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71 Applicant: **THE BRITISH UNITED SHOE MACHINERY
COMPANY LIMITED**
Union Works Belgrave Road
Leicester LE4 5BX(GB)

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71 Applicant: **USM Corporation**
426 Colt Highway
Farmington Connecticut 06032(US)

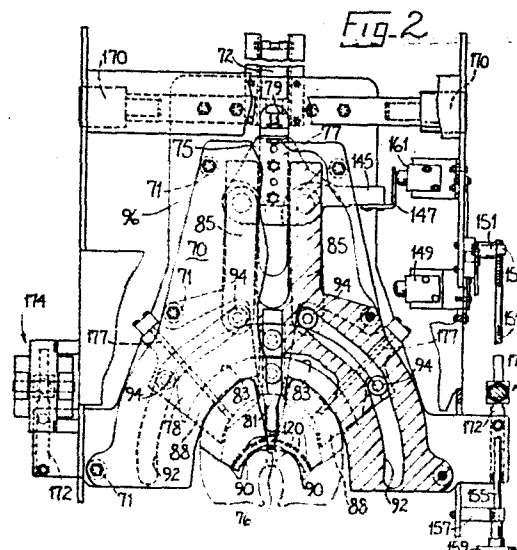
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72 Inventor: **Price, Frank Christopher**
121, Shanklin Drive
Leicester(GB)

74 Representative: **Atkinson, Eric et al,**
P.O. Box No. 88 Belgrave Road
Leicester LE4 5BX(GB)

54 Machine for lasting heel seat portions of shoes.

57 In a tack seat lasting machine the wiper plates (90) first effect an "advancing + inwiping" movement and thereafter an "inwiping only" movement, while a central wiping member (76), about which the wiper plates pivot, advances only. To achieve this motion, the member (76) is supported by an arcuate projection (78) which is accommodated in grooves (83) formed in the wiper carriers (88), the centre of curvature of the projection and grooves coinciding with the axis of the wiper plates. Thus, the central wiping member is always brought to the same "back tack" position (but the shoe can be adjustably positioned relative thereto by varying the fore-and-aft position of the heel band (20). The nail pattern is adjustable, without affecting the back tack position, by limiting the stroke of the cylinder controlling the operation of the wiper assembly.



1.

1 Machine for lasting heel
 seat portions of shoes

5 This invention is concerned with machines for
lasting heel seat portions of shoes, comprising a shoe
support for supporting, bottom uppermost, a shoe comp-
rising an upper positioned on a last and an insole on the
last bottom, a wiper assembly comprising a central wiping
10 member, carried by a support therefor, and two wiper
plates, each carried by a wiper carrier, said member being
fixed against rotation, while said carriers are mounted
for pivotal movement, each about an axis which lies within
the confines of the central wiping member, the member and
15 plates presenting a substantially continuous leading edge
portion whereby lasting marginal portions of the upper of
a shoe supported by the shoe support can be wiped over and
pressed against corresponding marginal portions of the
insole of such shoe, and fastener-inserting means, associ-
20 ated with the wiper assembly, whereby fasteners can be
driven, through a series of apertures formed in the
wiping member and wiper plates, adjacent the leading edge
portion presented thereby, for securing said wiped-over
lasting marginal portions of the upper to the correspond-
25 ing marginal portions of the insole, at least one such
aperture being disposed in the central wiping member,
and the fasteners driven through said aperture(s) being the
most heelwardly disposed of the fasteners inserted by the
fastener-inserting means, wherein advancing means is
30 provided whereby the support for the central wiping member
and the wiper carriers can be advanced towards the shoe
support in a direction extending generally lengthwise of
the bottom of a shoe supported by the shoe support, cam
means also being provided whereby pivotal movement of the
35 wiper carriers can be effected in response to operation of

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1 the advancing means, the position to which the central
wiping member is advanced as aforesaid determining the
location of insertion of the most heelwardly disposed
fastener(s), while the amount of pivotal movement of the
5 wiper carriers, and thus of the wiper plates, determines
the overall pattern in which the fasteners are inserted.

