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(71) Applicant: **M.E.P. Macchine Elettroniche
Piegatrici S.p.A.**
n. 20 Via L. Da Vinci
I-33010 Reana del Rojale (UD)(IT)

(72) Inventor: **Del Fabro, Giorgio**
Via Peressini 22
I-33010 Cassacco-Fraz.Montegnacco (UD)(IT)
Inventor: **Del Fabro, Marcello**
Via Chisimaio 43/7
I-33100 Udine(IT)

(74) Representative: **Petraz, Gilberto Luigi**
GLP S.r.l. Piazzale Cavedalis 6/2
I-33100 Udine(IT)

(54) **Collection and discharge bench.**

(57) Collection and discharge bench (10) which cooperates with the outlet edge of a bending-shaping machine (11) and comprises a stationary tilted surface (12) on which shaped rods or bars (13) leaving the bending-shaping machine (11) slide, and also comprises a conveyor belt (14) to collect and convey

the shaped rods or bars (13), the conveyor belt (14) being positioned at the edge of the stationary surface (12), the angle of inclination (α) of the stationary surface (12) being substantially the same as the angle of inclination (α') of the working platform of the bending-shaping machine (11).

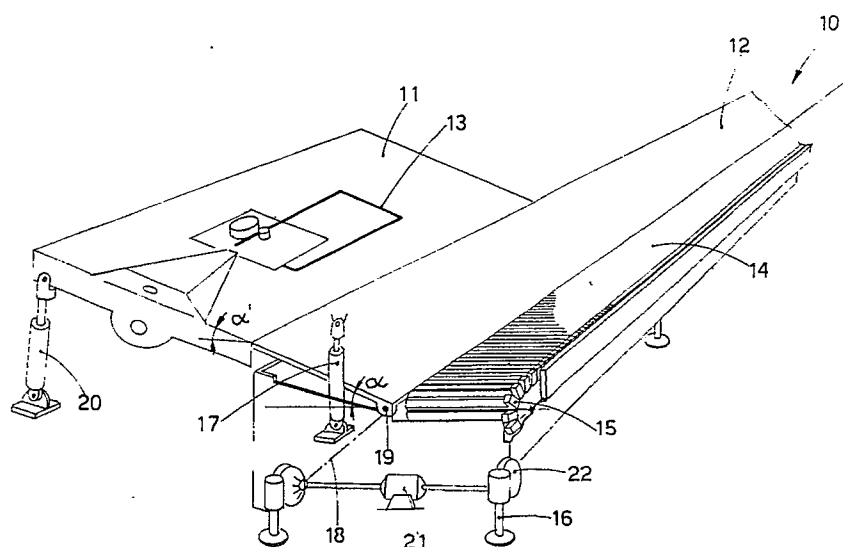


fig. 3

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This invention concerns a collection and discharge bench for shaped rods or bars leaving a bending-shaping machine suitable to produce shaped rods or bars for building work.

To be more exact, the invention concerns a collection and discharge bench for rods or bars intended for building work and leaving a bending-shaping machine after the required bends and shapes have been imparted to them, the bench being positioned alongside the outlet edge of the bending-shaping machine.

The rods or bars may have any section or shape or be of any type.

So far as the present applicant is aware, the state of the art does not contain collection and discharge benches of systems like that disclosed in this invention.

Nowadays the rods or bars, after the necessary bends and shapes have been imparted to them by the bending-shaping machine, are thrust by the machine, owing to the effect of their final shearing, outside the outline of the machine and accumulate on the floor.

The shaped rods or bars receive a heavy thrust at the outlet of the bending-shaping machine, so that it becomes dangerous for the machine operator to approach the neighbourhood of the machine to collect the bent rods or bars.

With this type of working it is necessary to halt the activity of the machine temporarily to collect the accumulated rods or bars. This halt obviously becomes a problem owing to a great loss of output.

The present applicant has designed, tested and embodied the device of this invention so as to overcome the above shortcomings.

The invention is set forth and characterized in the main claim, while the dependent claims describe variants of the idea of the embodiment.

The bench of the invention is fitted parallel to, and at the edge of the outlet from, a machine to bend and shape the shaped rods or bars.

The collection and discharge bench is divided into two parts; the first part consists of a stationary tilted surface, whereas the second part is substantially horizontal and comprises a conveyor belt.

The stationary surface is tilted by a given angle, which is the same as that of the bending-shaping machine, so that when the collection bench is positioned alongside the bending-shaping machine, they form one single tilted surface.

