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(54) Improvements in washing machines for mechanical parts.

(57) A machine for washing mechanical parts, in which the parts to be washed are moved through the interior of the machine, for example by means of a step-by-step system. Two end uprights (2) are provided on which rests a chassis which carries conventional mechanical and washing assemblies, the chassis having no intermediate props or supports. The chassis comprises two lower beams connected by smaller transverse beams (6) to an upper longitudinal beam (5), this assembly forming a composite beam.

The chassis is enclosed on the underside by a lower channel, and on its upperside by a concave longitudinal lid (8). This lid is mounted so that it can rotate around the longitudinal axis of the machine, to allow access to the inside of the machine.

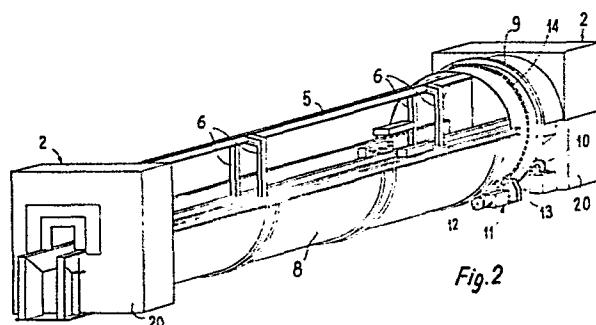


Fig. 2

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IMPROVEMENTS IN MACHINES FOR THE WASHING
OF MECHANICAL PARTS

The present invention relates to improvements in machines for the washing of mechanical parts, particularly those of transfer type where the parts which are to be washed are moved through the interior of the machine, for example by means of a step-by-step system. This type of machine is that used in the washing of the mechanical parts utilised in the automobile industry.

10 The drawbacks which known machines of this type have presented hitherto are:-

1. Access to the interior of the machine is inadequate. Inside the machine there are washing housings, transfer devices, internal piping, lubricating devices, etc., and it is necessary to be able to gain access to these for the inspection, maintenance and repair of the various parts constituting the machine. To facilitate this access the machine normally comprises a body having many access points, and this increases the number of points where safety and sealing devices have to be located, and therefore makes the machine more costly

and more complicated. This drawback is accentuated when it is necessary to build machines which are more than eight metres in length, as is current in modern processes.

5 2. The sound-proofing is costly and difficult. Present-day demands require very low levels of noise, in every case below 80 decibels, necessitating double walls with sound-proofing material in the middle. This is a complication which is superimposed
10 upon the earlier drawback of having to insulate the doors and all the bodywork around them.

3. The mechanical assemblies of the known machines are supported on a chassis which forms part of the actual body and therefore cannot be mechanised,
15 since it is surrounded by the bodywork. Nor can it be stabilised after welding.

The improvements according to the present invention are characterised in that two end uprights are provided upon which a chassis is supported which, without inter-
20 mediate props or supports, carries conventional mechanical and washing assemblies, the said chassis being constituted by two lower longitudinal beams, connected to at least one upper longitudinal beam by means of smaller transverse beams, the assembly forming a composite beam, with the
25 exclusive support of the chassis on its end uprights.

Further characteristics and advantages of the present invention will be seen from the description which is

given below with reference to the accompanying drawings which illustrate, by way of non-limitive example, a form of embodiment of these.

Figure 1 shows a perspective view of a machine
5 according to the invention, in the closed position;

Figure 2 is a view analogous with that in Figure 1, but with the machine in the open position;

Figure 3, 4 and 5 each illustrate a view in cross-section of the machine as represented in Figures 1 and 2,
10 in the closed , half-open and open positions respectively, and

Figures 6 and 7 are each details, in cross-section and on a larger scale, of the longitudinal edges of the lid.

15 From the said drawings it can be appreciated that the machine comprises bars 1 constituting the step-by-step transfer device, and washing housings 4 mounted on or fixed to the chassis. The latter is formed by two large longitudinal sections or beams 3, connected with
20 one another, and is supported on the ground only at the ends of the machine, as may be seen from Figures 1 and 2. The chassis is not connected with the body except at the said end points.

