J. W. SINNOTT.

SHELF CONSTRUCTION.

APPLICATION FILED MAY 21, 1919.

1,325,174.

Patented Dec. 16, 1919.

2 SHEETS—SHEET 1.

FIG. 1.

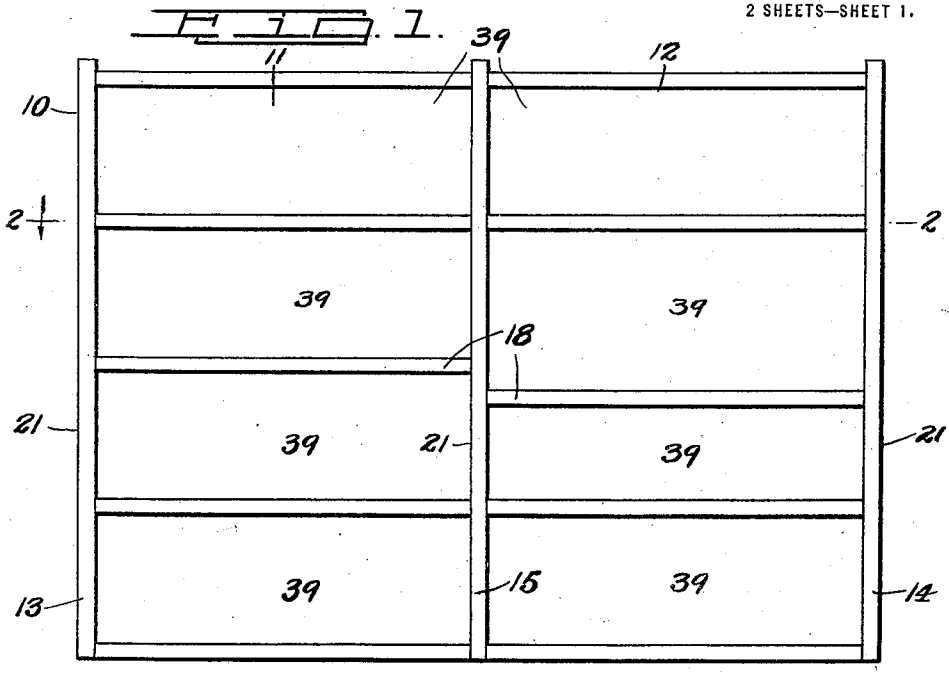
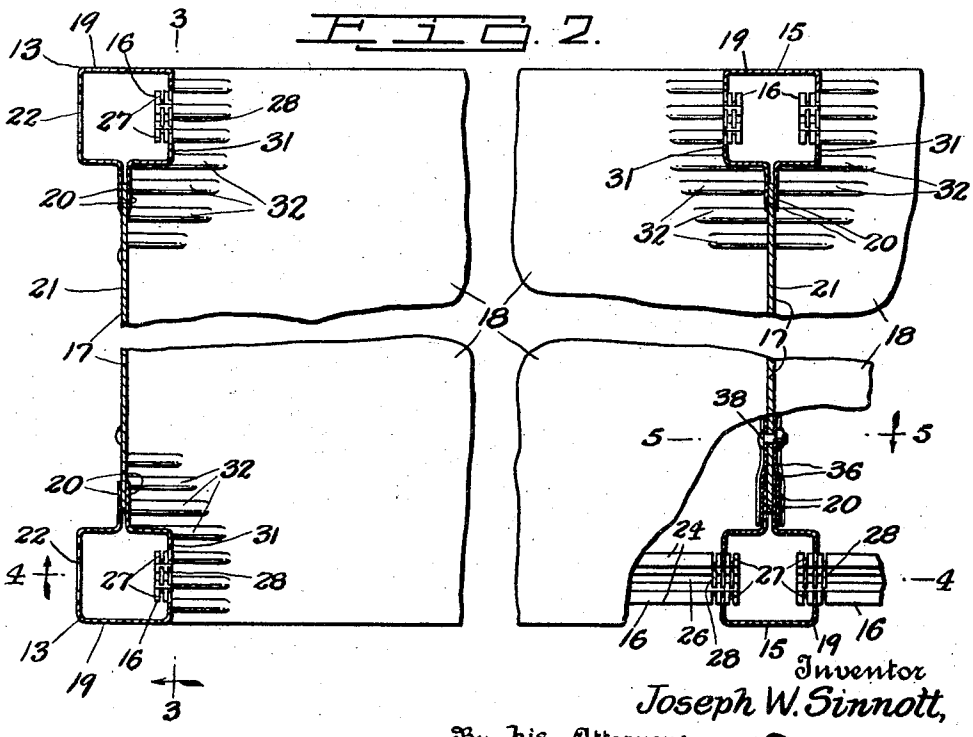