One such machine is described in our co-pending
U.K. Patent Application No. 8020133 (Publication No.
2052950). In this machine, the advancing means is
10 operatively connected to the support for the central
wiping member, while the wiper carriers are operatively
connected to said support by means of linkage arrangements
which, in combination with the cam means, are effective
to cause advancing movement only, or advancing and pivotal
15 movement, of the wiper carriers, according to the constr-
uction of the cam means, during the operation of the
advancing means. It will thus be appreciated that, in the
operation of this machine, the pivotal movement of the
wiper carriers can only take place while advancing movement
20 of the support for the central wiping member, and thus of
the member itself, is taking place.

Thus, in the operation of this machine, where it
is desired for example to vary the location in which the
two most heelwardly disposed fasteners are to be inserted,
25 the overall pattern in which all the fasteners are inserted
is also varied, since such further advancing movement of
the central wiping member also affects the amount of pivot-
al movement of the wiper carriers, and thus of the wiper
plates. Conversely, furthermore, if it is desired to vary
30 the overall pattern, then necessarily the location in
which the two most heelwardly disposed fasteners are
inserted must also be varied, or, in order to prevent such
variation of the location, the position of the heel band
(which determines the position of the shoe in relation to
35 the wiper assembly) must be correspondingly adjusted.

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1 Whereas in general some degree of tolerance in
the aforementioned location is acceptable, in other cases
the location of the two most heelwardly disposed fasteners
may be considered of significance. On the other hand, the
5 readily adjustable position of the overall pattern of
fasteners, which clearly is readily achieved in the
operation of the aforementioned machine, is considered to
be also desirable.

 It is the object of the present invention to
10 provide an improved machine for lasting heel seat portions
of shoes, wherein variation of the overall pattern of
fasteners to be inserted does not affect the location of
the most heelwardly disposed fasteners.

 In accordance with the invention, it is provided
15 that, in a machine of the type set out in the first para-
graph of this specification, the advancing means is
operatively connected to the wiper carriers, and each wiper
carrier is connected to the support for the central wiping
member, for relative sliding movement therebetween, by an
20 arcuate groove-and-projection connection, the centre of
curvature of which coincides with the axis of said wiper
carriers, and that the construction and arrangement of
the cam means is such that during a first part of the
operation of the advancing means the wiper carriers are
25 advanced towards the shoe support, while in a subsequent
part each carrier merely pivots about its axis.

 It will thus be appreciated that, by so inter-
connecting the wiper carriers and the support for the
central wiping member, the latter is caused to advance as
30 long as the movement of the wiper carriers has a forward
component, but once the movement of the wiper carriers
becomes merely pivotal, further advancing movement of
the support for the central wiping member ceases, such
movement of the wiper carriers being of course achieved
35 by the cam means. Thus, it will be appreciated that the

1 central wiping member can be brought in each cycle of
operation of the machine to a predetermined location in
relation to the shoe support, and this is in no way
affected by the setting of the overall pattern of fast-
5 eners to be inserted, which pattern depends upon the
amount of pivotal movement of each wiper carrier about
its axis.

The support for the central wiping member and
the wiper carriers may, in the first part of the operation
10 of the advancing means, be moved merely bodily linearly,
but preferably in said first part the wiper carriers effect
some pivotal movement during their advancing movement. To
this end, conveniently the cam means comprises for each
wiper carrier, two cam face portions with which cam follower
15 rolls co-operate, each face portion comprising a first part,
which is generally inclined to the direction of movement
of the support for the central wiping member towards the
shoe support, and a second part which is arcuate and the
centre of curvature of which coincides with the axis of
20 the wiper carrier. More especially, preferably the first
part of the cam face portion is rectilinear. Conveniently,
furthermore, each cam face portion is provided by a slot
in a cam plate which is fixedly mounted in a machine, while
the cam follower rolls are carried on the wiper carriers.

