May 16. 1933. J. S. HUNTOON 1,909,539

CRIBBING

Filed Nov. 14, 1931 3 Sheets-Sheet 1

Fig. 1.

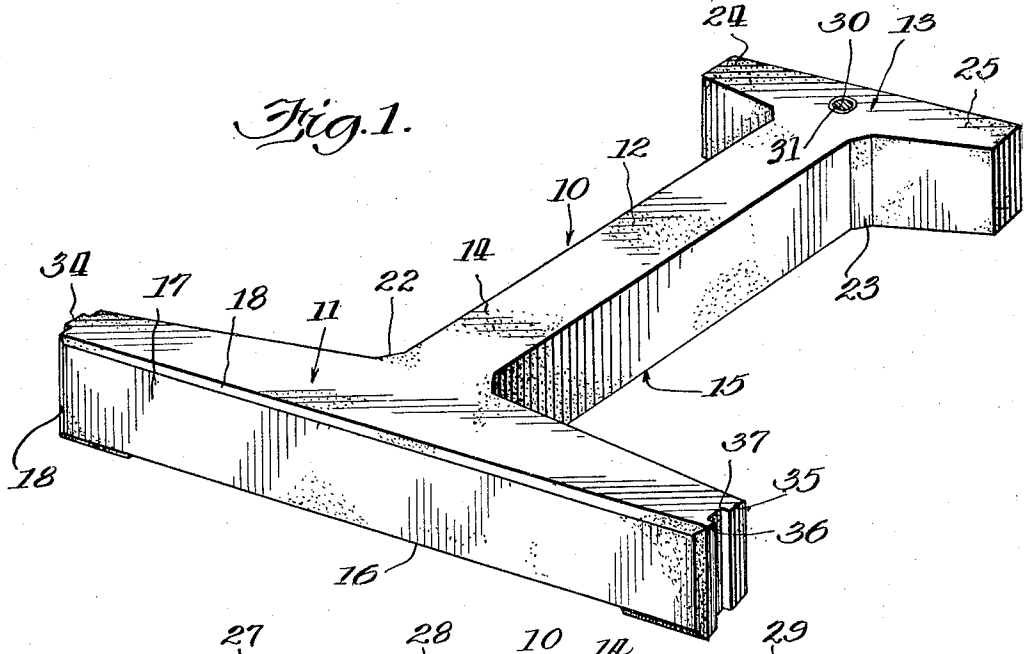


Fig. 2.

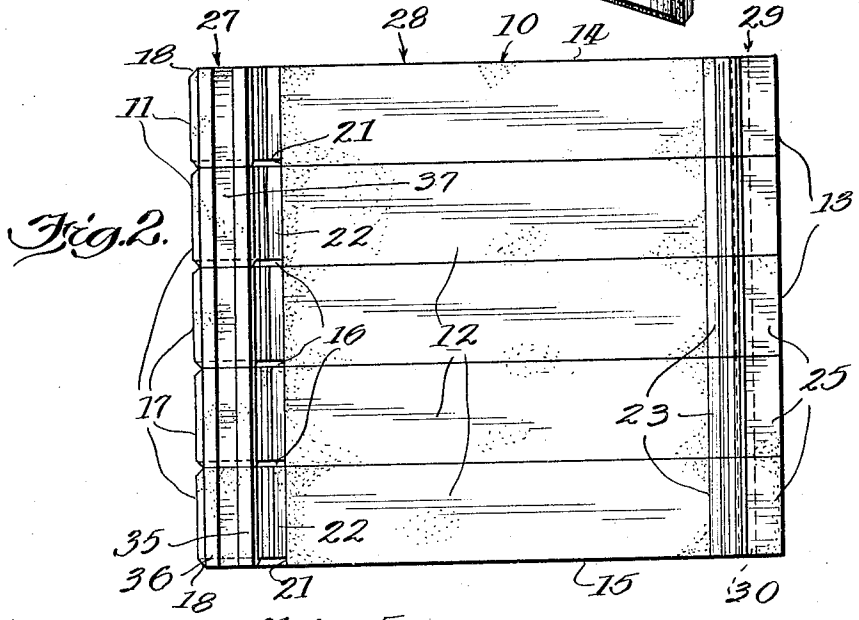
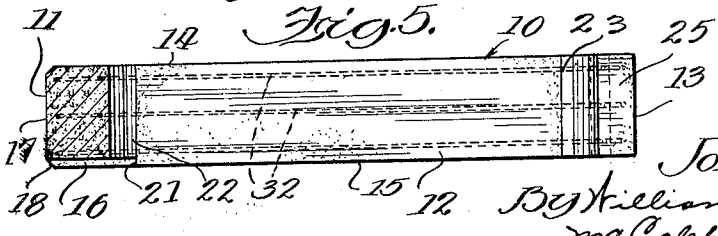