FIG. 2.



Inventor

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By his Attorneys

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2 SHEETS—SHEET 2.

FIG. 3.

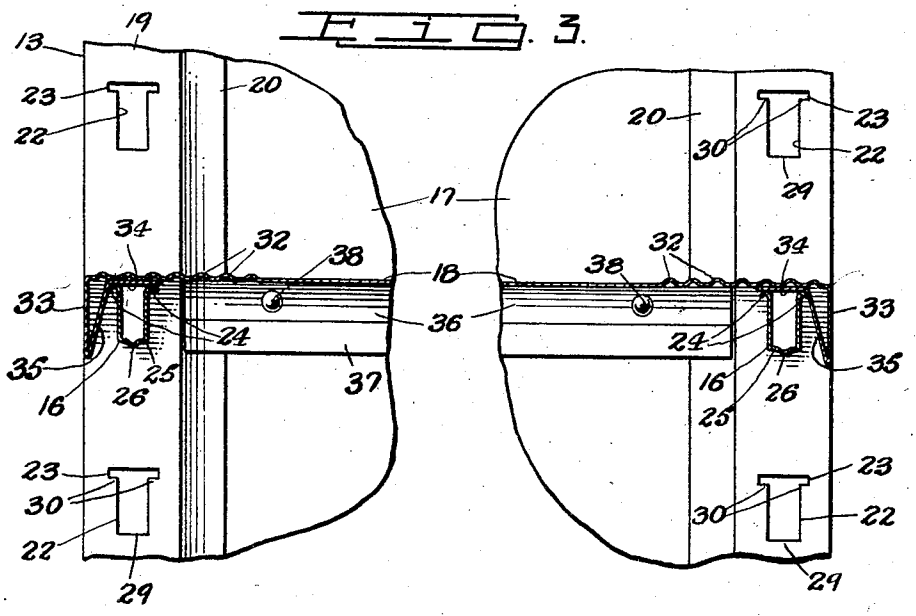


FIG. 4.

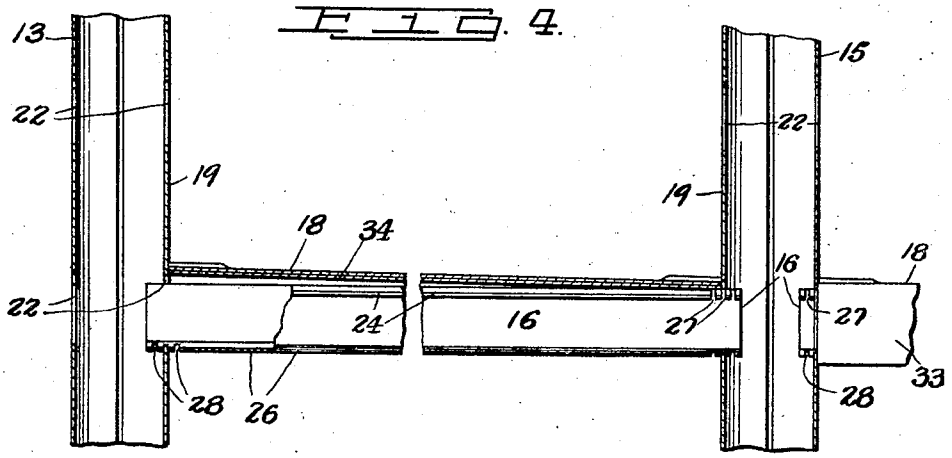


FIG. 5.

