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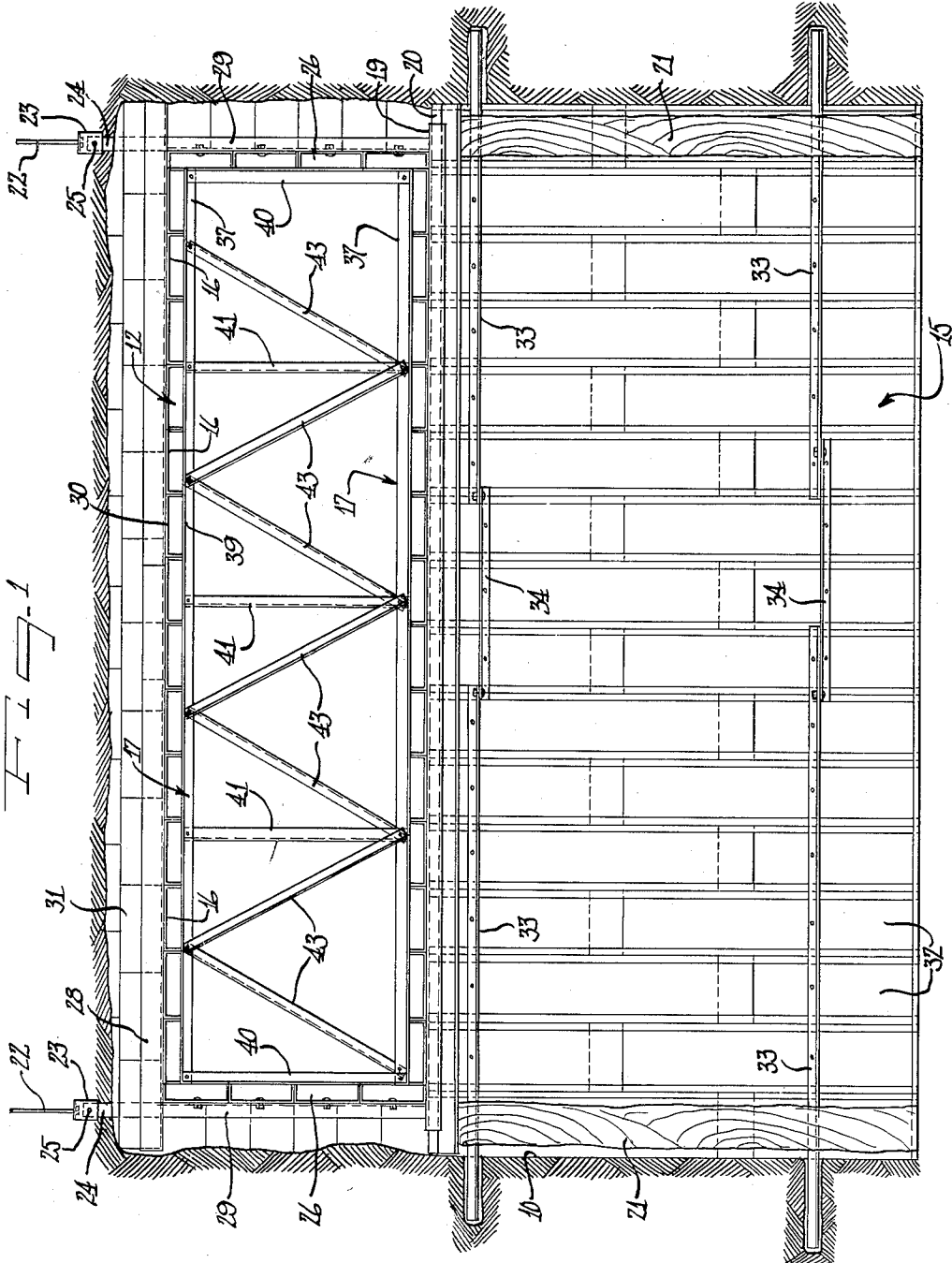
J. CRAGGS ET AL