Fig. 5.



Inventor:
John S. Huntoon
By Williams, Bradbury,
McCaleb & Hinkle.
Attys.

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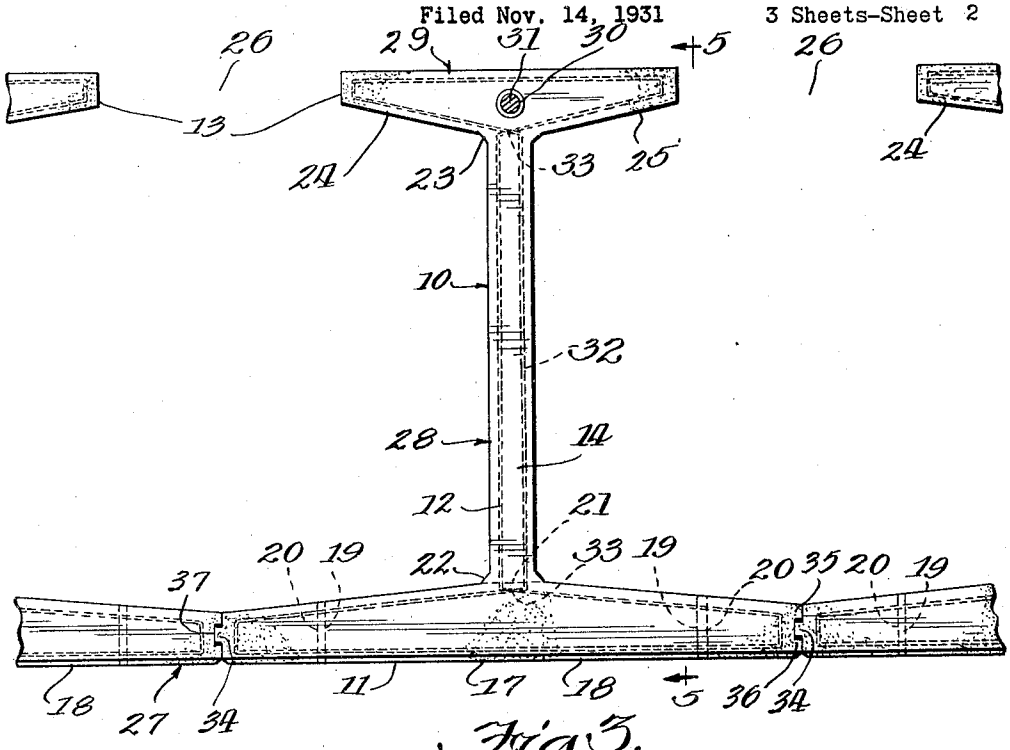
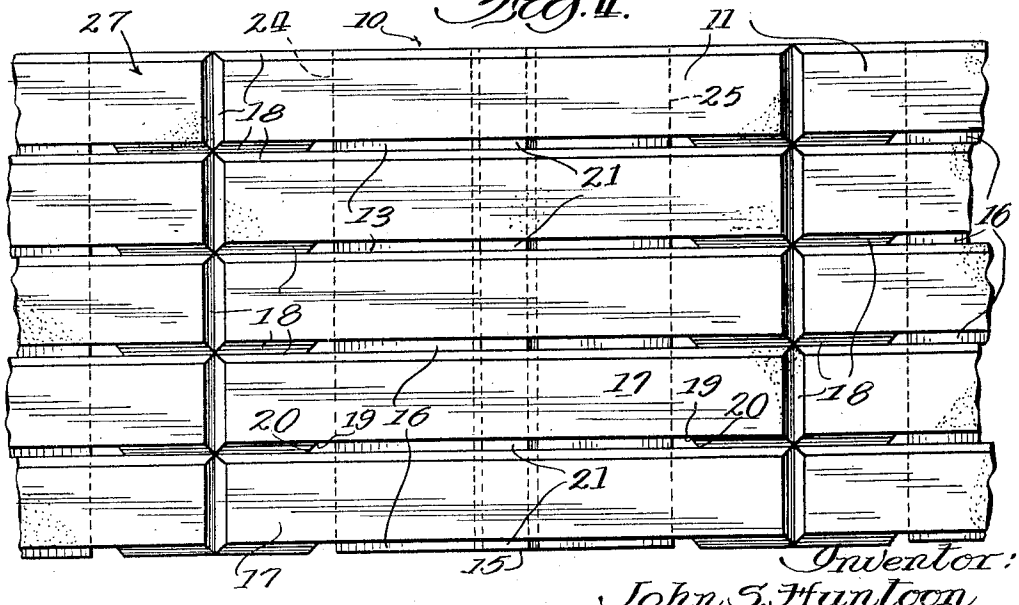


