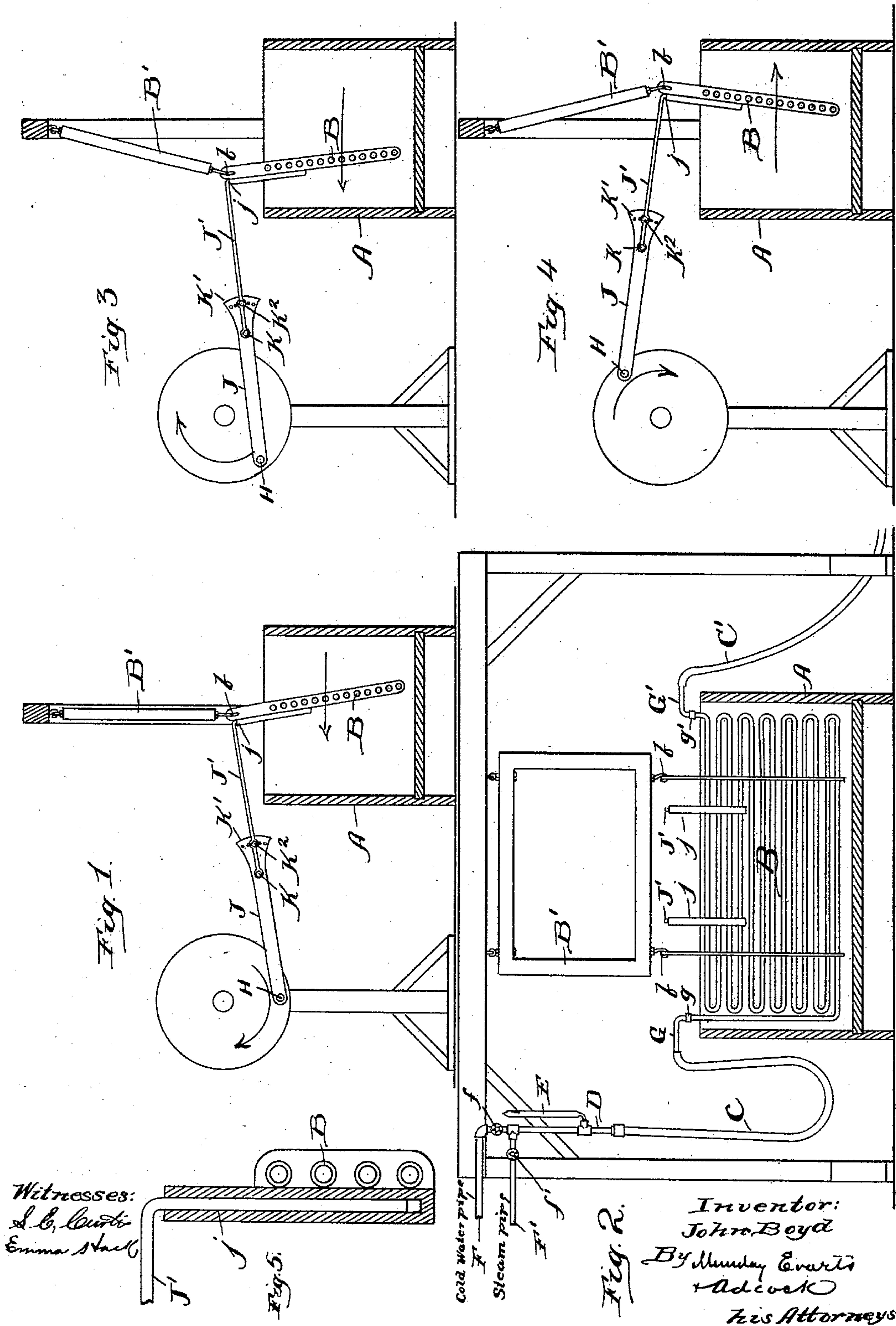


(No Model.)

J. BOYD.  
APPARATUS FOR TEMPERING CREAM.

No. 487,708.

Patented Dec. 13, 1892.





# UNITED STATES PATENT OFFICE.

JOHN BOYD, OF ELMHURST, ILLINOIS.

## APPARATUS FOR TEMPERING CREAM.

SPECIFICATION forming part of Letters Patent No. 487,708, dated December 13, 1892.

Application filed February 23, 1892. Serial No. 422,560. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BOYD, a citizen of the United States, residing at Elmhurst, in the county of Du Page and State of Illinois, have invented a new and useful Improvement in Apparatus for Tempering Cream, of which the following is a specification.

This invention relates to that class of devices in which the cream or liquid to be tempered is contained in a vat through which a coil or congeries of pipes containing steam or hot water or cold water is moved or swung. A difficulty in this kind of apparatus has been the tendency of the swinging coil to agitate to too great a degree the liquid contained in the tank, and in case of cream this agitation tends to churn the same. Thick liquids—such as cream in certain conditions—also do not pass freely through the coil, and there is a tendency to throw the liquid out of the vat, to froth it unduly, and to change the temperature unequally.

The object of the present improvement is to provide a construction of apparatus such that the coil shall move through the liquid in a certain peculiar manner, being inclined at the top toward each side of the vat as it approaches the same, whereby the liquid is forced to pass through the coils, slopping and frothing measurably prevented, and an even temperature more easily obtained.

