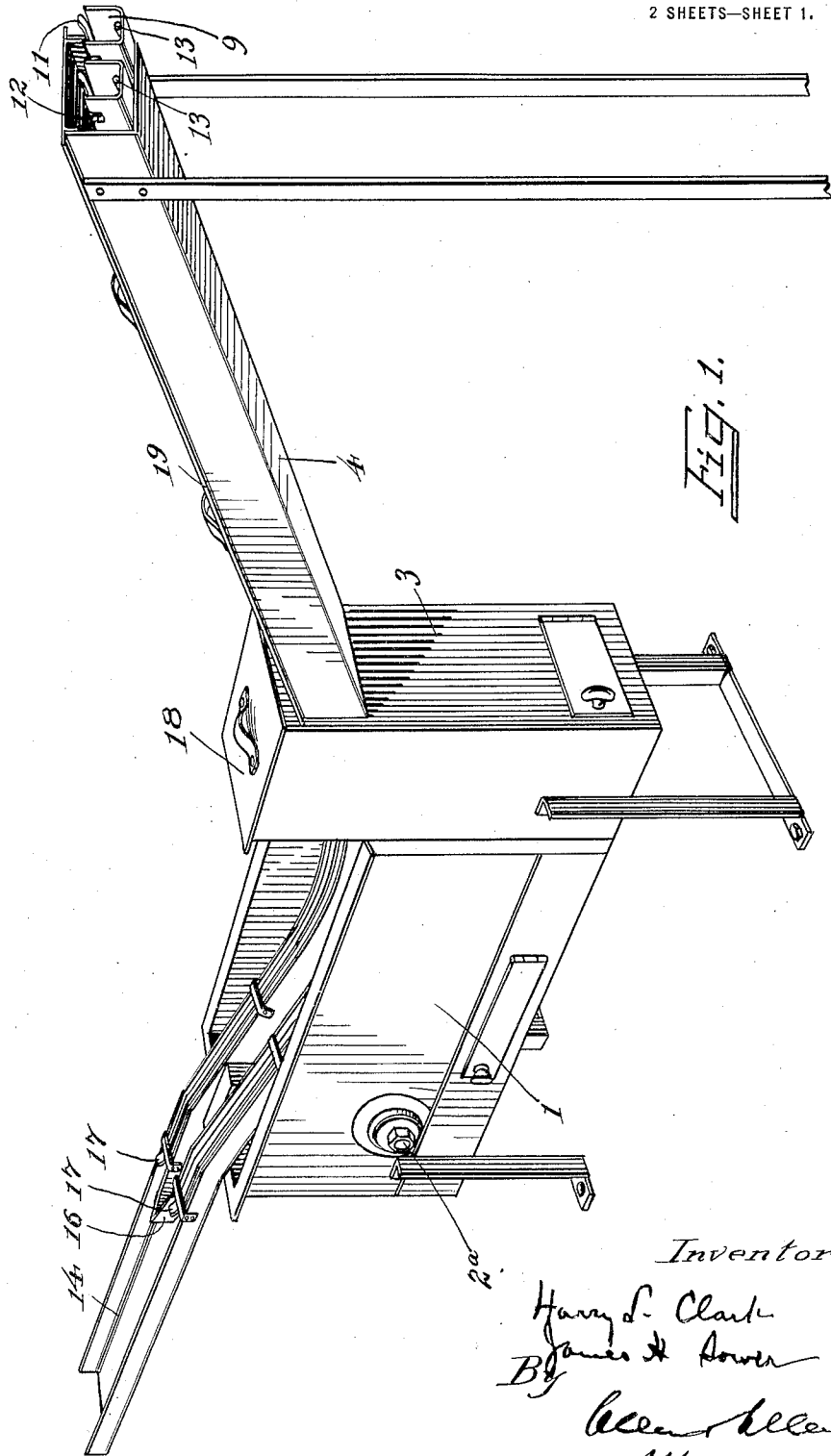


Fig. 1.

