

March 3, 1959

A. J. KASAK

2,875,728

EXTRUSION NOZZLE

Original Filed Nov. 20, 1952

2 Sheets-Sheet 1

Fig. 1

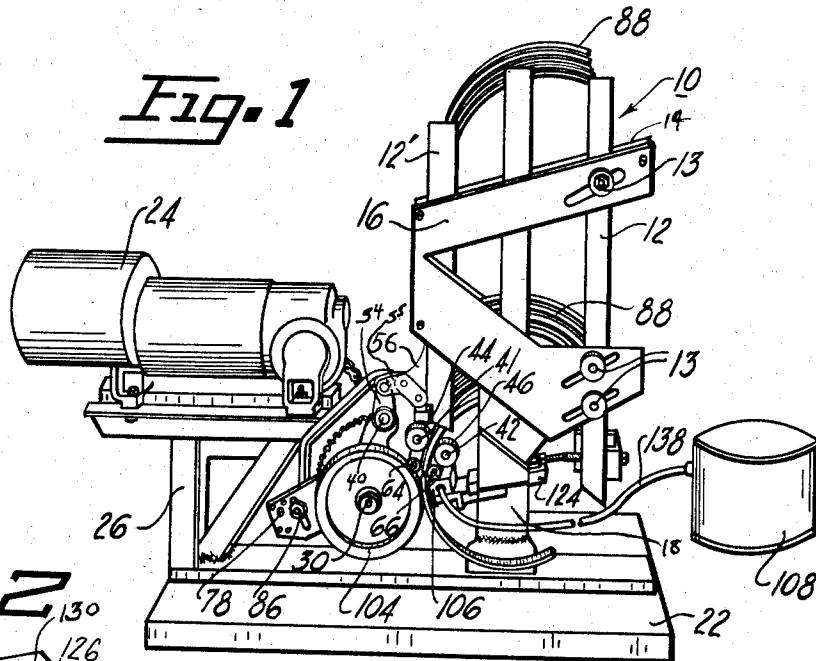


Fig. 2

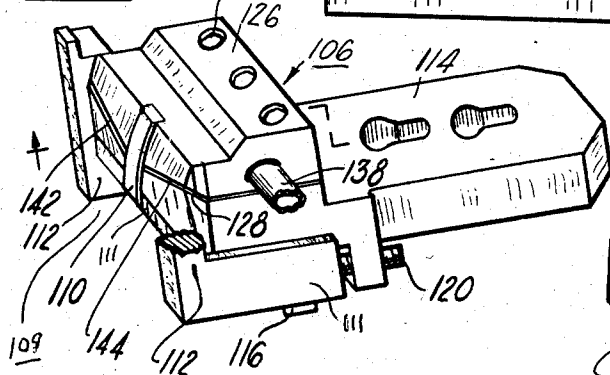


Fig. 4

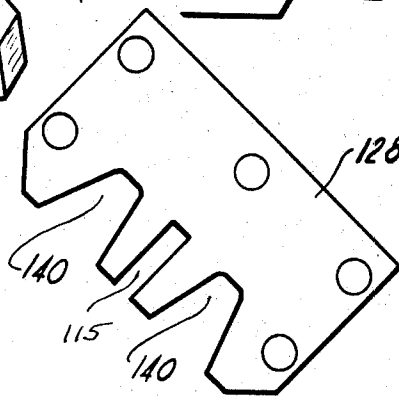
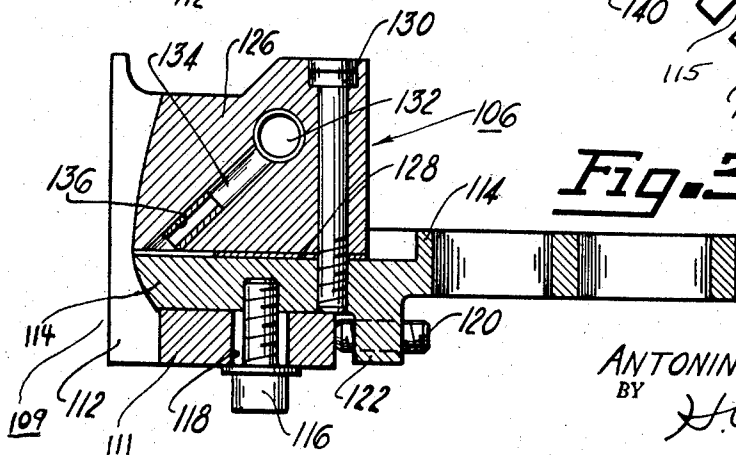


