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(71) Applicant: **DALLAN S.P.A.**

**31033 Castelfranco Veneto (IT)**

(72) Inventor: **Dallan, Sergio**

**31033 Castelfranco Veneto (IT)**

(74) Representative: **Piovesana, Paolo**

**Via F. Baracca, 5/a**

**30173 Venezia-Mestre (IT)**

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### (54) Drive for punches in a punch head

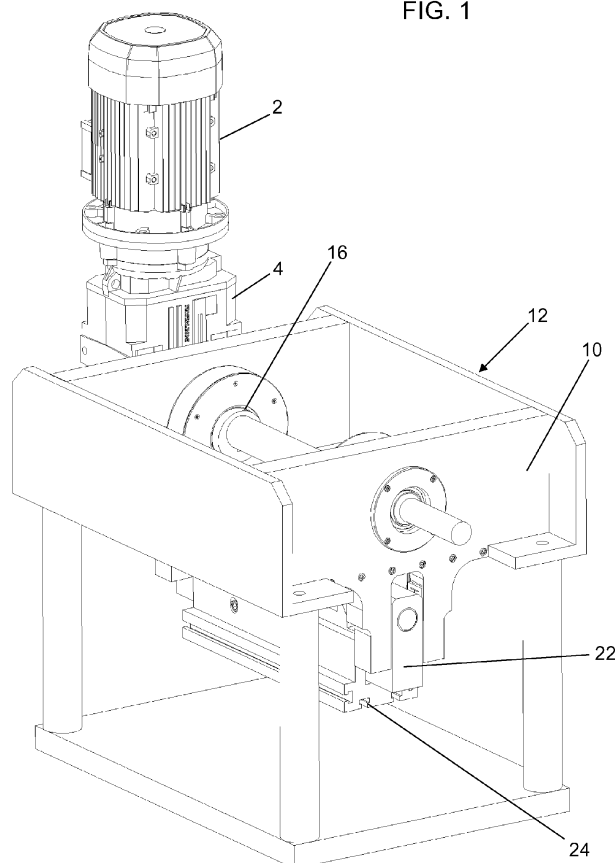
(57) An operating device for punches in punch heads, characterised by comprising:

- an electric motor (2),
- a speed reducer (4) coupled to the electric motor (2),
- a bar (6) rigid with the output shaft of the speed reducer

(4),

- at least two link rods (16) eccentrically connected to said bar (6),
- a mass (22) connecting together the free part of the link rods (16),
- a linear striker (24).

FIG. 1



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**Description**

[0001] The present invention relates to an operating device for punches in punch heads.

[0002] Punching machines are known, inserted into metal strip processing lines. They generally comprise punch heads, the tools and punches of which are controlled, in accordance with the predetermined operative cycle, by hydraulic cylinders applied to the head itself, and act on a metal strip to be processed, advancing between the punches and the respective dies.

[0003] These known devices present however the drawback of presenting hydraulic circuits with pipes, gaskets and control centres for cylinder activation, with consequent cost increase.

[0004] These drawbacks are eliminated according to the invention by an operating device for punches in punch heads as described in claim 1.

[0005] The present invention is further clarified hereinafter with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the device according to the invention,

Figure 2 shows it in cross-section in the raised striker configuration,

Figure 3 shows it in the same view as Figure 2 but in the lowered striker condition, and

Figure 4 shows it in longitudinal section.

[0006] As can be seen from the figures, the device according to the invention comprises substantially an electric motor 2 of vertical axis coupled to a speed reducer 4, to the shaft of which a horizontal rotary bar 6 is fixed, supported via bearings 8 on the shoulders 10 of a framework 12.

[0007] Two link rods 16 are rotoidally coupled to said bar by keys 14 and have their lower part 18 connected by pins 20 to a mass 22 to which a linear striker 24 is fixed, acting on the various punching members.

[0008] In the operation of the device, the rotation of the motor 2 causes the link rods 16 to rotate eccentrically such that the mass 22 rises/falls, with consequent action of the striker 24 on the punching, cutting and other members.

[0009] In a variant, not shown in the drawings, a further speed reducer with motor is applied to the other end of the shaft 6, such as to increase the striker power.

