United States Patent [19]

Brown

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[45] **Jan. 14, 1975**

[54] **DOCTOR BLADE ASSEMBLY**

[75] Inventor: **Jack Frederick Brown,** Pierrefonds, Quebec, Canada

[73] Assignee: **James Ross Limited,** Lachine, Quebec, Canada

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[52] **U.S. Cl.**.....**15/256.51,** 15/236

[51] **Int. Cl.**..... **B31f 1/14**

[58] **Field of Search**..... 15/256.51, 256.5, 256.53, 15/236; 118/126, 261; 100/174, 112, 110; 68/270; 162/281; 165/91; 83/168; 101/154, 155, 167, 425; 74/519

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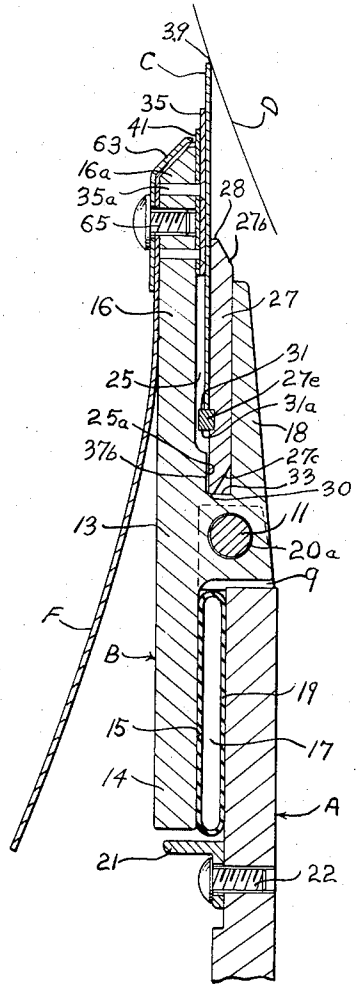
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Primary Examiner—Robert L. Bleutge
Assistant Examiner—C. K. Moore
Attorney, Agent, or Firm—Diller, Brown, Ramik & Wight

[57] **ABSTRACT**

A heavy duty doctor apparatus effective for creping for use with a roll, for example, a Yankee cylinder. The apparatus features a doctor pressure plate assembly which has a pressure plate adapted to extend the width of the cylinder carried by an array of spaced apart pressure fingers. Each finger has a transverse fulcrum and pairs of jaws provided with opposed surfaces defining between them a registering receiving slot extending from a root to a mouth. The pressure plate is mounted on one of the opposed surfaces, preferably with a pressure pad intervening the pressure plate and surface. The pressure plate projects beyond its mounting surface. The slot also accommodates a blade seat which rests on the other opposed surface and has an abutment adapted to engage the trailing edge of the blade seat which is sandwiched between the pressure plate and blade seat. Each slot is stepped inwards at its root to provide a retaining groove for the blade seat. A preferred finger is of integral solid metal construction. A preferred form of blade seat is an elongated plate of non-metallic heat-resistant material having one surface for resting on the fingers and the opposite surface for receiving the blade and having a protruding bar for engaging the trailing edge of the doctor blade.