With these objects in view, the invention consists in providing the vat with an upright coil of pipe connected to the hot or cold pipes, or both, and hinged at the top to swing through the contents of the vat. To this tempering coil is rigidly attached a pitman, so that the coil always maintains the same angle to the pitman. This pitman in turn is connected to a crank so placed with relation to the vat that its revolution will cause the tempering-coil to approach the sides of the vat in an inclined position, with the upper edge of the coil tipped toward the side of the vat as it approaches either side thereof. This slightly-tipped position of the coil and its regular motion through the cream tends to prevent the slopping and undue agitation thereof, and to force the cream between the coils.

In the accompanying drawings, which form a part of this specification, and in which the same letters of reference indicate like parts

in the several views, Figure 1 is a side elevation of the apparatus, the tank being shown in section. Fig. 2 is a similar front elevation of the same. Figs. 3 and 4 are views similar to Fig. 1, showing the crank and pipes in different positions. Fig. 5 is a detail view showing the method of attaching the pitman to the tempering-coil.

In the drawings, A represents the cream-containing tank. B is the tempering-coil of pipe, hinged at *b* to the swinging frame B', which in turn is flexibly connected to a support above—as, for example, to a beam or to the ceiling of the room.

C is the inlet-hose for the coil of pipe, and C' the outlet-hose therefor. The inlet-hose is connected to a pipe D, provided with the thermometer E for determining the temperature of the contents of the pipe.

F is a cold-water pipe, and F' a steam or hot-water pipe, both connecting with the pipe D. Valves *f* and *f'* serve to control and regulate the admixture of the tempering contents in the pipe D. The inlet and outlet hose are each provided with an elbow connection G G', connected by a coupling *g g'* to the coil of pipes. The purpose of thus connecting the hose to the tempering-pipe is in order to enable the operator to remove the elbows G G' from the pipe when desired, so that the coil may be left in the cream and covered up therein. For this reason, also, the connection between the tempering-coil and the swinging frame which supports the same is made by hooks so that the coil may be detached from said frame and allowed to rest upon the bottom of the tank, when it may be covered up by the cover of the tank and left in the cream ready to be used when any further change in the temperature of the contents of the tank is desired. This avoids the loss of cream and inconvenience which would otherwise be occasioned by the removal of the coil from the tank, dripping with the adhering cream.

H is a crank and J is a pitman, which pitman is connected rigidly to the coil in any suitable way. One convenient way is to provide the bail J', consisting of a fork of iron rod the bent ends of which enter sockets *j* attached rigidly to the tempering-coils. This method of attachment while rigid and secure in operation is such that the pitman may be



detached from the coil at pleasure by simply lifting the ends of the bail out of the sockets.

I have found it convenient in setting up the machine to have a ready means of adjusting the angle that the pitman shall maintain to the coil, and a convenient method of accomplishing this adjustment is the one shown in the drawings, and which consists in pivoting the bail J' to the pitman, as at K, the end of the pitman being furnished with a segment K', containing a number of holes, and the bail being attached at these holes to the pitman by a pin K<sup>2</sup>. The placing of this pin in the different holes affords a means for adjusting the fixed angle, which the tempering-coil shall maintain to the line of the pitman.

The operation of the apparatus is as follows: Supposing the steam-coil to be swung in the vat and the latter to be nearly filled with cream, and the tempering-coil connected with the supply of hot and cold water, and the crank H in operation, it will be seen that the throw of the pitman will carry the tempering-coil first to one side and then to the other side of the vat. The connection between the pitman and the coil being a rigid one, it will also be seen that the throw of the crank will cause the coil to constantly change its angle, so that the coil will approach the side of the vat nearest the crank somewhat tipped with its top edge toward that side of the vat. As the crank continues to revolve, the inclination of the coil will change and it will approach the other side of the vat tipped in the opposite direction, which will bring it to that side also with its top edge inclining toward that side of the vat. This motion is illustrated in the drawings at Figs. 1, 3, and 4. Starting at Fig. 1, which is the central position of the coil, the crank being at the bottom of its throw and moving in the direction of the arrow, as indi-

cated upon that figure, the coil will have assumed the position shown at Fig. 3 when the crank has reached the position shown in that figure, and when the crank will have reached the position shown in Fig. 4 the coil will have assumed the position shown in that figure. It will thus be seen that whenever the tempering-coil approaches the side of the vat it will be in position to compress the liquid contents between the vertical wall of the vat and the inclined coil. This prevents slopping and churning and causes the cream even though it be thick to be forced through between the coils of the pipe without unnecessary agitation.

I claim—

1. The apparatus for tempering liquids, consisting of the tempering-coil hinged to swing in the vat, combined with a rigidly-connected pitman and a crank for driving the same, substantially as set forth.

2. The apparatus for tempering liquids, consisting of the tempering-coil hinged to swing in the vat, combined with a rigidly-connected pitman and a crank for driving the same, said pitman being connected to the coil by means of a two-pronged bail the ends of which removably engage sockets upon the coil, substantially as set forth.

3. The apparatus for tempering liquids, consisting of the tempering-coil hinged to swing in the vat, combined with a rigidly-connected pitman and a crank for driving the same, combined with provision for changing the angle of the pitman to the coil of the pipes, substantially as specified.

JOHN BOYD.

Witnesses:

JOHN W. MUNDAY,  
EMMA HACK.