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SHARPENING DEVICES FOR BLADES OF
SLICING AND CUTTING MACHINES
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2,709,325

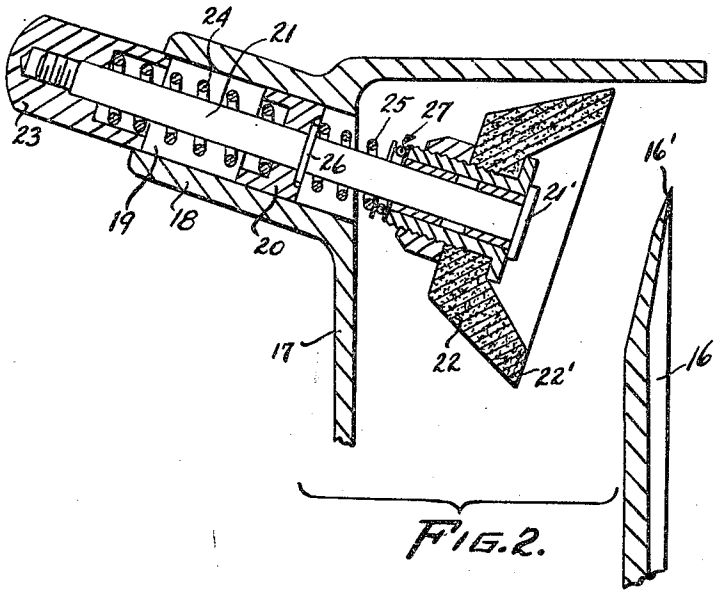


FIG. 2.

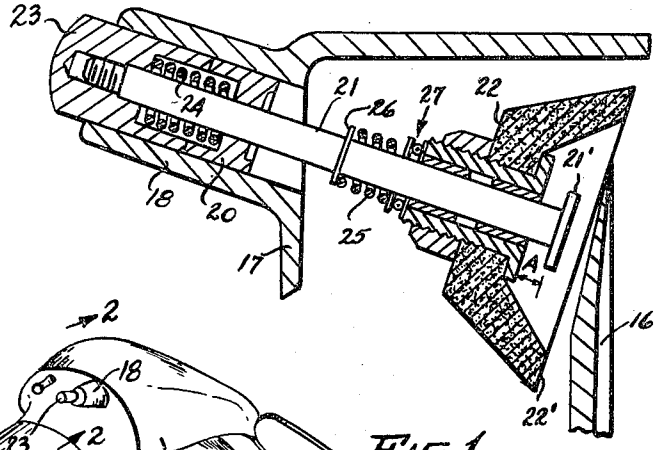


FIG. 3.

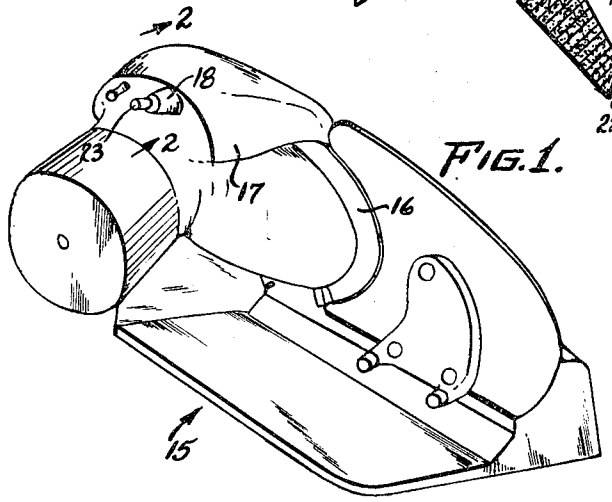


FIG. 1.

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SHARPENING DEVICES FOR BLADES OF SLICING AND CUTTING MACHINES

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6 Claims. (Cl. 51—248)

The present invention relates to a sharpening device for rotary disc blades and more particularly to the type which is permanently mounted on the machine of which such blade is a part. The sharpening device which is the subject of this invention, is especially adaptable for use in food slicing machines and such embodiment is illustrated herein to show one application of this invention.

An object of this invention is to provide a novel and improved manually-manipulated sharpening device of the character mentioned, in which the pressure of the sharpener wheel against the blade is automatically controlled and is independent of the force the operator applies to bring said wheel into sharpening position.

Another object hereof is to provide a sharpening device of the nature set forth, of novel and improved construction in which the force applied by the operator to shift the sharpener wheel into sharpening position, is not imparted to such wheel to bear pressure against the blade, thus avoiding "burning" of the cutting edge.

Another object hereof is to provide a novel and improved sharpening device for disc cutting blades, applicable for use in food slicing machines.

A further object of this invention is to provide a disc blade sharpening device of novel and improved construction, which is reasonably cheap to manufacture, easy to use and efficient in carrying out the purposes for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

In the accompanying drawings forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a perspective view of a food slicing machine which includes a sharpening device embodying the teachings of this invention.