17 Claims, 9 Drawing Figures



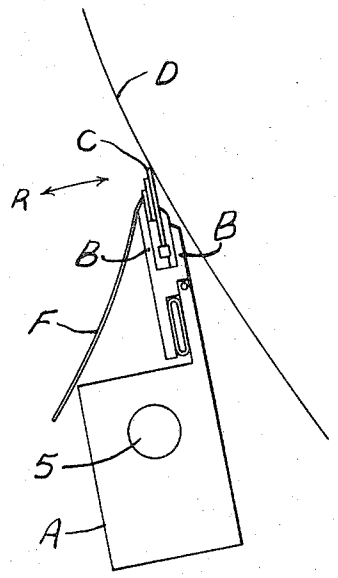


FIG. 1

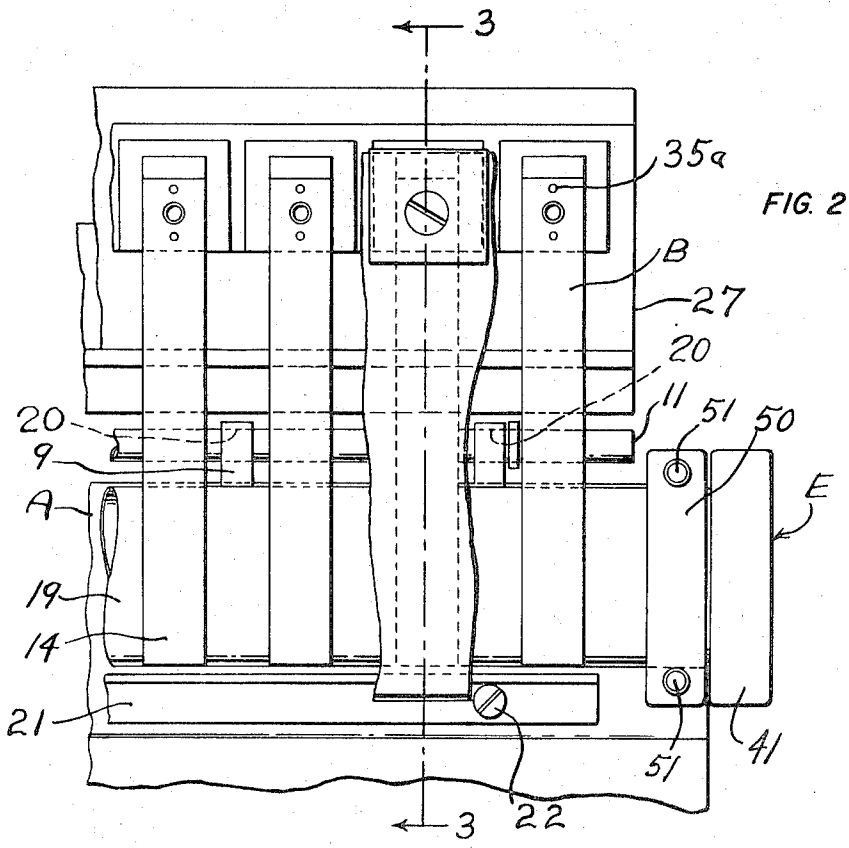


FIG. 2

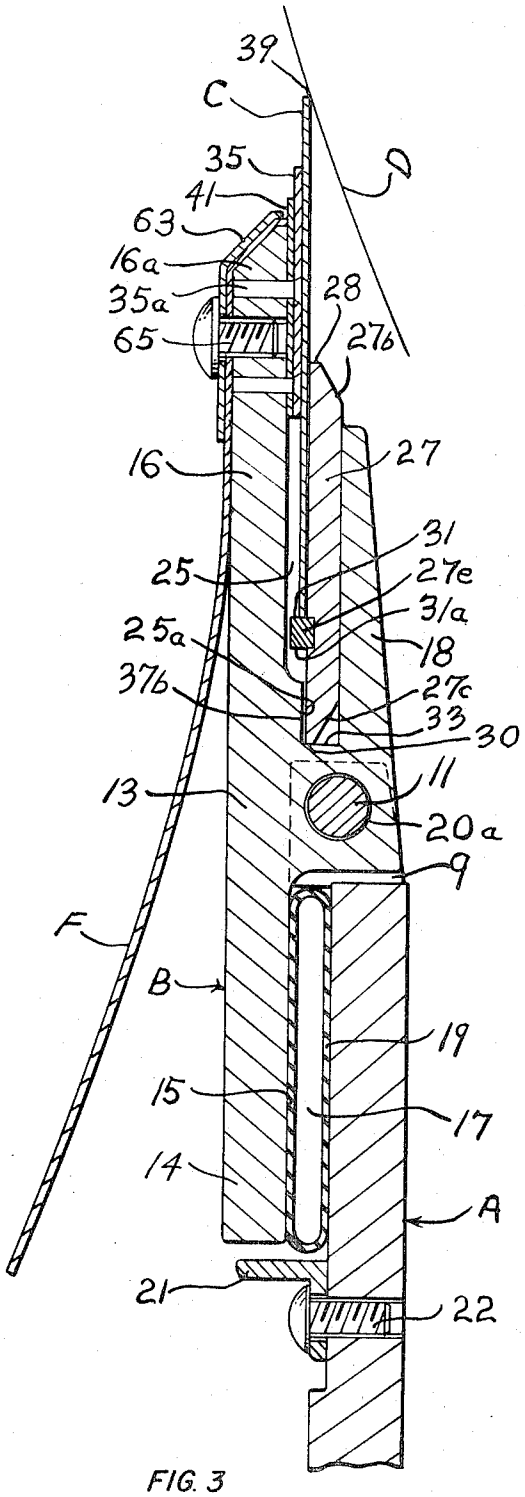


FIG. 3

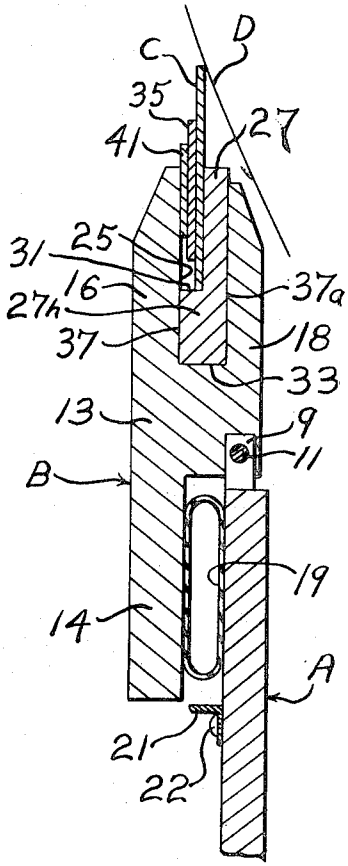


FIG. 8

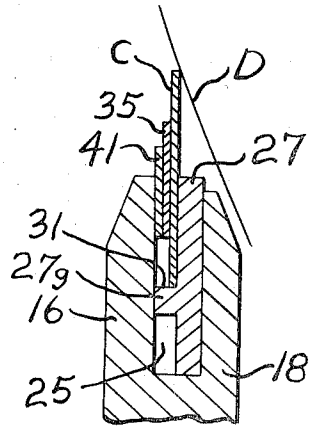


FIG. 9

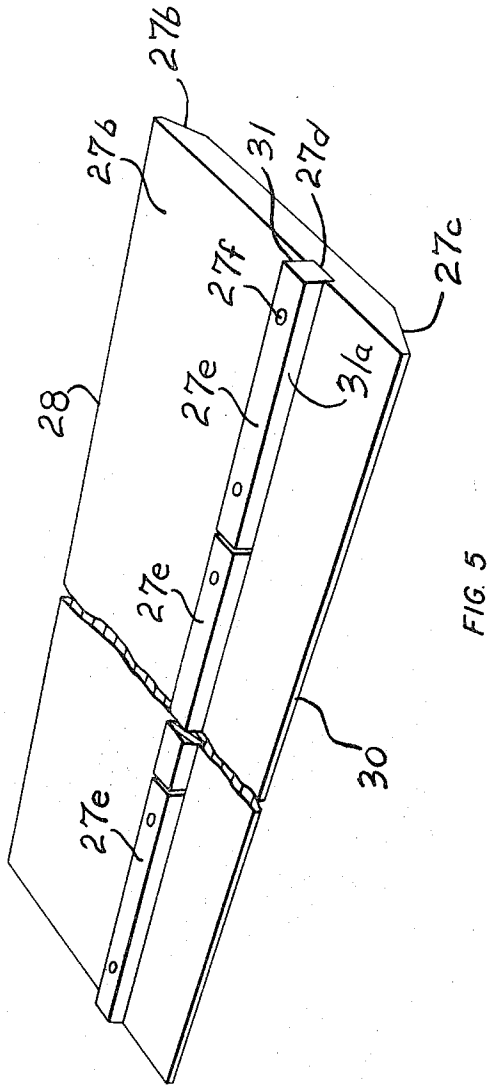

27b
27b
