Jan. 21, 1958 A. N. COOPER 2,820,349

WALL ELEMENTS

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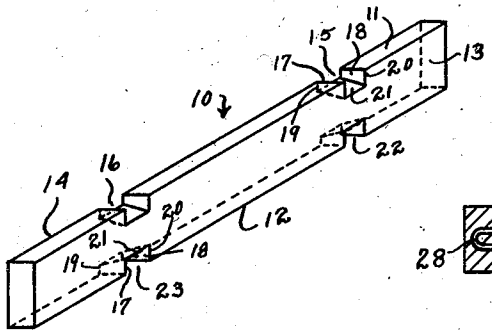


Fig. 1.

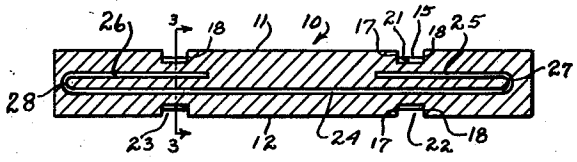


Fig. 2.

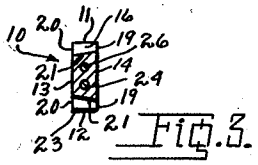


Fig. 3.

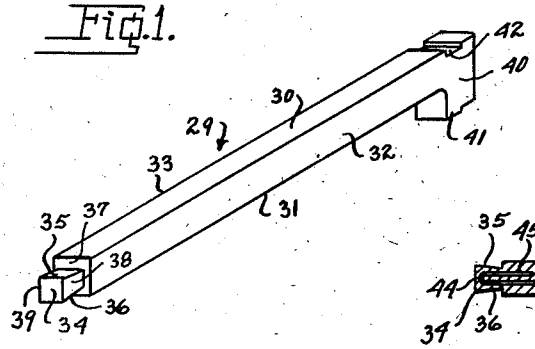


Fig. 4.

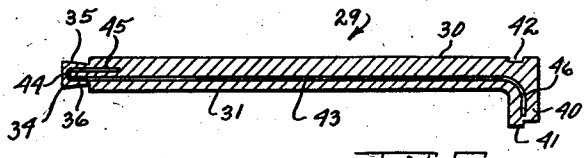


Fig. 5.

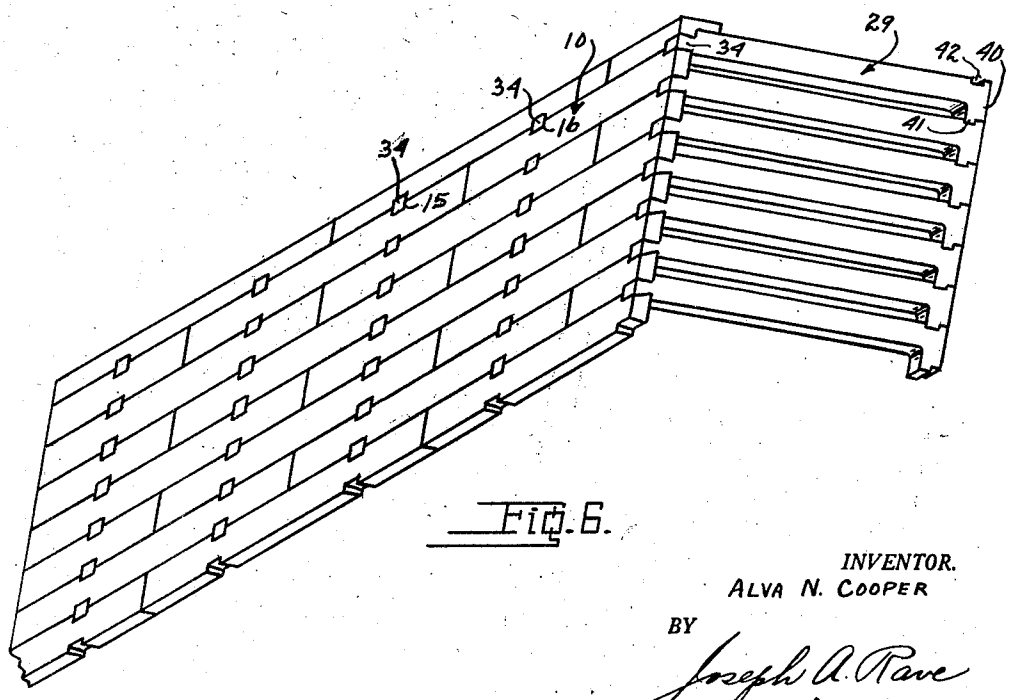


Fig. 6.

