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BRUSH AND SPINDLE CONSTRUCTION
FOR PAN GREASING MACHINES
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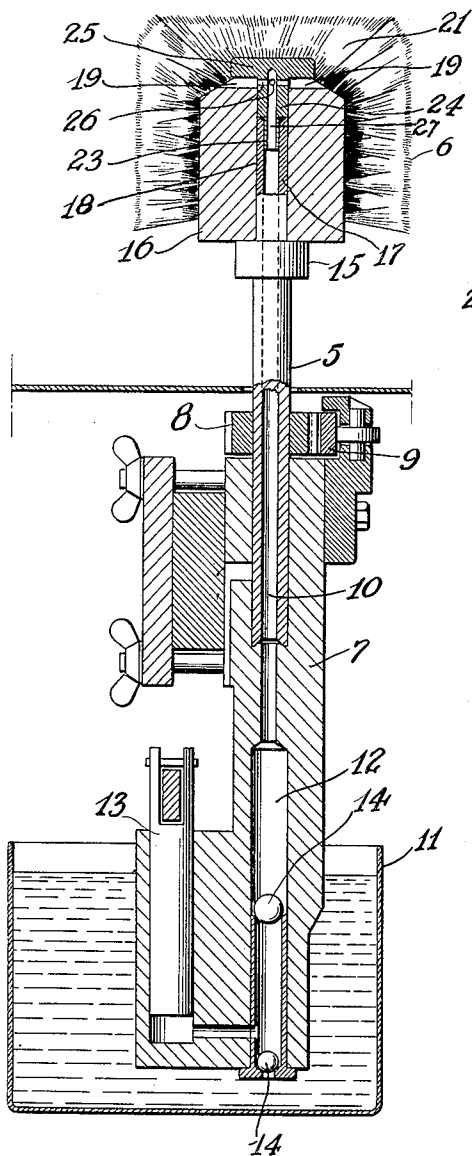


Fig. 1

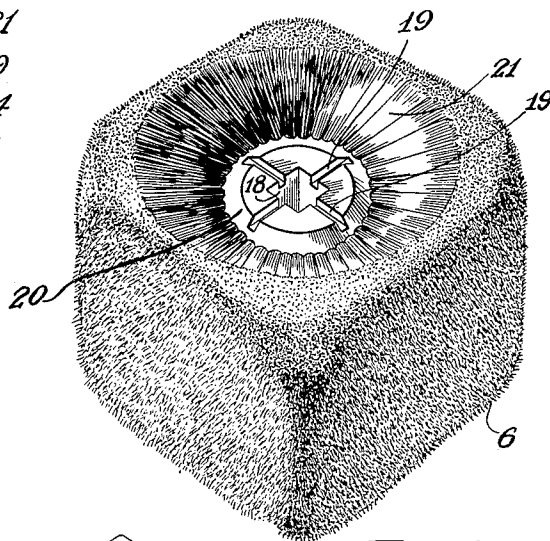


Fig. 2

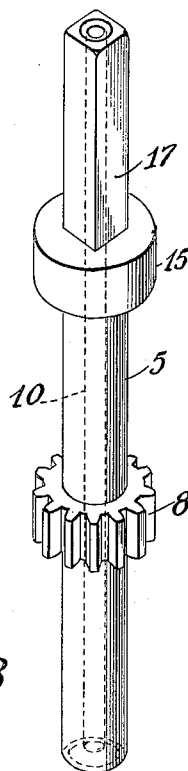


Fig. 3

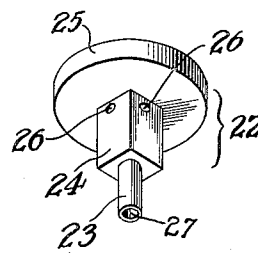


Fig. 4

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BRUSH AND SPINDLE CONSTRUCTION FOR
PAN GREASING MACHINES

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6 Claims. (Cl. 91—39)

