April 2, 1940. G. J. CALAME 2,196,099

TENSIOMETER

Filed June 25, 1938

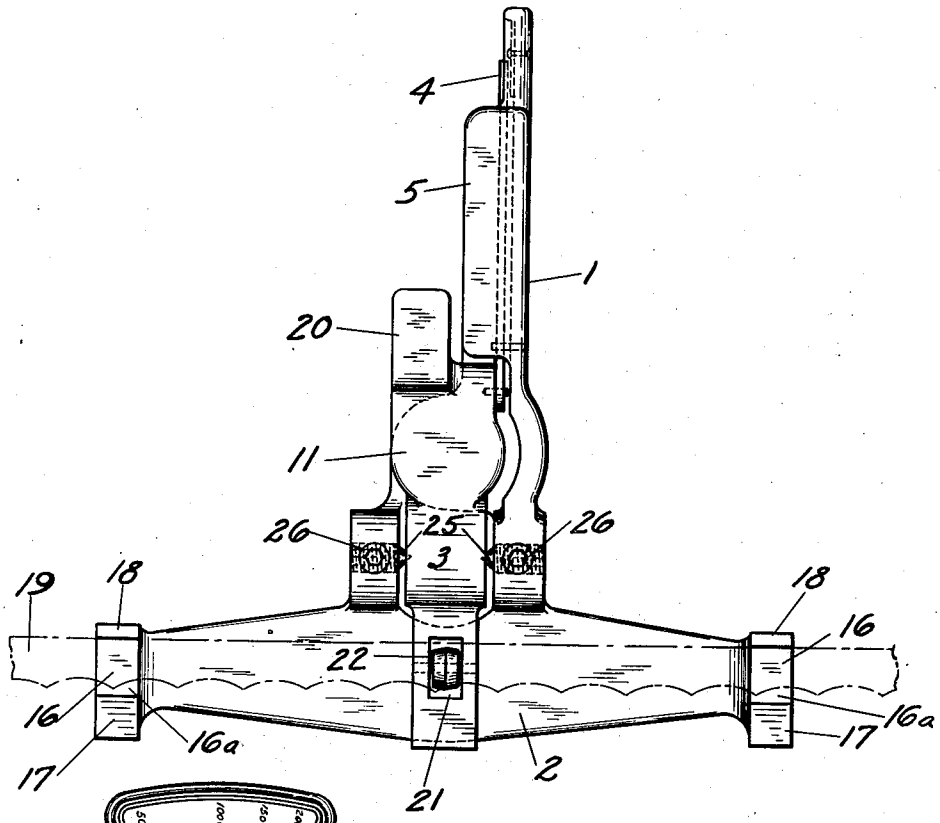


FIG-1

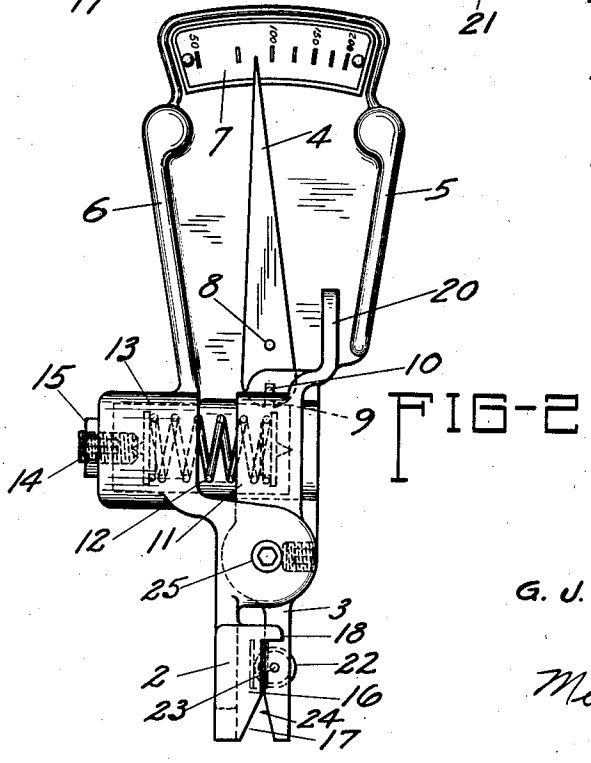


FIG-2

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TENSIOMETER

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6 Claims. (Cl. 265—1.6)

The present invention relates to an implement for use in connection with bread-slicing machines and is intended for the determination of the tension on the blades of such machines. It belongs generically to the class of implements known as tensiometers.

