

Dec. 30, 1930.

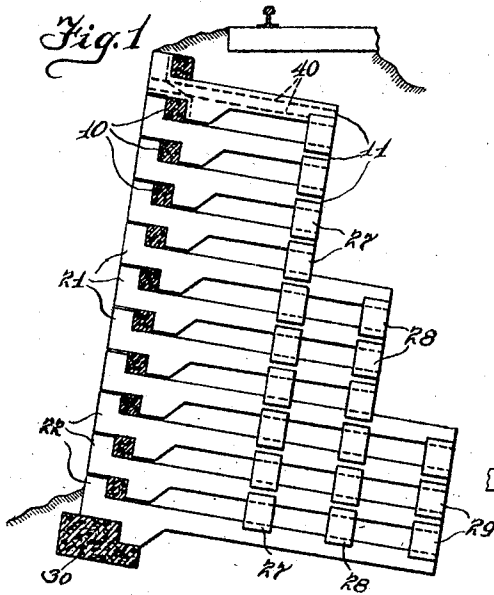
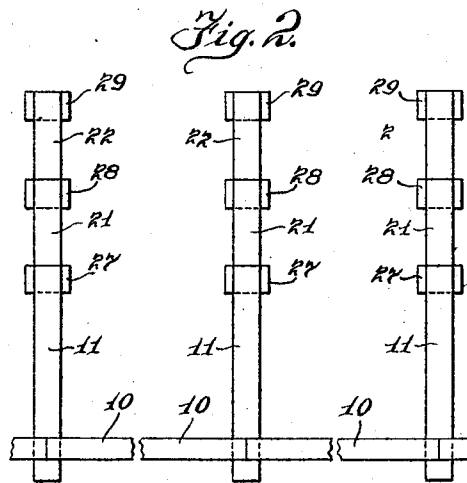
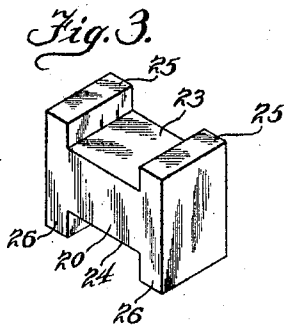
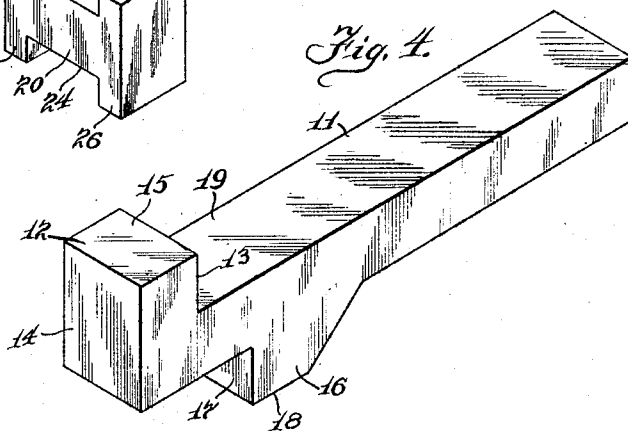
J. S. HUNTOON

