March 25, 1941. E. D. SMITH 2,235,853

ROD FORMER TONGUE FOR CIGARETTE MACHINES

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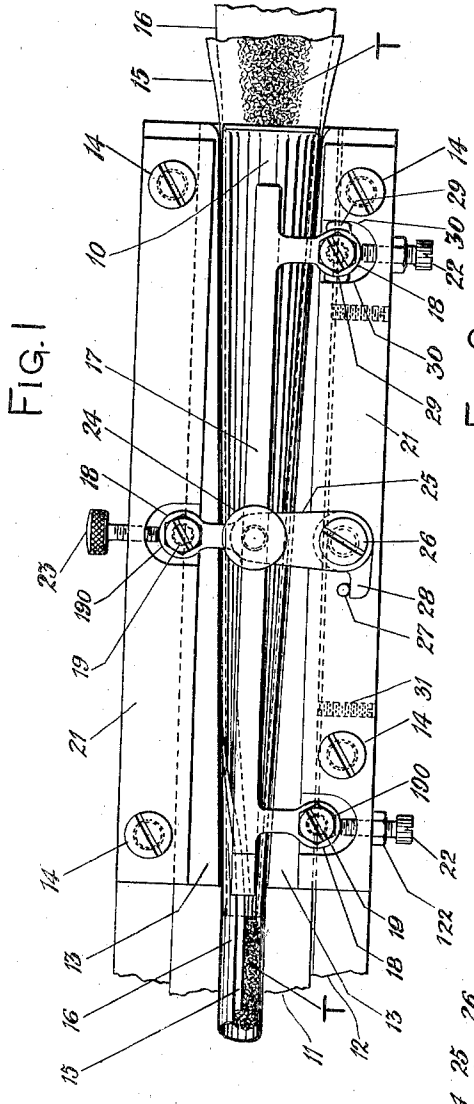


FIG. 1

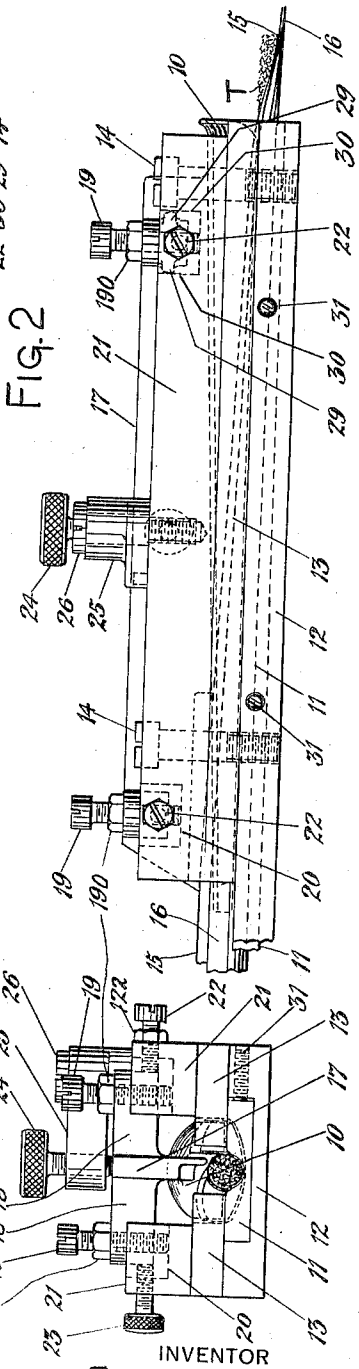


FIG. 2

FIG. 3

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ROD FORMER TONGUE FOR CIGARETTE MACHINES

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10 Claims. (Cl. 131—66)

This invention relates to cigarette machines, especially to the rod-former of a continuous rod cigarette machine, and more particularly to a device for mounting the tongue of such a rod-former.

The period when the tobacco is passing through the tongue of such a rod-former is generally considered the most critical phase of rod-formation, as any misalignment between the tongue and its associated rod-former parts is likely to result in rupture of the paper because of the escape from the tongue of "shorts" or bits of tobacco, which cause trouble; also when the rod is passing through the subsequent operations of pasting and sealing.