Fig. 5.

Fig. 4.



Inventor:
John S. Huntoon
By Williams, Bradbury, McCaleb & Hinkle
Attys.

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Fig. 6.

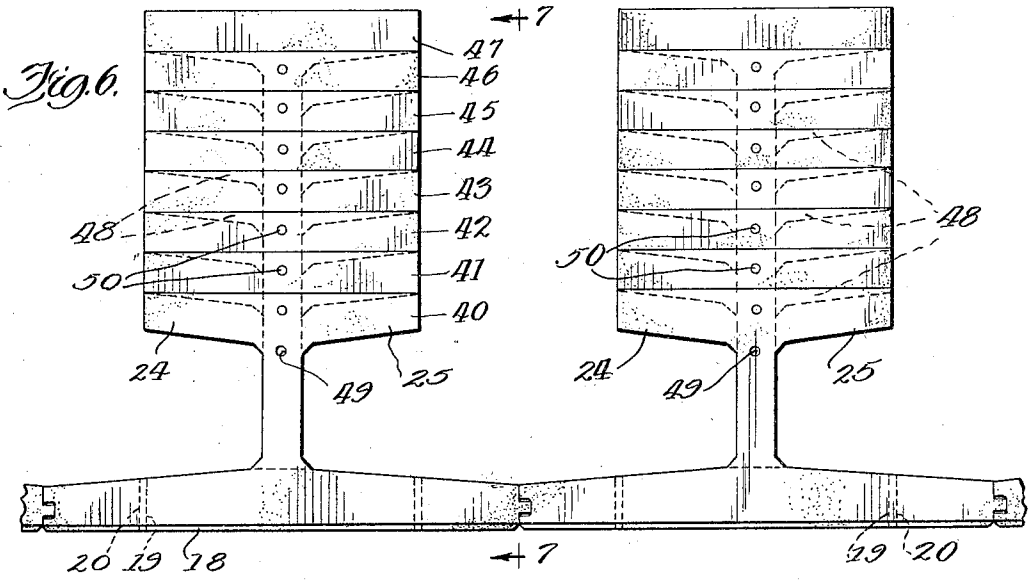
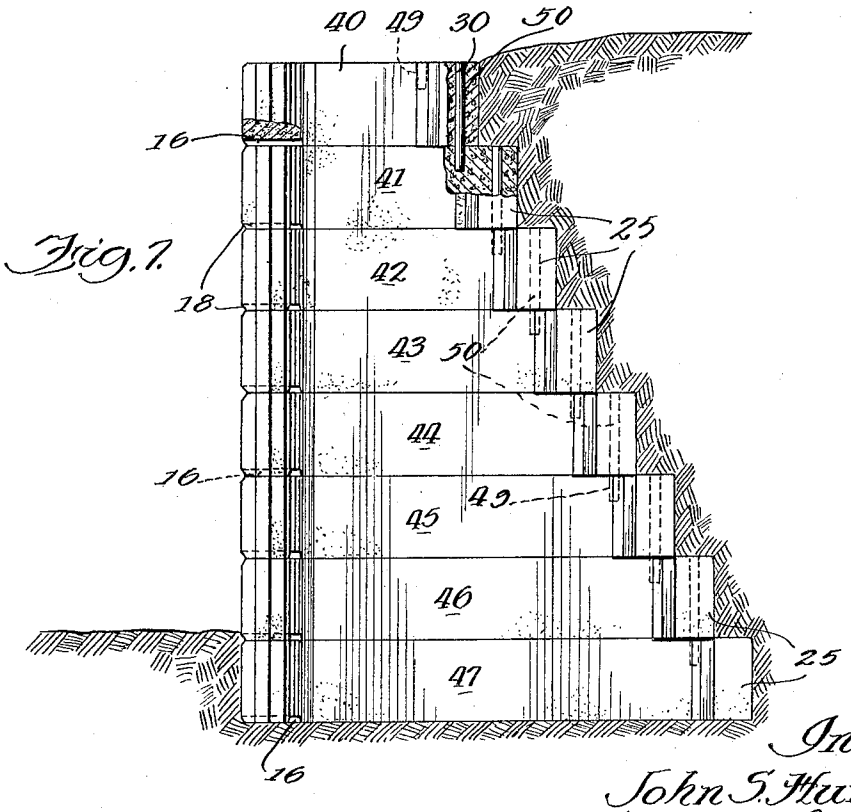


