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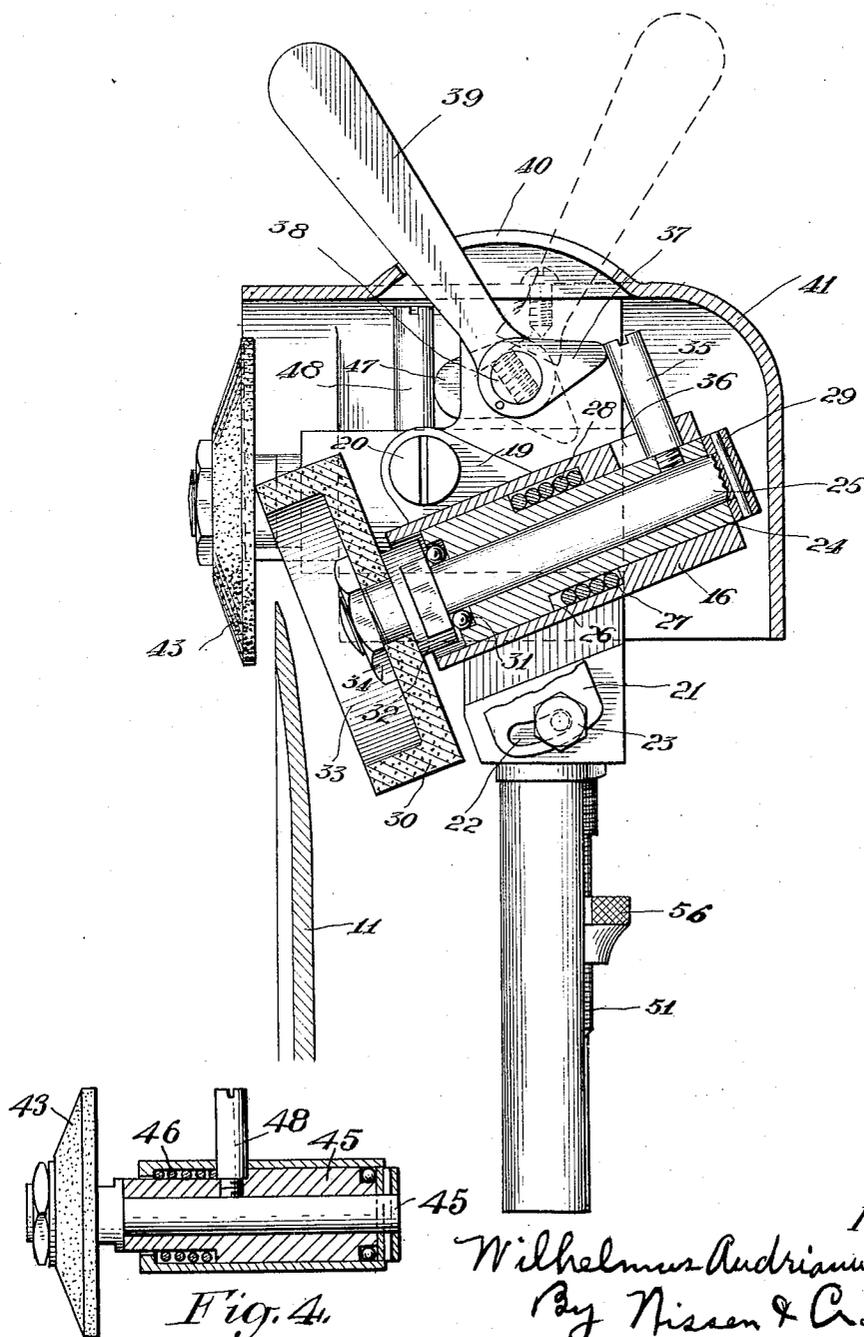
W. A. VAN BERKEL