In this way the shaped rod or bar, when thrust downwards from the bending-shaping machine at the end of the shaping step, slides down the stationary tilted surface of the collection and discharge bench and is stopped on the conveyor belt, which arranges to remove the rod or bar to an area which is safe for the machine operator.

As we said before, the shaped rods or bars leave the bending-shaping machine at a great speed, and therefore the conveyor belt is equipped with lateral abutment teeth to prevent the rods or bars falling and to retain them on the conveyor belt.

As we said earlier, the conveyor belt displaces the shaped rods or bars towards the operator, who can collect them and store them readily while staying in a shielded area.

If one dimension of a shaped rod or bar leaving the bending-shaping machine is greater than the width of the conveyor belt, that rod or bar will abut against the abutment teeth of the conveyor and, owing to the drawing action of the conveyor belt, will be rotated by 90° so that it can be drawn away just the same by the conveyor belt.

A first variant of the invention provides for the collection and discharge bench to be equipped with feet the height of which can be adjusted so as to make the stationary tilted surface mate with that of the bending-shaping machine if the machine has a height other than that of the collection and discharge bench.

Another variant of the invention arranges to fit adjustment means to the stationary tilted surface of the collection and discharge bench. These adjustment means have the task of adjusting the inclination of the tilted surface of the bench when the surface is not tilted by the same degree as the bending-shaping machine.

In fact, the bending-shaping machines may have their bending platform capable of being tilted by a variable angle.

When the adjustment means are operated, the stationary tilted surface is rotated about a rotation pivot, and its inclination is modified and adapted to the slope of the bending platform.

When the feet are adjusted, the two edges side by side are brought level to each other.

The attached figures, which are given as a non-restrictive example, show the following:-

Fig.1 shows a three-dimensional view of the collection and discharge bench alongside a bending-shaping machine;

Fig.2 shows a detail of Fig. 1;

Fig.3 shows a variant of the invention according to Fig. 1.

Fig.1 shows a collection and discharge bench 10 positioned alongside the outlet edge for shaped rods or bars 13 leaving a bending-shaping machine 11.

A stationary surface 12 of the collection and discharge bench 10 is tilted by a given angle " α " substantially the same as the angle " α " of inclination of the bending-shaping machine 11.

The shaped rods or bars 13 sheared on the bending-shaping machine 11 slide down the sta-

tionary tilted surface 12 and drop onto a conveyor belt 14.

Fig.2 shows how the shaped rods or bars 13 leaving the bending-shaping machine 11 at a high speed are retained on the conveyor belt 14 by abutment teeth 11 which cooperate with an edge 23 of the collection and discharge bench 10.

The elements of which the conveyor belt 14 consists may be made of rubber, wood, a plastic or soft metal.

Fig.3 shows some variants which can be applied to the embodiment of Fig.1.

A first variant provides for the bench 10 to be equipped with adjustable feet 16 suitable to adjust the height of the bench 10. This adjustment is carried out, for instance, by means of a rotary sleeve acting on the threaded stem of the foot 16. These rotary sleeves are actuated, for instance, by a motor 21 that acts on a transmission gear 22.

Adjustment of the height of the bench 10 enables the inlet edge of the bench 10 to be brought to a height such that the stationary tilted surface 12 mates with the platform of the bending-shaping machine 11 so as to provide one single tilted surface. In this case the inclination of the bending-shaping machine 11 and that of the stationary tilted surface 12 are the same.

Another variant provides for the inclusion of adjustment means 17, a jack for instance. Such adjustment means 17 have the task of adjusting the angle of inclination " α " of the stationary surface 12 when that angle of inclination " α " is not the same as the angle of inclination " α " of the bending-shaping machine 11.

By acting on the adjustment means 17 fitted to the stationary surface 12, that surface 12 can rotate about its axis of rotation 18. In this example, the stationary tilted surface 12, so as to be able to rotate, is hinged to the bench 10 by a rotation pivot 19.

In the same way the angle of inclination " α " of the bending-shaping machine 11 is adjusted by means of a jack 20.

tion (α') of the working platform of the bending-shaping machine (11).

2. Bench (10) as claimed in Claim 1, in which the conveyor belt (14) is equipped at one side with abutment teeth (15) to retain the shaped rods or bars (13), the abutment teeth (15) being positioned at the side of the conveyor belt (14) farthest from the stationary surface (12).
3. Bench (10) as claimed in Claim 1 or 2, in which the conveyor belt (14) can run substantially parallel to the edge of departure of the shaped rods or bars (13) from the bending-shaping machine (11).
4. Bench (10) as claimed in any claim hereinbefore, which is equipped with adjustable feet (16) able to adjust the height of the bench (10) itself.
5. Bench (10) as claimed in any claim hereinbefore, which is equipped with adjustment means (17) to adjust the angle of inclination (α) of the stationary surface (12).