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This invention relates to pan greasing machines such as are used in bakeries where large numbers of baking pans must be brushed clean and greased. In machines of this kind, the brushes are generally mounted at the tops of a series of suitable spindles by means of which the brushes can be rotated. Conduits are provided for supplying grease to the bristles and the pans are customarily arranged in groups which can be picked up as a unit, inverted and pushed down over the tops of the brushes. If the pans are forced down too vigorously, they will unduly distort and even break the bristles and in addition will bump more or less violently against the heads of the brush blocks all of which causes damage necessitating frequent brush replacements. This is a more or less constant source of annoyance and expense to the bakeries.

With the foregoing in mind my invention will be better understood because it relates to improved brush and spindle construction by means of which the difficulties referred to as well as others are completely overcome.

Specifically recited, the objects of the invention include the following:

1. To provide a brush and spindle construction having means for preventing the pans from damaging the bristles and the upper ends of the brush blocks;

2. To provide means for receiving the thrust of the pans and transmitting it to the ends of the spindles rather than to the ends of the brush blocks;

3. To provide an arrangement of transverse grease delivery passages which are formed as open channels in the head of the brush block together with means for protecting these channels against damage from the pans and also against clogging;

4. To provide an improved construction for mounting the brushes on the tops of the spindles by means of which the brushes can be effectively rotated by the spindles without wobbling thereon and without the development of lost motion as between the spindle and the brush; and, in general to strengthen and simplify brush and spindle construction as well as to increase its life and reduce its cost.

How the foregoing, together with such other objects as may appear hereinafter or are incident to my invention, are attained is illustrated in preferred form in the accompanying drawing wherein

Figure 1 is a vertical section through a portion of a pan greasing machine illustrating my improved brush and spindle construction;

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Figure 2 is an enlarged perspective view of one of the brushes;

Figure 3 is an enlarged perspective view of one of the spindles; and

Figure 4 is a perspective view taken from below illustrating the pan abutment piece employed in my invention.

As will be seen by referring to the drawing, I have illustrated but one spindle 5 with a brush 6 mounted thereon. The spindle is mounted in a suitable support 7 with the lower end of the spindle projecting into an aperture in the support which acts as a bearing. This is clearly shown in Figure 1. Exteriously the spindle is provided with a pinion 8 which meshes with a reciprocating rack 9 by means of which the spindle and the brush are rotated first in one direction and then in the other.

Interiorly the spindle is provided with a longitudinal grease duct or passage 10 to which grease from the reservoir 11 is delivered via the connecting passage 12 in the support 7 under the control of suitable pump and check valve mechanisms 13 and 14 respectively, the details of which will not be more fully set forth because, in and of themselves, they form no part of the present invention. In fact, all of the construction so far described is familiar in the art and has been referred to merely for the purpose of more clearly describing my invention as will now appear.

Near the upper end the spindle 5 is provided with a brush supporting collar 15 upon which the brush block 16 is adapted to seat. Above the collar 15 the spindle is preferably formed with a square end 17 although it is obvious that some other shape could be employed—the purpose being, as will further appear, to prevent relative rotation between the spindle and the brush block.

The brush block is provided with an axial aperture 18 which is also square to cooperate with the square end 17 of the spindle. In the head of the block I provide suitable transverse grease passages in the form of open channels or ducts 19 which lead the grease outwardly toward the bristles, the outer portion of the top of the block being slightly tapered or beveled as at 20 to provide a surface over and around which the grease can flow to reach the base portions of the adjacent bristles as will be seen most clearly in Figure 2. At this point it should be explained that the bristles do not extend completely over the top of the brush but are fanned outwardly from this surface 20 so as to leave a central dish-shaped pocket 21 at the top of the brush.