Under such conditions it is important that means be provided to insure substantially perfect alignment of the tongue as well as means for easy and rapid removal and replacement thereof.

Accordingly, an object of the invention is to provide a simplified and improved mounting device for the above purpose by means of which a substantially universal angular adjustment of the tongue may be effected relatively to the axis of travel of the filler tobacco through the associated rod former parts; and as a cognate object the provision of means to secure the tongue in any position to which it may be moved according to the invention.

Another object of importance is to provide means by which the tongue is rendered quickly attachable and detachable with respect to the rod-former mechanism, so that the tongue can be readily removed from its operative position at will without disturbing the adjusted position of the supporting means, and can be restored to said adjusted operative position with ease, rapidity and accuracy.

Another object of the invention is to provide a mount for a tongue of the class described which can be readily utilized with rod-formers of existing types, the present improvements being concerned primarily with features external to the tongue structure, so that the interior of the tongue may be of any desired and suitable form.

A cognate object of the invention is to provide a tongue-mount of the class described with a three-point support which lends itself to any vertical adustments—raising, lowering or tilting, as may be desirable; also to provide for adjusting the tongue rotatively in a lateral sense; and, in carrying this object into effect, to provide an additional set of three set screws, abutting against three lugs, provided for that purpose upon a ridge or rib with which the tongue is formed.

A further object is to provide for such coordination of the screws governing the above adjustments that it will only be necessary, when removal of the tongue is desired, to back-off one of the three horizontal set screws, so that the tongue is free to be lifted out and can be returned to its original position by a reversal of the operation, it being evident which of the set screws has been backed-off when the tongue was removed.

Other objects and features of the invention will appear as the description of the particular physical embodiment of the invention progresses.

In the accompanying drawing, like characters of reference are applied to corresponding parts throughout the several views which make up the drawing, in which:

Fig. 1 is a plan view of the rod-former of a cigarette machine in the construction of which the present invention has been embodied;

Fig. 2 is a rear view thereof in side elevation; and

Fig. 3 is an end elevation of the same, looking from left to right on Fig. 2.

Viewed in its generic aspect, as an improvement upon existing rod-former tongues and their mounts, the structure illustrated is designed to be substituted readily for any similar device used for a like purpose, and it may be modified in accordance with the exigencies of any particular installation without departing from the basic idea of means which underlies the present invention.

In the now-preferred embodiment of the invention selected for illustration, the part designated by the reference character 10 is the tongue of a rod-former in a cigarette machine which may correspond to conventional usage in its general structure, and is intended to co-act in substantially the usual fashion with a folder bottom insert 11 which is adustable longitudinally in ways formed in a folder bottom or base member 12, constituting part of the supporting structure for the device.

This insert is held in place by screws 31 transfixing the walls of the bottom plate, and the tongue 10 is disposed between guide plates 13 which are secured by screws 14 to the folder bottom 12, the inner upright walls of the plates 13 preferably converging in the direction of

travel of the web 16 and paper 15, and in conformity with the taper of the tongue 10.

The tongue 10 and the folder bottom insert 11 are slightly narrower at their receiving ends than the width of the cigarette paper 15, as shown in Fig. 1, and gradually taper off to about the diameter of the finished cigarette rod at the delivery end, the paper being carried, with the tobacco T distributed thereon, by the folder tape 16 through the rod-forming mechanism parts 10, 11 and 13, above mentioned, to and through the usual associated folder, paster and sealer mechanism, in known or suitable manner.

In pursuance of a stated obect of the present invention, provision is made of means to effect and insure perfect alignment of the tongue 10 with relation to the mean axis of lengthwise movement of the stream of filler tobacco T as it is advanced by the paper web 15 and its supporting folder tape 16, and provision is also made of means by which the tongue is readily attachable and detachable with relation to the supporting structure without disturbing the devices by which the desired adustment is secured.

