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(12) # EUROPEAN PATENT APPLICATION

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(54) **A slidable filling dam.**

(57) A slidable filling dam has along the heading dam segments (*4*) articulated in a hinged roof-bar (*7*) of a mine lining. The slidable dam has near-floor beams (1) which are provided at their ends with terminal eyes (*2*) to connect two neighbouring dam segments (*4*) at the point of their connection with footings (*9*) by means of bolts (*10,11*). The near-floor beam (*1*) has in its central part at least one central eye (*5*) to fix a hydraulic ram (*6*) pulling up segments (*4*) of the filling dam.

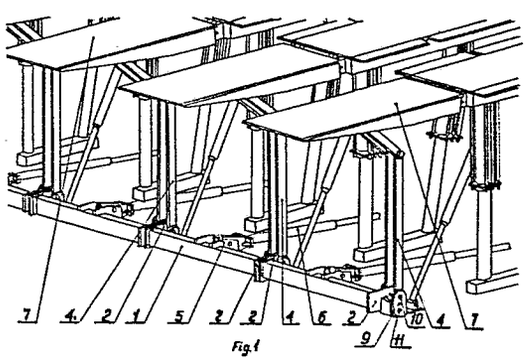

Fig.1

EP 0 042 479 A1

A Slidable Filling Dam

The subject of the invention is a slidable filling dam for mining longwall headings provided with a mechanized lining, designed for filling of post-mining voids.

A dam for longwall heading, known from the Polish patent No. 84289, consists of reproducible vertical structural segments articulated in each roof-bar of a mechanized lining, along the longwall heading. To the lower member of each segment of the dam a beam is attached which is a longitudinal element, and a base which is connected by means of a rigid beam with a longwall conveyor. Tightness of said dam under the roof is ensured by sections of a rubber conveyor belt attached under roof-bars, whereas tightness of the dam at the floor is ensured by rubber aprons attached to the longitudinal beam fixed to the lower member of each segment of the dam. According to this solution, the length of rubber aprons is not much bigger than that of longitudinal beams so that after setting the segments of the dam along the line of the longwall, the ends of rubber aprons attached to neighbouring beams are in half-lap mesh.

Shifting of the dam towards the longwall face is performed in such a manner that all segments of the dam are shifted in succession along the heading, both under the roof and

over the floor. However, every next shifts of particular segments of the dam cause forming of a gap at the floor, between longitudinal beams of the shifted segment and those of the unshifted segment. Through said gap of a width of one web, being of about 630 mm, fluid filling materials gets into the active part of the longwall heading, this entailing hindrances in production and a considerable hazard to the personnel.

The object of the invention is a slidable filling dam ensuring complete continuity of packing at the floor of the heading.

Said object is attained by connecting dam segments by means of near-floor beams, said near-floor beams being provided at their ends with terminal eyes. In its central part a near-floor beam has central eyes through which a hydraulic ram is attached, said hydraulic ram pulling up segments of the filling dam towards the longwall face. Each near-floor beam connects two dam segments with each other near the floor, along the whole heading. Terminal eyes of two neighbouring near-floor beams and the lower part of a dam segment situated in the vicinity of the floor enter the footing and are connected with the footing by means of bolts. Plays formed at connection points enable deflection of near-floor beams in relation to one another by an angle reaching 30°.

The subject of the invention is presented in its embodiment in a drawing wherein

Fig. 1 shows a general view of a lining unit with a slidable filling dam, and

Fig. 2 shows a near-floor beam together with packing rubber aprons.