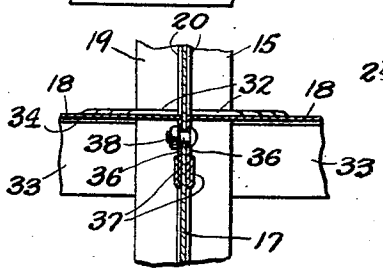
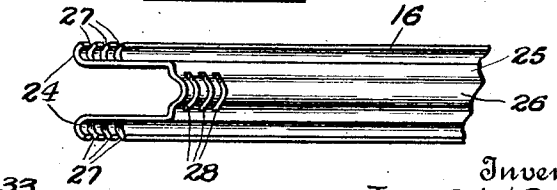


FIG. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH W. SINNOTT, OF BROOKLYN, NEW YORK.

SHELF CONSTRUCTION.

1,325,174. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed May 21, 1919. Serial No. 298,726.

To all whom it may concern:

Be it known that I, JOSEPH W. SINNOTT, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Shelf Constructions, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to shelf constructions and particularly to apparatus of this class designed to be used in various manufacturing institutions and particularly in workshops and is used for the purpose of storing or separately classifying tools, work-pieces or various manufactured parts or products, and the object of this invention is to provide an improved shelf construction of the class and for the purpose specified which is simple in construction and strong and durable; a further object being to so construct the apparatus as to readily facilitate the adjustment of the various shelf members employed in connection with the standard or framework construction; and a further object of the invention being to so construct the apparatus including the shelf members thereof as to put the various parts of the apparatus under compression or under tension whereby the shelf construction will always maintain an upright or rigid position regardless of where the load or stress upon the shelves, or the shelf construction, as a whole is located, thus preventing the tilting or upsetting of the apparatus; and with these and other objects in view the invention consists in an apparatus of the class and for the purpose specified, constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a front view of a shelf construction showing two parts or sections with a plurality of shelf members connected therewith;

Fig. 2 a partial section on the line 2—2 of Fig. 1 on an enlarged scale, and with parts of the construction broken away;

Fig. 3 a partial section on the line 3—3 of Fig. 2;

Fig. 4 a partial section on the line 4—4 of Fig. 2 and indicating the method of connecting a shelf member with the apparatus;

Fig. 5 a partial section on the line 5—5 of Fig. 2; and,

Fig. 6 a perspective view of one end portion of one of a number of bearer-bars which I employ.

In Fig. 1 of the drawing, I have shown at 10 a shelf construction composed of two sections or parts 11 and 12, said sections or parts being formed by vertically arranged end standards 13 and 14 and intermediate vertically arranged standards 15. The standards 13 and 14 are arranged in the corner portions while the standards 15 are arranged centrally of the front and back portion of the apparatus and in line with the standards 13 and 14, and the standards 13 and 14 are connected with the standards 15 by longitudinally arranged bearer bars 16, a plurality of which are employed and which are spaced vertically on said standards, as is illustrated in Figs. 2, 3 and 4; the vertical standards 13, 14 and 15 are also connected by forwardly and backwardly directed wall plates 17 as is illustrated in Figs. 2, 3 and 5 of the drawing.

The above construction completes the general construction of the framework of the apparatus which, as set out, is divided into the vertical sections or parts 11 and 12, and in practice, the plurality of shelf members 18 are adapted to be placed on the tops of the bearer bars 16 between the separate standards 13—15 and 15—14, and the wall plates 17, said shelf members resting upon two of the bearer bars 16, one at the front of the apparatus and the other at the back.

In practice, the standards 13, 14 and 15 of the frame are preferably composed of sheet metal tubes 19 which, in the construction shown are square or rectangular in form in cross section, and are made from strips or sheets of material the sides of which are brought together and bent at right angles to one of the sides of the tubes 19 as shown at 20 to form flanges between which the front and rear edge portions of the wall plates 17 are secured by riveting, spot welding or otherwise, this construction being clearly shown in Fig. 2 of the drawing. It will be

noted that this construction or operation connects the separate pairs of standards 13, 14 and 15 and forms therefrom forwardly and backwardly directed side wall or partition members 21.