Among the objects of this invention are the provision of an improved implement for the purpose stated; the provision of an implement which is applied with a minimum of effort to the blades of a bread-slicing machine for the purpose of determining the tension thereof; the provision of an implement for the purpose indicated which is so constructed that it may be easily slipped in between two blades, straddling an intermediate blade; the provision of a structure for the purpose indicated which may be readily adjusted to vary the reading produced by a blade having a given tension so that the blade may be adjusted to read accurately a stated tension; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawing and, while I have shown therein what is now regarded as the preferred embodiment of this invention, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawing annexed hereto and forming a part hereof,

Fig. 1 represents an elevation looking in one direction at the implement; and

Fig. 2 represents an elevation as if looking at the structure shown in Fig. 1 from the left hand side thereof.

Reference will now be made in greater detail to the annexed drawing for a more complete disclosure of this invention. This implement comprises a body 1, a crossarm or cross-head 2, a lever 3, and an indicating pointer 4. The body 1 is provided with flanges 5 and 6 and carries a tension indicating scale 7 at the free end thereof. The indicating pointer 4 is connected to the body 1 by a pivot pin 8 which permits free movement of the pointer from one side to the other of the space between the flanges 5 and 6. At its second end, the pointer is provided with a slot 9 into which projects a pin 10 which extends through one arm of the lever 3 and projects toward the body 1. This end of the lever 3 is shaped as a cup 11, intended for the reception of one end of a spring 12. The other end of this spring is received in a cup 13 formed on the body adjacent its junction with the crossarm 2.

A headless bolt 14, provided in its inner end with a shallow socket and in its other end with an angular opening for the reception of an angular wrench, has screw-threaded connection with the cup 13 and may be screed in or out to adjust the pressure of the spring 12 on the lever 3. A nut 15 is screwed on the bolt 14 and serves to hold this in adjusted position after proper adjustment has been made and the nut 15 has been tightened up against the cup 13. Each end of the spring 12 rests against a plate provided centrally with a small conical point. One of these cooperates with the shallow pocket in the bolt 14 and the other rests against the bottom of the cup 11.

Each end of the crossarm 2 is provided with a head 16 which is ground or otherwise shaped quite accurately to form a seat 16a for a slicing machine blade. A portion of the extremity of each of these heads 16 is beveled, as shown at 17, to assist in sliding this instrument upon a blade. Stops 18 are formed upon the head 2 to limit the distance that the implement may be pushed inwardly, when applying same to a blade. This thought is illustrated in Fig. 1 in which the blade is shown in dot-and-dash lines and indicated by the numeral 19.

The lever 3 may be provided with a finger-piece 20 for operation thereof, if desired, but this is not necessary and may be omitted if it seems preferable for any reason to do so. The second end portion of the lever 3 is provided with an opening 21 in which is pivotally mounted a roller 22, the same being carried upon a pivot pin 23. As shown at 24, the face of the end portion of the lever 3 is beveled on the side toward the crossarm for the purpose of assisting in applying the implement to a slicing blade. Pivots 25 are screwed through openings in the body member and serve for the mounting of the lever 3 adjacent the point of junction of the body member and crossarm. These pivots may be adjusted to secure proper positioning of the lever 3 and may be held in place by means of the set-screws 26.

In use, pressure is exerted on the cup 11 or the finger-piece 20 to cause turning of the lever 3 about its pivots 25 whereby to move the extremity of the lever 3 away from the crossarm. This permits easy application of the implement to the blade. When the tensiometer has been located on the blade, the lever 3 is released and permitted to move under the influence of the spring 12.

The lever will be stopped in its movement by the blade 19 and the pointer 4 will indicate a tension corresponding to some point on the scale 7. As different blades are tested it will be observed that they do not all register the same tension. If this varies unduly, the tension of appropriate blades may be adjusted until the variation in tension of the blades is within the allowable limits.

From the foregoing it will be seen that I have produced a device for the purpose stated which is simple, accurate, and inexpensive; a device which may be applied for the use intended with a minimum of effort; a device which may be readily slipped between two blades, straddling an intermediate blade; a device for the purpose indicated which, in use, is substantially frictionless; a device which has no objectionable hook members tending to obstruct the application of the implement to a blade.