31
27d
27c
27f
28
27e
31a
27e
27e
30

FIG. 5

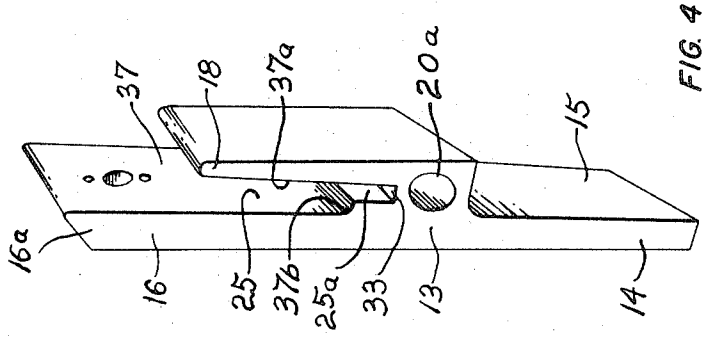

37
18
37a
20a
15
16a
16
25
37b
25a
33
13
14

FIG. 4

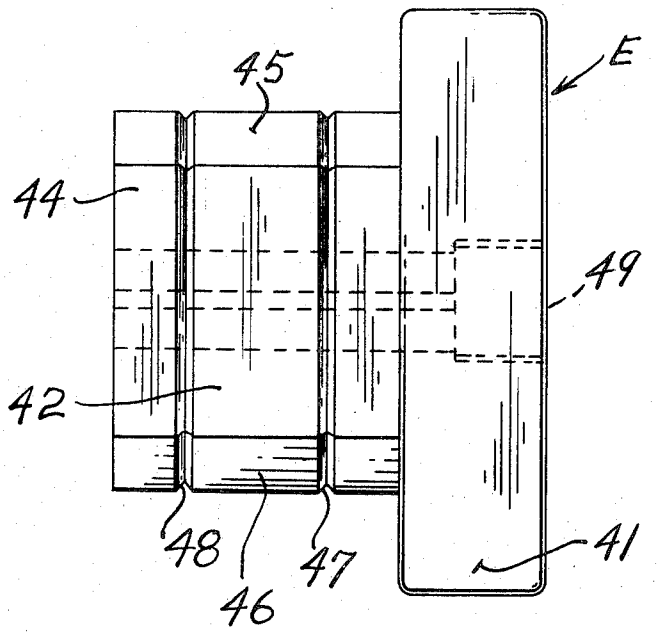


FIG. 6

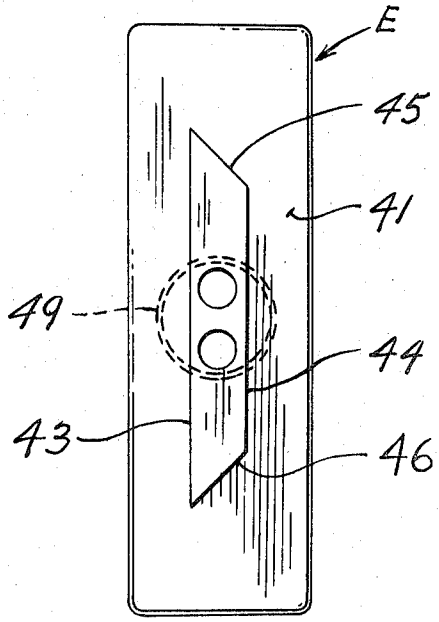


FIG. 7

DOCTOR BLADE ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to doctor blade assemblies.

