P. M. WEGE.

METAL FURNITURE.

APPLICATION FILED FEB. 23, 1915.

1,251,719.

Patented Jan. 1, 1918.

3 SHEETS—SHEET 1.

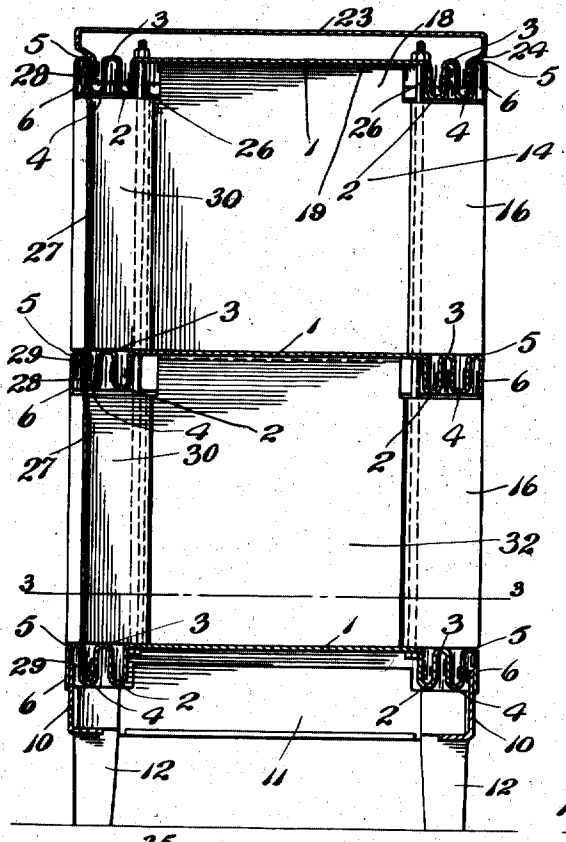


Fig. 2.

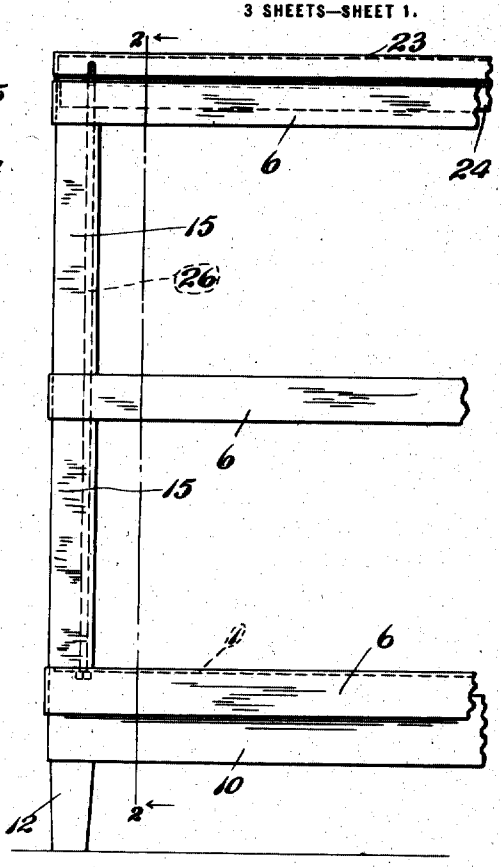


Fig. 1.