Fig. 3



INVENTOR.
ANTONIN J. KASAK
BY

H. O. Clayton

ATTORNEY

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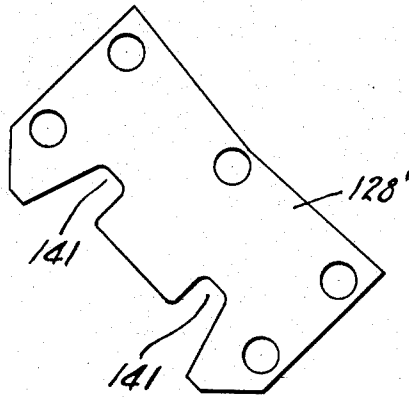


Fig. 5

INVENTOR.
ANTONIN J. KASAK
BY *H. O. Clayton*
ATTORNEY

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2,875,728

EXTRUSION NOZZLE

Antonin J. Kasak, South Bend, Ind., assignor to Bendix Aviation Corporation, South Bend, Ind., a corporation of Delaware

Original application November 20, 1952, Serial No. 321,636, now Patent No. 2,770,217, dated November 13, 1956. Divided and this application August 30, 1956, Serial No. 607,240

4 Claims. (Cl. 118—410)

This invention, disclosed in my application Serial No. 321,636, filed November 20, 1952, now Patent 2,770,217 issued November 13, 1956 relates in general to machines for applying adhesive to the brake lining of the brake shoes of an automotive vehicle. However, this application, constituting a division of the aforementioned parent application, is limited to the extrusion nozzle of the latter application.

An important object of my invention is to provide a compact and effective nozzle member of relatively few parts, said nozzle being well suited for use in the above identified machine.

A further object of my invention is to provide a nozzle which will extrude, from its lip portion, a plurality of ribbons of adhesive; or the nozzle may be designed to extrude but one ribbon of adhesive, also rectangular in cross section.

Other objects of the invention and desirable details of construction of parts will become apparent from the following detailed description of certain illustrative embodiments of the invention, taken in conjunction with the accompanying drawings illustrating said embodiments, in which:

Figure 1 is a view disclosing one of the sides of a brake lining processing machine including the extrusion nozzle disclosed in Figures 2 and 3;

Figure 2 discloses the nozzle constituting my invention, the same being one embodiment thereof;

Figure 3 is a sectional view, taken on the line 3—3 of Figure 2 disclosing certain details of my extrusion nozzle;

Figure 4 is a view of the adhesive gauging spacer of the nozzle of Figures 2 and 3; and

Figure 5 discloses another embodiment of the adhesive gauging spacer of my invention.

Referring now to Figure 1 of the drawings, there is disclosed in this figure a cement applicator machine which includes, among its parts, the extrusion nozzle constituting the invention of this application.

Describing this machine there is provided a box shaped hopper 10 rectangular shaped in cross section, said hopper comprising angular shaped vertically extending end members 12 and 12'. The two members 12 are adjustably secured, by fastening members 13, to body members 14 and 16. As is disclosed in this figure of the drawings, the adjustable securement of the members 12 to the members 14 and 16 provide a means for sizing the hopper to the particular length and width of brake lining to be housed therein.