The opposite side faces of the tubes 19 are provided with a plurality of equally spaced apertures 22, the top portions of which are enlarged as shown at 23, and these apertures are so arranged on the tubes 19 as to bring the apertures of one of the pair of standards 13 in line with corresponding apertures of the other pairs of standards 14 and 15 as will be readily understood.

The bearer bars 16 are preferably composed of sheet metal bent into U or channel-shaped form in cross section, and the upper or free sides of which are bent to form outwardly and downwardly directed flanges 24 as shown in Figs. 3 and 6 of the drawing, and formed centrally of the cross heads 25 of said bearer bars are longitudinal and downwardly directed beads 26. The opposite end portions of the bearer bars 16, or the flanges 24 thereof are provided with a plurality of saw-cuts or recesses 27, and the end portions of the beads 26 of said bearer bars are also provided with a plurality of saw-cuts or recesses 28 which are the same in number as the recesses 27, and are in the same vertical alinement therewith as is illustrated in Figs. 2, 4 and 6 of the drawing, and in connecting the bearer bars 16 with the tubes 19 or the apertures 22 therein, the end portions of the bearer bars are passed into the tubes 19 through the apertures 22 and the flanges 24 pass through the enlarged portions 23 of said apertures, in this operation, and the end portions of the bearer bars are then moved downwardly and the bottom walls 29 of the apertures 22 pass into one of the recesses 28 in each end of the bearer bars, while the shoulder portions 30 of the side walls of the apertures 22 pass into one of the recesses 27 in each of the flanges 24 in the opposite ends of the bearer bars, and this as will be apparent will lock the bearer bars 16 against displacement in or against movement in the tubes 19, the beads 26 and flanges 24 forming shoulders where they are cut out or recessed at 27 and 28, and these shoulders bear on the inner and outer side faces of the tubes 19.

The shelf members 18 are preferably composed of sheet metal and are approximately rectangular in form. The corner portions of said shelf members are cut out as shown at 31 to receive the corner portions of the tubes 19, and said shelf members are also preferably reinforced at the corner portions thereof by a plurality of corrugations 32. The front and back sides of the shelf members 18 are bent downwardly, upwardly and inwardly to form downwardly directed V-shaped flanges 33 having inwardly directed top plates 34, which are independent of and adapted to move on the bottom of the shelf members 18 and are free to be sprung outwardly by reason of their spring connection through the inner members 35 of the V-shaped flanges 33 as shown in Fig. 3 of the drawing. When the shelf members are in position or placed upon the tops of the bearer bars 16, the plates 34 rest upon the tops of said bars. It will be understood that the V-shaped flanges 33 extend longitudinally of the front and back portions of the shelf members between the tubes 19. The opposite side walls of the shelf members 18 are provided with downwardly directed flanges 36, the ends of which are bent upwardly upon said flanges as shown at 37 to strengthen the same and in connecting the shelf members with the framework of the apparatus. After said shelf members have been moved downwardly to rest upon the bearer bars 16, a plurality of stove bolts or similar devices 38 are passed through the flanges 36 and through the wall plates 17, this construction being clearly illustrated in Fig. 5 of the drawing.

From the foregoing description my improved shelf construction will be readily understood, or the method of assembling the same, when taken in connection with the accompanying drawing and the following statement: It will be apparent that the standards 13, 14 and 15 made from the tubes 19 will be separately formed by suitable dies or otherwise as will also the bearer bars 16, and shelf members 18, and the wall plates 17 will also be cut to the desired dimensions and the holes drilled therein through which the stove bolts 38 are passed. With the required number of these parts at hand, to build up a shelf construction of the class specified, or two sections or parts thereof, as illustrated in the accompanying drawing, it being understood that the wall plates 17 have been welded or otherwise connected with the separate pairs of standards 13, 14 and 15, I connect said standards with a plurality of bearer bars 16 in the manner hereinbefore set out, said bars being spaced or located vertically on said standards and in the separate parts or sections in such manner as to divide the separate parts or sections 11 and 12 into the required number of shelf spaces 39. As illustrated in Fig. 1, the spaces may be all of the same size, or of different capacities, and after all the bearer bars have been properly placed in position the shelf members 18 are placed upon the bearer bars. It will also be noted on a consideration of Fig. 4 of the drawing that the longitudinal dimensions of the shelf members are preferably slightly greater than the distance between the separate pairs of standards 13—15 and 15—14, whereby