It will of course be understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as set forth in this specification and the appended claims.

Having now described my invention, I claim:

1. A blade tensiometer for measuring the tension of a flat blade comprising a body, a crossarm attached thereto rigidly and extending transversely thereof, said crossarm carrying flat seats spaced laterally away from the body upon opposite sides thereof, an indicating scale carried by the body and spaced away from the crossarm, a lever pivotally mounted on the body externally of the crossarm and having an end extending into the space between said seats, said end of the lever being adapted to engage that side of a blade which is opposite from the side engaged by the said flat seats, said lever having its second end portion connected to an indicator cooperating with said indicating scale, the crossarm being thin enough to be inserted between the blades of a bread slicing machine and the flat seats being substantially parallel to the direction of movement of the crossarm when being inserted between the blades, and spring means to actuate the lever into blade-engaging position.

2. A blade tensiometer for determining the tension of bread-slicing machine blades, comprising an approximately flat body carrying an indicating scale upon a face thereof, pivot means connected with the body, a lever mounted to turn on said pivot means, an indicating pointer pivotally mounted on the body and connected to an end portion of the lever to show relative movement thereof, said lever having blade-engaging means to engage one face of a slicing blade, a crossarm connected to said body and extending transversely to the plane of the body, said crossarm being thin enough to be inserted between the blades and provided at its ends with seats for engagement with the second side of the blade, and spring means for moving the blade-engaging end of the lever toward the crossarm.

3. A bread-slicing machine blade tensiometer comprising a body, an indicating scale, a pointer cooperating with said scale, a crossarm on said body, and a lever cooperating with said pointer and the blade and crossarm in determining the blade tension, the scale and pointer being carried by the body and the pointer being adapted to swing over the scale, the crossarm extending crosswise of the body and beyond the same at opposite sides thereof, each end of the crossarm being provided with a blade seat, the lever having a rolling contact member to engage the blade and roll transversely across a flat face thereof when the tensiometer is applied thereto, the lever being pivotally mounted adjacent the junction of the body and crossarm and having its end opposite to that carrying the contact member so connected to the pointer that the two may have separate pivotal motion, and spring means actuating the lever in one direction to cause the contact member to exert pressure upon the blade between the seats.

4. A tensiometer for bread slicers comprising a rigidly connected, combined flat body and crossarm, the crossarm extending transversely of the plane of the body and having flattened ends for insertion between the blades of the bread slicer, pivot means adjacent the junction between the body and crossarm, a lever pivotally mounted on said pivot means, a spring between said body and one end of said lever to force the opposite end of the lever toward the crossarm, a lever pivotally mounted on the body and movably connected at one end with the first mentioned lever to move therewith, an indicating scale on said body, and the second end of the second mentioned lever cooperating with said scale to indicate relative movement of the parts to indicate blade tension, the second end of the first mentioned lever being shaped for insertion between a pair of blades.

5. In a tensiometer, a body having an indicating scale thereon, a pointer having one end cooperating with said scale to indicate tension of a stretched member, said pointer being pivotally connected intermediate its ends with said body, a cross-head connected to said body and extending crosswise thereof, said cross-head having seats upon opposite sides of the attachment of the cross-head to the body and being constructed for insertion between the blades of a bread slicing machine, a lever pivotally mounted on said body adjacent its connection to the cross-head, one end of said lever having contacting means adjacent one end to engage said stretched member and cooperate in determining the tension thereof, the opposite end of the lever being directly connected to an end of the pointer to cause motion thereof about its pivot due to insertion of the stretched member between the seats and the contacting means, resilient means actuating the pointer in the opposite direction from that motion caused by the stretched member.

6. A tensiometer for testing blade tension of a bread-slicing machine comprising an approximately flat body having a cross-head extending transversely of the central plane of the body, said cross-head being thin and constructed and adapted for insertion between the blades of a bread-slicing machine, a lever having adjacent one end a blade-contacting means, said lever being pivotally mounted intermediate its ends upon the combined body and cross-head adjacent their point of union, the second end of the lever being capable of swinging in a plane substantially parallel with the body, a pointer pivotally mounted on the body and swinging parallel to the plane thereof, said pointer being directly connected to the lever to be actuated thereby when the lever moves about its pivot, and a spring acting upon said lever in a direction opposite to the direction of pressure exerted on the lever by blades of the slicing machine.

GORDON J. CALAME.