The hopper 10 is fixedly mounted upon a standard 18 which is fixedly mounted on a base member 22. A source of power, preferably a variable speed electric motor 24, is mounted upon a support 26 which is also secured to the base member 22. A gear member, not shown, drivably connected to a shaft 30, is drivably connected to the motor 24 by an undisclosed chain and sprocket mechanism; and this gear member serves, through the medium of a clutch, not shown, to drive three intermeshed pinion gears, not shown, which are drivably connected to

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shafts 40, 41 and 42. The shafts 40 and 41 serve, respectively, to rotate an eccentric and a roller 44 keyed thereto; and the eccentric serves to bodily move a link 54. This link, by means of a link 55, is connected to a bell crank lever 56 which is pivotally mounted on a fixed mounting, not shown. One arm of the lever 56 is preferably saw-toothed and shaped to provide surfaces to momentarily support the ends of the pieces of brake lining 88; and as the lever 56 is oscillated, that is, rocked about its pivot, each piece of brake lining with an intermittent movement drops, by the force of gravity, from one saw-toothed surface to another until it reaches the roller 44, keyed to the shaft 41, and a roller 46 spaced from the roller 44 and keyed to the shaft 42.

Immediately below the driving rollers 44 and 46 are mounted idler guide rollers 64 and 66.

Describing now the operation of the mechanism disclosed in Figure 1, the operator feeds the pieces of brake lining 88 into the hopper 10 and with the oscillation of the lever 56 said lining pieces are fed into the space between driven rollers 44 and 46. These rollers, which are preferably faced with a friction material such as rubberized fabric, are driven in opposite directions and serve to pull each lining piece downwardly, the lower end thereof entering the space between the idler guide rollers 64 and 66 and into contact with a relatively large roller 104 also faced with friction material. This roller 104, which is drivably mounted on the shaft 30, serves, with the aid of the driven rollers 44 and 46, to draw the lining pieces downwardly past an adhesive extrusion nozzle unit 106 constituting the invention of this application. This unit, which is disclosed in detail in Figures 2 and 3, is adjustably mounted on a support plate 124.

The above described mechanism, disclosed in Figure 1 and in the aforementioned parent application Serial No. 321,636, is not claimed herein, inasmuch as my invention lies in the nozzle unit 106 described hereinafter.

Describing now this nozzle unit 106, the same includes a generally prism shaped bed plate 114 adjustably mounted on the support plate 124. A brake lining guide member 109, Figures 2 and 3, comprising, in one piece, a centrally positioned nose member 110 and a base member 111 having spaced apart upwardly extending flanges 112, is adjustably connected to the bed plate by means of screws 116 and 122. The nozzle unit also includes an adhesive distributing generally prism shaped body member 126 seated upon the bed plate 114, the two being separated by a spacer member 128, Figure 4; and bolts 130 secure the members 126 and 114 together. The outer edge portions of the body member 126 and bed plate 114 together form an extrusion lip portion indicated by the reference numerals 142 and 144 of Figure 2.

As disclosed in Figure 2, the nose member 110 extends within a recess in the members 126 and 114 and protrudes beyond the lip portions 142, 144 a distance sufficient to space the pieces of brake lining from said lip portion as they move past the nozzle to receive the adhesive. The lining will rub against the nose member 110 in this operation. The flanges 112 serve to track said lining material during this operation; and it is to be remembered that the flanges 112 and nose member 110 are integral with the base member 111 accordingly the adjustment of the member 114, by the fastening means 116, serves to determine the spacing of the brake lining from the lip portions 142, 144.