2. Description of the Prior Art

The invention is more particularly directed to the adjustable mounting of doctor blades, particularly those blades employed in the production of crepe tissue.

Doctor blades wear rapidly and thus require frequent adjustment and/or replacement to compensate for this wear in order to maintain them in a proper operating position. Normally the doctor blade is mounted in the doctor assembly so as to be supported along its trailing edge. This trailing edge is opposite to, but substantially parallel to, the doctoring edge, which is biased against the creping cylinder, to crepe off the tissue. The doctor assembly usually comprises one or more members extending across the face of the cylinder, and parallel to its axis of rotation, which member or members provide a slot normally facing the cylinder to receive a portion of a doctor blade. The trailing edge of the doctor blade is supported by support means in the slot. To compensate for wear of the blades these support means have been made adjustable, permitting them to be moved toward or away from the cylinder. In one known instance these support means are formed by a member movably mounted within the slot. A cam-type mechanism has been provided to move the member within the slot, and thus the blade supported by it toward or away from the cylinder.

In another construction the walls of the slot have been provided along their length with several pairs of facing grooves. A support member is provided which is slidably mounted in any one of the facing groove pairs to extend between the walls of the slot and thus provide support for the doctor blade. The support member normally is slid into the pair of grooves furthest away from the mouth of the slot and extends between the walls of the slot to define a bottom wall of the slot against which the trailing edge of the blade abuts. As the blade wears down the member is withdrawn from the first pair of grooves and moved into the next pair of grooves one step closer to the mouth of the slot thus supporting the narrower blade in proper operating position.

One major problem with these adjustable doctor blade supports is that, when manufacturing crepe tissue, fine fibrous waste material is produced and this material accumulates on and in the doctor blade assembly. The material, if not cleaned away, can eventually cause the operating mechanism to jam up, or it can settle in and fill up the empty facing groove pairs and make it difficult, if not impossible, to slidably reposition the support member. This results in "down time", during which the entire doctor blade assembly has to be taken apart, cleaned and reassembled.

SUMMARY OF THE INVENTION

It is an aim of the present invention to provide a doctor blade assembly which avoids the prior art problems and provides, as well, certain positive advantages. Considered in terms of the total combination used with a creping cylinder, the applicant's apparatus has the following features. It includes a doctor blade pressure plate assembly pivoted on the doctorback and has a pressure plate which bears on the doctor blade at one side and a blade seat which bears on the doctor blade at the other side and against its trailing edge. More specifically, the assembly comprises an array of pressure fingers each in the form of a lever having a surface to which the pressure plate is fixedly connected and spaced from it and an opposed surface for carrying a detachable blade seat. The doctor blade is sandwiched between the pressure plate and blade seat with its trailing edge bearing against an abutment on the latter. Each finger has an intermediate fulcrum by which it is pivotally mounted on the doctorback and a tongue extending from the fulcrum in a direction opposite to the surface carrying the pressure plate, to receive resilient pressure urging the finger in doctoring direction. Preferably the tongue has a pressure receiving surface in substantial alignment with that to which the pressure plate is fixed.

Preferably, there is a pressure pad intervening each finger and the pressure plate with the pad protruding beyond the finger, the pressure plate protruding beyond the pads and the doctor blade projecting beyond the pressure plate. This provices balanced resiliency at the doctoring edge of the blade.

A preferred pressure finger, according to the invention, is constructed as follows. It includes a body having a transverse fulcrum to receive pivotal mounting means. First and second jaws extend away from the fulcrum and have first and second spaced apart opposed surfaces defining between them a mounting slot. An inner terminal part of the first surface is stepped inwards towards the second to provide a terminal portion of the slot of reduced width, constituting a retaining groove for the terminal end of a blade seat resting on the second surface. A tongue extends from the fulcrum part in a direction opposite to that of the jaws and has a bearing surface facing the same direction as the first surface for contact with pressure means acting to urge the finger in doctoring direction.

Desirably, the first jaw has a beak protruding beyond the second jaw for mounting the pressure plate. Desirably, also, the inner surface of the first jaw extends parallel to that of the second jaw for a major portion of its length before being stepped inwards. Preferably, the pressure receiving surface of the tongue is substantially in alignment with the first surface, with the bearing part having a shoulder substantially perpendicular to the bearing surface of the tongue. In this arrangement the force that is generated at the working edge of the doctor blade is transmitted to the doctorback in a substantially linear direction, thus avoiding moments or collapsing forces. The finger can be conveniently made as an integral solid metal structure.

Another feature of the invention is the blade seat. This is a thin elongated rectangular body which has opposed first and second surfaces and longitudinal opposed parallel edges. Abutment means extends upwardly from the first surface parallel to and spaced from the edges. The first surface between one of the edges and the abutment means is shaped to receive the doctor blade with its trailing edge against the abutment means. The second surface is shaped to rest on the pressure fingers. The margins of the opposed surfaces and one of the edges constituting retaining and positioning borders for mating with retaining slots in the fingers. Preferably, the blade seat has a body of a non-metallic heat-resistant material and the abutment means are a plurality of spaced apart elongated metallic segments set into a groove in the body. Each seg-

ment has an edge parallel to the edges of the body and stands up from the first surface for engaging the trailing edge of the doctor blade.