To avoid the deflection caused by the lack of
25 rigidity of the beams 3, a composite beam assembly is provided, connecting a beam 5 situated in the upper part with the beam 3 by means of smaller transverse beams 6.

As the chassis is separate from the body, it can be stabilised after welding and then the separate supports of the mechanical parts can be mechanised.

The part 19 to be washed receives a stream of water from nozzles mounted in the washing housings 4. Dirty water with swarf and dirt is collected in the lower part of a V-shaped channel 7. This channel 7 is inclined longitudinally towards the ends of the machine, in order to direct the dirty water to bins 20 situated in the ends of the machine. In these bins 20 are systems for dredging and pumping the dirty water towards the liquid filtration centres. The channel 7 is connected to the end bins 20.

Above channel 7, which comprises the lower body of the machine, there is disposed a longitudinal concave lid 8, which completely closes the upper part of the machine, in such manner that all the above-mentioned elements remain in the interior of the closure formed by the lower channel 7 and the lid 8.

This lid 8 terminates at each of its two extremities in a ring 9 (Figures 1 and 2), over which there are fixedly mounted, hoops which are supported on rollers 10. Screwed onto the rings 9, are chains 14, for example of the bicycle chain type. This chain meshes with a pinion 13 of a motor-gearing assembly 11 driven by a motor 12. When the motor-gearing assembly 11 is actuated, the chain 14 causes the ring 9 to rotate through substantially 180°, and with it the lid 8. Lid 8 is located completely

beneath the channel 7 (Figure 5), leaving all the internal organs of the machine exposed.

The said lid 8 is equipped on one of its free longitudinal edges with a groove 15 for collecting leakages and on the other free longitudinal edge with a longitudinal deflecting flange 16, the sealed closure of the two edges, in the closed position, being formed by the arrangement of elastic, hollow, longitudinal joints 17 in each case, which are inflatable.

10 In Figure 6 the joint 17 is fixed to the edge of the channel 7 and the lid 8 terminates in a leakage-collecting groove 15, over which there is disposed a rim 21 which is likewise fixed to the lid 8.

On the other hand, in Figure 7 the elastic joint 17 is fixed to the lid 8 and rests on a rim of the channel 7. This joint 17, like that represented in Figure 6, is double and is inflated with compressed air, to permit better sealing. Moreover the lid 8 terminates in the deflector 16, which directs the water directly downwards.

20 When the lid 8 is completely closed, the joints 17 tighten against the rim of the channel 7 and the rim 21. As there is no deflector on the part represented in Figure 6, any leakages through the joint 17 are collected by the groove 15 and thence pass to a drain.

25 The lower inclined channel 7 and the concave longitudinal lid 8 as mentioned are formed with double walls, between which is an acoustically insulating material 18 (Figure 3).

CLAIMS

1. A machine for the washing of mechanical parts, particularly of the transfer type in which the parts to be washed are moved through the interior of the machine, for example by means of a step-by-step system, characterised in that two end uprights are provided on which there rests a chassis which, without intermediate props or supports, carries the conventional mechanical and washing assemblies, the said chassis comprising two lower longitudinal beams connected by smaller transverse beams to at least one upper longitudinal beam, the assembly forming a composite beam, with the chassis supported exclusively on its end uprights.

2. A machine as claimed in claim 1, characterised in that the chassis is enclosed on the under side by means of at least one lower channel, preferably inclined towards the ends and adapted to receive the washing liquid and residues, and is provided with a concave longitudinal lid, to which are attached, one at each end, end rings, the end rings being mounted rotatably on the two end uprights so that the lid may rotate about the longitudinal axis of the machine, such that in a closed position the lid completely encloses the upper half of the chassis, and in an open position the lid rests underneath the lower channel.

3. A machine as claimed in claim 2, characterised
in that a drive means is provided to rotate the said lid,
this means comprising a drive motor which moves a pinion
that meshes with a chain fixedly attached to one of the
5 said end rings.

4. A machine as claimed in either claims 2 or 3,
characterised in that the said lid is equipped with a
leakage-collecting groove on one of its longitudinal
free edges and with a longitudinal deflector flange
10 on the other free longitudinal edge, the sealed closure
of the two edges, in the closed position, being realised
by means of the provision of hollow elastic longitudinal
joints in each case, which are inflatable.