The upper end of the spindle 5 does not pro-

ject entirely through the brush block but terminates a short distance therebelow as shown in Figure 1. After the brush has been placed in position I introduce the readily removable pan abutment piece indicated as a whole by the reference character 22 (see Figure 4). This pan abutment piece has a stem portion 23 which projects into the upper end of the passage 10 in the spindle. It also has a shouldered portion 24 immediately above the portion 23, which shouldered portion is also square to cooperate with the square interior of the axial opening in the brush block. The underface of the shouldered portion rests upon the top of the spindle 5. Near the top of the shouldered portion just under the enlarged portion 25 the abutment piece is provided with a series of transverse grease passages 26 in alignment with the transverse passages 19 in the top of the block. A longitudinal grease passage 27 is also provided which connects the transverse passages 26 with the longitudinal passage 10 in the spindle.

All of the parts just described are constructed and arranged so that the grease coming up through the longitudinal duct or passageway 10 can be delivered to the transverse passageways 26 and 19 and then to the base of the bristles on the head of the block as already described.

It would be obvious that the abutment piece 22 will receive any bumps which may be developed by too vigorously placing the pans over the brush and transmit them to the upper end of the spindle 5 thereby protecting the bristles and the head of the block against damage from contact with the pan. Furthermore, the head 25 of the abutment piece performs an additional function, namely, that of covering the upper face of the channels 19 so as to prevent any small particles of bread or dough from falling into and clogging the channels.

Attention is also directed to the fact that the construction is exceedingly simple, rugged and positive in its action. The flat faces on the spindle, the flat faces in the block and the flat faces on the abutment piece cooperate to prevent relative rotation between these several parts; the arrangement being such as to prevent all wobbling or looseness on the spindle. Wear between the spindle and the block is absolutely eliminated and the brush is protected against damage both to the top of the block and to the bristles and, for this reason, will last a much longer period of time than any brushes heretofore available in the art. In addition, when replacement finally becomes necessary, the worn brush can be very quickly removed and a new one installed.

In conclusion I might say that while I prefer to employ a square spindle with a square hole in the block, yet it is perfectly obvious that other flat sided arrangements can be employed or even that an irregularly curved surface could be utilized if desired just so long as relative rotation between the parts is prevented.

I claim:

1. A brush and spindle construction for pan greasing machines, comprising a spindle having a longitudinal grease passage, a brush block supported on the upper end of the spindle and having an axial opening into which the end of the spindle projects, and a pan abutment piece supported on the spindle, said abutment piece having a longitudinal grease passage in alignment with the longitudinal passage in the spindle and a transverse grease passage for delivering grease from the longitudinal passage to the brush.

2. A construction in accordance with claim 1 wherein the block is provided with a transverse grease passage cooperating with the transverse passage in the abutment piece.

3. A construction in accordance with claim 1 wherein the spindle top, the axial opening in the block and the pan abutment piece are configured to prevent relative rotation between the parts.

4. A construction in accordance with claim 2 wherein the transverse grease passage in the block is formed as an open channel in the head of the block and wherein the abutment piece is provided with an enlarged head portion overlying said open channel.

5. A brush and spindle construction for pan greasing machines, comprising a spindle having flat sides at its upper end, a brush supporting collar, and a longitudinal grease passage; a brush block having an axial spindle-receiving opening with flat sides adapted to cooperate with the flat sides on the spindle; said block being arranged to rest on the supporting collar with the top of the block lying in a plane above the upper end of the spindle; a transverse grease passage in the block; and a pan abutment piece having a stem projecting into the longitudinal grease duct of the spindle, a shouldered portion adapted to rest upon the upper end of the spindle, a longitudinal grease passage registering with the longitudinal passage in the spindle, flat faces on the shouldered portion adapted to cooperate with the flat faces in the spindle-receiving opening, and a transverse grease passage registering with the transverse passage in the block.

6. A construction in accordance with claim 5 wherein the transverse grease passage in the block is formed as an open channel in the head of the block and wherein the abutment piece is provided with an enlarged head portion overlying said open channel.

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