Fig. 7.



Inventor:
John S. Huntoon
By Williams, Bradbury, McCaleb & Hinkle
Attys.

Patented May 16, 1933 1,909,539

UNITED STATES PATENT OFFICE

JOHN S. HUNTOON, OF DETROIT, MICHIGAN, ASSIGNOR TO MASSEY CONCRETE PRODUCTS CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF VIRGINIA

CRIBBING

Application filed November 14, 1931. Serial No. 574,962.

The present invention relates to cribbings and is particularly concerned with an improved cribbing and cribbing unit having advantages which are not present in any of the cribbings of the prior art.

The cribbings of the prior art are invariably built up of a number of headers and stretchers extending transversely to each other and piled alternately upon each other, and this necessitates a number of different kinds of units, because the headers and stretchers generally are provided with interlocking formations for holding each other in predetermined position, and it is not always desirable to make the rear wall of the same construction as the front wall, since the front wall is generally exposed to view and it may, therefore, be a more expensive construction.

One of the objects of the present invention is the provision of an improved cribbing of the closed face, flush type construction, which may be built with one type of unit and which, therefore, does not necessitate the manufacture of a multiplicity of units of different size and shape.

Another object of the invention is the provision of an improved cribbing of the class described, the face of which is provided with a finished surface without any exposed header ends or projecting header formations, so that the front wall presents the appearance of a finished concrete wall.

Another object of the invention is the provision of an improved cribbing, which is adapted to be laid around sharp curves without changing any of the members and which requires less skill in the laying of the cribbing units, so that there is not so much danger of the cribbing being laid in the field in an improper manner.

Another object of the invention is the provision of an improved cribbing construction which will withstand greater weight on the top of the wall, for the same amount of material, than the alternately laid cribbing constructions of the prior art.

Another object of the invention is the provision of an improved cribbing in which the backfill may be brought in between the wings of the rear wall instead of elevating all of the backfill and dumping it into the cribs from the top, thereby saving considerable labor at the beginning of the backfilling operation, since the filling need only be elevated to the height of the backfill at any time.

Another object of the invention is the provision of an improved one piece stretcher and header unit which is adapted to interlock with similar units to maintain the front wall in alinement in spite of the application of unequal forces, and which is also adapted to provide a closed face, flush type front wall with provision for drainage.

Another object is the provision of an improved cribbing assembly adapted to have a tendency to counteract overturning caused by horizontal earth pressure on the back.