In carrying into effect this object of the invention, the tongue 10 is provided with a rib 17 extended lengthwise of the tongue, to the top of which the rib is united mechanically, preferably by an integral union, such as a soldered, brazed or welded seam, and this rib is further formed with three lugs, as at 18, two of which preferably project from the same side of the tongue, being spaced apart by nearly the entire length of the rib 17, while the third lug 18 extends medially from the other side of the tongue, as shown in Fig. 1.

In order to effect substantially universal angular adjustment of the tongue, provision is made of suitable complemental devices, it being understood that those described and illustrated are merely of an exemplary character, and that any suitable means may be adopted for the intended purpose.

In the present instance, the above purpose is served by providing each of the lugs 18 with a vertical set-screw 19 carried by the lug, and adapted to engage a stop surface 20 on one of the two side blocks 21, which are designated "stop" blocks, for the sake of brevity, each of these two stop blocks being preferably co-extensive in length with one of the underlying guide blocks 13, and being secured thereupon by the cap screws 14 which transfix the blocks 13 and 21 and are set into the bottom block 12. The above-described arrangement of the set-screws 19 establishes a three-point support for the tongue 10 and enables the operator to obtain a tilting adjustment of the tongue 10, which tilt, in conjunction with the vertical lift or depression derived from appropriate setting of the screws 19 relatively to each other, contributes to the facility for achieving an elevational range of adjustment which is at the same time delicate and extensive.

In order to provide for a correspondingly desirable range of rotative or horizontal adjustment, the invention provides a set of screws 22—23 comprising two set-screws 22 with lock nuts 122, and a thumb screw 23, all three of these screws transfixing the blocks 21 in suitable disposition to bear against the lugs 18 and determine the angular position of the tongue 10 relatively to the mean longitudinal axis of the rod-former. Thus, by backing-off and/or setting up of the set-screws 19 and 22—23 respectively, as may be required, a substantially universal angular adjustment of the tongue 10 within a desirable range of vertical and horizontal positions, and resultant sub-positions, may be secured at will, such variety in the possible adjustments being novel, so far as known to the present applicant. It will be noted that as the folder bottom insert 11 is adjustable longitudinally in ways formed in the folder bottom or base 12, as pointed out at an early part of this specification, the tongue has a capacity for completely universal adjustment, relatively to the bottom member 12, and this universally adjustable relationship constitutes an important feature of the present invention and forms the subject of generic claims herein.

The lock nuts 190 and 122 serve as effective means to fix the tongue 10 in its desired position of adjustment, and preferably this adjustment is not readily alterable, either by accident or meddling, for which purpose the set-screws 19 and 22 require the use of a tool, such as a screwdriver, thus avoiding casual mis-setting of the set-screws; while at the same time, the provision of thumb screws, as at 23, makes it possible to release readily the tongue 10, so that it can be removed and inspected at will, so far as its horizontal disposition is concerned, without changing the adjustment from the horizontal position to which the set screws 22 may have been set.

Similarly, provision is made of easily releasable means for maintaining the tongue in its set position against the three point bearing determined by the contact of set screws 19 with the faces 20 of the blocks 21 (see Fig. 3), such releasable means comprising, in the instance illustrated, the screw 24 which is supported in an arm 25 adapted to be swung at will around a pivot post 26 on the block 21. This thumb screw 24, when brought down on top of the rib 17, secures the tongue in its operative position after all of the adjustments above described have been completed.

In the event that it becomes desirable to remove the tongue 10 for examination and repair, replacement or adjustment, the thumb screw 24 is backed-off, and the arm 25 is swung around, so that the tongue can be lifted clear after the thumb screw 23 has been backed-off. As the setting of screws 19 and 22 has not been disturbed, the tongue 10 can be returned to its identical original position when the above described operation shall have been performed, in reverse.

For the sake of convenience in locating the position where the thumb screw 24 is over the middle of the longitudinal rib 17, a pin 27 is preferably placed in the front locating block 21, and acts as a stop when the lug 28 on the arm 25 brings up against it, as illustrated in Fig. 1.

In order to prevent the tongue 10 from being displaced longitudinally from its set position, provision is desirably made of wings 29 on one of the lugs 18, as shown in Figs. 1 and 2, so arranged as to fit diametrically across the slot 30 in the front locating block 21.