Inventor:

Harry L. Clark
James H. Sower
By

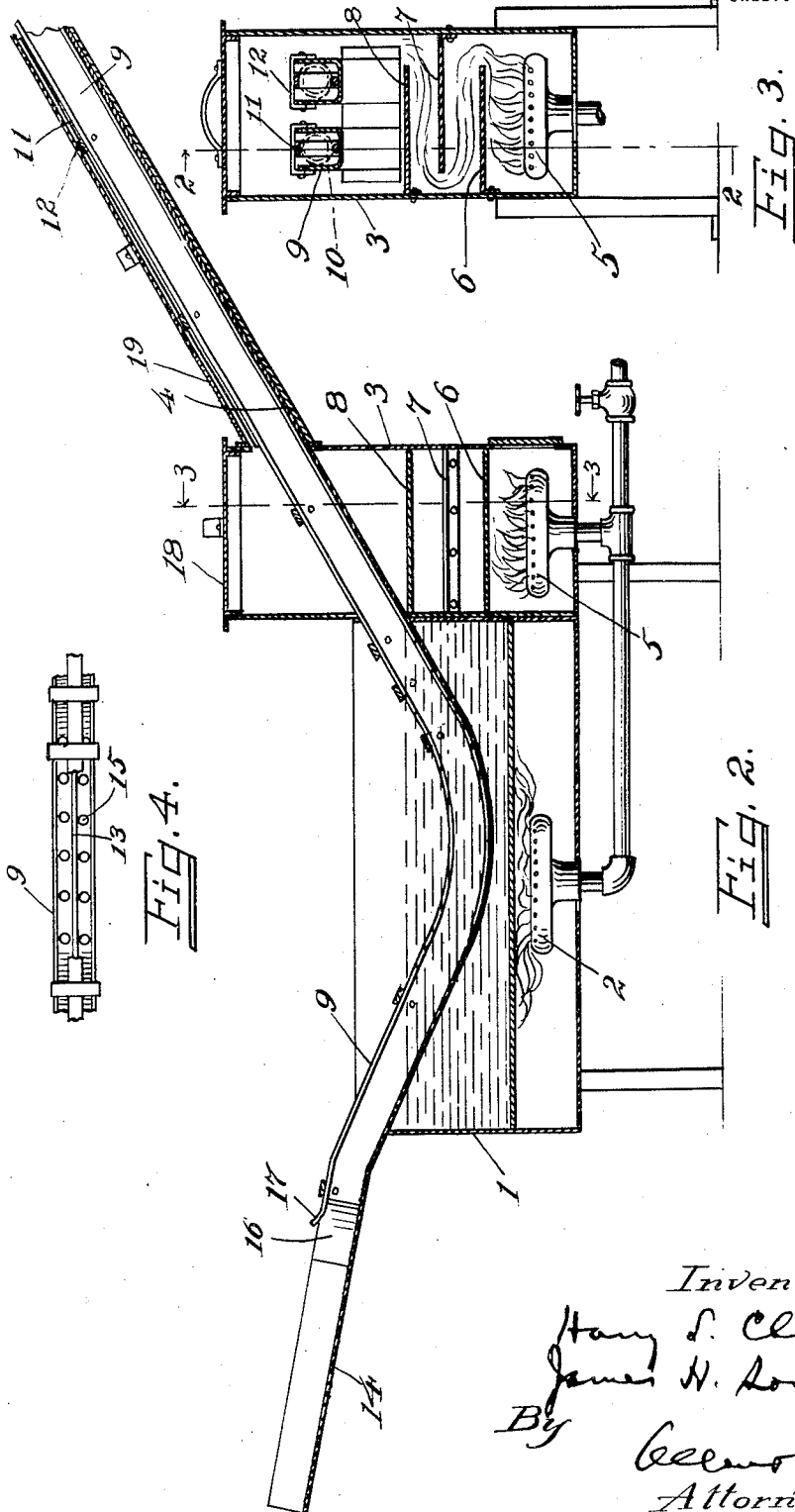
Allen Allen
Attorneys.

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SHEETS—SHEET 2.



Inventor:
 Harry S. Clark
 James H. Sower
 By *Wesley Allen*
 Attorneys.

UNITED STATES PATENT OFFICE.

HARRY L. CLARK, OF NORWOOD, AND JAMES H. SOWER, OF CINCINNATI, OHIO,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE SOUTHERN OHIO TIN CAN COM-
PANY, OF WINTON PLACE, OHIO, A CORPORATION OF OHIO.

PARAFFINING-MACHINE.

1,395,258.

Specification of Letters Patent.

Patented Nov. 1, 1921.

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To all whom it may concern:

Be it known that we, HARRY L. CLARK and JAMES H. SOWER, citizens of the United States, and residents, respectively, of Norwood and Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Paraffining-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification.

Our invention relates to processes and machines used therewith for coating and impregnating articles of absorbent nature with paraffin or the like. In particular, it relates to the impregnating of paper or fiber rolls, which are used for making containers, with paraffin, and the machine shown is one which was constructed for this particular purpose.