U-shaped recesses 140, Figure 4, in the spacer member 128 determine the width and number of ribbons of extruded adhesive to be deposited on the inner or concave shaped surface of the brake lining. As shaped the spacer of Figure 4 will provide two spaced ribbons of adhesive; and the thickness of the spacer member determines the thickness of said ribbons. A central recess

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115 in the spacer is provided to accommodate the nose member 110 of the lining guide member. There is disclosed in Figure 5 a modified form of spacer member 128', said member being recessed to provide but one ribbon of the adhesive. In this embodiment of my invention the spacer member includes recesses 141 which register with the base of diagonally extending passages 134 in the body member 126. The body member 126 is bored to provide a transversely extending passage 132 and two spaced apart diagonally extending passages 134, said passages distributing the adhesive to the recesses 140 of the spacer member; or to the recesses 141 of Figure 5. One or both of the passages 134 may be provided with relative short sleeve members 136, Figure 3, to choke and therefore regulate the flow of adhesive to equalize the amount of adhesive in the two ribbons extruded from the nozzle when equipped with the spacer member 128 of Figure 4. A conduit 138 mounted on one end of the passage 132 serves to connect the nozzle to a pressurized adhesive supply unit 108 disclosed in Figure 1.

With the mechanism in operation, the pieces of lining 88, when passing the nose portion 142, 144 to receive the adhesive, are guided by the flanges 112 and spaced a certain distance from said nose portion by the member 110, said distance depending upon the relative position of the guide member 109 and bed plate 114. Surfaces of the guide member 109 which are contacted by the lining are preferably weld plated with a hard alloy to resist abrasion by said lining. The pieces of lining, after being coated as desired, may then be fed to a curing oven, not shown, and then to a mechanism, not shown, for applying the lining to brake shoes.

There is thus provided by the extrusion nozzle constituting my invention a device well suited to coat the inner surface of brake lining with the desired pattern and quantity of adhesive.

I claim:

1. A cement extrusion nozzle adapted to be incorporated in a machine for applying cement to brake linings, said nozzle including an imperforate, bed plate, a cement distributing body member detachably mounted on the bed plate, said member having a plurality of cement receiving passages therein, and a spacer member interposed between the body member and bed plate, said spacer member being shaped to determine the number of and the width of one or more ribbons of cement formed within the nozzle, said ribbons being extrudable from said nozzle.

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2. A cement extrusion nozzle adapted to be incorporated in a machine for applying cement to brake linings, said nozzle including a generally prism shaped imperforate bed plate, a generally prism shaped cement distributing body member detachably mounted on the bed plate, said member having a plurality of cement receiving passageways therein, and a spacer member, generally rectangular in outline, interposed between the body member and bed plate, said spacer member being so shaped as to effect, in cooperation with portions of the bed plate and body member, a desired number of ribbons of cement extrudable from the nozzle and to determine the thickness of said ribbons.

3. A cement extrusion nozzle including an imperforate bed plate, a cement distributing body member detachably mounted on the bed plate, a spacer member mounted between the bed plate and body member and having recesses therein operative to determine the number of ribbons of cement extrudable from the nozzle, and a brake lining guide member adjustably secured to the bottom of the bed plate, said guide member including a base member, spaced apart upwardly extending flanges at the sides of the base member, and a centrally positioned nose member.

4. A cement extrusion nozzle member including a generally prism shaped imperforate bed plate, a generally prism shaped cement distributing body member detachably secured upon the top of the bed plate and bored to provide a cement receiving transversely extending duct and a plurality of spaced apart diagonally extending cement receiving ducts, a spacer member mounted between the bed plate and body member and having recesses therein operative to determine the number of ribbons of cement extrudable from the nozzle and a guide member adjustably secured to the bottom of the bed plate, said guide member including a plurality of spaced apart flanges and a centrally positioned nose member for guiding a workpiece to be covered with cement as it moves past the nozzle.

References Cited in the file of this patent

UNITED STATES PATENTS

219,547	Wheeler	Sept. 9, 1879
2,146,238	Ward	Feb. 7, 1939
2,195,416	MacKenzie	Apr. 2, 1940
2,325,129	Hardy	July 27, 1943
2,482,989	Mussett	Sept. 27, 1949
2,598,908	Grimson	June 3, 1952