

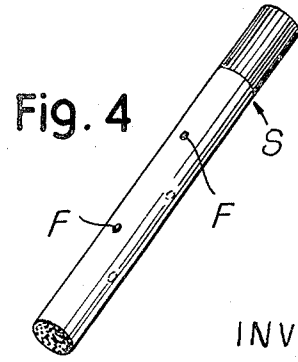
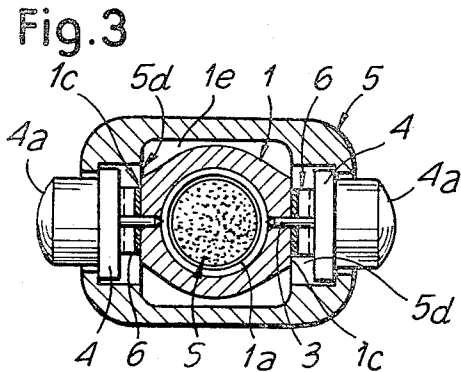
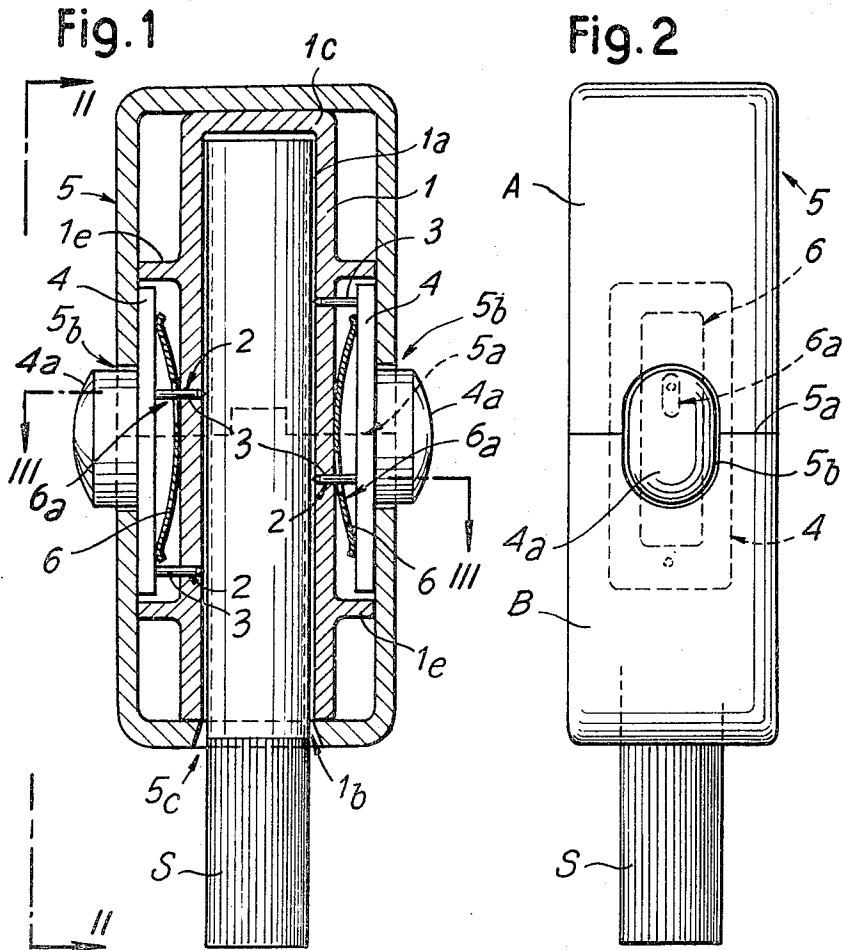
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E. GRASSI