Dam segments 4 of a slidable filling dam are articulated with their upper parts to a hinged roof-bar 7 of a mechanized mining lining. The lower part of the dam segment 4 is connected with a near-floor beam 1 through a terminal eye 2 and a footing 9. The footing 9 encloses terminal eyes 2 of two neighbouring near-floor beams 1 and the lower part of the dam segment 4. The terminal eye 2 and the lower part of the dam segment 4 are connected in a separable manner with the footing by means of bolts 10 and 11. Dam segments 4 of the slidable filling dam are connected near the floor, along the whole heading, through the intermediary of near-floor beams 1 whose ends are provided with terminal eyes 2. In its central part a near-floor beam 1 has central eyes 5 which serve for fixing of a hydraulic ram 6 which enables shifting of dam segments 4 towards the longwall face. To the near-floor beam 1 rubber aprons 12 and 13 are attached which pack the dam near the floor of the heading. The length of rubber aprons 12 and 13 considerably exceeds the length of one near-floor beam 1, whereby said rubber aprons 12 and 13 are attached at the same time to several or a dozen or so near-floor beams 1 along the heading, this making the dam completely tight near the floor. At shifting of dam segments 4 near-floor beams 1 can deflect in relation to one another by an angle reaching 30°. This is possible due to plays formed at connection points of the terminal eye 2 and the lower part of the dam segment 4 with a footing 9 and bolts 10 and 11. At the moment of shifting dam segments 4 no gap is formed between the shifted segment and the unshifted one. In this way a complete continuity of the dam near the floor of the heading is obtained, in a form of a broken line.

What is claimed is:

A slidable filling dam having along the heading dam segments articulated in the roof-bar of the mine lining, characterized in that it has near-floor beams (1) connecting with their ends dam segments (4), said near-floor beams (1) having at their ends terminal eyes (2), and a near-floor beam (1) has in its central part at least one central eye (5), to said central eye (5) a hydraulic ram (6) being fixed.

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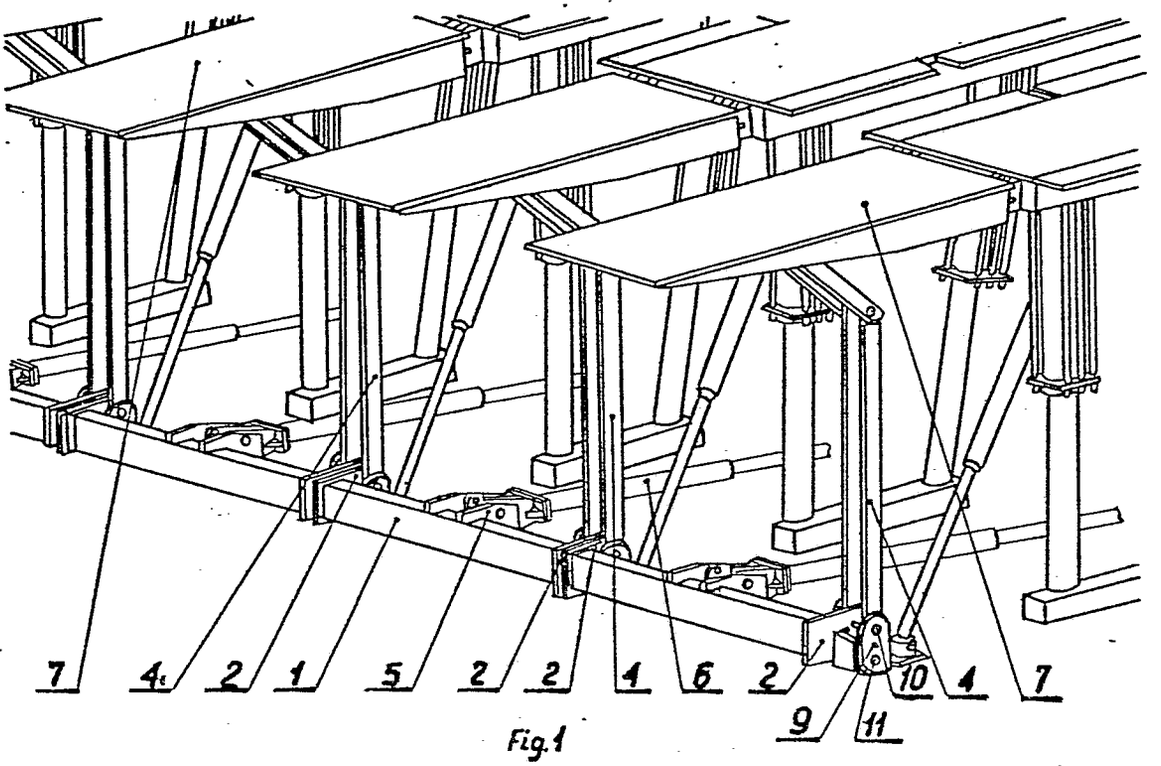