1,884,924

SHARPENER FOR SLICING MACHINES

Original Filed Sept. 7, 1923 2 Sheets-Sheet 1

Fig. 1



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Fig. 2

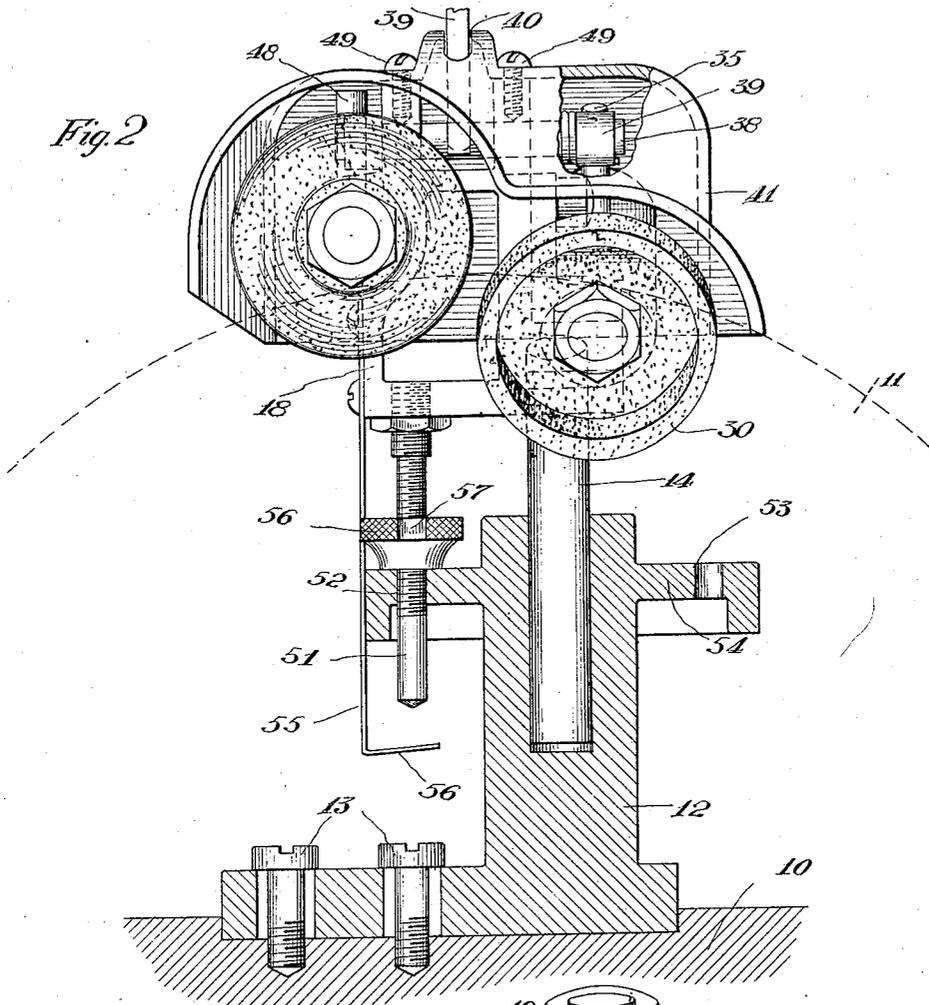
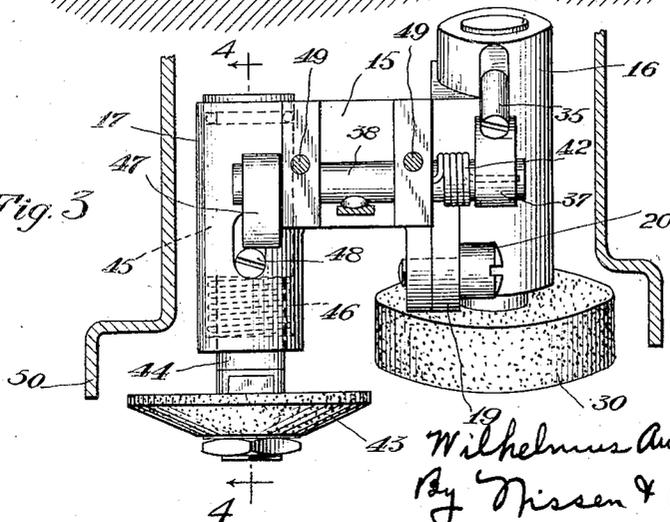


Fig. 3



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UNITED STATES PATENT OFFICE

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SHARPENER FOR SLICING MACHINES

Application filed September 7, 1923, Serial No. 661,383. Renewed September 21, 1931.

This invention relates to sharpeners for rotary disc knives of slicing machines and has for its object the provision of a sharpening device which shall be economical to manufacture, convenient and efficient in operation, and of improved construction.

The invention is exemplified in the combination and arrangement of parts shown in the accompanying drawings and described in the following specification, and it is more particularly pointed out in the appended claims.