Other objects and advantages of the invention will be apparent from the following description and from the accompanying drawings, in which similar characters of reference indicate similar parts throughout the several views.

Referring to the drawings, of which there are three sheets;

Fig. 1 is a view in perspective of one of the present improved integral cribbing units which is adapted to be used in constructing the present cribbing;

Fig. 2 is an end view of a cribbing wall constructed with the present cribbing, the backfill being omitted so as to expose the cribbing units to view;

Fig. 3 is a top plan view of a cribbing constructed according to the present invention with the backfill omitted;

Fig. 4 is a front elevational view of the present cribbing, showing the closed face, flush type construction of the front wall;

Fig. 5 is a sectional view taken on the plane of the line 5—5 of Fig. 3, looking in the direction of the arrows;

Fig. 6 is a plan view of a modified form of cribbing;

Fig. 7 is a view similar to Fig. 2, of this modified form of cribbing.

Referring to Fig. 1, this is a view in perspective of one of the improved cribbing

units which may be utilized for constructing the present cribbing. The cribbing unit 10 of Fig. 1 is preferably provided with an integral front stretcher portion 11, an integral rear stretcher portion 13. All of these portions of the cribbing unit are integrally joined together, since the unit is formed in a single mold, preferably of steel, so that only one type of cribbing unit 10 is provided. The upper surface 14 of the cribbing unit 10 and the lower surface 15 are both preferably substantially plane surfaces in order to give the cribbing units a maximum bearing surface, but the lower surface of the front stretcher portion 11 is preferably provided with a drainage slot 16.

The face 17 of the cribbing unit 10 is preferably a substantially plane surface, although it may be provided with decorative formations of any kind simulating stone walls of any desired construction. The plane face 17 is preferably provided with bevelled edges 18 and the depth of the drainage slot 16 may be substantially equal to the vertical projection of the beveled surface 18 so as to give the face 17 a uniform appearance.

The lines 19, 20 in Fig. 3 indicate the end of the slot 16 since the slot is also beveled at its ends, and the dotted line 21 of Fig. 3 indicates the extent to which the slot 16 extends in a rearward direction. In other words, the cribbing unit 10 has its front stretcher portion 11 slightly thinner from the lines 19, 20 on the left to the lines 19, 20 on the right in Fig. 3, back to the line 21, but the remainder of the cribbing unit is preferably uniform in thickness and provided with the upper and lower plane surfaces 14, 15.

The front stretcher portion 11 is preferably joined to the header portion 12 midway between the ends of the front stretcher portion and the thickness of the front stretcher portion 11 preferably diminishes toward each end of the front stretcher. At the juncture between the head and stretcher portions the corner is preferably filled out with a beveled portion 22 in order to increase the strength at this point, and the corner between the header portion and rear stretcher 13 is also preferably provided with a beveled surface 23. The rear stretcher portion 13 comprises laterally projecting wings 24, 25 which are preferably substantially rectangular in cross section and tapering in width toward the ends of the wings 24, 25.

The length of the wings 24, 25 is less than the length of the front stretcher portion 11 so as to provide a space 26 between the wings, as shown in Fig. 3, when the cribbing wall is completed, so that the backfill may be brought in through the space 26 between the wings without elevating the backfill to the top of the cribbing at all times.

The front stretcher portion 11 is adapted to form the front cribbing wall 27, while the header portions 12 form a header wall 28 and the rear stretcher portions 13 form a plurality of short sections of the rear header walls 29 when the units are assembled, as shown in Fig. 3. The cribbing units are preferably provided with apertures 30 located in the rear stretcher portion 13 and extending from the top to the bottom, and the apertures 30 are preferably formed by a short section of metal pipe extending from the upper plane surface 14 to the lower plane surface 15 in the rear stretcher portion 13.

The apertures 30 may be utilized for lifting purposes by passing securing devices through or into the aperture, and any number of such lifting apertures may be provided as desired. The apertures 30 are also preferably provided with a vertically extending rod 31 which is inserted through the cribbing units from the top after the cribbing has been completed. A rod 31 may also be used from time to time in the apertures 30 to aline each cribbing unit with the one below, the rod being removed again for the laying of a new unit and finally inserted from the top.