The doctor pressure plate assembly can be supplied as a separate unit made up of the fingers to which is fixedly mounted the pressure pads and pressure plate, and desirably a flexible protective apron. Usually the blade seat is contained in the pressure plate assembly when supplied to the manufacturer doing the doctoring.

In preferred practice, the surface on the doctorback that carries the doctor blade mounting assembly is machined to conform its profile to that of the surface of the cylinder. However, there are unavoidable variations in the profile of the cylinder surface because of thermal and mechanical forces constantly acting on the dryer. So, the conformation of the doctorback mounting surface can, at the best, be a compromise. This being the case, the present invention provides means to compensate for the inevitable and varying discrepancy between the profile of the doctorback and that of the cylinder. More specifically, this means provides greater flexibility in the blade seating, so that the doctor blade can conform accurately to any changes in the profile of the cylinder. This arrangement also provides relatively constant linear pressure across the width of the cylinder thus avoiding high unit pressure at the ends of the blades, which is commonly found in prior designs, resulting in the cylinders wearing badly.

BRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention generally, it will be referred to in more detail by reference to the accompanying drawings, in which preferred forms are shown, and in which:

FIG. **1** is a fragmentary side elevation showing a typical relationship between a doctor according to the invention and a Yankee cylinder;

FIG. **2** is a fragmentary elevation, looking in the direction of the arrow on FIG. **1**, on a much larger scale, of a preferred form of doctor blade assembly according to the invention;

FIG. **3** is a cross-section along the line **2—2** of FIG. **2**;

FIG. **4** is a perspective view of a preferred form of pressure finger as used in the assembly of the previous figures;

FIG. **5** is a perspective view of a preferred form of blade seat according to the invention;

FIG. **6** is an elevation of a pressure tube adapter as used in the assembly of FIGS. **1** to **3**;

FIG. **7** is an end elevation of the adapter shown in FIG. **6**;

FIG. **8** is a fragmentary cross-section similar to that of FIG. **3**, showing a doctor blade assembly having alternative features of construction;

FIG. **9** is a fragmentary cross-section along similar lines to that of FIG. **8**, showing an alternative form of blade seat.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, FIG. **1** shows a doctor blade mounting assembly, including an array of spaced apart pressure fingers B, carrying a doctor blade C in doctoring position relative to the surface of a creping cylinder D (Yankee Dryer). The mounting assembly is mounted on a doctor-back A, carried from the main frame of the paper machine. The doctorback A is pivotally mounted as at **5** to the paper machine, at a predetermined position from the axis of the creping cylinder D, so that the member A can be rotated toward or away from the cylinder D, as shown by the arrow R. This permits the doctor blade C to be set at the desired angle to the periphery of the cylinder D.

Referring to FIGS. **2** and **3**, the mounting member A on its leading edge **7** has a plurality of support blocks **9** welded to it. Apertures **20** in the blocks **9** are aligned to receive a pivot rod **11**.

Pivotally mounted between the blocks **9**, and on the rod **11** are the pressure fingers B for carrying the blade supporting assembly and blade C. The fingers B are of a special shape, a preferred form of which is shown in FIG. **4**. Each pressure finger B has a rigid body made up of a central hub part **13**, an integral tongue **14** extending rearwardly from the upper side of the part **13**, and integral jaws **16** and **18** extending forwardly from the upper and lower sides of the central part **13** and enclosing between them a slot **25**. The fingers B are preferably of solid rigid integral construction. They can be made from a single piece of metal by machining, cast or otherwise fabricated. The slot **25** opens towards the cylinder D and is provided with opposed walls **37** and **37*a*** (being surfaces of the jaws **16** and **18** respectively) and a rear wall **33**. The slots **25** accommodate the doctor blade C and blade retaining means including a blade seat **27** and a pressure plate **35** both extending the width of the machine and one pressure pad **41** for each finger B, details of which will be described.

The jaw **16** has a nose part **16a** protruding beyond the jaw **18** to a position near the surface of the cylinder D. The jaws **16** and **18** have their opposed surfaces **37** and **37*a***, respectively, bounding the slot **25**. The wall **37** is parallel to the wall **37*a*** for most of its length and is then stepped inwards towards the wall **37*a*** in a step **37*b***, to produce a narrower root portion of the slot **25**, constituting a retaining groove **25*a*** receiving the trailing edge of the blade seat **27** in a loose sliding fit. This construction provides for accurate location and retention of the trailing edge of the blade seat **27** and consequently accurate positioning of its leading edge in respect to the mounting assembly and to the surface of the cylinder D.

The hub part **13** of each finger B is provided with a fulcrum in the form of a laterally extending cylindrical aperture **20a** for receiving the rod **11**. The aperture **20*a*** is centrally located between the ends of the fingers B. The apertures **20** in the support blocks **9** and **20*a*** in the pressure fingers B are oversize relative to the pivot rod **11**. This allows for play between the rod **11** and the fingers B and support blocks **9** This, in turn, permits rocking movement between the pressure fingers and the rod, as well as pivotal movement.