[0010] From the foregoing it is clear that the device of the invention presents the advantage of comfortable use without requiring pipes, hydraulic control centres, etc.

- an electric motor (2),
- a speed reducer (4) coupled to the electric motor (2),
- a bar (6) rigid with the output shaft of the speed reducer (4),
- at least two link rods (16) eccentrically connected to said bar (6),
- a mass (22) connecting together the free part of the link rods (16),
- a linear striker (24).

2. A device as claimed in claim 1, **characterised in that** the motor is of vertical axis.

3. A device as claimed in claim 1, **characterised by** comprising a second motor coupled to a second speed reducer applied to the other end of the bar (6).

**Claims**

1. An operating device for punches in punch heads, **characterised by** comprising:

FIG. 1

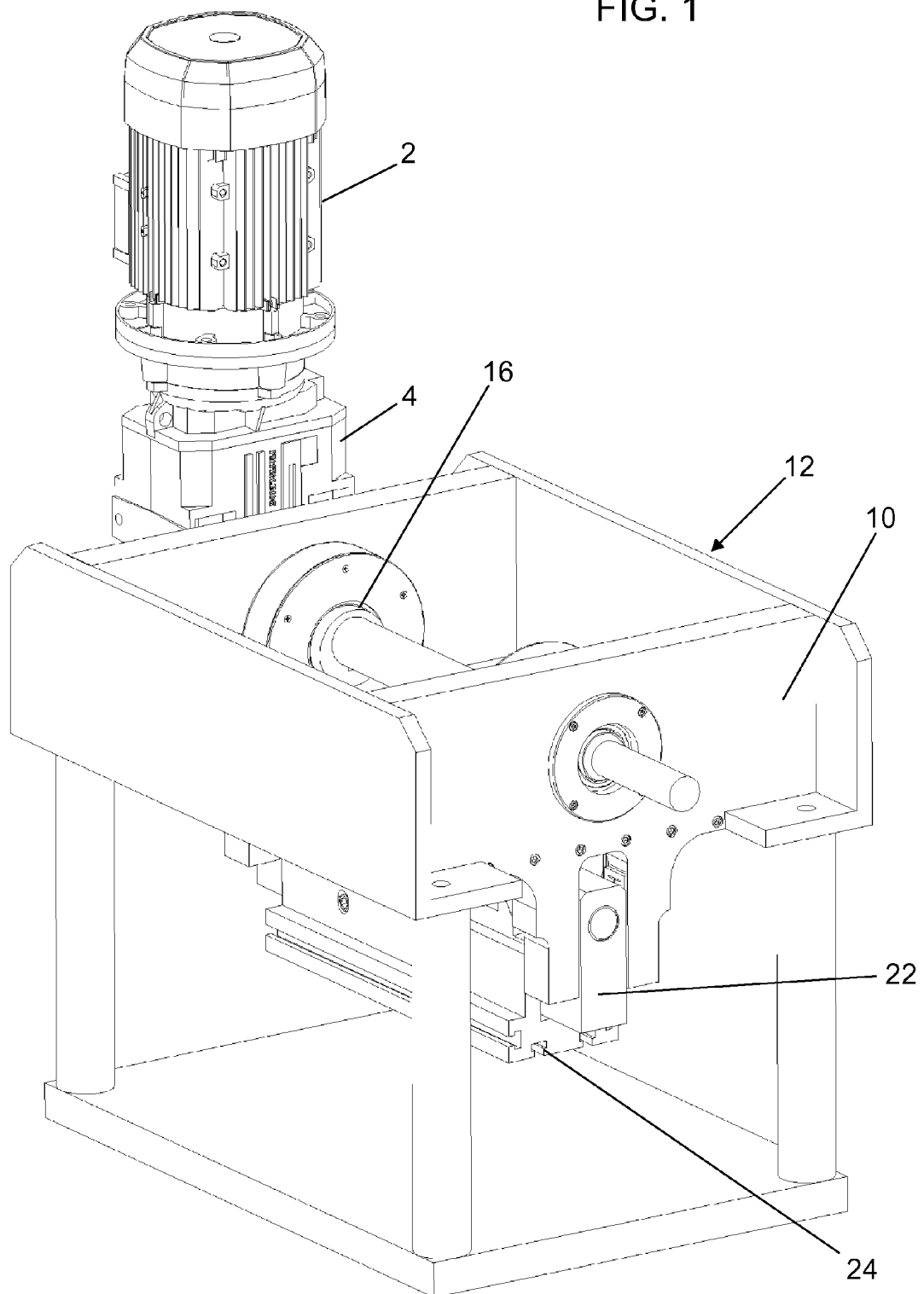


FIG. 2

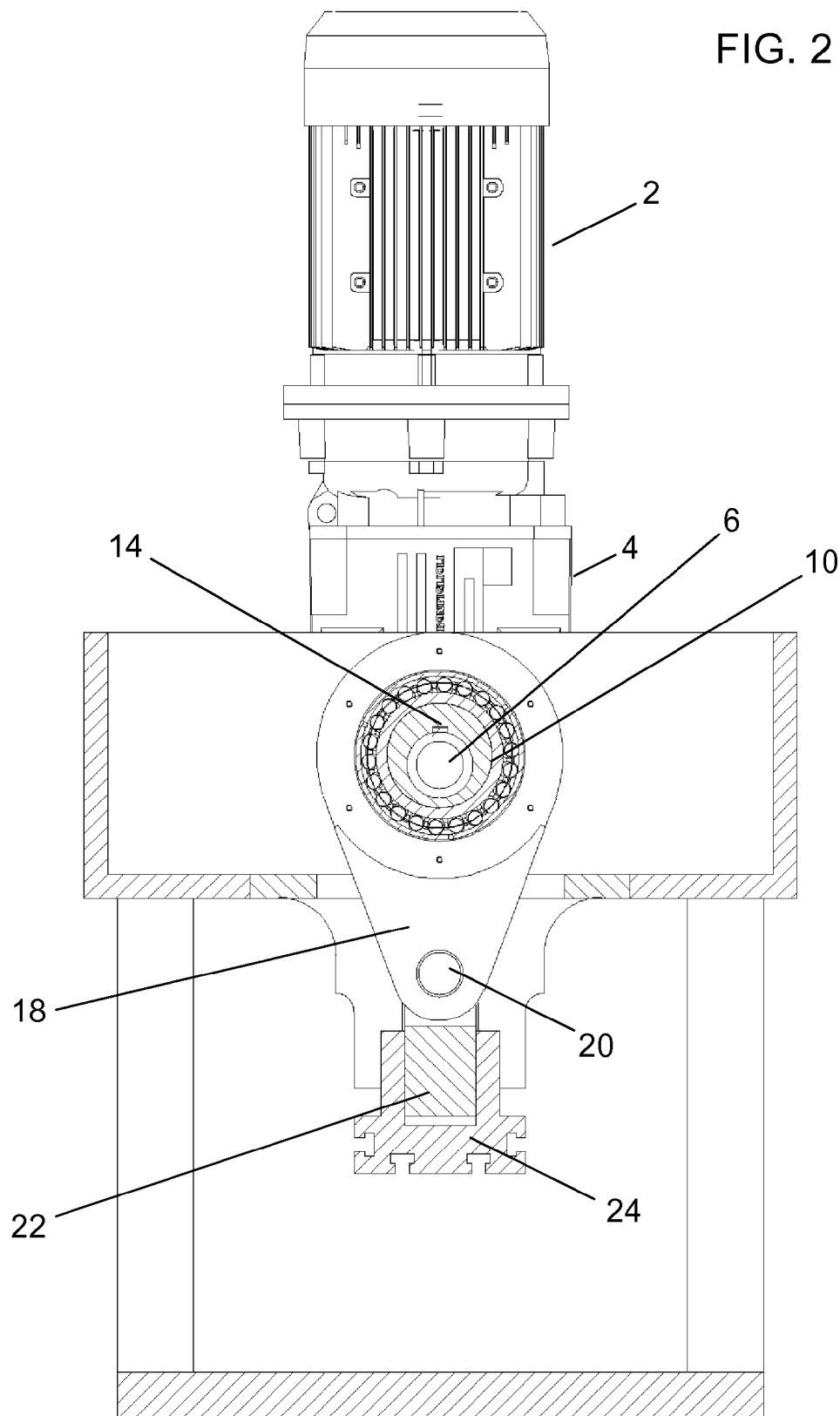


FIG. 3

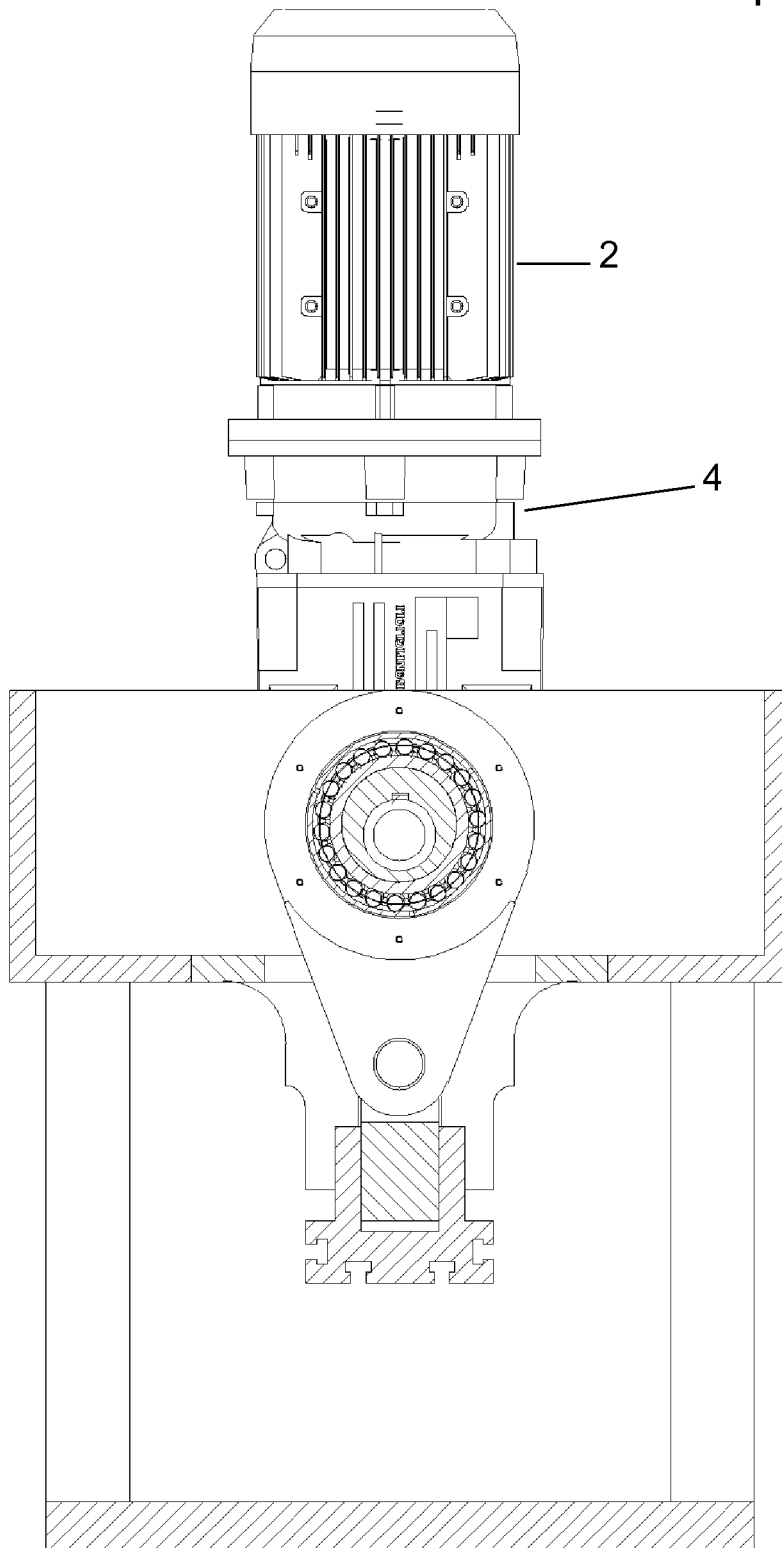