What is claimed is:

1. A mount for the tongue of a cigarette rod-forming mechanism, comprising a support, inflexible connections intermediate said support and tongue providing for substantially universal angular adjustment of the tongue relatively to the support, and means to hold said tongue rigidly in each selected angular position.

2. A mount for the tongue of a cigarette rod-forming mechanism comprising a supporting structure including a folder bottom or base, and

a folder bottom insert adjustable lengthwise on said folder bottom, a tongue-support and means for adjusting said tongue-support both vertically and horizontally at three spaced points to provide universal angular adjustment of the position of the tongue in said mechanism, said tongue being capable of completely universal adjustment as to said insert, and said means for horizontal adjustment being so constructed and arranged that upon release of the means at one of said three points the tongue will be freed for removal while the means at the other two points remain in adjusted position, whereby rapid attachment and detachment of the tongue is facilitated while maintaining accuracy of adjustment.

3. A mount for the tongue of a cigarette rod-forming mechanism, comprising a tongue-support, a folder bottom, means for adjusting said tongue-support horizontally at three spaced-apart points to control the position of said tongue in said mechanism, a pair of side members extending lengthwise of said folder bottom and having bearing surfaces to limit the vertical position of the tongue, means for securing said side members on said folder bottom, and a device for demountably securing said tongue in adjusted position, said device being readily operable manually to move said tongue positively toward said bearing surfaces and to release the tongue for removal.

4. A mount of the class described, having the features claimed in claim 3, in which provision is made of means between the tongue and each of said bearing surfaces on said side members for effecting vertical adjustments of the tongue at three spaced apart points.

5. A mount for the tongue of a cigarette rod-forming mechanism, comprising a tongue-support, a base structure, means for adjusting said support both vertically and horizontally to control the position of the tongue in said mechanism and a device for demountably attaching said tongue-support in adjusted position on the base structure, said device comprising a swinging locking lever, readily operable manually to secure the tongue-support in its adjusted position and to release it.

6. In a rod-forming mechanism for a cigarette machine, and in combination, a tongue, a base structure and a mount for said tongue comprising a tongue-support, and means for adjusting said tongue-support to control its position in said mechanism, said adjusting means including a set of three spaced vertical set screws carried by the tongue-support and a binding screw carried by the base structure, and a set of three horizontal set screws carried by said base structure.

7. A tongue and its mount having the features set forth in claim 8, in which one screw in said horizontal set is readily operable manually for ready attachment and detachment of the tongue at will to and from an adjusted position thereof defined by the other set-screws in each of said sets.

8. A tongue for a rod-former in a cigarette machine having a mount for said rod former, said tongue having a longitudinal rib upon its upper part, and lugs extending laterally from said rib, two of said lugs being disposed in spaced apart relation, one near each end of said rib at one side thereof, and another lug being disposed at an intermediate region of the opposite side of said rib, each of said lugs having an orifice and an upright set screw mounted adjustably in each orifice whereby vertical, tilting and rotative adjustments of the tongue can be effected.

9. A mount for the tongue of a cigarette rod-forming mechanism, comprising a folder bottom base structure, a folder bottom insert mounted for lengthwise adjustment upon said folder bottom base, a tongue-support and connections between said tongue-support and said folder bottom base structure at three points spaced apart lengthwise of the tongue support and also spaced apart across the major axis of the tongue support, providing for universal adjustment as between the tongue support, the folder bottom base structure and the folder bottom insert, said universal adjustment including a rocking adjustment of the tongue support about said major axis thereof.

10. A tongue adapted to be associated removably with the mount of a rod-former in a cigarette machine having the features claimed in claim 8, said mount having three set-screws constructed and arranged to control horizontal adjustments of the tongue, wherein each of said lugs of said tongue is provided with a face adapted to cooperate with one of said three set-screws.

ELBERON D. SMITH.

CERTIFICATE OF CORRECTION.

Patent No. 2,235,853. March 25, 1941.

ELBERON D. SMITH.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 8, claim 7, for the claim reference numeral "8" read --6--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 13th day of May, A. D. 1941.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)