25 Conveniently, the arcuate groove-and-projection
connection between the wiper carriers and the support for
the central wiping member is provided by a groove formed
within each wiper carrier for receiving a projection
formed integral with said support. Furthermore, preferably
30 the wiper carriers each have a groove formed therein for
receiving a projection carried by the support for the
central wiping member.

It will be appreciated that from time to time,
it will be desirable to alter the setting of the location
35 of insertion of the most heelwardly disposed fastener(s),

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1 and to this end, in known manner the machine preferably
comprises a heel band whereby the heel seat of the shoe
to be operated upon can be held located in relation to
the wiper assembly, means being provided for adjusting
5 the position of the heel band lengthwise of the shoe
bottom.

In addition, it is also desirable to be able to
adjust the overall pattern of fasteners to be inserted in
using the machine. To this end, the advancing means may
10 be mechanically operated, mechanical means being provided
for limiting the stroke thereof, but preferably, and
conveniently, the advancing means is fluid pressure
operated, and adjustable stop means is provided whereby
the amount of movement of the wiper assembly under the
15 action of said advancing means can be adjusted. By using
the adjustable stop means, therefore, to limit the stroke
of the fluid pressure operated advancing means, the amount
of pivotal movement of the wiper assembly is curtailed
according to the overall pattern required. Of course, it
20 is envisaged that there will always be a minimum amount of
movement of the wiper assembly under the action of the
fluid pressure operated advancing means so as to ensure
that the support for the central wiping member is
sufficiently advanced to bring said member to its desired
25 position.

There now follows a detailed description, to be
read with reference to the accompanying drawings, of one
machine in accordance with the invention, which machine
has been selected for description merely by way of non-
30 limiting example.

In the accompanying drawings:-

Figure 1 is a perspective view of the machine in
accordance with the invention, and

Figure 2 is a fragmentary plan view, with parts
35 broken away, showing details of a wiper assembly and

1 associated parts of said machine.

The machine in accordance with the invention, which is generally similar, except as hereinafter described, to the machine described in the aforementioned
5 U.K. Patent Application No. 8020133, comprises a main frame 10, a shoe support 12 pivotally mounted on the main frame, and supporting a last pin 14 on which a shoe can be supported, bottom uppermost. The shoe support also comprises a toe support arrangement generally designated
10 16, including a toe pad 18. In addition, the machine comprises a conventional holddown 8 and also a heel band 20 which is supported in the machine frame 10. For pivoting the shoe support 12 between a loading position (as shown in Figure 1) and an operating position in which the
15 heel part of a shoe is pressed into the heel band 20 and urged upwards against the holddown 8, fluid pressure operated means is provided, a cylinder 15 of which is shown in Figure 1.

The machine in accordance with the invention also
20 comprises a wiper assembly comprising a base plate 96 supported, at opposite sides thereof, towards the rear thereof by bearing blocks 170 and towards the front thereof by brackets 172, each bracket 172 being supported by a piston-and-cylinder arrangement generally designated 174,
25 said arrangements being supported by the frame 10. Mounted on the base plate 96, and secured thereto through spacers 71, is a support casting 70, between which and the base plate 96 is accommodated, for sliding movement lengthwise of the bottom of a shoe supported by the shoe support 12,
30 a plate 75 which is connected by links 85 to two wiper carriers 88, each wiper carrier supporting a wiper plate 90. For moving the plate 75, and thus the wiper plates 90, a piston-and-cylinder arrangement 72 is supported on the underside of the base plate 96, and a piston rod 74
35 thereof is connected to a block 77 secured to the under-

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1 side of the plate 75 and projecting downwardly through a slot 79 formed therefor in the base plate 96.

The wiper carriers 88 are each provided with two cam follower rolls 94 which are accommodated in grooves
5 92 formed in the support casting 77. The axis of the rear roll 94 of each set is coincident with the axis on which the link 85 is secured to the wiper carrier 88.