2,729,065

ADJUSTABLE PREFABRICATED METAL OVERCAST

Filed June 26, 1953

2 Sheets-Sheet 1



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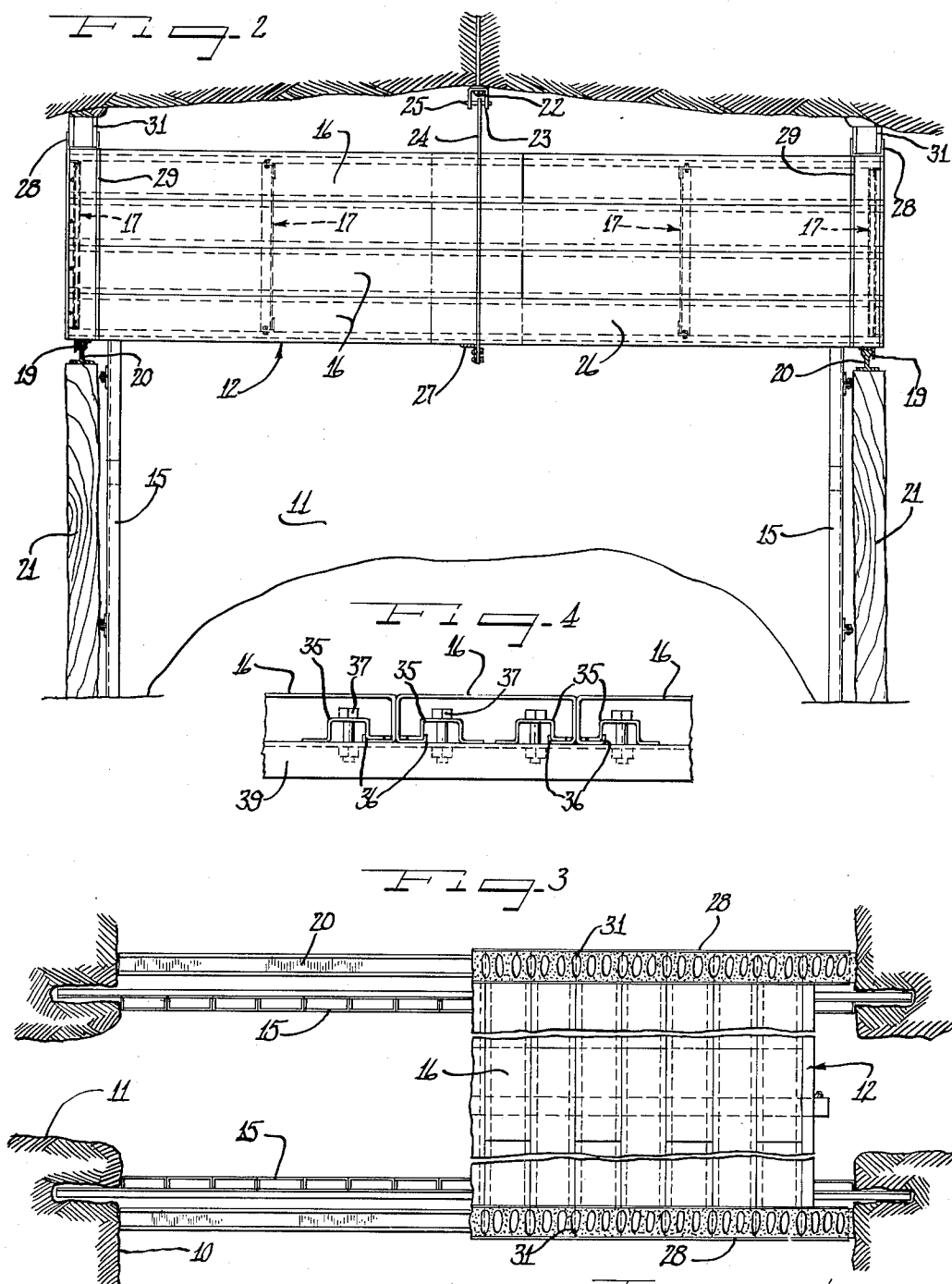
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ADJUSTABLE PREFABRICATED METAL OVERCAST

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1

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ADJUSTABLE PREFABRICATED METAL OVERCAST

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Application June 26, 1953, Serial No. 364,372

2 Claims. (Cl. 61—45)

This invention relates to improvements in overcasts and more particularly relates to a knock-down and extensible prefabricated metal overcast and stopping structure establishing a circulation of air through the adjacent ends of a ventilation entry and over an intersecting entry.

A principal object of our invention is to provide a novel and improved form of metal overcast structure readily adaptable to carry ventilating air across entries of varying widths.

A further object of our invention is to provide a knock-down prefabricated metal overcast structure readily assembled and dismantled and adjustable in width and height by varying the number of panels in the overcast structure, and telescopically extensible to be supported to extend across entries of varying widths and conduct ventilating air thereover.