1,787,199

CRIBBING

Filed Nov. 1, 1926

2 Sheets-Sheet 1



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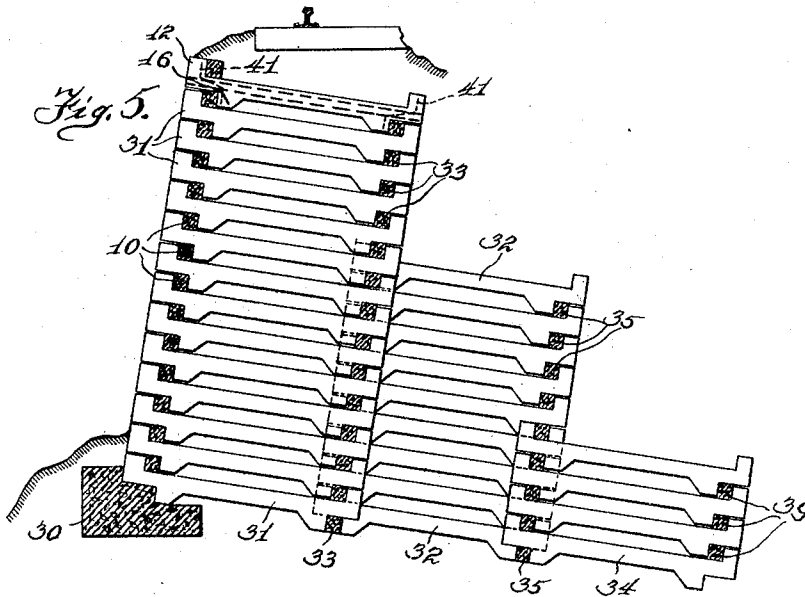
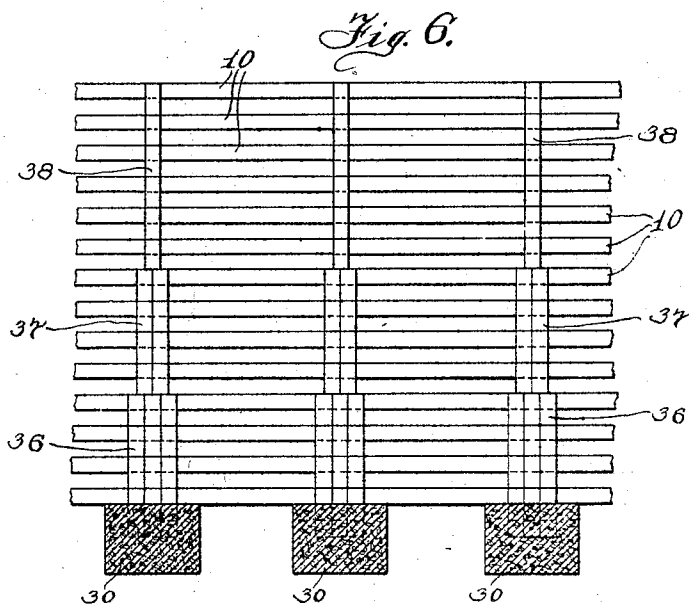
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1,787,199

CRIBBING

Filed Nov. 1, 1926

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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CRIBBING

Application filed November 1, 1926. Serial No. 145,392.

My invention relates to improved cribbing for use in constructing retaining walls such as are used in connection with fills and embankments of railways.

5 The cribbing of the present invention consists of few dissimilar parts and may be manufactured at a central point and transported to the position where the retaining wall is to be constructed and the construction of the
10 retaining wall may be accomplished by a minimum number of relatively unskilled workmen. In the cribbings of the prior art it has been customary to provide a plurality of irregular shapes of headers and stretchers
15 which are laid alternately upon each other in transverse relation, thereby building up a framework of cribbing having a forward wall, a plurality of backwardly extending walls and in most cases a plurality of walls
20 parallel to the said forward wall.

One of the objects of my invention is to provide a cribbing constructed of stretchers of simple rectangular form and headers co-operating therewith to hold said stretchers
25 and headers by means of their own weight and the weight of the superposed structure.

Another object of my invention is to provide a cribbing structure in which the respective headers are supported by the adjacent
30 stretchers and which headers have, in addition, co-operating surfaces adapted to support and sustain the load in the event of failure of said stretchers.

Another object of my invention is the provision of a plurality of cribbing members having a plurality of supporting surfaces at
35 different levels, which can be manufactured without fine or exact work in spacing said supporting surfaces.

40 Another object of my invention is to provide header members capable of co-operating with stretchers to hold the same in position and having plane lateral surfaces so that a plurality of said header members may be
45 placed side by side, all supporting a lesser number of header members piled in cribbing relation above them.

Another object of my invention is the provision of cribbing having simple rectangular
50 stretchers and headers of a second shape

capable of being combined to form a cribbing in which the header walls may be graduated in thickness, increasing toward the bottom to provide an adequate support for the increased load at the bottom.