The tongue **14** has a surface **15** overlying a portion of the mounting member A but spaced from it to provide a space **17** for a continuous inflatable tube **19**. The tube **19** is held in place by a retainer **21** mounted on the mounting member A and held to it by screws **22**. In the form shown, the retainer **21** is an angle iron, but can take other forms. When the tube **19** is inflated, the fingers B pivot about the rod **11** clockwise urging the doctor blade C, carried in the slots **25**, against the cylinder D under the pressure of the plate **35**.

More specific reference will now be made to the blade seating, which can be specially in FIGS. **2** and **3.** Mounted on each pressure finger B is a main pressure plate **35** which extends across the width of the cylinder D. The plate **35** is attached by means to be described to the walls **37** of the fingers B. The plate **35** assists in distributing force evenly across the width of the creping edge **39** of the doctor blade C. When the tube **29** is inflated, pressure is substantially uniformly applied to the creping edge **39** of the blade C through the fingers B. The assembly thus has substantial flexibility in the axial direction of the cylinder D and substantial rigidity in the tangential direction.

Preferably, pressure pads **41** are attached individually to each finger B to intervene the wall **37** and the plate **35** so as to provide further rigidity of the plate **35** in the tangential direction without impairing its flexibility in the axial direction of the cylinder. Each pad **41** stops short of the front edge of its plate **35** so that the plate **35** has a part projecting beyond it, as shown. This provides a springing effect in the plate **35.**

Held in the slots **25** is a doctor blade seat **27** which is substantially the length of the doctor blade C and extends through all the fingers B the entire width of the machine. The blade seat **27** is a continuous plate which has its opposed longitudinal margins chamfered to provide sloping faces **27***b* and **27***c* terminating in edges **28** and **30** to provide greater radial clearance between the member **27** and the cylinder D. The seat **27** is provided on the opposing face to the chamfers with a longitudinal groove **27***d* parallel to and spaced from the edges **28** and **30.** Mounted in the slot **27***d* is a blade abutment made up of a plurality of elongated metal segments **27***e* of rectangular cross-section spaced apart to provide for thermal expansion. The segments **27***e* are held in place in the groove **27***d* to the seat **27** by suitable means, for example, self-threading screws **27***f.* The segments **27***e* protrude from the surface of the seat **27** so that their edges **31** or **31***a* provide the abutment for the rear edge of the doctor blade C.

The blade seat **27** is preferably made of a thermally stable sheet material so that it remains unaffected by elevated operating temperatures. One material which has specially good qualities is sheet made of an asbestos matte filler impregnated with a thermosetting (preferably phenolic) resin binder and known on the market under the trade mark "ROBCO GRADE 101" sold by Joseph Robb, Limited, Montreal, Canada.

In practice, a number of such blade seats **27** are supplied to the customer with each doctor. This is so that the customer can use doctor blades of different widths. A new doctor blade is usually about four inches wide. By repeated use, the blade can wear down to 2⅝ inches in width. In practice, when a blade has worn down by about 1/16th of an inch it is reground so as to give it a new square edge. To maintain the same contact point of the blade with the cylinder it must be advanced relative to the mounting assembly. This is necessary to ensure that the correct angular relationship between the cylinder D and the doctor blade C is maintained.

Customers are, therefore, supplied with several blade seats for each doctor having their seating edges **31** at different distances from the edges **28** and **30.** Normally, the blade seat **27** has a width of about 3 inches and the seating member **27***e* can have its seating edge **31** spaced anywhere from about three-fourths of an inch to about 2 inches from the leading edge **28** of the blade seat **27.** The blade seat **27** can also be inverted so that instead of the edge **28** being the leading edge (nearest the cylinder D) the edge **30** becomes the leading edge.

The pressure fingers B are normally disposed with the slots **25** facing upwardly during operation. The blade seat **27** is thus retained in the slots **25** through its own weight bearing against the back walls **33** and the doctor blade C is urged by gravity and the pressure of the Yankee cylinder D so that it abuts against shoulder **31.**

A new blade seat **27,** slid into the slots **25** in the axial direction of the cylinder D cleans each slot automatically by pushing out any debris which may have accumulated in it during the previous creping operations. The ejected material falls through the spaces between the sides of the pressure fingers B. A similar cleaning action also occurs when a new doctor blade is slid in an axial direction of the cylinder D along the blade abutment **27***e.*

To provide a guide for the creped sheet and to prevent access of waste material to the moving parts of the assembly, the following means is provided. A flexible apron F, for example of neoprene or other suitable flexible material, is attached to the ends of the pressure fingers B and is draped over the assembly as shown running the entire width of the apparatus. The attachment is accomplished by a clip **63** on each pressure finger B which fits over the nose of each upper jaw **16** and is locked to it by a screw **65** entering a tapped opening in the end of the jaw **16.** The free margin of the sheet **61** is held between the undersurface of the clip **63** and the upper surface of the pressure jaw **16.** The clips are preferably of stainless steel sheet.

The pressure tube **19** is pliable, but impermeable and non-expansible and is substantially the length of the doctorback A. It can be of a neoprene-lined polyester jacketted non-expandable tube. Alternatively, it may be of a woven "terylene" reinforced silicon rubber tube which is used for high temperatures. "Terylene" is a trade mark for a polyester material.

