

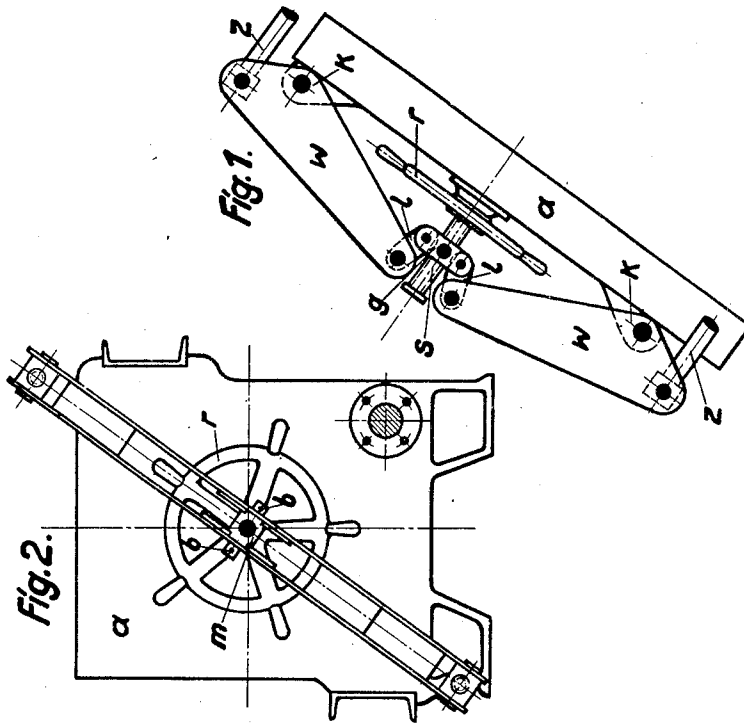
Sept. 17, 1929.

H. FISCHER ET AL
PRESSURE CLOSURE APPARATUS

1,728,482

Filed Oct. 1, 1927

2 Sheets-Sheet 1



Inventors:
Herbert Fischer
and Lazar Grodnitzky
By *Alfred W. [Signature]*
their Atty.

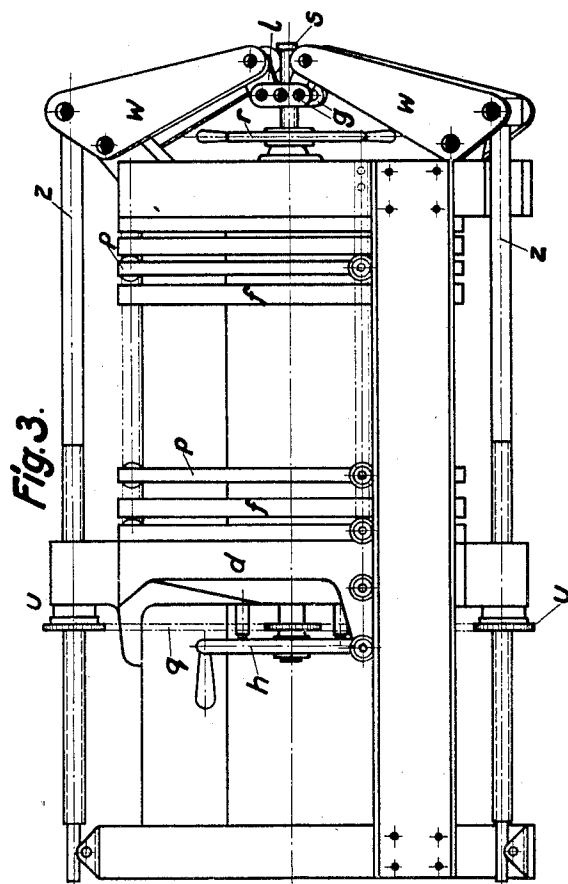
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UNITED STATES PATENT OFFICE

HERBERT FISCHER AND LASAR GRODNITZKY, OF DARMSTADT, GERMANY

PRESSURE CLOSURE APPARATUS

Application filed October 1, 1927, Serial No. 223,471, and in Germany April 24, 1926.