5. A machine as claimed in any of claims 1 to 4,
15 characterised in that the inclined lower channel and the
concave longitudinal lid as mentioned comprise double
walls between which is an acoustically insulating
material.

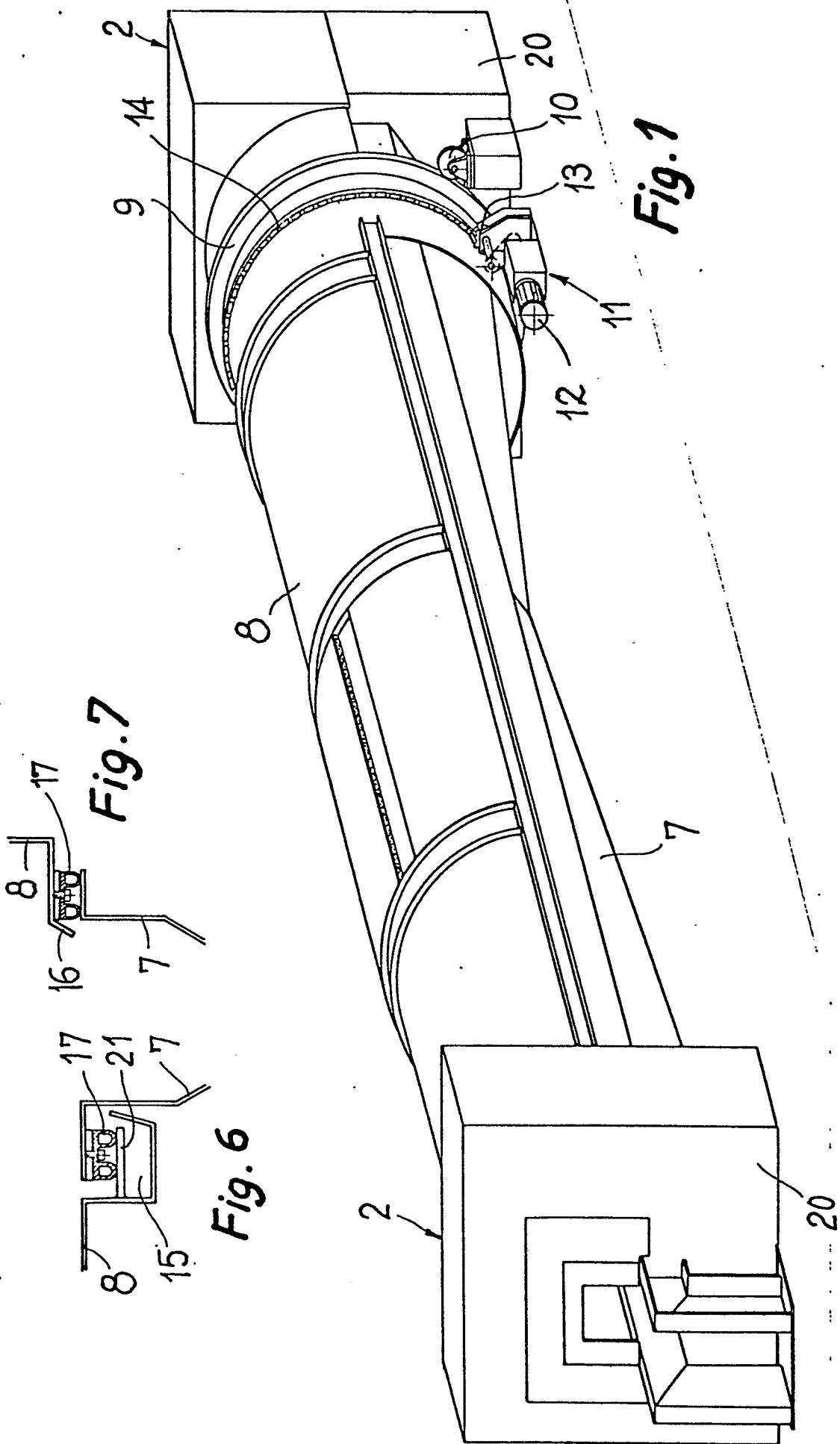


Fig. 1

Fig. 7

Fig. 6

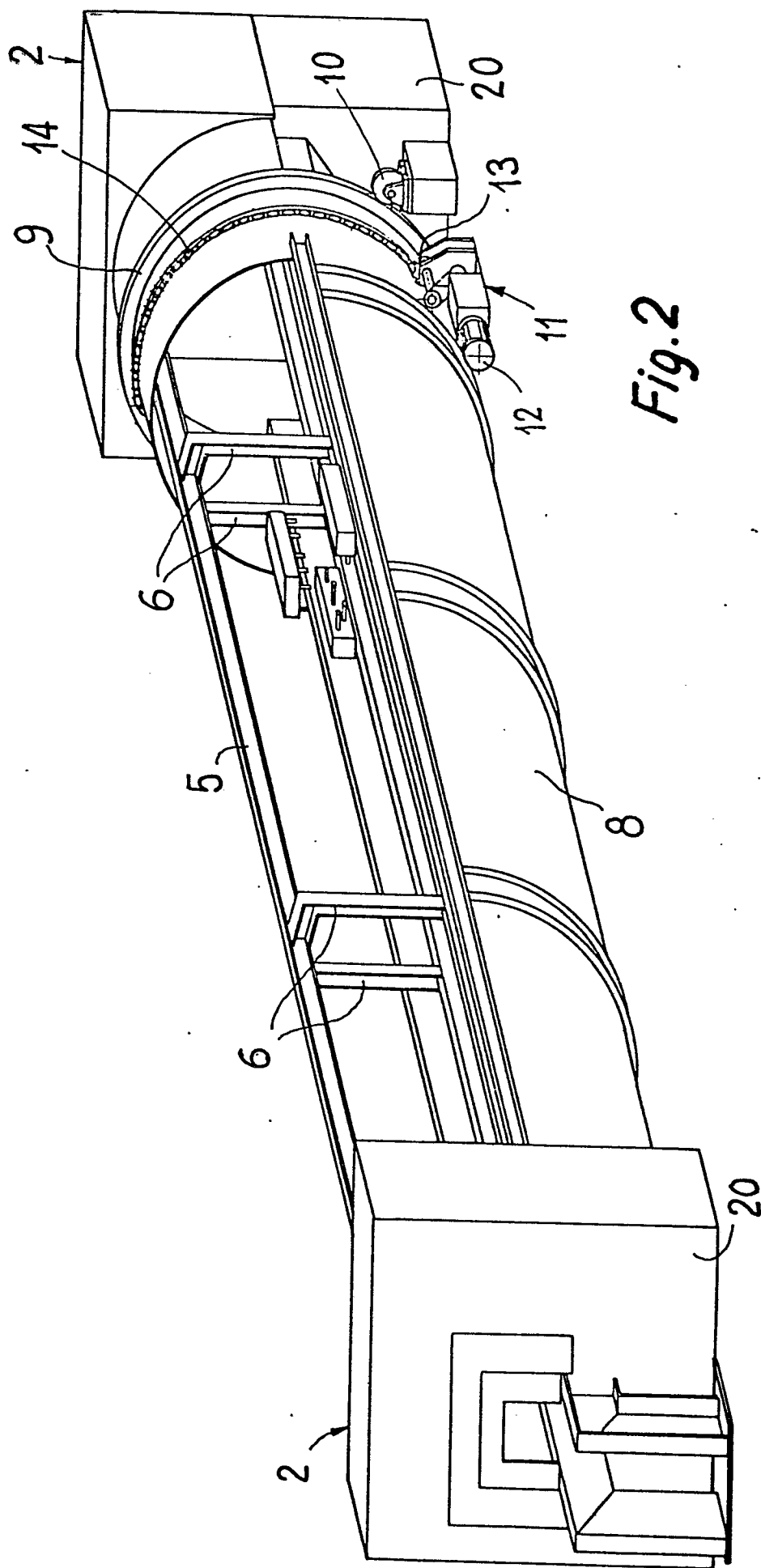


Fig. 2