Each groove 92, though continuous, is constituted by two sections arranged one after the other along its
10 length, and each section comprises a first, rearward, part, which is essentially rectilinear and is inclined to the lengthwise direction of the shoe bottom, e.g. at an angle of approximately 45° to the longitudinal centre line of the machine, and a second, forward, part, which is arcuate,
15 the centre of curvature thereof coinciding with a pivot axis of the wiper carriers 88, and thus of the plates 90. The effect of the first parts of each section, as the plate 75 is urged forwardly in the machine, is to cause the wiper carriers 88, and thus the wiper plates 90 supported thereby,
20 to be advanced and to pivot inwardly towards a shoe held by the shoe support 12 in its operative position, while the second part of each section is effective to cause pivotal movement only of the wiper plates 90.

In addition to the wiper plates 90, the wiper
25 assembly also comprises a central wiping member 76 which forms with the wiper plates 90 a continuous wiping surface, and further within the confines of which lies the pivot axis about which the wiper carriers 88 pivot as aforesaid. In the machine in accordance with the invention, the
30 wiper carriers 88 pivot about a common axis arranged centrally of the central wiping member 76, which is in the form of a so-called "button".

The central wiping member 76 is mounted on a support in the form of a block 81, on which also is carried
35 an arcuate plate member 78, the centre of curvature of

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1 which coincides with the common axis of the wiper carriers
88. The member 78 is accommodated in corresponding
grooves 83 formed in the upper surface of each wiper
carrier 88. The member 78 and grooves 83 thus constitute
5 a groove-and-projection connection between the wiper
carriers and the support for the central wiping member.

In the operation of the machine, it will be
appreciated, where there is a forward component of move-
ment of the wiper carriers, this will be transmitted
10 through the groove-and-projection connection to the central
wiping member, which is thus also advanced with the wiper
carriers, while purely pivotal movement of the wiper
carriers about their common axis will result in no corres-
ponding movement of the central wiping member. Thus, when
15 the wiper assembly is advanced under the action of the
piston-and-cylinder arrangement 72, as the cam follower
rolls 94 move along the first part of each section of the
cam grooves 92, the central wiping member 76 will also be
advanced, while as said rolls move along the second part
20 of each groove section, the central wiping member will
remain stationary. In this way, the central wiping member
is always brought to the same position in relation to the
operative position of the shoe support 12, when the wiper
assembly is advanced, regardless of the position to which
25 the wiper plates 90 are ultimately moved.

As in the machine disclosed in the aforementioned
specification, the central wiping member and the wiper
plates 90 are provided with apertures 120 (only those in
the central wiping member being shown in Fig. 2), the
30 central wiping member having two such apertures arranged
symmetrically in relation to the common axis of the wiper
carriers, through which apertures nails can be driven for
securing a wiped over lasting margin of the upper to the
corresponding marginal portion of the insole of a shoe
35 being operated upon. The nails inserted through the

1 apertures formed in the central wiping member 76 are referred to as the "back tacks", and the position to which the wiping member is moved as aforesaid is referred to as the "back tack position".

5 The fastener-inserting means of the machine in accordance with the invention is conventional, and comprises a plurality of drivers 122 accommodated in housings 124 therefor carried by the wiper carriers 88 and the central wiping member 76. For actuating the drivers 122, a single
10 fluid pressure operated hammer plate 126 is provided (see Fig. 1) nail separator means generally designated 128 also being provided on the machine frame 10 for feeding nails, one at a time, via tubes 130, to the driver housings 124.

 If it is desired to vary the position at which
15 the back tacks are inserted into the shoe, since the central wiping member 76 is always brought to the same position, in the machine now being described, it is necessary to adjust the operating position of the shoe support 12 in relation to said member. To this end, the fore-and-aft
20 position of the heel band 20 relative to the wiper assembly is arranged to be variable. Such variation of the fore-and-aft position is conveniently achieved in the manner set out in the aforementioned specification, and to this end a knob 102 is provided mounted on a rotary shaft 104
25 which acts through a plurality of sprockets and a chain (not shown) for varying the position of a block (not shown) on which the heel band 20 is supported. Alternatively, such variation may be achieved using any suitable conventional motor and control therefor.