Another object of our invention is to provide a simple and novel form of knock-down prefabricated metal overcast structure in which a rectangular ventilating duct is formed from a plurality of extensible channel-like panel members, mounted in side-by-side relation with respect to each other and detachably clipped to bracing framework structures, forming an extensible metal duct adapted to be supported in an elevated position across an entry through which a current of air is passing, to establish a circulation of air thereacross without mixing with the air circulating therethrough.

A further object of our invention is to provide a simple and novel form of knock-down prefabricated metal overcast and stopping structure conducting air along a ventilation entry in which a rectangular metal ventilation duct is formed from a plurality of telescopic panels detachably connected together in side-by-side relation with respect to each other and supported in an elevated position across another entry through which an air current passes, and in which the ventilation entry is stopped beneath the overcast by vertically extensible and laterally expandible stopping structures interposed between the mine floor and bottom of the overcast.

A still further object of our invention is to provide a simple and improved form of metal prefabricated metal overcast and stopping structure readily adapted to direct a circulation of air across entries of varying widths and adapted to stop the intersecting ends of ventilation entries of varying widths and heights beneath the overcast, and all arranged with a view toward utmost simplicity in assembly and dismantling.

The present invention is a continuation-in-part of our prior application Serial No. 351,883 filed on April 29, 1953, and entitled "Mine Stopping."

These and other objects of our invention will appear from time to time as the following specification proceeds and with reference to accompanying drawings wherein:

Figure 1 is an end view of an overcast and stopping structure constructed in accordance with our invention, showing the overcast and stopping structure supported in an elevated position in a ventilation entry to extend across an intersecting entry and stopping the ventilation entry

2

to establish a circulation of air through the overcast across the intersecting entry;

Figure 2 is a view in side elevation of the overcast and stopping structure shown in Figure 1, looking along a main entry and showing a portion of the ventilation entry broken away in order to show certain details of the support for the overcast structure;

Figure 3 is a fragmentary plan view of the overcast and stopping structure shown in Figures 1 and 2; and

Figure 4 is an enlarged detail view, showing certain details of the extensible panels and the means for detachably securing the panels to the bracing framework for the overcast.

In the embodiment of our invention illustrated in the drawings, we have shown a ventilation entry or passageway 10, intersecting a cross entry 11 which may be a main or haulage entry, with an extensible and laterally and vertically adjustable metal overcast 12, supported in an elevated position to extend across the entry 11 to carry a circulation of ventilating air across the entry 11 without mixing with the air moving along said entry.

The space between the bottom of the overcast and opposite ribs of the entry 10 at each side of the entry 11 is shown as being stopped by a stopping construction, shown as being similar to that shown and described in our aforementioned application Serial No. 351,883 and entitled "Mine Stopping."

The overcast 12 is herein shown as comprising a sectional extensible rectangular duct formed from a plurality of telescopic panels 16, 16 detachably secured to a plurality of rectangular truss frame structures 17, 17 at opposite ends of said overcast and also spaced inwardly from opposite ends of said overcast for securing the panels 16, 16 in side-by-side relation and maintaining the overcast to its rectangular form.

The overcast 12 is shown as being supported on supporting angles 19, 19 extending across each end thereof and resting on transverse rails 20, 20 supported at their ends on posts 21, 21 adjacent opposite ribs of the entry 10. The overcast 12 is also shown as being supported intermediate its ends by roof bolts 22, 22, secured to the mine roof and having hangers 23 depending therefrom, to which are pivoted straps 24, 24 on the pivot pins 25. The straps 24, 24 are shown as extending downwardly along opposite side walls 26, 26 of the overcast and as being bolted at their lower ends to opposite ends of an angle 27 extending across the bottom of the overcast, and supporting the same intermediate its ends.

An upwardly facing telescopic channel-like member 28 is shown as extending across the top of the overcast at each end thereof. Outwardly facing channels 29, 29 are shown as extending vertically along the opposite ends of the side walls 26, 26. The channels 28 and 29 may be made of sheet metal to receive filler blocks 31, 31 closing the space between the overcast and roof and ribs of the mine. It should be noted that the telescopic channels 28 extend over the ends of the channels 29 and that the channels 29 are shown as being bolted to the panels 16, 16. The spaces between said channels and panels may be sealed by a suitable caulking or sealing compound.