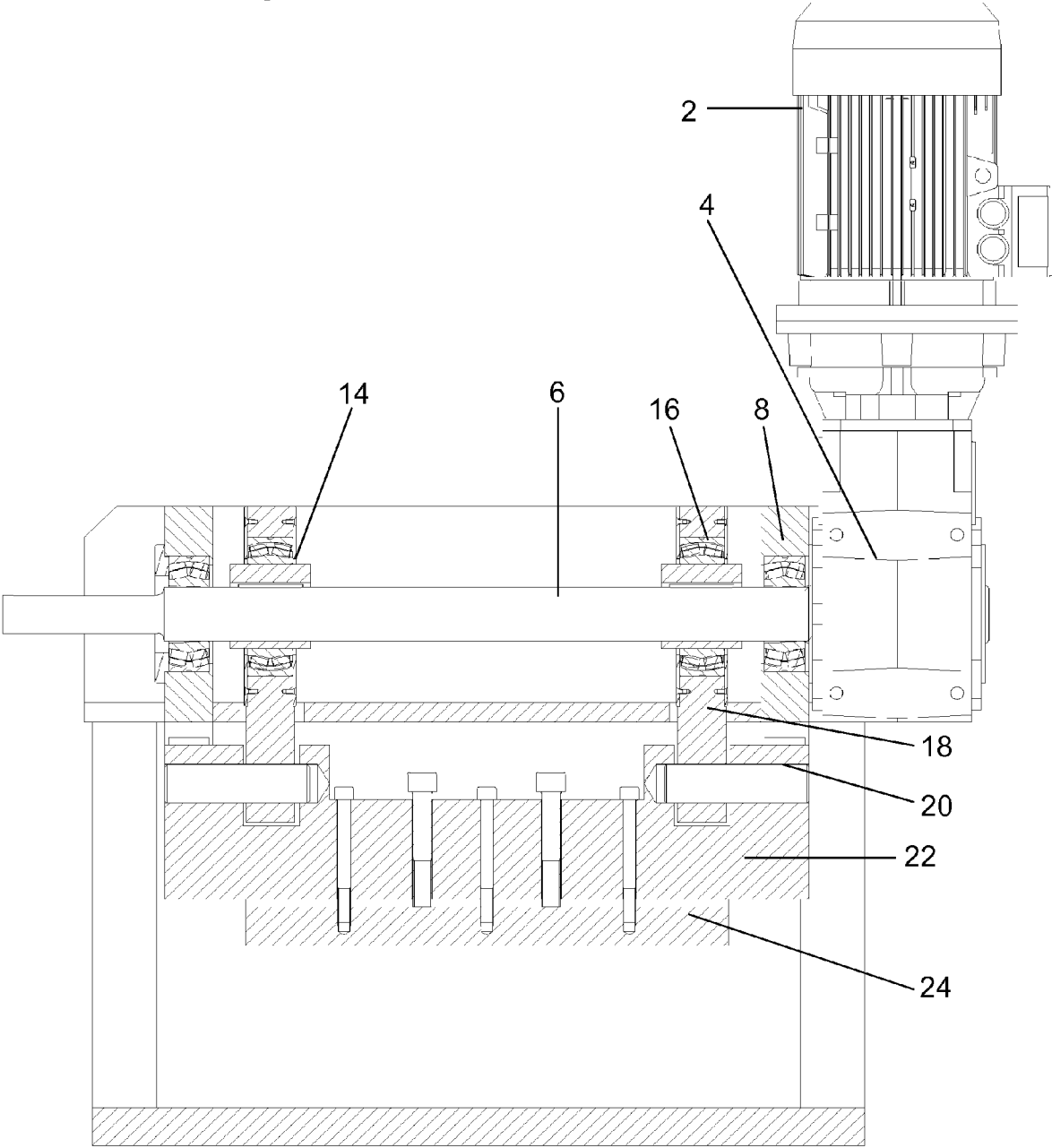


FIG. 4





## EUROPEAN SEARCH REPORT

Application Number  
EP 13 16 0482

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<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 ..... &amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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