Claims

1. Collection and discharge bench (10) which cooperates with the outlet edge of a bending-shaping machine (11) and is characterized in that it comprises a stationary tilted surface (12) on which shaped rods or bars (13) leaving the bending-shaping machine (11) slide, and also comprises a conveyor belt (14) to collect and convey the shaped rods or bars (13), the conveyor belt (14) being positioned at the edge of the stationary surface (12), the angle of inclination (α) of the stationary surface (12) being substantially the same as the angle of inclina-

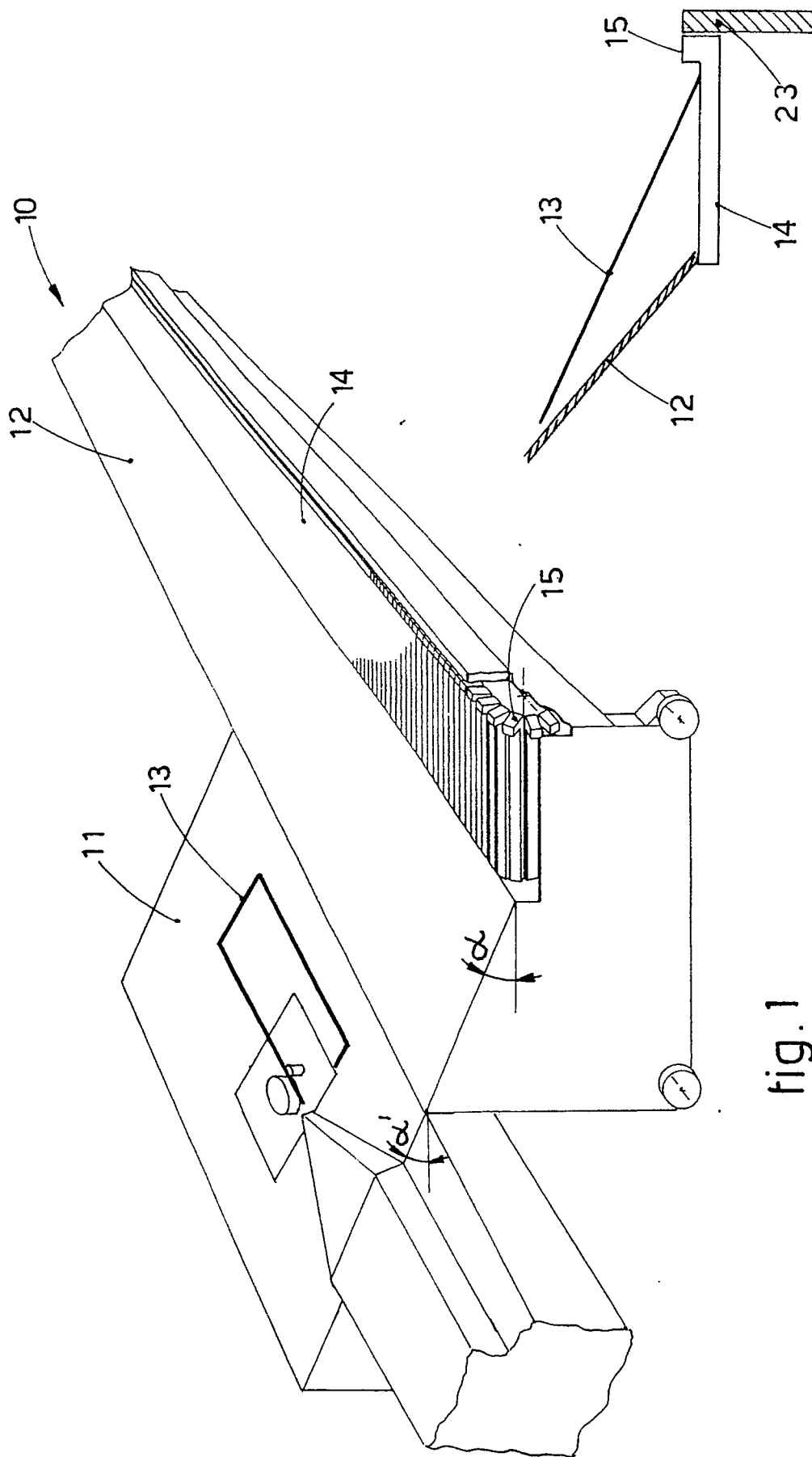


fig. 1

fig. 2