The cribbing unit 10 is preferably provided with reinforcement comprising rods, wires or mesh work 32, which is located as close to the surface as possible without exposing the metal.

It will be noted that the reinforcing rods 32 follow the outer shape of the sides of the cribbing unit, but the rods are crossed at 33, thereby increasing the strength of the reinforcing arrangement at that point.

The rear stretcher wall sections 29 are maintained in alinement by the rods 31, and the front stretcher wall 27 is preferably also provided with interlocking formations on the ends of the front stretcher portions 11, so that unequal forces, as shown by the arrows in Fig. 3, cannot push the parts of the front wall out of alinement on account of the support which is provided by the adjacent cribbing units in the same course.

These interlocking formations are preferably such that all the cribbing units may be made identical and, therefore, the left end of the front stretcher portion 11 is provided with a longitudinally projecting lug 34, and the right end of the front stretcher portion 11 in Fig. 1 is provided with a pair of longitudinally projecting lugs 35, 36 with a groove 37 between them. The groove 37 is preferably made substantially wider than the lug 34 in order to permit the laying of the cribbing units around a curve, but it will be noted that any force tending to push the middle cribbing unit out of alinement in Fig. 3 will be resisted by the engagement of the lugs 34, 35, 36 on adjacent cribbing units, and these interlocking formations tend to prevent any lateral movement of the cribbing units.

The front stretcher portion 11 of one unit

will be maintained in proper position by adjacent front stretcher portions, even though one of the header portions 12 be broken off.

The header portions 12 extend into the backfill and hold the integral front stretcher portions 11 against outward movement, and the rear stretcher portions 13 act as anchors engaging behind the backfill to anchor the cribbing unit securely in the position in which it is laid.

It will thus be observed that I have provided a novel one piece construction which only requires one cribbing unit in which the units are laid directly upon each other, so that there is a maximum bearing surface between the cribbing units. The present wall is capable of withstanding greater weights for the same amount of material than the walls in which stretchers are laid transversely on headers, because the present combined stretchers and headers engage each other over their entire surface except for the drainage slots, whereas the separate unit and transverse construction utilizes a bearing area equal only to the product of the width of the stretcher times the width of the header.

With the present cribbing construction, a track can be supported directly on the top of the wall without danger of breaking the rows of headers, there is no difficulty of connection or proper bearing between headers and stretchers and there is less possibility of the wall being improperly laid in the field.

The units need not be made any heavier than units used for other constructions, and the weight may be reduced still more by making the units of a lesser depth in proportion to the length. The wall may be laid around a sharp curve without changing the shape of any of the members and the backfill may be run in between the wings on the back side instead of elevating and dumping the backfill in from the top of the crib.

Referring to Figs. 6 and 7, these are views of a modified form of cribbing assembly employing cribbing units of the same shape, the separate units having their header portions decreasing in length toward the top of the cribbing, but the other parts of the cribbing unit being of the same relative size as previously described.

Referring to Fig. 7 it will be noted that each of the header portions 40–47 are successively shorter from the bottom to the top of the cribbing, thereby locating each of the rear stretcher portions or wings 24, 25 slightly in advance of the one below it. Each of the rear stretcher portions 24, 25 preferably overlaps the rear stretcher portions below it by an amount shown at 48 in Fig. 6, so that the wings are supported at least in some measure, by the wings of the lower cribbing units. In some embodiments of the invention, however, the rear, laterally projecting wings may be designed to be supported as a cantilever from the central header portion, in which case no overlapping would be required.

The rear stretcher portion is preferably provided with the same vertically extending apertures 30 extending from the top to the bottom of the cribbing unit as previously described, and they are also provided with relatively short cylindrical bores or sockets 49 which are located to receive the dowel pin or shear rod extending through the cribbing unit immediately above the unit in question. Thus, the sockets 30 and 49 are spaced from each other by an amount equal to the increment of additional length of one header portion over the other when the cribbing units are assembled as shown in Fig. 7, the shear rods 50 may be dropped through the apertures 30 into the sockets 49 and the rear stretcher portions of the cribbing units are thereby anchored against any lateral movement with respect to each other.