30 For varying the overall pattern of the nails inserted by the fastener-inserting means, the stroke of the piston-and-cylinder arrangement 72 can be controlled, thereby controlling also the amount of "pivotal only" movement of the wiper plates 90 about their common axis,
35 after the central wiping member 76 has been brought to its

1 back tack position. To this end, the plate 75 has an
extension 145 carrying a bracket 147, which serves as an
actuator for a valve 149 mounted on a side portion of the
machine frame 10 for sliding adjustment lengthwise of the
5 shoe bottom. For effecting sliding movement of the valve
149, a bracket 151 is connected to the housing thereof,
said bracket carrying a threaded member 153 which receives
a rearward end of a shaft 155, a forward end of which is
captive in a further bracket 157, secured to the side
10 portion of the machine frame 10, and carries a knob 159.
Thus, by rotation of the knob and thus of the shaft 155,
the position of the valve 149 can be adjusted. The valve
149 and associated parts herebefore described constitute
adjustable stop means of the machine. Thus, by varying
15 the position of the valve 149, the stroke of the piston-
and-cylinder arrangement 72 is adjustable controlled, and
this is effective to vary the amount of movement of the
wiper plates 90 under the influence of the second part of
each section of the cam grooves 92, so that the pivotal
20 movement of the wiper plates 90 can be set according to
the overall pattern desired for the insertion of the fast-
eners.

The bracket 147 is also utilised to actuate a
further valve 161, also mounted on the side portion of
25 the main frame 10, which further valve controls the amount
of rearward movement of the wiper assembly. The valve 161
is fixed to the machine frame.

In the operation of the machine, the operator
first ensures that the setting of the fore-and-aft
30 position of the heel band 20 and the position of the valve
149 are appropriate for the shoe to be operated upon, in
terms of the back tack position and the overall pattern
of the fasteners. He then places a shoe, bottom up, on
the last pin 14 and initiates a cycle of operation of the
35 machine, whereupon the shoe support 12 is moved to its

1 operative position, with the back seam region of the shoe
urged against the corresponding region of the heel band 20,
and the shoe is urged heightwise into engagement with the
holddown 8. The heel band 20 is then closed onto the shoe,
5 by mechanism described in the aforementioned patent
specification. The piston-and-cylinder arrangement 72 is
then energised, causing the wiper assembly to move forward-
ly, the wiper plates 90 advancing and pivoting inwardly
while the central wiping member 76 is advanced only, until
10 the rolls 94 reach the second part of the sections of the
cam grooves 92, further "pivotal only" movement of the
wiper plates 90 then taking place to a limit determined by
the valve 149. With the wiper assembly in this position,
bedding pressure is applied by the wiper assembly to the
15 shoe bottom, by actuation of the piston-and-cylinder
arrangements 174, causing the base plate 96 to pivot about
the axis of the bearing blocks 170. As is conventional in
tack seat lasting machines, the wiper plates are heated by
means of cartridge heaters 177. With bedding pressure
20 applied, the fastener-inserting means is then actuated,
and fasteners are driven, through the apertures in the
leading edge portions of the wiper plates and in the central
wiping member, thus to secure the wiped over and pressed
lasting marginal portions of the upper to corresponding
25 marginal portions of the insole of the shoe being operated
upon. The wiper assembly is then retracted, to a limit
determined by valve 161, and the shoe support 12 is returned
to its initial position.

