Aug. 4, 1953 W. LOEBBE 2,647,736

MEANS FOR REMOVING PIT PROPS

Filed April 6, 1950

Fig. 1.

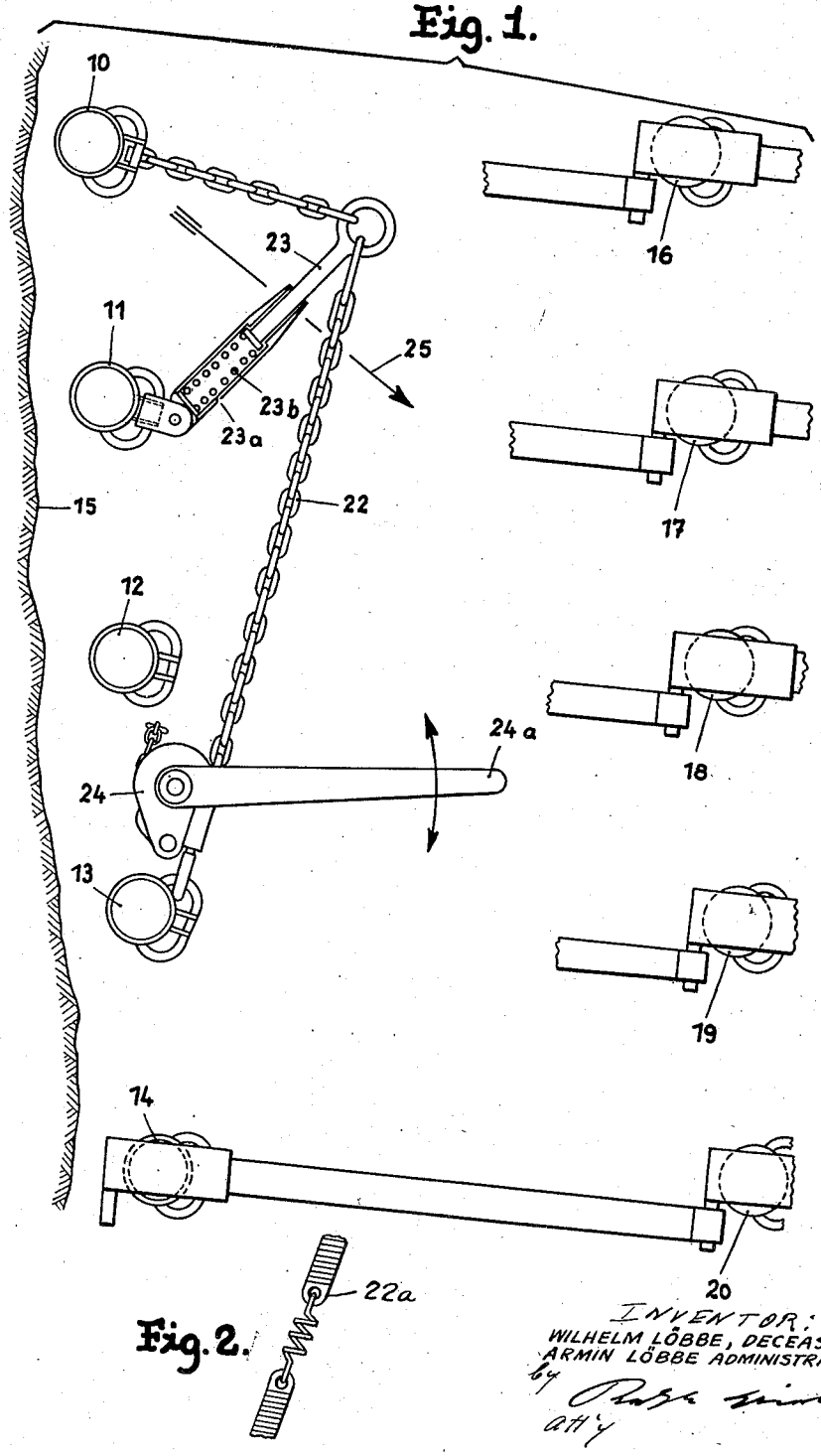


Fig. 2.