Other objects and advantages of my invention will appear more fully from the following description and the accompanying drawings in which similar characters of reference indicate similar parts throughout the
55 several views:

Figure 1 is an elevation of a transverse section of a cribbing constructed in accordance with my invention;

Figure 2 is a plan view of a portion of the same taken perpendicular to the stretchers and headers;

Figure 3 is a view in perspective of my spacing and aligning block;

Figure 4 is a view in perspective showing the shape of header employed in Figure 1;

Figure 5 is an elevation of a cross-section of a cribbing showing a modification of my invention; and

Figure 6 is a front elevation of the cribbing shown in Figure 5.

Referring to Figures 1 to 4, 10 indicates a plurality of stretchers all of the same size and preferably of rectangular shape. The stretchers 10 may be cast of concrete in appropriate forms and may be provided with reinforcing members of steel or galvanized iron in the usual manner.

Referring to Figure 4, here is shown the shape of the header used together with rectangular stretchers to form a structure shown in Figure 1.

The header 11 consists of a main body portion preferably of rectangular shape, having at its forward end an upwardly extending leg 12 also of substantially rectangular shape, thereby presenting a forward plane surface 14, a rearward shoulder 13 on the leg 12 and an upper bearing surface 15 on the said leg. The header 11 is likewise provided with a downwardly extending leg 16 on the opposite side to the leg 15, the said downward leg having a forward surface 17 which is offset from the surface 13 of the leg 15 a distance equal to the thickness of the stretchers 10 in
100

such manner that when a stretcher is laid upon a plurality of headers 11 transverse thereto and behind the shoulder 13, and a second header is laid upon the said stretcher parallel to and above the first header, as shown in Figure 1, the stretchers 10 are adapted to be fitted between the upwardly extending shoulder 13 of the lower header and a downwardly extending shoulder 17 of the upper header and the said stretchers are held by the said shoulders from lateral movement. Likewise the forward ends of all the headers are aligned, forming a substantially continuous surface extending upward to said headers with a slight crack between successive headers as will be further described.

In any construction of headers of the type described it will be observed that a three-point bearing or supporting surface is provided, viz., the point of contact between the two headers in front of the stretcher, the points of contact between the header stretcher and header, and the point of contact between the two headers behind the stretchers. It is practically impossible in casting such concrete headers to secure an accurate alignment and spacing of such bearing surfaces so that the headers will rest upon each other in all points of contact described and so that they will also rest upon the stretchers 10 with an equal portion of the weight. Furthermore it has been found that when such cribbing structures are built to more than ordinary heights, the load upon the transverse stretchers 10 at the bottom of the cribbing becomes so great that the said stretchers are often crushed or otherwise fail to support the load. By my invention I provide the upwardly extending supporting leg 12 and a downwardly extending supporting leg 16 which are adapted to extend adjacent the next upper and next lower headers, respectively, with a very slight crack or play between the said legs and headers. In the case of the failure of the transverse stretchers 10 or the compression of the stretchers 10 by an excessive load, the surfaces 15 and 18 of the headers 11 will come in contact with their adjacent upper and lower headers and support the load; but at the same time it is not necessary to provide for the accurate and true spacing and alignment of the surfaces 15 and 18 with respect to the depth of the stretchers 10 since it is not contemplated by my invention that these surfaces should be adapted to fit together without play.

In order to provide a cribbing of increasing cross section and weight toward the base, so as to have a maximum resistance against overturning, I prefer to make the lower header members 22 of a greater length, intermediate header members 21 of slightly less length and the upper header members 11 of still less length. While I have shown but three different lengths of header members, it will be

obvious that any number of different lengths may be used, depending upon the height of the cribbing structure to be built and the desire to use a minimum number of different sizes. In Figure 3 I have shown in perspective my spacing and aligning block which consists of a substantially H shape, having a central portion 20 of substantially rectangular shape with an upper plane bearing surface 23 and a lower plane bearing surface 24, the said surfaces being spaced a distance equal to the depth of the stretchers 10 in order that the said spacing blocks may maintain the rear ends of the headers 10, 21 and 22 in spaced relation with said headers extending parallel to each other. At each end of the substantially rectangular central portion of the spacing block is an upwardly extending leg 25 and a downwardly extending leg 26, thereby providing a plurality of shoulders on either side of the header resting on the surface 23 and a plurality of shoulders on either side of the header on which the surface 24 is supported. The spacing block 20 may thereby be made to support the said headers in parallel spaced relation and also maintain the said headers aligned above each other in such manner as to present an open wall framework substantially vertical.