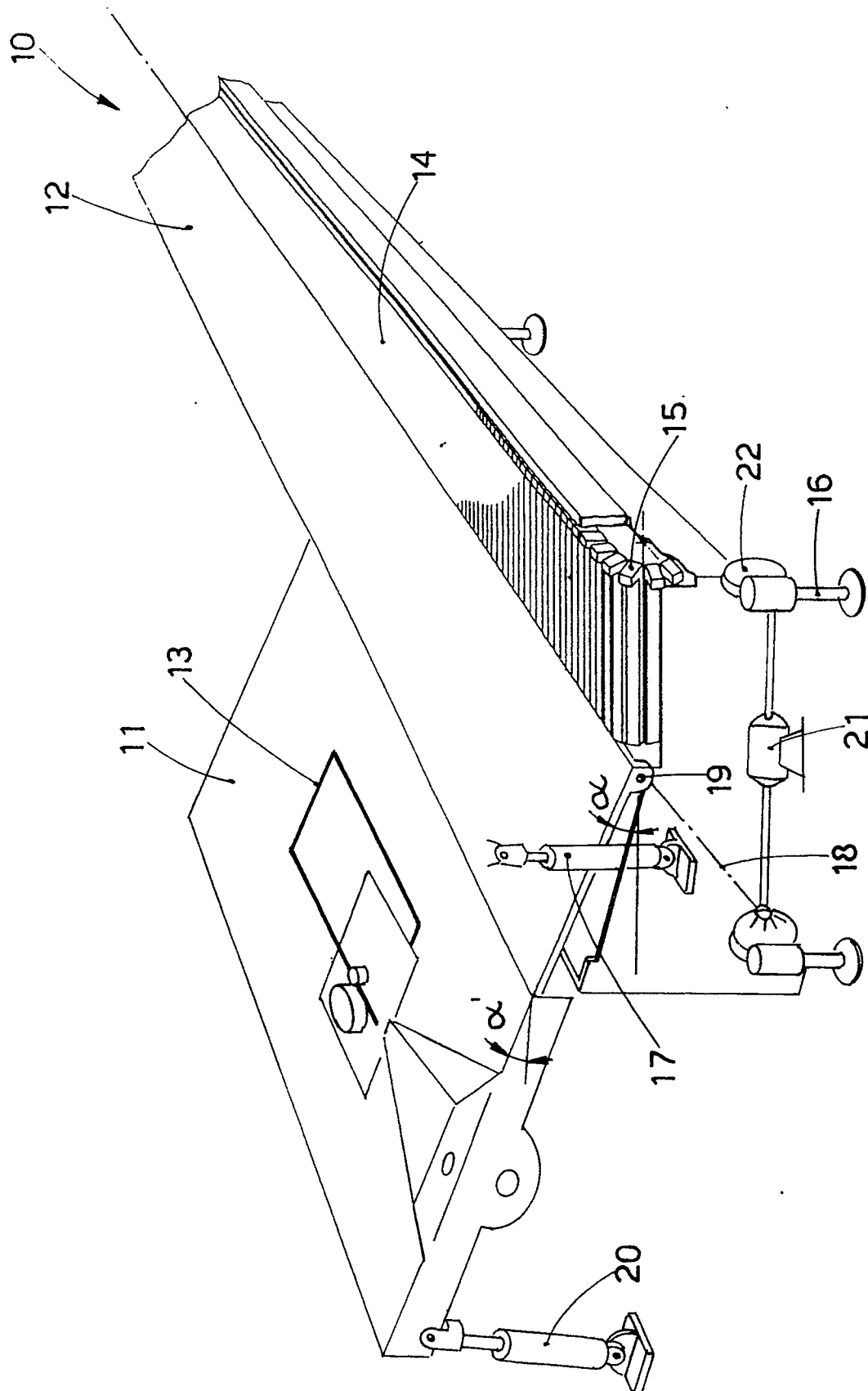


fig. 3



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EUROPEAN SEARCH REPORT

Application Number

EP 91 10 2220

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.5)
A	AU-A-3 784 89 (BUCHER) * Fig. * -- --	1	B 21 D 11/12
A	DE-A-2 649 234 (OLIN ENERGY SYSTEMS) * Figures 1,2 * -- --	2,3	
A	EP-A-0 333 695 (EVG) -- --		
A	AU-A-3 687 25 (EVG) -- --		
A	US-A-2 494 103 (PENBERTHY) -- -- --		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 21 D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 18 June 91	Examiner PEETERS L.
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