The adapter E (FIGS. **2, 6** and **7**) for retaining the assembly of the tube **19** to the doctorback and for introducing air is as follows. The adapter E as best shown in FIGS. **6** and **7** is made up of a main block **41,** an integral spigot **42** of the cross-section shown so as to provide it with an underface **43** which lies on the doctorback, a parallel face **44** and a sloping side faces **45** and **46.** The cross-sectional shape of the spigot is adapted for receiving the end of the tube **19,** the combined length of the surfaces **43, 44, 45** and **46** being equal to the inside periphery of the tube **19** which fits tightly about the spigot **42.** Encircling the spigot **42** are a pair of spaced apart grooves **47** and **48** in the faces **43, 44, 45** and **46.** The grooves produce a positive seal, when the neoprene lining of the pressure tube **19** is forced into them under the pressure of retaining means to be described. The adapter E is provided with air connections **49** leading from the outer face of the block **41** to the inner face of the spigot **42.** To retain the end of the tube in position on the spigot **42** a top tube clamp **50** is applied over the tube **19** and is bolted through bolts **51** to the doctorback A.

An adapter E of the type described may be applied at each end of the doctor blade assembly to secure each end of the tube **19** and to supply air to it. Alternatively, only one adapter E may be employed at one end of the tube, with a simple clamp arrangement to seal the tube

and secure it to the doctorback at the other end of the tube **19**.

The support blocks **9** and the rod **11** are preferably made of stainless steel to guard against corrosion and possible seizure of the parts. The fingers B are either made of stainless steel or if of another metal are plated with a non-corrosive metal. The pressure plate **35** and the pressure pads **41** are preferably made from spring stainless steel, having the necessary springiness. The rivets **35a** which attach the pressure plate **35** and the pressure pads **41** to the upper jaws **16** of the fingers B are desirably of stainless steel.

Alternative forms of doctor blade assembly according to the invention are shown in FIGS. **8** and **9** in which similar reference numerals have been given to the parts as in the previous figures. Actually, the embodiment shown in FIG. **8** differs from the previous embodiment in that the jaw **16** does not have a pronounced beak. Further, the blade seat **27** is of a different cross-section from that shown in the previous figures and if of integral metal construction having an upstanding abutment flange **27***h*.

The device shown in FIG. **9** is similar to that shown in FIG. **8** with the exception of the abutment flange **27***g* which, instead of being at one margin of the blade seat **27** is located between the margins. In practice, the customer is supplied with a number of blade seats in which the flange **27***g* is spaced at different positions. This makes it possible, when the blade is worn down, to employ another blade seat compensating for the decreased width of the doctor blade thus keeping the same position of the doctoring edge of the doctor blade.

There are features of the apparatus which have not been described in detail but whose function and operation will be readily understood. For example, the pressure tube **19** is operated in the usual manner for doctor assemblies from a source of pressure not shown so as to exert even pressure on the fingers B. The pressure tube **19** can conveniently have a bore of 1¾ inch.

The doctor blade C is a heavy duty type with an elongated steel sheet usually having a thickness within the range of about thirty-two to about fifty thousandths of an inch. Typical pressure plates will have a thickness within the range of from about fifty to about sixty thousandths of an inch. Typical pressure pads will have approximately the same thickness as the pressure plates. The pivot rod **11** is usually of the order of one-half inch in diameter but this can vary. A typical pressure finger has a length of about eight inches from the end of the tongue **14** to the end of the jaw **16**. These dimensions are merely given by way of example. The pressure fingers are usually spaced apart from center to center about two inches.

The construction of a doctor for creping is heavier than that of a cleaning doctor. This heavy construction is required because of the high linear pressure on the creping doctor blade. The present doctor blade assembly is designed for creping doctor blades, but it could be applied to other purposes, one example of which is the removal of food products in powder form from drying cylinders.

I claim:

1. A doctor blade pressure plate assembly, comprising,

an array of spaced apart pressure fingers connected to a pressure plate in parallel relationship,

each of the fingers having a one-piece body including a central part provided with a generally centered fulcrum for individual pivotal mounting of the finger,

a tongue extending from one side of said central part perpendicularly to the axis of the fulcrum for receiving doctoring pressure,

a pair of jaws extending directly from the opposite side of said central part and defining first and second spaced apart opposed surfaces on the side of the fulcrum opposite to said tongue, said spaced surfaces forming therebetween a doctor blade holding space immediately adjacent said central part,

the pressure plate being permanently secured to the first surfaces and joining said pressure fingers.

2. A doctor blade pressure plate assembly, as defined in claim **1**, in which there is a blade seat extending the width of the assembly and detachably mounted on the second surfaces and provided with an abutment for the trailing edge of a doctor blade.

3. A doctor blade pressure plate assembly to hold a doctor blade against a cylinder to be doctored, comprising

a pressure plate adapted to extend the width of a cylinder and having a straight terminal edge,

connected to the pressure plate an array of spaced apart pressure fingers,

each pressure finger having a bearing and extending in one direction from the bearing a pair of jaws provided with opposed first and second opposed surfaces defining therebetween a receiving slot,

the pressure plate being held to the first surfaces of the fingers and projecting therebeyond to its terminal straight edge,

said slot being for a major portion of its length of a width to accommodate a blade seat resting on said second face and extending the width of the cylinder and the pressure plate on the first face with a doctor blade in between,

each slot being stepped inwards at its inner end to provide a narrower retaining slot for receiving the blade seat,

each finger being provided with a tongue extending from the bearing in a direction opposite to that of the jaws and having a surface for contact with resilient pressure means.