Broadly stated, the object of our invention is to provide a paraffining means for containers or other articles, which is rapid and efficient, and which at the same time does not take up a large amount of space. In particular reference to the impregnating of paper rolls for containers or other rigid articles, our object is to provide for the articles themselves feeding through the device by pressure applied by the operator when inserting untreated articles in the machine. In connection with the process which our machine involves, it is our object to pass the articles first through a bath of molten material, and thence directly up an inclined passageway which is subjected to heated air, said air causing the paraffin or the like to sink into the article and become thoroughly impregnated and the surplus of the material to flow off from the article and thence down the passageway to the tank of molten material.

The objects above noted and other advantages which will be referred to, we accomplish by that certain process of treatment and that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings,

Figure 1 is a perspective view of the device.

Fig. 2 is a central, vertical longitudinal section of the device.

Fig. 3 is a vertical cross section taken through the heating furnace or stove.

Fig. 4 is a detail top plan view of one of the conduits as it passes through the paraffin tank.

According to our process, the material to be treated, which in the particular form of apparatus shown, are rolls made up from heavy paper or paper board, which are to be impregnated with paraffin, is passed first through a tank in which the paraffin is maintained in a molten condition. Without handling, the articles then are passed upwardly through any suitable conduit which is closed to the outside air, but through which passes, either by forced draft or natural flow, a stream of heated air. Preferably this hot air is provided by means of a direct flame, which is baffled to prevent its contact with the paraffin, but the products of combustion of which pass into the conduit.

The conduit should be upwardly sloping and of sufficient length so that all surplus material on the articles will melt off and flow down into the tank again, and so that the hot air will cause the paraffin to sink into and become thoroughly impregnated in the articles. Another result of passing the articles in an upward slanting path is that all of the surplus material will flow off of the article, particularly in paper rolls, and further the current of heated air carries off fully all fumes which may arise as a result of cooking in the paraffin.

With rigid articles, this method of paraffining has another distinct advantage, since the paraffin is itself a lubricant when hot, and thus there can be arranged a special form of conduit which will permit of the operator pushing along an entire line of the articles, in the movement of inserting uncoated ones in the tank, thus providing a step-by-step movement which is properly timed for complete impregnation. Then again the process involves no handling of the rolls, which is of advantage in connection with their use as containers for food products or the like.

The machine itself, in the embodiment shown in the drawings and the form developed by us for use in paraffining the paper rolls which go to make up baking powder cans, used in our business, has a

paraffin tank 1, under which is a compartment containing a gas burner 2 for continuously providing the tank with the proper heat. No thermostatic controlling device is shown, although one could be employed to advantage in this connection, as at 2^a in Fig. 1.

Adjoining the tank is a heating stove or furnace 3, from the far side of which extends a conduit 4, which opens into the inside of the stove, and extends upwardly at a slant a comparatively short distance, before it terminates in any desired form of chute, or conveyer for moving the rolls to a place for storage or to another machine.

At the base of the stove is a gas burner 5, and between the burner and the central portion of the stove are three baffles 6, 7 and 8, which prevent the flame from the gas reaching the upper portion of the stove, and still permit the heated air and products of combustion to pass up through the stove and out through the conduit, the latter acting as a flue.

It is through the above described mechanism that the paper rolls pass, and it will be understood in the matter that follows that while the structure is particularly adapted to our purpose, any other open conveyer would serve, should the articles be of different character.

Dependent upon the width of the heating apparatus, there are provided the desired number of guides 9, which in the particular instance are adapted to receive the paper rolls 10. They are formed with closed base and sides, and at the top are left open except for a retaining strip 11, which is held in place by interspaced cross strips 12.

In the base of the guides is placed a continuous round rod 13, which is an antifriction device, and if desired or necessary, this antifriction device could be duplicated on the other sides of the guides. The rolls adapted for use with the particular guides will slide freely therein, since the round rod removes the friction and the paraffin acts as a lubricant.

The guides run from the charging table 14 in a downward path through the tank 1, thence up through the stove and up through the conduit. Within the tank, the base and sides also, if desired, of the guides are pierced with holes 15, so as to permit the paraffin to readily coat on the articles.

In operation, the rolls are placed in the mouths 16 of the guides, which may have directing fingers 17, and thence pushed along, so as to displace the roll in front. This is continued until the guides are completely full, when it is apparent that the additional rolls inserted will push one roll out of the end of the conduit. This step-by-step motion is well adapted to the work involved since the possible speed of work of

the operator will move the articles along at the proper speed for a complete impregnation.