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1 Claims:

1. A machine for lasting heel seat portions of shoes, comprising -

5 a shoe support for supporting, bottom uppermost, a shoe comprising an upper positioned on a last and an insole on the last bottom,

 a wiper assembly, comprising a central wiping member, carried by a support therefor, and two wiper plates, 10 each carried by a wiper carrier, said member being fixed against rotation, while said carriers are mounted for pivotal movement, each about an axis which lies within the confines of the central wiping member, the member and plates presenting a substantially continuous leading edge portion 15 whereby lasting marginal portions of the upper of a shoe supported by the shoe support can be wiped over and pressed against corresponding marginal portions of the insole of such shoe, and

 fastener-inserting means, associated with the 20 wiper assembly, whereby fasteners can be driven, through a series of apertures formed in the wiping member and wiper plates, adjacent the leading edge portion presented thereby, for securing said wiped-over lasting marginal portions of the upper to the corresponding marginal portions 25 of the insole, at least one aperture being disposed in the central wiping member, and the fasteners driven through said aperture(s) being the most heelwardly disposed of the fasteners inserted by the fastener-inserting means,

30 wherein advancing means is provided whereby the support for the central wiping member and the wiper carriers can be advanced towards the shoe support in a direction extending generally lengthwise of the bottom of a shoe supported by the shoe support, cam means also being 35 provided whereby pivotal movement of the wiper carriers

1 can be affected in response to operation of the advancing
means, the position to which the central wiping member
is advanced as aforesaid determining the location of
insertion of the most heelwardly disposed fastener(s),
5 while the amount of pivotal movement of the wiper carriers,
and thus of the wiper plates, determines the overall
pattern in which the fasteners are inserted,

characterised in that the advancing means (72)
is operatively connected to the wiper carriers (88), and
10 each wiper carrier (88) is connected to the support (81)
for the central wiping member (76), for relative sliding
movement therebetween, by an arcuate groove-and-projection
connection (78, 83), the centre of curvature of which
coincides with the axis of said wiper carriers (88),

15 and in that the construction and arrangement of
the cam means (92) is such that during a first part of the
operation of the advancing means (72) the wiper carriers
(88) are advanced towards the shoe support (12), while in
a subsequent part each carrier (88) merely pivots about
20 its axis.

2. A machine according to Claim 1 wherein the
cam means comprises, for each wiper carrier, two cam
portions with which cam follower rolls co-operate,
25 characterised in that each portion (92) comprises a first
part, which is generally inclined to said direction
extending generally lengthwise of the shoe bottom and a
second part, which is arcuate and the centre of curvature
of which coincides with the axis of the wiper carrier (88).

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3. A machine according to Claim 2 characterised
in that the first part of each cam portion (92) is
rectilinear.

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4. A machine according to either one of Claims 2

1 and 3 characterised in that each cam portion (92) is
provided by a slot (92) in a cam plate (77) fixedly
mounted in the machine, and the cam follower rolls (94)
are carried on the wiper carriers (88).