4. A doctor pressure plate assembly, as defined in claim **3**, in which there is a pressure pad intervening each finger and the pressure plate, each pressure pad being mounted on the first surface of the finger and projecting therebeyond to a terminal straight edge, the pressure plate extending beyond the pressure pads to a terminal straight edge.

5. A doctor blade pressure plate assembly, comprising,

an array of spaced apart pressure fingers,

each pressure finger having a transverse mounting aperture and having pairs of jaws provided with opposed faces defining therebetween a registering receiving slot extending from a root to a mouth,

extending continuously the entire width of the array a pressure plate connected to one of said faces of each finger,

said slot being of a width for a major part of its length to accommodate a blade seat, doctor blade, pressure plate and pad,

said slot being stepped inwards at its root to provide a retaining groove for a blade seat resting on the opposite surface.

6. A doctor blade pressure plate assembly, as defined in claim **5,** in which there is mounted on one face of each finger intervening it and the pressure plate a pressure pad which has a straight edge which stops short of the edge of the pressure plate.

7. A doctor pressure plate assembly, as defined in claim **6,** in which the fingers and pads are attached to the plate by rivets extending through the fingers.

8. A doctor pressure plate assembly, as defined in claim **5,** in which a protective apron is connected to the ends of the pressure fingers and is draped inwardly over said fingers.

9. A doctor pressure plate assembly, as defined in claim **8,** in which said apron is mounted on the end of a jaw of the finger by a clip conforming to the surface of the jaw and bolted thereto.

10. A pressure finger for a doctor blade pressure plate assembly, comprising,

a body having a hub part provided with a transverse fulcrum to receive pivotal mounting means,

first and second jaws extending from the bearing part perpendicularly to the axis of the fulcrum and having first and second spaced apart opposed surfaces defining therebetween a mounting slot for accommodating the pressure plate on the first surface a blade seat on the second surface and the blade sandwiched between,

an inner terminal part of the first surface being stepped inwards towards the second to provide a terminal portion of the slot of reduced width constituting a retaining groove for mating with a margin of a blade seat resting on the second surface,

a tongue extending from the bearing part in a direction opposite to that of the jaws and having a bearing surface facing the same direction as said first surface for contact by pressure means acting to urge the finger about the bearing in doctoring direction.

11. A pressure finger, as defined in claim **10,** in which said first jaw has a beak protruding beyond said second jaw for mounting the pressure plate.

12. A pressure finger, as defined in claim **10,** in which the bearing surface of the tongue is substantially in alignment with the first surface and the bearing part has a shoulder substantially perpendicular to the bearing surface of the tongue.

13. A pressure finger, as defined in claim **10,** in which the body is an integral solid structure.

14. A blade seat for supporting a blade on a doctor blade assembly having a plurality of spaced apart pressure fingers, comprising:

a thin elongated rectangular body having opposed first and second surfaces, and longitudinal opposed parallel edges,

abutment means extending upwardly from the first surface parallel to and spaced unequally from the respective edges,

the first surface between said respective edges and the abutment means providing seatings to receive a doctor blade with its trailing edge against said abutment means,

the second surface being shaped to rest on the pressure fingers,

the margins of said opposed surfaces and one of said edges constituting retaining and positioning borders for mating with retaining slots in the fingers.

15. A blade seat, as defined in claim **16,** in which the abutment means is a bar having a blade-contacting face perpendicular to the first surface.

16. A blade seat for supporting a blade on a doctor blade assembly having a plurality of spaced apart pressure fingers, comprising,

a thin elongated rectangular body of non-metallic heat-resistant material having opposed first and second surfaces, and longitudinal opposed parallel edges,

said body being provided in said first surface with a longitudinally extending groove parallel to said edges,

abutment means in the form of a plurality of spaced apart elongated metallic segments set into said groove and secured to said body with each segment having an edge parallel to the edges of the body and standing up from the first surface,

the first surface between at least one of said respective edges and the abutment means providing the seating to receive a doctor blade with its trailing edge against said abutment means,

the second surface providing seatings to rest on the pressure fingers,

the margins of said opposed surfaces and one of said edges constituting retaining and positioning borders for mating with retaining slots in the fingers.

17. A blade seat, as defined in claim **16,** in which the abutment means are spaced unequally from the respective edges whereby at either side of the abutment means provides a seating to receive a doctor blade with its trailing edge against the abutment means.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 3,859,690

DATED : January 14, 1975

INVENTOR(S) : Jack Frederick Brown

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the Abstract Page, under the heading FOREIGN PATENTS OR APPLICATIONS, read "32,443 10/1962 Finland....15/256.51" as -- 52 271 Nov. 10, 1971 Great Britain.....15/256.51 --.

Signed and sealed this 15th day of July 1975.

(SEAL)
Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents
and Trademarks