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WALL ELEMENTS

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6 Claims. (Cl. 61—47)

This invention relates to improvements in cribbing elements, that is, to improvements in the members, particularly, headers, that are employed to build up a wall that may be used to hold back earth and water or may be employed to prevent the earth and water from advancing.

This invention is an improvement on applicant's pending application Serial No. 281,203, filed April 8, 1952.

As set forth in the said pending application, the cribbing members are generally designated as stretchers and headers, the former extending in the direction of the wall while the latter extends transversely of or normal to the wall. The headers are employed for effecting stretcher placement and are used as an anchor for the stretchers. Walls of the cribbing style in order to be effective and possess the desired life must be, in effect, "flexible." By flexible is meant that the wall, or portions of the wall, should be capable of slight displacement under temporary disturbance or infrequent heavy pressure so that on cessation of the disturbance and the removal of pressure, the wall will return to its normal condition and position.

In the past and as disclosed in the above identified application, use is made of a second set of stretchers at the rear or anchored ends of the headers and which, while producing a highly efficient wall structure, is costly in the use of said second set of stretchers. By the present invention the second set of stretchers is eliminated and means, incorporated with the headers, are employed for properly spacing the headers with respect to one another and for anchoring purposes. The stretchers and headers are otherwise substantially similar and are produced in block form, rectangular in cross-section, and of from 4" x 6" x 24" long to 18" x 24" x 72" long. It is to be understood that these dimensions are merely by way of example since the sizes can be materially changed and varied depending upon conditions and use. It is further to be understood that the said headers and stretchers are produced in precast form and suitably reinforced.

The principal object, therefore, of the present invention is the provision of a cribbing wall header precast for interengagement with a precast stretcher and which header incorporates therein means for spacing its rear end from a header immediately therebeneath in accordance with the spacing of the stretchers.

Another object of this invention is the provision of a header for a cribbing wall which will accomplish the foregoing object and which superimposed headers have means for interlocking and aligning them with one another.

A further object of the present invention is the provision of a cribbing wall employing stretchers for the exposed face thereof only and employing headers which have their forward ends interlocked with the stretchers and their rear ends interlocked and spaced in accordance with the spacing of the front end thereof.

A still further and specific object of the present invention is the provision of a header for a cribbing wall which has at one end means for flexibly interlocking it with streachers and at its other end means for interlocking and spacing it from the corresponding end of a header disposed therebelow.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in conjunction with the accompanying drawings forming a part thereof and it is to be understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is a perspective view of a stretcher for use with the improved header of the present invention.

Fig. 2 is a longitudinal sectional view through the stretcher of Fig. 1.

Fig. 3 is a transverse sectional view through the stretcher as seen from line 3—3 on Fig. 2.

Fig. 4 is a perspective view of the improved header of the present invention.

Fig. 5 is a longitudinal sectional view through the header of Fig. 4.

Fig. 6 is a perspective view of a cribbing wall erected from the stretchers and headers of Figs. 1 to 5.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

Specifically, and as seen in Figs. 1 to 3, the stretcher comprises a precast block of concrete substantially rectangular in transverse cross-section and of considerable length by comparison to its width and height and indicated by the reference numeral 10. The stretcher 10 has an upper face 11, a lower face 12, an outer or front face 13, and an inner or rear face 14. Inwardly of each of its ends the upper face 11 is provided with a depression 15 and 16 which are substantially identical in form and one of which depressions will, therefore, be described in detail for the other.

Accordingly, the depression 15 has downwardly extending parallel sides 17 and 18, having a relatively shallow depth 19 at the inner or rear face 14 and a relatively deeper depth 20 in the outer face 13. In other words, the depression 15 has a base or bottom 21 which inclines upwardly from the front face to the rear face with parallel side walls.