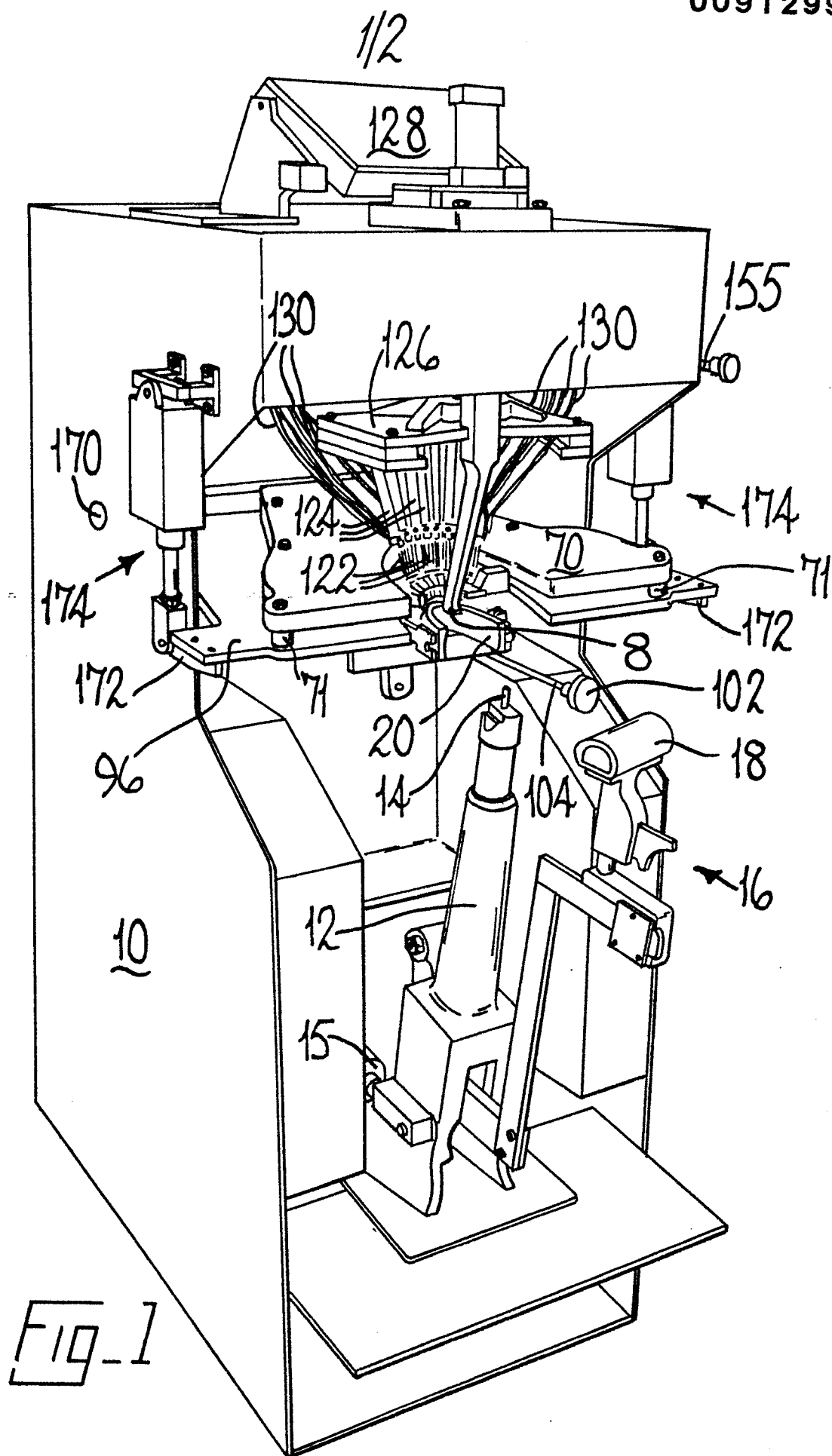
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5. A machine according to any one of the
preceding Claims characterised in that each wiper carrier
(88) has a groove (83) formed therein for receiving a
projection (78) carried by the support (81) for the central
10 wiping member (76).