When the cribbing constructed by my headers and stretchers consists of but a few layers with headers of relatively short lengths, a single spacing block will be sufficient between each pair of headers, providing a row of spacing blocks extending from the bottom to the top of the cribbing. When, however, a cribbing of greater height is built, employing headers of a plurality of lengths as shown in Figure 1, I prefer to use a plurality of spacing blocks between longest headers, a less number of spacing blocks between the headers of less length and a single row of spacing blocks for the upper layer, locating the lower spacing blocks in such manner that they are adapted to provide direct support for the rearward ends of all of the upper headers. Thus in Figure 1 the spacing blocks 27 supporting the rearward ends of the upper headers are continued all the way down to the bottom of the cribbing in a straight line and, if necessary, additional support may be provided beneath the lowest spacing block 27 in the form of a concrete foundation. Likewise, the spacing blocks 28 are arranged in a row extending from the rear ends of the intermediate headers to the bottom of the cribbing and the spacing blocks 29 align and space the rearward ends of the longest headers.

The cribbing thus constructed is supported upon a sub-foundation 30 of concrete, adapted to support the forward end of the lowermost headers at a slight elevation to the rearward end, thereby giving the forward face of the cribbing wall a slight backward tilt. The cribbing is then built up in the manner al-

ready described of alternating headers, stretchers and spacers, and when built to the desired height is filled in with earth or other filling to provide a bank or retaining wall. The weight of the upper headers and stretchers, together with the earth or other material placed within the same, maintain the whole in fixed relation and further means of support are not required.

In the modification shown in Figures 5 and 6, I have provided a header member shape which is adapted to be used without the spacing blocks and which consists of a header having the upwardly extending legs 12 and downwardly extending legs 16 at both ends of the header. In this modification as well, the upper bearing surface 15 and the lower bearing surface 18 on each end of the headers 31 are so located that they leave a slight crack or play between the said bearing surface and the adjacent surface of the next header for the purposes already specified. In order to provide a cribbing in which the extended length of the lower headers is greater at the base, I use a plurality of headers at the base, the headers 32 resting on the stretchers 33 at a point directly beside the headers 31 on the said stretchers. In other words, the headers 32 are slightly offset from the headers 31 on the stretchers 33 but are supported in the same manner. In a similar manner the headers 34 may be placed upon the stretchers 35 together with the headers 32 in offset relation, with their plane sides in contact or out of contact, as desired, thereby providing an extended length of header at the base of the cribbing, a portion of less length at a higher part of the cribbing and succeeding portions of cribbing at higher points having headers of still less length. It will thus be observed that I have provided a header member which is capable of cooperating with simple rectangular stretcher members in such manner that a plurality of header members extending in opposite directions may be supported by the same stretchers.

Furthermore, as the vertical sides or walls of my headers are plane, a plurality of headers may be placed side by side as shown in Figure 6. The lower headers consist of a plurality of rows of headers 36 arranged side by side, in this instance giving a lower header wall of triple thickness. At a suitable point the header wall may be made less thick consisting of a lesser number of rows of headers 37 side by side, all of which are supported on the lower header wall after the arrangement of broken joints. This arrangement may be continued, the upper part of the header wall consisting of a single row of headers 38, all supported upon a plurality of rows beneath the same. This arrangement may, of course, be used with any number of rows of headers at the lower portion

of the wall, decreasing in the number of rows toward the top to any height of wall; and it will be observed that I have provided a simple form of header having plane sides so that the said headers may be placed flatly against each other, forming a wall of any thickness desired, which, in turn, may support an upper wall of less thickness with broken joints at the juncture.

It is to be understood, of course, that the stretchers 10, 33, 35 and 39 are inserted between the respective headers shown in Figure 6 in the usual manner and that, due to the slight play or contact provided between the adjacent supporting surfaces 15 and 18, between the headers, the actual surface of support in the primary instance is between successive headers and stretchers, the bearing surfaces 15 and 18 only coming into play after compression, wear, or failure of the supporting surface provided by the stretchers 10, 33, 35 and 39.