The advantages of this construction are that the headers decrease in length from the bottom of the wall to the top of the wall, thus saving material, and the horizontal projection produced on the back by the varying length of header, supports the vertical weight of earth, and the surcharge of live load thus having a tendency to counteract overturning which is caused by horizontal earth pressure on the back. Walls constructed according to Fig. 7 may also be built to much greater height than walls having cribbing units all of the same size.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. An improved cribbing unit, comprising a precast concrete member having a substantially plane upper surface and a substantially plane lower surface, said unit being provided with a plane face to form a crossed face cribbing wall, and having an integral header portion of substantially rectangular cross section joined to an integral front stretcher portion of substantially rectangular cross section, and an integral rear stretcher portion joined to said header portion at its rear end and projecting laterally from the header at substantially right angles to the header portion, said integral rear stretcher portion being shorter than the front stretcher portion to form a rear header wall in sections with open spaces for access in placing the backfill from the rear.

2. An improved cribbing unit, comprising

a precast concrete member having a substantially plane upper surface and a substantially plane lower surface, said unit being provided with a plane face to form a crossed face cribbing wall, and having an integral header portion of substantially rectangular cross section joined to an integral front stretcher portion of substantially rectangular cross section, and an integral rear stretcher portion joined to said header portion at its rear end and projecting laterally from the header at substantially right angles to the header portion, said integral rear stretcher portion being shorter than the front stretcher portion to form a rear header wall in sections with open spaces for access in placing the backfill from the rear, and said cribbing unit being provided with an armored aperture for receiving an alining member and for use in lifting the unit.

3. An improved cribbing unit, comprising a precast concrete member having a substantially plane upper surface and a substantially plane lower surface, said unit being provided with a plane face to form a crossed face cribbing wall, and having an integral header portion of substantially rectangular cross section joined to an integral front stretcher portion of substantially rectangular cross section, and an integral rear stretcher portion joined to said header portion at its rear end and projecting laterally from the header at substantially right angles to the header portion, said integral rear stretcher portion being shorter than the front stretcher portion to form a rear header wall in sections with open spaces for access in placing the backfill from the rear, and interlocking formations of complementary shape carried by the left and right ends of said front stretcher portion.

4. An improved cribbing unit, comprising a precast concrete member having a substantially plane upper surface and a substantially plane lower surface, said unit being provided with a plane face to form a crossed face cribbing wall, and having an integral header portion of substantially rectangular cross section joined to an integral front stretcher portion of substantially rectangular cross section, and an integral rear stretcher portion joined to said header portion at its rear end and projecting laterally from the header at substantially right angles to the header portion, said integral rear stretcher portion being shorter than the front stretcher portion to form a rear header wall in sections with open spaces for access in placing the backfill from the rear, and said cribbing unit being provided with an armored aperture for receiving an alining member and for use in lifting the unit, and said plain face being provided with a bevel at its boundary and a slot at one side of said cribbing unit, the depth of said slot corresponding to the vertical projection of said bevel on said face.

5. A cribbing comprising a plurality of stretchers having substantially plane lower surfaces, plane upper surfaces and a plane face, said stretchers being laid one upon the other to form a closed face, flush type cribbing, and said stretchers being provided with integral header formations joined to the rear side of said stretchers, and said header formations having upper and lower plain surfaces in direct engagement with each other to form a forward cribbing wall with a multiplicity of backwardly extending integral stretcher walls.

6. A cribbing, comprising a plurality of stretchers having substantially plane lower surfaces, plane upper surfaces and a plane face, said stretchers being laid one upon the other to form a closed face, flush type cribbing, and said stretchers being provided with integral header formations joined to the rear side of said stretchers, and said header formations having upper and lower plane surfaces in direct engagement with each other to form a forward cribbing wall with a multiplicity of backwardly extending integral stretcher walls, said stretcher portions being provided with longitudinally extending lugs at each end for interlocking engagement with complimentary formations on adjacent stretchers in the same course.