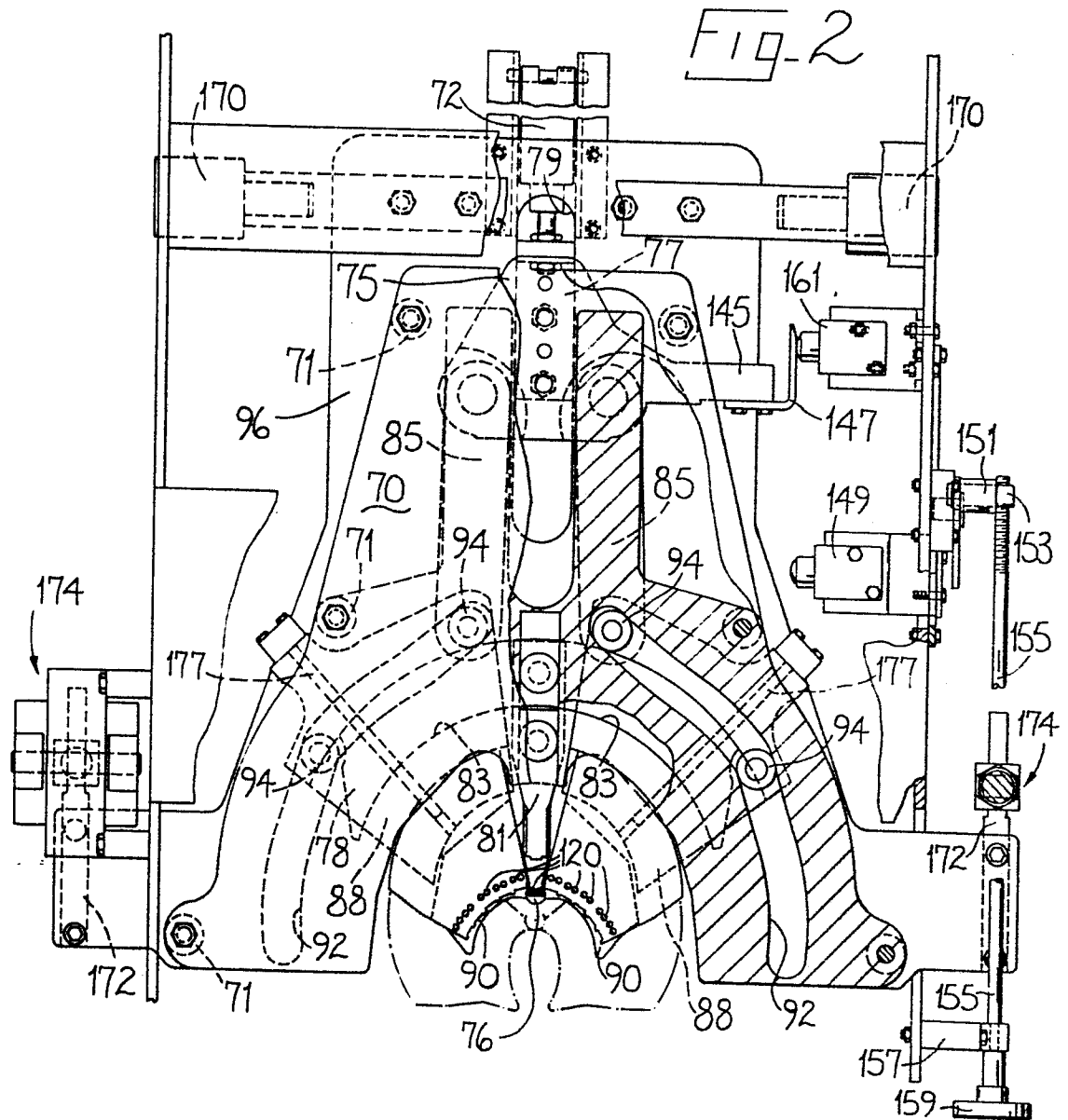
6. A machine according to Claim 5 characterised
in that the wiper carriers (88) are pivotal about a common
axis, and the support (81) for the central wiping member
15 (76) is provided with a single projection (78) received
in the grooves (83) of the two wiper carriers (88), the
centre of curvature of the projection (78) being aligned
with the common axis of the wiper carriers (88).

20 7. A machine according to any one of the
preceding Claims characterised in that a heel band (20)
is provided whereby the heel seat of a shoe to be operated
upon can be located in relation to the wiper assembly
(70, 96), means (102, 104) also being provided for adjust-
25 ing the position of said heel band (20) lengthwise of the
shoe bottom.

8. A machine according to any one of the
preceding Claims characterised in that the advancing means
30 (72) is fluid pressure operated and in that adjustable
stop means (149) is provided whereby the amount of move-
ment of the wiper assembly (70, 96) can be adjusted.



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EP 83301864.1

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
D, A	GE - A - 2 052 950 (THE BRISTISH UNITED SHOE MACHINERY COMPANY) * Totality * --	1, 7	A 43 D 21/14
A	GB - A - 1 454 939 (INTERNATIONAL SHOE MACHINE CORPORATION) * Page 4, line 97 - page 5, line 16; page 12, lines 43-47; fig. 16 * ----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			A 43 D 21/00 A 43 D 21/14
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 04-07-1983	Examiner LEBZELTERN
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons B : member of the same patent family, corresponding document	