I desire it to be understood that the arrangement of increasing thickness of the header wall, as shown in Figure 6, may be likewise used with the form of header shown in Figures 1 to 4. In such case the spacing block, shown in Figure 3, may be modified to provide shoulders 25 and 26 sufficiently spaced to receive a plurality of headers between the same.

The headers employed in Figures 1 to 6 may be reinforced by a plurality of longitudinally extending metal members 40 as shown in Figures 1 and 5, and a plurality of substantially Z shaped members 41 transverse to the members 40, extending from the upper leg 12 through the header, terminating in the lower leg 16. The headers may be cast of concrete or similar material with the said reinforcing molded in place.

While I have illustrated and described the preferred form of construction for carrying my invention into effect this is capable of many modifications without departing from the spirit of the invention and I do not wish to be limited to the precise details of the construction set forth but desire to avail myself of all changes within the scope of the appended claims.

I claim:

1. In a cribbing, a plurality of rectangular stretchers and a plurality of headers of substantially rectangular cross section having an upwardly extending leg and a downwardly extending leg, said legs being offset an amount equal to the width of said stretchers.

2. In a cribbing, a plurality of rectangular stretchers and a plurality of headers of substantially rectangular cross section, said headers having an upwardly extending leg and a downwardly extending leg, said legs being offset an amount equal to the width of said stretchers and said legs being of a

length slightly less than the depth of said stretchers.

3. In a cribbing, a structure composed of a plurality of stretchers having plane, rectangular sides, a plurality of headers of substantially rectangular cross section, and having shoulders located on their tops for positioning the stretchers above said headers by confining one side of said stretchers, and opposed shoulders on their bottoms for positioning the stretchers below said headers by confining the opposite side of said stretchers.

4. In a cribbing, a plurality of stretchers having plane, rectangular sides, and a plurality of headers, piled alternately and transversely upon said stretchers, each header having a downwardly extending leg and an upwardly extending leg, said legs being offset an amount equal to the width of said stretchers, and each stretcher being confined between a downwardly extending leg on at least one header and an upwardly extending leg on another header.

5. In a cribbing, a front wall comprising a plurality of horizontally extending stretchers having plane, rectangular sides, and a plurality of backwardly extending walls comprising headers of substantially rectangular cross section, each header having a downwardly extending leg behind the stretcher underneath said header, and an upwardly extending leg in front of the stretcher above said header, said legs being of slightly less length than the thickness of said stretchers to form a reserve supporting surface.

6. In a cribbing a header wall comprising a plurality of headers supported one above the other to form a substantially vertical wall, means for spacing the forward end of said headers and for preventing longitudinal movement thereof relative to said cribbing, said headers being arranged in a plurality of groups in each wall, each group including headers of the same length, and the length of the headers in each group increasing toward the bottom of the cribbing, and a plurality of rows of spacer blocks between said headers at the ends of each group, said blocks extending from the bottom of the cribbing to a point adjacent the top of each header group.

7. In a cribbing a header wall comprising a plurality of headers supported one above the other to form a substantially vertical wall, means for spacing the forward end of said headers and for preventing longitudinal movement thereof relative to said cribbing, said headers being arranged in a plurality of groups in each wall, each group including headers of the same length, and the length of the headers in each group increasing toward the bottom of the cribbing, and a plurality of rows of spacer blocks between said headers at the ends of each group, said

blocks extending from the bottom of the cribbing to the top of the same at the end of each header group, said spacer blocks comprising substantially H-shaped blocks having shoulders extending upward and downward on both sides of the adjacent headers.

8. In a cribbing, the combination of a plurality of transverse stretchers with a plurality of headers laid alternately and transversely on said stretchers, said headers having upwardly and downwardly extending legs for confining the stretchers between said legs, said headers each resting on stretchers and said legs being slightly shorter than the depth of the stretchers on which said headers rest, whereby said legs form reserve supporting surfaces, and said legs being located on opposite sides of said headers and offset to engage opposite sides of said stretchers.

In witness whereof, I hereunto subscribe my name this 26th day of October, 1926.

JOHN S. HUNTOON.