In the drawings—

Fig. 1 is a vertical sectional view of one embodiment of the present invention;

Fig. 2 is an elevation of the device shown in Fig. 1, with parts in section;

Fig. 3 is a top plan view of the sharpener with the casing in section, and

Fig. 4 is a cross-section taken substantially along the line 4—4 of Fig. 3.

The numeral 10 designates the pedestal for the knife of a slicing machine of any approved construction having a rotary disc knife 11 mounted thereon. The pedestal 10 carries a sharpener support 12 secured to the pedestal by screws 13. This support 12 is provided with a socket for receiving a stem 14 on which the grinder is mounted. The supporting frame for the grinder includes a cross-bar 15 which carries a pair of journal bearings 16 and 17. The bearing 17 may be formed integrally with an upright plate 18 of the supporting frame, and the bearing 16 is preferably provided with an ear or web 19 pivotally mounted on the frame by means of a screw 20. A downwardly projecting ear 21 attached to the bearing 16 is provided with a slot 22 and a cap screw 23 by means of which the bearing 16 may be secured in adjusted angular positions.

Within the bearing 16, as shown clearly in Fig. 1, is slidably mounted a sleeve 24 having a spindle 25 journaled therein. The sleeve 24 is provided with a shoulder 26 which is disposed opposite a shoulder 27 formed on the inner face of the bearing 16. A coil spring 28 is interposed between the shoulders 26 and 27 and normally forces the sleeve 24 to the left, as viewed in Fig. 1. The spindle

25 is held in place in the sleeve 24 by a collar 29 and the opposite end of the spindle carries a grinder wheel 30. Anti-friction bearing balls 31 are interposed between a flange 32 on the spindle 25 and the end of the sleeve 24 to take the thrust of the sleeve 24 under the pressure of the spring 28. The spring 28 when expanded forces the outer face of the grinder disc 30 against the edge of the knife 11, the point of contact being above the axis of the disc.

When the knife 11 is rotated the frictional engagement with the grinder will cause the grinder disc to rotate which will move the face of the disc across the edge of the knife for sharpening. The grinder disc is dished, as shown, to provide a flange 33 for contact with the edge of the knife. This prevents any interference between the knife and the nut 34 which holds the grinder in place on the spindle 25. It also localizes the bearing surface between the knife and disc so that the grinding takes place only at the portion of the disc having the greatest angularity of movement relative to the periphery of the knife.

A pin 35 is attached to the sliding sleeve 24 and extends upwardly through a slot 36 in the bearing 16. A cam finger 37 engages the pin 35 and is attached to a rock shaft 38 journaled in the upper portion of the frame. The rock shaft 38 is provided with a handle 39 projecting upwardly through a slot 40 in the casing or guard member 41. When the handle 39 is in full line position shown in Fig. 1, the sleeve 24 will be held in a retracted position with the spring 28 compressed so that the grinder 30 is withdrawn from contact with the knife 11. When it is desired to grind the knife the handle 39 is moved into the broken line position shown in Fig. 1 which will release the pin 35 and permit the grinder 30 to be pressed against the knife 11 by the expansion of the spring 28.

As shown in Fig. 3, a coil spring 42 surrounds the shaft 38 and normally rotates the shaft into the full line position shown in Fig. 1 so that as soon as the handle 39 is released the grinder 30 is automatically retracted

from engagement with the knife 11. The grinder 30 engages the beveled face of the knife and does the major portion of the sharpening. It is desirable, however, to remove any burr from the face of the knife that may be formed by grinding, and a second grinder wheel 43 is provided for this purpose. The wheel 43 is secured to a spindle 44 journaled in a sleeve 45 slidably mounted in the bearing 17. A spring 46 normally forces the spindle 44 inwardly to draw the flat face of the disc 43 against the knife 11. A cam finger 47 engages a pin 48 secured to the sleeve 45 and is fixed to the shaft 38 in position to hold the disc 43 away from the knife 11 when the handle 39 is in the full line position shown in Fig. 1. It will thus be seen that when the handle 39 is operated to bring the disc 30 into contact with the knife 11 the same movement will permit the spring 46 to move the disc 43 against the flat face of the knife 11. If desired, the parts may be proportioned so that the disc 30 will engage the bevel face of the knife prior to contact between the disc 43 and the flat face of the knife so that the stones will act successively, depending on the amount of movement of the handle 39. This is not an essential arrangement, however, as the stones may be made to act together. The amount of grinding of the two stones may be regulated by the strength of the springs which control the pressure of the stones against the knife.