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CIGARETTE SHEATH PERFORATOR

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INVENTOR

ELIO GRASSI

By *Mulrow and Torow*
Attorneys

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CIGARETTE SHEATH PERFORATOR

Elio Grassi, Via Gelli 45, Florence, Italy

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ABSTRACT OF THE DISCLOSURE

A device for perforating the paper wrapper of a cigarette is formed of a longitudinally extending tubular support member arranged to receive and hold at least a major portion of the length of a cigarette. Diametrically opposed longitudinally extending rows of apertures are provided in the support member. Enclosing the support member is a housing which contains a pair of plate members located along the oppositely disposed lines of apertures. Each plate member contains a number of rods aligned with the apertures through the support member. Normally, the plate members are spring biased in a position spaced outwardly from the support member. Buttons or projections are formed on the outer surface of the plate members and extend through openings in the housing so that the projections are accessible from the exterior of the housing. When the projections are depressed inwardly the plate members move toward the support member and their rod members pass through the apertures in the support member for perforating a cigarette disposed within the member. Accordingly, in a single mechanical operation perforations are formed in the paper wrapper of a cigarette disposed within the support member. Preferably the apertures through the support member are offset in the longitudinal direction on opposite sides of the support member.

Summary of the invention

This invention relates to a device for the perforation of a cigarette paper tubular sheath in several spots.

The object of the present invention is to provide a device for perforating the paper sheath of a cigarette with a plurality of apertures along its length whereby, when being smoked, the smoke drawn from the burning end is diluted with air drawn in through the apertures thus reducing the irritating effects of the smoke.

According to the present invention there is provided a device for the perforation of the paper of a cigarette at a plurality of points along the length thereof, said device comprising means defining a support for the cigarette, said support means having apertures therein, and rod means slidable in the apertures, said rod means being arranged to move inwardly to perforate a cigarette in said support means.

Further according to the present invention there is provided a device for forming a plurality of apertures in two rows along the length of a cigarette, the apertures on one row being out-of-phase with those of the other row, said device comprising a tubular cigarette-receiving member having apertures therein corresponding to those to be placed in the cigarette, a casing substantially surrounding said member and having two opposed longitudinal walls each with an opening therein, a pin slidable in each said aperture of the tubular member, a first plate carrying the pins of one row, a second plate carrying the pins of the other row, a first button rigid with the first plate and extending outwardly through one of said openings, a second button rigid with the second plate and extending outwardly through the other of said openings, a first leaf spring biasing the first plate and pins outwardly, and a second leaf spring biasing the second plate

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and pins outwardly, pressure on said buttons inwardly causing said pins to produce said apertures in the cigarette.

An embodiment of a device in accordance with the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawing, in which;

FIG. 1 is a longitudinal section of the device;

FIG. 2 is an external view of the device as viewed from the direction indicated by arrows II—II of FIG. 1; FIG. 3 is a cross-section of the device on the line III—III of FIG. 1; and

FIG. 4 is a cigarette perforated by the device of FIGS. 1 to 3.

Referring now to the drawing, an inner body 1 in one or two pieces, defines a longitudinal support 1a for a cigarette S, which is introduced to the support 1a through an intake opening 1b. The support is closed at the opposite end, by a wall 1c acting as an end-stop for the cigarette. In the wall of the body 1, there are provided, two diametrically-opposite radially-extending openings 2, one above from the other, and opening into the central support. Radially-movable rods 3 can slide in openings 2 and the inner ends project into the central support 1a, and can thereby perforate the paper tubular sheath of the cigarette S. The rods are secured to two diametrically opposite operating plates or other members 4. Each member 4 has an outer push-button 4a which on application of external pressure causes the rods to slide radially inwardly. The two push-buttons 4a may be actuated to obtain simultaneously the movement of the two series of rods 3 in the centripetal directions.

An outer casing 5, formed by two portions A, and B which are joined to each other at a central transverse plane 5a, is arranged to contain the inner body 1 and to define sliding bearings for the operational members 4. On two laterally-opposite flanks of the outer casing apertures 5b are provided to allow for the external operation of the pushbuttons 4a and on the end wall of the lower portion B there is an opening 5c, in alignment with the intake mouth 1b, to allow for the introduction of a cigarette into the central support 1a of the inner body 1. The operational members 4 are assembled within recesses 5d formed in the two portions A and B of the casing 5. Leaf springs 6, having openings 6a for the passage of the rods 3, are mounted between the inner walls of the operational members 4 and the outside of the body 1, provided, over the appropriate length, with flat portions 1c for supporting the springs. The springs 6 bias the push-buttons 4a outwardly and allow for the insertion of the cigarette by retracting the rods 3.