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MEANS FOR REMOVING PIT PROPS

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4 Claims. (Cl. 262—1)

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This invention relates to a means for the sudden jerking away of pit props in mine workings, using an elastic traction element.

In order to knock away pit props in mine workings, it is known to employ resilient traction elements, for example, springs or rubber cables. With this arrangement, it has been the practice hitherto to connect the prop to be knocked away or extracted by the resilient traction element to the next row of props closer to the coal face. Immediately after it was released from the roof, the prop to be extracted was then suddenly jerked out of the range of the subsiding roof to a position beneath the supported roof nearer the coal face. It frequently happened however, that the prop or props to which the resilient extraction cable was connected under tension was still not loaded by an adequate roof pressure and thus still did not have the necessary stability. The result of this was that occasionally one or other of these props was demolished with the prop to be extracted.

According to the present invention, the resilient traction element for the sudden jerking away of a prop is tensioned between the latter and a prop spaced therefrom in the same row of props, but is deflected from an extended position by a support arranged nearer to the coal face. The support is advantageously formed by a compressional strut which is in the same row of props as the two props to which the extraction cable is attached and which is located between the said two props.

The extraction cable may consist of a wire cable or a chain, but it should not be extensible when a support by which the extraction cable is guided at an angle is made to yield elastically. The support may, however, be rigid, or both the support and the extraction cable may be of resilient construction.

The invention will be described in further detail with reference to the drawing in which:

Fig. 1 shows a plan view of an embodiment of an apparatus in accordance with the invention and,

Fig. 2 shows a modification of the embodiment shown in Fig. 1 in which an elastic extraction cable is used.

The prop **10** and, subsequently, the other props **11**, **12**, **13** and **14** in the same row, which lie immediately in front of the breaking edge **15** of the roof, are to be extracted one after the other by the use of a resilient traction element by which, directly after the pressure of the roof is relieved, the prop **10** is jerked away towards the coal face out of the dangerous position. Hitherto, the elastic springing cable or several strands thereof have been stretched for this purpose up to the row of props **16** to **20**, or even to a row of props which is even closer to the coal face. With this arrangement, however, it occasionally happened that one of the props **16–20** was demolished at the same time, since this row of props frequently was still not sufficiently loaded by the roof.

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According to the present invention, however, in order to extract the prop **10**, an extracting cable **22** is connected to the prop **13** which is in the same row of props **10** to **14** and it is deflected at an angle by a strut **23** which is supported against the prop **11**. The tensioning of the extracting cable **22** is brought about by an extractor jack **24** by reciprocating its actuating handle **24***a*.

In the example illustrated, the supporting strut **23** is of resilient construction and it comprises a spring casing **23***a* with a spring **23***b* which is compressed by the tension of the extracting cable **22**.

Instead of providing the strut **23** with a resilient member, the extracting cable **22** itself could also be provided with such a member **22***a* as shown in Fig. 2 of the drawings.

The extraction of the prop **10** is effected by the extractor means **22—24** being first of all connected, in the manner shown in the drawing, to the props **10**, **11** and **13**. Thereupon, the cable is so strongly tensioned by actuating the jack **24** that the spring **23***b* of the strut **23** is compressed to a fraction of its original length. If now the lock of the prop **10** is released, then immediately after the roof pressure is relieved, the prop is flung approximately in the direction **25** by the extraction cable **22** out of the range of the collapsing roof and underneath the part of the roof still supported by the remaining props **11–14** and **16–20**.

What is claimed is:

1. Device for removing pit props in mine workings comprising an extraction cable with a prop attaching device positioned at each end, a strut with a prop attaching clamp at one end and attached at the other end to said extraction cable between its ends, a jack positioned for taking up said extraction cable, and an elastic element positioned to exert an elastic force against the taking up of said cable.

2. Device according to claim 1 in which said strut is a longitudinally compressible strut containing spring means positioned for exerting elastic force against longitudinal compression of said strut.

3. Device according to claim 1 in which said extraction cable is an elastic extraction cable.

4. Device according to claim 1 in which said extraction cable is non-elastic and said strut is longitudinally elastically compressible.

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