Fig.1

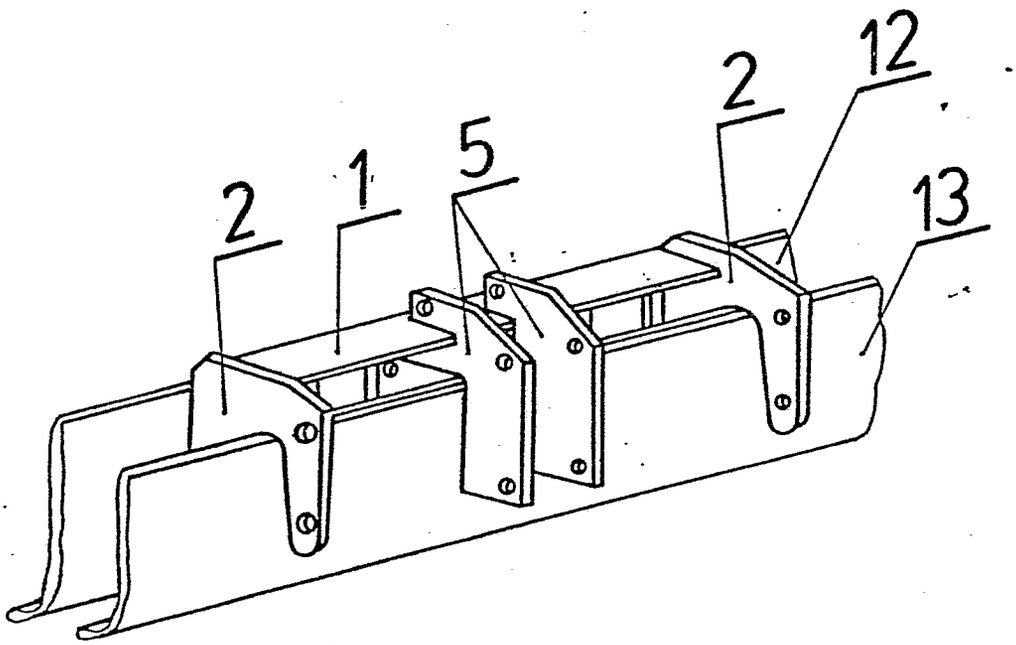

Fig. 2

European Patent Office

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Application number

EP 81 10 3196

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	US - A - 3 439 508 (PAYNE) * Column 2, lines 51-60; figures 1,2,4-7 *	1
	GB - A - 1 418 075 (CHARBONNAGES DE FRANCE) * Page 3, lines 6-18; figure 3 *	1
	DE - B - 1 106 717 (GREBE) * Column 3, lines 36-44, 55-58; figures 1-3 *	1
	GB - A - 862 393 (WESTFALIA) * Page 2, lines 52-56, 68-80; figures 1-4 *	1
	FR - A - 1 444 415 (KLOCKNER-WERKE) * Page 3, lines 92-98; figures 2-4 *	1
	FR - A - 1 547 489 (ALACCHI) * Page 2, lines 4-11; figures 1, 4,5 *	1
	GB - A - 892 179 (HOESCH) * Page 1, lines 62-66; figures 1-3 *	1

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

E 21 D 23/04
E 21 F 15/02

TECHNICAL FIELDS SEARCHED (Int. Cl.³)

E 21 D
E 21 F

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10.09.1981	HAKIN