Our invention relates to a pressure closure apparatus.

In the well-known plate coolers for soap and the like one must press together by means of special pressure closure devices the cooling plates and mould frames already brought together by pressure since a tight hold is necessary in order that no soap may escape through any of the joints.

The old device used for this purpose, having a handwheel on a central shaft, has many defects. The relatively small force transmitted does not always press together the plates and frames sufficiently tight, since the mould frames warp with time, and the cooling plates are not always exactly straight. For these reasons, cooling presses having a large number of cooling plates and mould frames are provided with a special closure pressure device. This device consists for example of small spindles and bent crank-levers, which however do not press all the plates and frames uniformly, since the device is arranged on a relatively small movable pressure plate and is limited in its dimensions on account of lack of space.

The defects referred to can be obviated by the employment of apparatus which works with shaft and lever transmission combined with a compensating beam. This system will exert sufficiently great force, and constitutes a completely tight closure of the closed soap cooling press.

On the annexed drawing on which we have shown, by way of illustration, an embodiment of our invention, Fig. 1 is a side elevation of the closing device, and Fig. 2 a top plan view thereof, while Fig. 3 shows the device as applied to a crate cooler for soap and the like.

The operation of this device is as follows:

First, the mould frames "f" and cooling plates "p" shown in Fig. 3 are brought together by the aid of the pressure plate "d". This is effected by suitable means, for example, the hand wheel "h", the sprocket chain "g", and sprocket wheels "u" which are threaded internally and are rotatably mounted on the pressure plate. The wheels therefore travel on the tie-rods "z", which

are threaded externally and move the movable pressure plate in the direction required to bring the plates and frames together. When the plates and frames are brought together the pressure closure device comes into action which will now be described. The spindle "s" (Figs. 1 and 3) is rotatably mounted on a fixed headstock "a". A hand-wheel "r" close to the headstock is fastened to the spindle "s" which can be turned by the handwheel. Meshing with the spindle "s" is a four-sided nut "m" provided at opposite sides with two pins "b" (Fig. 2). On the pins "b" two plates "g" are pivoted, which together form a compensating beam. Two levers "w" are jointed to the compensating beam "g" by means of tension links "l". The levers "w", which are pivoted to the crosshead at "k" are attached to the tie-rods "z", which when axially moved press the movable pressure plate "d" (Fig. 3) tightly against the mould frames and cooling plates, or on opening of the pressure closure apparatus, allows them to separate. Therefore, if the spindle "s" is turned by the hand-wheel "r", the nut "m" is moved along the spindle in one direction or the other, according to the direction in which the handwheel is turned. The compensating beam "g", which is pivotally mounted on the pins of the nut "m", actuates the levers "w" by means of the links "l", so as to press through the tie-rods "z" the pressure plates tight against the cooling plates and mould frames, or when moved in the opposite direction releases them. Any unequal pressure on either side of the pressure plate is avoided, since the compensating beam "g" by its being pivoted on the pins "b" equally divides the force between the tie-rods "z", and a static equilibrium.

The above described pressure closure device, can be applied generally to heat exchange apparatus, that is to say, to apparatus either for heating or cooling materials.

What we claim is:

1. In a pressure closure device for heat exchange devices, in combination with the pressure member and means for actuating the same, levers operatively connected with

said actuating means, a compensating beam intermediate said levers, links pivotally connecting the ends of said beam with said levers, and means for shifting said beam.

- 5 2. In a pressure closure device for heat exchange devices, in combination with a pressure member and means for actuating the same, levers operatively connected with said actuating means, a compensating beam
10 intermediate said levers, links pivotally connecting said beam with said levers, a threaded spindle, a nut engaging said spindle and pivotally carrying said beam, and means for rotating said spindle to shift said beam.
15 In testimony whereof we affix our signatures.

HERBERT FISCHER.
LASAR GRODNITZKY.

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