Fig. 2 is a section taken at line 2—2 in Fig. 1, showing the sharpening device in its normal rest inactive position.

Fig. 3 is like Fig. 2, but shows the sharpening device in operative position.

In the drawings, the numeral **15** designates generally a food slicing machine having a rotatably mounted disc cutting blade **16** on the housing **17** which is provided with a boss **18** having a bore **19** therethrough. A bearing element **20**, fixedly secured in any suitable manner within this bore, supports a slidable shank **21** therein. This shank extends from both ends of said boss and carries an abrasive sharpening wheel **22** which is rotatably and slidably mounted on the end of the shank which is within the housing **17**, while the outer end of the shank carries a push-button element **23** which is slidably fitted within the bore **19**. The faces of the push-button **23** and the bearing element **20** which are opposite each other, are cupped or otherwise suitably recessed to receive the ends of a compression coil spring **24** therein respectively; said coil spring being on and about the shank **21**, and of course within said bore **19**.

The end of the shank which carries the sharpening wheel **22**, carries a stop member which may be the head shown at **21'**. There is a compression coil spring **25** on and about the shank, acting to urge the sharpening wheel **22** towards the shank's headed end. This coil spring **25** rests against a retainer ring **26** secured against movement along said shank and against said sharpening wheel. It is preferred to have a loose thrust bearing unit **27** between said coil spring **25** and the sharpening wheel **22**.

It is to be noted that the blade-contacting surface of the sharpening wheel, shall give the required slant to the cutting rim surface **16'** of the blade **16**. In the embodiment illustrated, the blade-contacting surface of the wheel, is indicated by the numeral **22'**. Also, the extent of movement permitted the button **23** into the hub **18**, should equal that necessary to bring the blade-contacting surface of the sharpening wheel in contact with said blade **16**, plus such distance as may be required to create a stress in the compression coil spring **25** suitable to effect proper pressure of the sharpening wheel against the blade, to accomplish the required sharpening operation without "burning" or otherwise hurting the said blade. The additional shift of the shank **21** after the blade is contacted by the sharpener wheel, creates the gap indicated at "A." It is evident that the only force creating the pressure of the sharpener wheel **22** against the blade **16**, is that supplied by the stressed coil spring **25** and is independent of the pressure applied on the push-button **23**. It is evident that the bearing element **20** need be so positioned so as to act as the stop for push-button movement at the proper place. The coil spring **25** should have some stress in it, so that when the sharpener wheel **22** is away from the blade **16**, said wheel shall be up against the stop or head **21'**. Sharpening of the blade occurs upon its rotation while the sharpening device is in the condition shown in Figure 3.

This invention is capable of numerous forms and various applications without departing from the essential features herein disclosed. It is therefore intended and desired that the embodiment shown herein be deemed illustrative and not restrictive and that the patent shall cover all patentable novelty herein set forth; reference being had to the following claims rather than to the specific description herein to indicate the scope of this invention.

We claim:

1. In combination with a frame and a bevel-edged disc blade rotatably mounted thereon, of a blade sharpening means comprising a shank longitudinally slidably mounted on a frame part which is spaced from said blade; the ends of said shank extending into space, a blade sharpening member slidably carried on one end of the shank; said shank being positioned whereby on longitudinal movement thereof in one direction, said sharpening member will contact the bevelled edge of the blade; said shank having a protuberance on said end to maintain said sharpening member and shank in associated relation, a first spring means carried on and riding along with said shank upon movement of said shank; said first spring means acting on said sharpening member to urge same towards the bevelled edge of the blade, a second spring means acting on the said shank to urge same to move so that said protuberance shall carry said sharpening member away from said blade edge; said first spring means becoming stressed and exerting sufficient force on the sharpening member when the latter and the blade are in contact to effect sharpening of said blade when the said shank is moved further in said direction and said blade revolved; said shank being capable of movement in the mentioned direction to such extent

that said protuberance will not stop movement of the sharpening member along the shank when said member and the blade are in contact; the second spring means in normal rest condition, holding the shank in such position that the protuberance on said shank holds the sharpening member out of contact with the blade.

2. The combination as defined in claim 1, wherein the blade sharpener member is a wheel rotatably carried on the shank.

3. The combination as defined in claim 1, wherein the blade sharpener member is a wheel rotatably mounted on the shank in co-axial relation therewith.

4. The combination as defined in claim 1, wherein the shank is positioned angularly to the axis of the disc blade and wherein the sharpener member is a wheel rotatably mounted on the shank in co-axial relation therewith; a radial face of the wheel being the surface which

contacts the bevelled edge of the disc blade when the shank is moved in the mentioned direction.

5. The combination as defined in claim 1, wherein each spring means consists of a coil spring positioned about the shank.

6. The combination as defined in claim 1, wherein each spring means consists of a compression coil spring positioned about the shank.

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