It will be noted that the casing 41 is open at the bottom so that it may be readily placed over the stones and their operating mechanism. It is secured in place by screws 49 and is readily removable for giving access to the sharpener parts. The flange 50 on the casing forms a guard for the stones during a grinding operation. A rod or pin 51 projects downwardly from the bar 15 in position to engage either one of two openings 52 and 53 in a flange 54 on the support 12. In one position the pin 51 holds the grinding stones in operating position relative to the knife 11. When the pin 51 engages the opening 53 the stones are turned entirely away from the grinding knife. Before the parts can be shifted from one position to the other it is necessary to raise the stones until the pin 51 is free from the opening 52. This will bring the stones above the edge of the knife so that there is no danger of marring the edge when the sharpener is rotated from one position to another.

A spring bar 55 is provided with a hook 56 underlying the flange 54 to prevent the supporting pin 14 from being entirely removed from its socket during the changing of the disc from one position to another. A thumb nut 56 is threaded on the pin 51 and regulates the height of the stones relative to the edge of the knife. Depressions 57 may be provided in the periphery of the nut 56 to en-

gage the spring bar 55 to hold the nut in its various positions of adjustment.

I claim:—

1. A sharpener for a slicing machine knife comprising a frame member having spaced bearings thereon, a sleeve slidably mounted in each of said bearings, a spindle journaled in each sleeve, a grinder disc secured to each spindle and arranged to engage opposite faces of said knife, springs for resiliently moving said sleeves to press said discs against said knife, an abutment member connected with each sleeve, a cam shaft extending transversely of said spindles, and positioned between said abutment members, cams on said shaft for engaging said abutment members to retract said grinders against the force of their springs, a spring for operating said cam shaft to retract said grinders, and a handle disposed at one side of the plane of the knife and movable away from said plane to turn said cam shaft against the force of the last-named spring to cause said grinders to engage said knife under the influence of the first-named springs, said second-named spring acting to cause the automatic disengagement of said grinders from said knife when said handle is released.

2. A grinder for slicing machine knives comprising a supporting frame, a spindle journaled to rotate about a fixed axis in said frame and having a grinder thereon arranged to engage one face of a knife to be sharpened, a second spindle having a grinder thereon for engaging the opposite face of the knife, a support for said second spindle pivotally mounted on said frame and adjustable thereon to vary the angular position of said spindle relative to the plane of said knife while said first-mentioned spindle retains its position relative to said knife, resilient means for moving said grinders against the respective faces of said knife, cams for retracting said grinders, a cam shaft extending transversely of said spindles for supporting said cams and a single handle for operating said cam shaft.

3. A sharpener for slicing machine knives comprising a frame having a pair of grinders mounted thereon, a bar on which said frame is mounted, a socket member for receiving said bar, a flange on said socket member having openings therein, a pin secured to said frame and arranged to engage either of said openings to retain said frame in different positions, a nut threaded on said pin for regulating the height of said frame relative to said socket member, and a spring bar having a stop thereon for limiting the upward movement of said frame and arranged to engage said nut to hold said nut in adjusted positions on said threaded pin.

4. A sharpener for slicing machine knives, comprising a frame member, a spindle journaled on a fixed axis in said frame member

and slidable longitudinally, a second spindle
 journaled on a movable axis in said frame
 member and slidable longitudinally, grind-
 ing discs carried by said spindles and dis-
 posed at opposite sides of the plane of the
 5 knife to be sharpened, springs for moving
 said spindles and the grinding discs thereon
 toward the plane of said knife, abutment
 members connected to said spindles, a cam
 shaft journaled in said frame member trans-
 10 versely of said spindles and between said
 abutment members, separate cams on said
 shaft for engaging said abutment members,
 a handle for said shaft movable toward and
 15 from the plane of said knife, said cams and
 abutment members being arranged to cause
 movement of said grinding discs toward said
 knife when said handle is moved away from
 the plane of said knife, and a spring for ro-
 20 tating said cam shaft in a direction to auto-
 matically retract said grinding discs from
 said knife when said handle is released.

In testimony whereof I have signed my
 name to this specification on this seventh day
 of August A. D. 1923.

25 **WILHELMUS ADRIANUS van BERKEL.**

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