the proper placement of the shelf members 18 in position require the aid of a hammer or mallet blow at one side portion thereof to place said shelves in position under tension, or compression, and this as will be apparent also places the standards or pairs of standards under compression where each of the shelf members are connected therewith. In placing the shelf members 18 in position the V-shaped flanges 33 in the front and back edges thereof may also be forced downwardly over the bearer bars under the tension of the inner spring members 35 of said flanges.

The above described operation of placing the shelf members in position tends to move or force the standards, or pairs of standards 13, 14 and 15 outwardly where said shelves are mounted in connection therewith, or where the bearer bars are connected with said standards, and this as will be apparent will place the standards, or pairs of standards, under compression at these points and regardless of where the load is placed on the shelf construction as a whole, or regardless of what compartment or what part of each compartment the load is placed there will be no possibility of the shelf construction tipping over, or falling down by reason of the location of the weight. It will also be apparent that while I have shown a specific form of bearer bars and apertures as well as a specific form of shelf members, my invention is not limited to these or other details of construction herein shown and described, and changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A shelf construction of the class described comprising a plurality of standards arranged in pairs, bearer bars adapted to detachably connect the separate pairs of standards, means in the opposite end portions of said bearer bars and in said standards for locking said bearer bars in connection therewith, and a plurality of shelf members adapted to be detachably mounted on the tops of said bearer bars, said shelf members being provided with downwardly directed spring flanges adapted to operate in connection with said bearer bars.

2. A shelf construction of the class described comprising a plurality of standards arranged in pairs, bearer bars adapted to detachably connect the separate pairs of standards, means in the opposite end portions of said bearer bars and in said standards for locking said bearer bars in connection therewith, a plurality of shelf members adapted to be detachably mounted on the tops of said bearer bars, said shelf members being provided with downwardly directed spring flanges adapted to operate in connection with said bearer bars, and means for reinforcing the corner portions of said shelf members.

3. A shelf construction of the class described comprising a plurality of tubular standards, said standards being connected in pairs by wall plate members which are rigidly secured thereto, a plurality of bearer bars adapted to detachably connect the separate pairs of standards, means in the opposite end portions of said bearer bars and in said standards for locking said bearer bars in connection therewith, a plurality of shelf members adapted to be detachably mounted on the tops of said bearer bars, the corner portions of said shelf members being cut out to receive said standards, means for reinforcing the corner portions of said shelf members, and said shelf members being provided with downwardly directed spring flanges adapted to operate in connection with said bearer bars.

4. A shelf construction of the class described comprising a plurality of tubular standards, said standards being connected in pairs by wall plate members which are rigidly secured thereto, a plurality of bearer bars adapted to detachably connect the separate pairs of standards, means in the opposite end portions of said bearer bars and in said standards for locking said bearer bars in connection therewith, a plurality of shelf members adapted to be detachably mounted on the tops of said bearer bars, the corner portions of said shelf members being cut out to receive said standards, means for reinforcing the corner portions of said shelf members, said shelf members being provided with downwardly directed spring flanges adapted to operate in connection with said bearer bars, and the opposite sides of said shelf members being provided with downwardly directed flanges, and means for connecting said last named flanges with the wall plate members of the separate pairs of standards.

5. A shelf construction of the class described comprising a plurality of rectangular and tubular standards, said standards being provided in one side thereof with flanges, wall plate members adapted to be secured to the flanges of said standards to join the same into separate pairs, said standards being provided on opposite sides thereof with equally spaced apertures provided with enlarged top portions, a plurality of U-shaped bearer bars provided at the top thereof with outwardly and downwardly curved flanges and in the bottom thereof with longitudinal beads, the flanges or beads in the end portions of said bearer

bars being provided with a plurality of recesses into which the walls of the apertures in said standards are adapted to pass for securing said bearer bars in connection therewith.