The stretcher 10 is provided upwardly of its lower face 12 with depressions 22 and 23 which are identical with the depressions 15 and 16 are are respectively disposed immediately below the said upper face depressions. In other words, the depression 22 is in vertical alignment with the depression 15 and the depression 23 is in vertical alignment with the depression 16.

Disposed inwardly and centrally of the stretcher and longitudinally thereof is a reinforcing member or bar formed from a single length of material and comprises a body portion 24 of a length just short of the length of the stretcher and having a U-shaped bend at each end thereby providing inwardly extending arms 25 and 26. The U-shaped bends 27 and 28 are located just inwardly of the ends of the stretcher with the arms 25 and 26 projecting inwardly of the stretcher ends to be between the stretcher depressions, as clearly illustrated in Fig. 2. By this construction the stretcher is reinforced throughout its length with particular reinforcement at the weakest portion of the stretcher, namely, between the bases of the depressions thereof.

The header illustrated in Figs. 4 and 5 is similar to the stretcher in that it is of precast concrete and has a

rectangular cross-section of considerable length by comparison to its width and height and is indicated in the drawings by the reference numeral **29**. The header **29** has an upper face **30**, a lower face **31**, an outer or front face **32**, and an inner or rear face **33**. The one end of the header **29** is provided with a keystone shaped key or lug, indicated in general by the reference numeral **34**. The lug **34** has its upper face **35** and its lower face **36** converging, which faces terminate in a shoulder **37** normal to the axis through the header. The side faces **38** and **39** of the lug **34** are parallel with one another and likewise terminate in the shoulder **37**.

The other end of the header **29** is downwardly turned, as at **40**, to provide an integral spacing member of a width equal to the width of the header. The bottom face of the turned down or spacer portion **40** is provided with a projecting lug **41** which extends for the full width of the header. Inwardly of said rear end of the header it is provided downwardly of its top face **30** with a transverse groove or slot **42**. The groove or slot **42** is located in vertical alignment with the lug **41** and is of the same width and depth as said lug.

The header **29**, similar to the stretcher **10**, is reinforced centrally and longitudinally thereof by a reinforcing member or bar. The reinforcing member or bar, similar to the reinforcing member or bar of the stretcher, is formed of a single length of material and comprises a body portion **43** provided at one end with a U-shaped bend **44** from which projects a relatively short arm **45**. The body portion **43** is of a length just short of the length of the header, and as seen from Fig. 5, the U-shaped bend **44** is located adjacent the front or keystone shaped key or lug end of the header or is disposed substantially centrally of the said keystone lug or key **34**, with the said arm **45** extending into the header beyond the shoulder **37** for thereby reinforcing the header at its narrowest point, namely, the neck, formed where the surfaces of the lug **34** join with the shoulder **37**. The other end of the reinforcing member or bar body portion **43** is down turned, as at **46**, to be substantially centrally of the down turned or spacing portion **40** of the header **29**.

The erection of a cribbing wall from the above described stretchers and headers is believed obvious particularly from illustration in Fig. 6 but briefly is as follows:

A course of stretchers would first be laid, end to end, whereupon a header would be fitted into each of the depressions, such as **15** and **16**, in the upper face of each stretcher. The fitting of a header into said depression would merely require the placing of a keystone lug or key **34** therein. As is obvious from the drawings, the lower face **31** of each header would thereby be spaced upwardly of the lower face **12** of the stretchers. The down turned or spacing portion **40** of the headers, being formed to a dimension equal to the spacing of the said lower face **31** of the header and lower face **12** of the spacer, would rest on the supporting surface of the spacer for thereby arranging the header to have its axis in a plane parallel with the axis of the stretcher or in the plane of the top face **11** of the stretcher.

After the placement of the first courses of stretchers and headers, a second course of stretchers is disposed on the first course with the depressions in the bottom face of said stretchers each disposed on a lug or key **34** of a header. It should be noted that the second course of stretchers is laid end to end in the same manner as the first course, but the joints of the said second course are offset with respect to the joints of the first course. This method of erection is obtained by placing the left hand end of the stretchers of the second course over the right hand end of the first course. Each succeeding course is similarly laid with respect to the course of stretchers immediately below, and alternate courses of stretchers would commence with a half stretcher.