The stopping structure 15 is shown as comprising a plurality of vertically extending telescopic panels 32, 32 of a channel-like cross section extending from one rib to the other of the entry in side-by-side relation with respect to each other. The panels 32, 32 may be clipped to cross beams 33, 33, anchored at their ends in the ribs of the cross entry and connected together at their inner ends by connecting angles 34, 34, arranged to accommodate extension or retraction of the stopping. If desired a filler panel (not shown) like that shown and described in our application Serial No. 351,883 previously mentioned, may be used to fill a gap of less width than the width of a panel. The

panel construction as well as the means for clipping the panels to the cross beams 33, 33 may be like that shown in our aforementioned prior application Serial No. 351,883, so need not herein be described further.

It should here be noted that the stopping structures 15, 15 extend from the mine floor and abut the bottom of the overcast 12, and may be suitably sealed to the bottom of the overcast and to opposite ribs of the entry. The spaces between the panels may also be sealed by sealing tape or a suitable sealing or caulking compound, as in our prior application Serial No. 351,883.

Referring now in particular to the details of construction of the overcast, the panels 16, 16 are shown as being telescopic and of a channel-like section to accommodate the panels to extend the overcast across ventilation or haulage entries of varying widths. Each panel 16 is shown as being of a construction similar to that shown and described in our prior application Serial 351,883, the detailed construction of a portion of which is illustrated in Figure 4. The panels 16 are shown as being clipped in side-by-side relation with respect to each other by means of clips 35, 35, engaging intumed ends 36, 36 of the legs of the panels and secured thereto by means of bolts 37, 37. The bolts 37, 37 are shown as extending through the clips 37 and through the legs of angles 39, 39 forming the upper and lower margins of the rectangular truss frame structures 17. The vertically extending end panels 16, 16 forming the side walls 26, 26 may abut the ends of the upper and lower horizontally extending end panels 16, 16 and may be clipped to vertical angles 40, 40 defining the vertical margins of the rectangular truss frame. The vertically extending end panels 16, 16 forming the end walls 26, 26 of the overcast may likewise be bolted to the webs of the channels 29, 29 if desired, as previously mentioned.

The reinforcing truss frame structures 17, 17 may be placed at various points along the overcast and may be in the form of trusses having rectangular outer margins with separate panels defined by the angles 40, 40 and inwardly spaced parallel angles 41, 41.

Within each panel are trussing structures comprising connected angularly disposed angles 43, 43 of an inverted V-like formation connected with the upper and lower angles of the framework. Each rectangular framework 17 thus forms a suspension reinforcing truss to maintain the overcast to a uniform rectangular form throughout the length thereof.

It may be seen from the foregoing that a simple effective and novel form of a knock-down prefabricated metal overcast has been provided for establishing a circulation of air across an entry carrying a different air current, and keeping the two air currents separate, and that the overcast structure of our invention may readily be adapted to be extended across varying widths of entries, and may be assembled or disassembled in a simple manner.

It may further be seen that the overcast of our invention is of a permanent structure when assembled and may be shifted to various parts of the mine when one portion of the mine becomes worked out.

It will be understood that modifications and variations may be effected in this invention without departing from the scope of the novel concepts thereof.

We claim as our invention:

1. In a mine ventilation overcast structure adapted to establish a circulation of air over one entry at the intersection between two entries in a mine, an extensible rectangular metal duct extending across one entry in an elevated position and connected at its ends with an intersecting entry and comprising a plurality of channel-like panels connected together in side-by-side relation with respect to each other, means supporting said duct in an elevated position across said one entry comprising cross beams in the intersecting entry and an intermediate beam hung from the mine roof and supporting said duct intermediate the ends thereof, and filler block retaining means comprising an outwardly opening channel extending across the top of the overcast adjacent each end thereof and co-operating outwardly opening channels extending along the side of the overcast.

2. In a mine ventilation overcast and stopping structure adapted to establish a circulation of air over one entry at the intersection between two entries in a mine, mine stoppings at the adjacent ends of the intersected entry adapted to extend from the mine floor to a position intermediate the top thereof and from one rib to the other and comprising a plurality of abutting extensible panels and a plurality of cross beams anchored at their ends in the ribs of the entry and supported in parallel relation with respect to each other by said panels, and an extensible overcast engaging the tops of said panels and secured thereto and comprising a plurality of channel-like extensible panels having parallel legs, spaced rectangular bracing frames engageable with the legs of said channels, means detachably securing said channels to said bracing frames and means at the ends of said overcast extending along the top and opposite sides thereof, for carrying filler blocks to fill the space between said overcast and the opposite ribs and roof of the entry comprising an outwardly opening telescopic channel extending along the top of the overcast and beyond opposite sides thereof, and other outwardly opening channels extending vertically along opposite sides of the overcast in alignment with said telescopic channels.

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