6. A shelf construction of the class described comprising a plurality of rectangular and tubular standards, said standards being provided in one side thereof with flanges, wall plate members adapted to be secured to the flanges of said standards to join the same into separate pairs, said standards being provided on opposite sides thereof with equally spaced apertures provided with enlarged top portions, a plurality of U-shaped bearer bars provided at the top thereof with outwardly and downwardly curved flanges and in the bottom thereof with longitudinal beads, the flanges or beads in the end portions of said bearer bars being provided with a plurality of recesses into which the walls of the apertures in said standards are adapted to pass for securing said bearer bars in connection therewith, and a plurality of shelf members adapted to be mounted on the tops of said bearer bars, said shelf members being provided in the front and back end portions thereof with downwardly directed V-shaped flanges which are adapted to pass outwardly of the bearer bars in placing said shelves thereon.

7. A shelf construction of the class described comprising a plurality of rectangular and tubular standards, said standards being provided in one side thereof with flanges, wall plate members adapted to be secured to the flanges of said standards to join the same into separate pairs, said standards being provided on opposite sides thereof with equally spaced U-shaped bearer bars provided at the top thereof with outwardly and downwardly curved flanges and in the bottom thereof with longitudinal beads, the flanges or beads in the end portions of said bearer bars being provided with a plurality of recesses into which the walls of the apertures in said standards are adapted to pass for securing said bearer bars in connection therewith, a plurality of shelf members adapted to be mounted on the tops of said bearer bars, said shelf members being provided in the front and back end portions thereof with downwardly directed V-shaped flanges which are adapted to pass outwardly of the bearer bars in placing said shelves thereon, the opposite sides of said shelf members being provided with downwardly directed flanges, and means passed through said flanges and through the wall plate members of the separate pairs of standards for securing said shelf members in position.

8. A shelf construction of the class described comprising a plurality of rectangular and tubular standards, said standards being provided in one side thereof with flanges, wall plate members adapted to be secured to the flanges of said standards to join the same into separate pairs, said standards being provided on opposite sides thereof with equally spaced apertures provided with enlarged top portions, a plurality of U-shaped bearer bars provided at the top thereof with outwardly and downwardly curved flanges and in the bottom thereof with longitudinal beads, the flanges or beads in the end portions of said bearer bars being provided with a plurality of recesses into which the walls of the apertures in said standards are adapted to pass for securing said bearer bars in connection therewith, a plurality of shelf members adapted to be mounted on the tops of said bearer bars, said shelf members being provided in the front and back end portions thereof with downwardly directed V-shaped flanges which are adapted to pass outwardly of the bearer bars in placing said shelves thereon, the opposite sides of said shelf members being provided with downwardly directed flanges, means passed through said flanges and through the wall plate members of the separate pairs of standards for securing said shelf members in position, the corner portions of said shelf members being cut out to receive said tubular standards, and means for reinforcing the corner portions of said shelf members.

9. A shelf construction of the class described, comprising a plurality of tubular standards, said standards being connected in pairs by wall plate members which are rigidly secured thereto, said standards being also provided on opposite sides with a plurality of spaced apertures, a plurality of U-shaped bearer bars adapted to be detachably connected with the apertures in said standards to secure the separate pairs of standards together and the end portions of which are provided with a plurality of recesses into which the walls of said apertures are adapted to pass to adjustably secure said bearer bars in connection with said standards, and a plurality of shelf members detachably mounted on the tops of said bearer bars and between said standards and the wall plate members thereof, said shelf members being provided with spring devices which operate in connection with said bearer bars.

10. A shelf construction of the class described comprising a plurality of tubular standards connected in pairs, said standards being provided on opposite sides with a plurality of spaced apertures, a plurality of approximately U-shaped bearer bars adapted to be detachably connected with independent apertures in said standards to secure the separate pairs of standards together, the end portions of said bearer bars being adapted to pass into said tubular standards through said apertures and said

end portions being provided with a plurality of recesses into which the walls of said apertures are adapted to pass to adjustably secure said bearer bars in connection with said standards.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of the subscribing witnesses this 19th day of May 1919.

JOSEPH W. SINNOTT.

Witnesses:
C. E. MULREAMY,
H. E. THOMPSON.