The second course of headers is now positioned with respect to the stretchers in the same manner as above

set forth with respect to said first course of headers. The second course of headers each has its spacing portion lug **41** disposed in the groove or slot **42** of the header immediately therebelow for thereby properly spacing the headers from one another and maintaining same in parallelism but also keying or interlocking said rear ends of the headers to one another. It is believed obvious that the interlock of the rear ends of the headers with one another maintain them in position so that should a disturbance occur which would tend to disrupt the cribbing wall, the parts would move with respect to one another sufficiently to prevent rupture and dislocation but that said parts would be subsequently guided to their initial positions.

In view of the foregoing, it is believed obvious that there has been provided a structure which will accomplish the objects initially set forth.

What is claimed is:

1. As an article of manufacture a wall element or header having a body portion extending from a front end to a rear end, a reduced projecting lug at the front end, a down turned spacing portion at the rear end of the body portion, and a reinforcing element longitudinally of the body portion interiorly thereof and provided with a U-shaped bend at its front end providing a second reinforcing element extending from said header body portion front end to a point inwardly of the reduced projecting lug, and said reinforcing element having a down turned portion extending into the down turned and spacing rear end of the header.

2. As an article of manufacture a wall element or header having a body portion extending from a front end to a rear end, a reduced projecting lug at the front end, a down turned spacing portion at the rear end of the body portion, and a downwardly projecting lug from the down turned spacing portion, and said header having a slot in its top surface transversely thereof and in vertical alignment with the downwardly projecting lug.

3. As an article of manufacture a wall element or header having a body portion extending from a front end to a rear end, a reduced projecting lug at the front end, a down turned spacing portion at the rear end of the body portion, a downwardly projecting lug from the down turned spacing portion, said header having a slot in its top surface in vertical alignment with the downwardly projecting lug, and a reinforcing element longitudinally of the body portion interiorly thereof and provided with a U-shaped bend at its front end providing a second reinforcing element extending from said header body portion front end to a point inwardly of the reduced projecting lug, and said reinforcing element having a down turned portion extending into the down turned and spacing rear end of the header.

4. A wall structure composed of a plurality of superimposed courses of stretchers, each stretcher course comprising a plurality of stretcher blocks arranged in end to end abutment, each stretcher block having an upper face and a lower face into which is formed, inwardly from each end, a recess, said recesses of superimposed stretcher courses lying in alignment to form between them sockets, a header having a projecting lug received in each socket and with said headers inwardly projecting from the stretchers, said headers being of less height than the stretchers and the headers being in vertical alignment, and spacing means integral with each header at its rear end for spacing the headers from one another in parallelism.

5. A wall structure composed of a plurality of superimposed courses of stretchers, each stretcher course comprising a plurality of stretcher blocks arranged in end to end abutment, each stretcher block having an upper face and a lower face into which is formed, inwardly from each end, a recess, said recesses of superimposed stretcher courses lying in alignment to form between them sockets, a header having a projecting lug received in each socket and with said headers inwardly projecting from the

stretchers, said headers being of less height than the stretchers and the headers being in vertical alignment, and spacing means integral with each header at its rear end for spacing the headers from one another in parallelism, and co-operating means carried by each header and its spacing portion for interlocking said headers to one another.

6. A wall structure composed of a plurality of superimposed courses of stretchers, each stretcher course comprising a plurality of stretcher blocks arranged in end to end abutment, each stretcher block having an upper face and a lower face into which is formed, inwardly from each end, a recess, said recesses of superimposed stretcher courses lying in alignment to form between them sockets, a header having a projecting lug received in each socket and with said headers inwardly projecting from the stretchers, said headers being of less height than the

stretchers and the headers being in vertical alignment, and spacing means integral with each header at its rear end for spacing the headers from one another in parallelism, each header having a lug projecting from its integral spacing means, and each header having a slot therein receiving the projecting lug of the header immediately thereabove.

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