7. A cribbing comprising a plurality of stretchers having substantially plane lower surfaces, plane upper surfaces and a plane face, said stretchers being laid one upon the other to form a closed face, flush type cribbing, and said stretchers being provided with integral header formations joined to the rear side of said stretchers, and said header formations having upper and lower plane surfaces in direct engagement with each other to form a forward cribbing wall with a multiplicity of backwardly extending integral stretcher walls, and a sectional rear stretcher wall comprising a plurality of rear stretcher portions each integrally joined to the header and front stretcher of a single cribbing unit, said rear stretcher portions being shorter in length than said front stretcher portions and extending substantially parallel to the front stretcher wall.

8. A cribbing comprising a plurality of stretchers having substantially plane lower surfaces, plane upper surfaces and a plane face, said stretchers being laid one upon the other to form a closed face, flush type cribbing, and said stretchers being provided with integral header formations joined to the rear side of said stretchers, and said header formations having upper and lower plane surfaces in direct engagement with each other to form a forward cribbing wall with a multiplicity of backwardly extending integral stretcher walls, and a sectional rear stretcher wall, comprising a plurality of rear stretcher portions each integrally joined to the header and front stretcher of a single

cribbing unit, said rear stretcher portions being shorter in length than said front stretcher portions and extending substantially parallel to the front stretcher wall, and means extending through said cribbing units in a vertical direction for maintaining the alinement of said headers.

9. A cribbing comprising a plurality of cribbing units having substantially plane lower surfaces, plane upper surfaces and a plane face, each of said cribbing units being provided with integral header formations, integral front stretcher formations and integral rear stretcher formations, and said cribbing units being laid one upon the other to form a closed-face flush type cribbing, said integral header formations of said cribbing units being successively longer in each course from the top to the bottom, whereby the cribbing tapers in depth from the bottom to the top.

10. In a combined header and stretcher unit, a pre-cast concrete member having a substantially plane upper and lower surface, said unit comprising an elongated concrete member of substantially rectangular cross-section forming a stretcher, an integral rearwardly extending elongated concrete portion located midway between the ends of said stretcher portion and forming a header, and a laterally projecting rear stretcher portion extending substantially parallel to said front stretcher portion and having a substantially rectangular cross section.

11. In a cribbing, the combination of a plurality of combined header and stretcher units, each having a pre-cast concrete member having a substantially plane upper and lower surface, said unit comprising an elongated concrete member of substantially rectangular cross section forming a stretcher, an integral rearwardly extending elongated concrete portion located midway between the ends of said stretcher portion and forming a header, and a laterally projecting rear stretcher portion extending substantially parallel to said front stretcher portion and having a substantially rectangular cross section, said header and stretcher units being located upon each other and said header and stretcher units successively having their header portions decreasing in length toward the top, the length of the header portion being such that the rear stretchers of each successive layer overlap each other.

12. A cribbing unit comprising a concrete member for use in making closed faced cribbing, said concrete member having an elongated stretcher body with substantially plane upper and lower bearing surfaces, said stretcher body having a substantially flat forward face formed with a bevel at the outer boundary of said face, and said stretcher body having an elongated slot formed in one of its bearing surfaces, said slot being of substantially the same width as the horizontal projection of said bevel, and an integral backwardly extending header portion fixedly secured to said stretcher portion and comprising an elongated body of substantially rectangular cross section.

13. A cribbing unit comprising a concrete member for use in making closed face cribbing, said concrete member having an elongated stretcher body with substantially plane upper and lower bearing surfaces, said stretcher body having a substantially flat forward face formed with a bevel at the outer boundary of said face, and said stretcher body having an elongated slot formed in one of its bearing surfaces, said slot being of substantially the same width as the horizontal projection of said bevel, and an integral backwardly extending header portion fixedly secured to said stretcher portion and comprising an elongated body of substantially rectangular cross section and complementary interlocking shoulders formed on the ends of said stretcher portion and adapted to engage similar shoulders on adjacent header portions of other units to maintain the faces of said units in alignment.

In witness whereof, I hereunto subscribe my name this 4th day of November, 1931.

JOHN S. HUNTOON.