As shown, the stove and the conduit have the upper ends in the form of lids 18 and 19, so that they can be easily opened up, should repairs become necessary.

The excess paraffin carried off by the articles as they pass from the bath runs down through the guides and into the bath. While direct hot air is employed, there is no flame which can reach the paraffin and explode or ignite it. The rolls are subjected to a constant draining during their passage through the conduit and the guides, and thus emerge from the device with the paraffin thoroughly impregnated in the body thereof, but with a surface which is only slightly greasy from the hot paraffin, and which dries without any surplusage showing.

Aside from the cheapness of operation and the speed of working, as compared to the older methods, requiring basket dipping, a large drying and kilning space, this device and method saves tremendously in paraffin.

So far as we are advised, no one in the past has considered that proper paraffining could be done by continuously passing an article from the molten bath to a place for ultimate storage, and it is because of the simultaneous draining and subjecting to heated air, that we are able to produce the paraffined article of perfect impregnation which we now obtain. In making paraffined paper containers, the method and device for carrying it out are especially convenient because the speed of the usual operator is proper for timing the subjecting of the paper to the process. As explained above, the omission of a belt or other conveyer with the guides in the particular showing is because with the article selected there is no particular need therefor.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A device of the character described comprising a means for maintaining a molten bath of paraffin or the like, for impregnating cartons, and a conduit leading down into the bath and thence upwardly for an extended distance, said conduit being formed to engage the cartons without friction so as to permit the advancement of a complete charge of cartons by an insertion of an additional carton therein, and of a length sufficient to dry out to the required degree, each carton passing through the same when impelled therethrough by the available hand labor for insertion of cartons one by one.

2. A device of the character described comprising a means for maintaining a molten bath of paraffin or the like, for impregnating cartons, and a conduit leading down into the bath and thence upwardly for

- an extended distance, said conduit being formed to engage the cartons without friction so as to permit the advancement of a complete charge of cartons by an insertion
 5 of an additional carton therein, and of a length sufficient to dry out to the required degree, each carton passing through the same when impelled therethrough by the available hand labor for insertion of cartons
 10 one by one, and a heating element located adjacent the means for maintaining the bath of paraffin, said element being adapted to send a current of heated air direct through the conduit.
- 15 3. A paraffining machine or the like, comprising a vat for maintaining the paraffin or the like in molten condition, a heating element, a conduit element communicating with the heating element, and elements for supporting and carrying the articles to be
 20 treated through the bath and thence through the conduit, said elements comprising the desired number of guiding members, closed at the base, and provided with anti-friction means for engagement with the articles
 25 therein of a character adapted to permit the advancement of a complete charge of articles by the insertion of an additional article.
- 30 4. A paraffining machine or the like, comprising an element for providing a molten bath, a stove, and a conduit leading upwardly therefrom, said stove communicating with the interior of the conduit, means for conducting the articles to be paraffined
 35 down through the bath and thence through the conduit, said means being adapted to drain back into the bath from the conduit and describing a curved path through the molten bath.
- 40 5. A paraffining machine or the like, comprising an element for providing a molten bath, a heating element, and a conduit element communicating with the heating element so that the heated air passes therefrom into the interior of said conduit, said
 45 conduit leading upwardly from the heating element, and a guiding element extending through the bath and conduit, said guiding element being adapted to convey back into the bath the molten material drained from
 50 the articles being treated during their passage through the bath, and being provided with an antifriction means for engaging the articles to be treated adapted to permit an advancement of a complete charge of articles
 55 by the insertion of an additional article.
6. A paraffining machine or the like, comprising an element for providing a molten bath, a heating element, and a conduit element communicating with the heating element
 60 so that the heated air passes therefrom into said conduit, said conduit leading upwardly from the heating element, and a guiding trough leading through the bath and the conduit, said trough being open at
 65 the top, and at the bottom provided with a round rod for an antifriction engagement with the article to be treated.
7. A device for impregnating paper rolls with paraffin or the like, comprising a molten
 70 bath element, a heating element and a conduit element leading upwardly from the heating element, and a guide for the roll, comprising a trough closed at the base, and
 75 provided with a rod set in the base and adapted to engage the under side of the rolls during their passage, whereby the operator can enforce a step-by-step movement of the rolls through a device by the insertion of the untreated articles into the guide.

HARRY L. CLARK,
 JAMES H. SOWER.