The two operational members 4, although similar to each other, carry rods 3 which are not mounted symmetrically with respect to the actuation axis of the push-buttons 4a. Said members are mounted with one reversed with respect to the other in order to present the rods 3 of each member, offset or out-of-phase with respect to those of the other member, so that the perforations in the cigarette paper sheath are not opposite each other. Furthermore, flanges 1e allow for accurate setting up of the inner body 1 within the casing 5, and complete the guide surfaces for the members 4.

The hereinbefore described device, with the full introduction of the cigarette S into the central tubular support 1a of the inner body 1 and by the simultaneous pressing of two push-buttons 4a, effects the formation of the apertures F, as shown in FIG. 4. The apertures are formed along two diametrically opposite generating lines corresponding to the lines of the two series of the rods 3, and out-of-phase by the same amount as the two series of the rods.

Therefore the device enables, with a single operation,

the perforation of cigarettes of the circular cylindrical type, and the device may also be used for the perforation of the flattened or oval section cigarettes, by means of a preliminary handling of the same cigarettes, as generally occurs to the conventional cigarettes of the flattened type before lighting them, to make them rounder and thus adaptable to the circular cross-section of the central support 1a. However it would be possible to make such a cross-section of the support 1a with an oval shape, so as to allow the introduction and thus the perforation of oval-section cigarettes.

The device enables perforation of a cigarette immediately before the lighting thereof.

I claim:

1. A device for forming perforations in the paper wrapper of a cigarette, at positions along the length of the cigarette spaced from its mouth piece, and comprising a longitudinally extending tubular support member arranged to receive in closely fitting engagement at least a major portion of the length of a cigarette, said support member having a first and a second longitudinally extending row of apertures arranged therethrough said support member, said second row of apertures disposed on the opposite side of said support member from said first row of apertures, and said apertures disposed in said second row offset longitudinally with respect to said apertures in said first row, a housing laterally enclosing said support member, said housing spaced from said support member at least along the rows of said apertures and forming recesses therebetween, a first plate member disposed within one of the recesses radially outwardly from an opposite said first row of apertures, a second plate member disposed within another one of the recesses radially outwardly from and opposite said second row of apertures, rod members secured to said first and second plate members and extending radially inwardly therefrom toward said support member, each of said rod members aligned with one of said apertures in said support member and having a perforating surface at the radially inner end thereof, means for biasing said first and second plate members outwardly from said support member, a projection positioned on the radially outer surface of each of said first and second plate member, said housing having openings therethrough arranged to receive said projections on said plate members whereby said means for biasing said first and second plate members radially outwardly maintains said projections in a radially outward position extending through the openings in said housing so that the projections are accessible from the exterior of said housing, and by depressing said pro-

jections radially inwardly, said plate members move radially inwardly toward said support member and said rod members thereon are guided radially inwardly through the apertures in said support member for perforating the paper wrapper of a cigarette inserted within said tubular support member.

2. A device as set forth in claim 1, wherein said tubular support member is closed at one end and is open at the other end for inserting a cigarette therein whereby said support member is arranged to receive substantially the entire length of the cigarette with the exception of the mouthpiece end thereof.

3. A device as set forth in claim 1, wherein radially outwardly extending ribs are provided on the exterior surface of said support member for contacting the inner surface of said housing.

4. A device as set forth in claim 1, wherein said housing has an opening therein in alignment with the open end of said support member for inserting a cigarette into said support member, the surface of said housing at said opening converging for forming guiding means for leading a cigarette into said support member.

5. A device as set forth in claim 1, wherein said means for biasing said first and second plates comprising a pair of leaf springs, each of said leaf springs contacting the radially outer surface of said support member and the radially inner surface of one of said first and second plate members.

6. A device as set forth in claim 1, wherein said tubular support member has a circular transverse section for receiving a cigarette in closely fitting relationship.

7. A device as set forth in claim 1, wherein said housing is formed of two parts secured together in a plane disposed transversely of the axis of said support member.

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JOSEPH S. REICH, *Primary Examiner*.