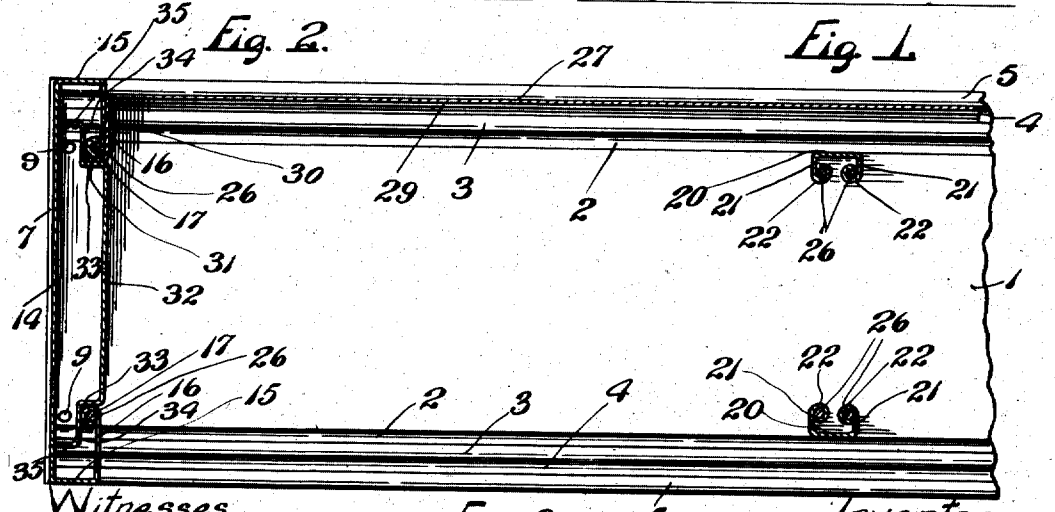


Fig. 3.

Witnesses,

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3 SHEETS—SHEET 2.

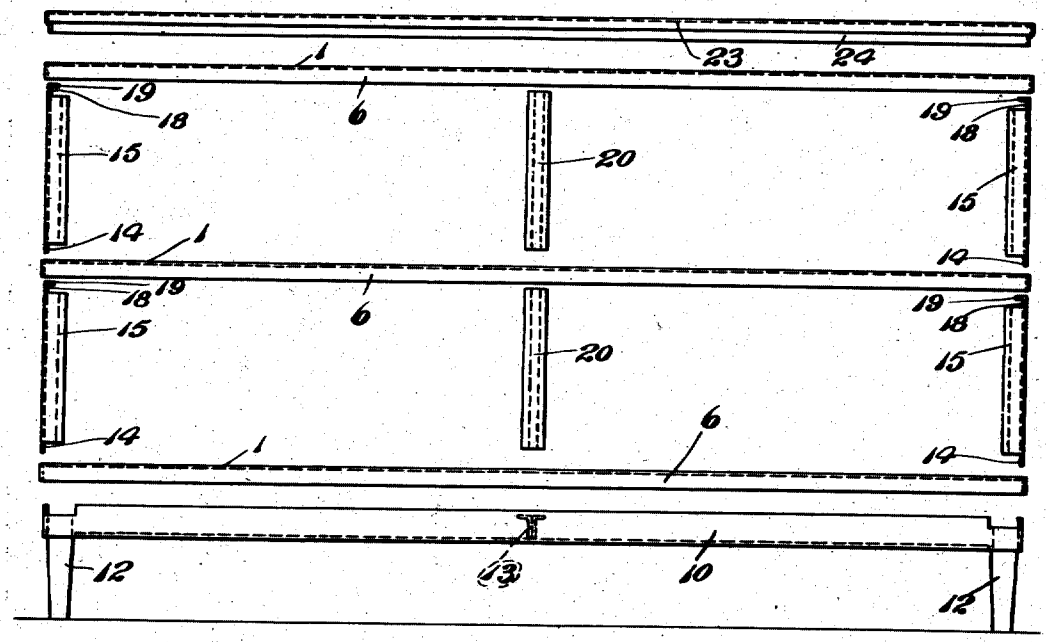


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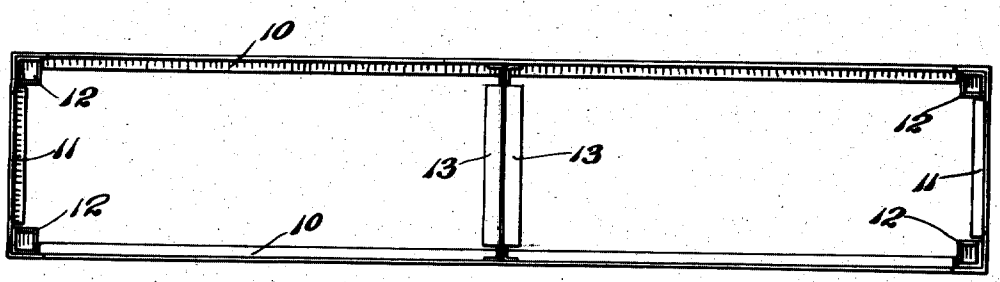


Fig. 5.

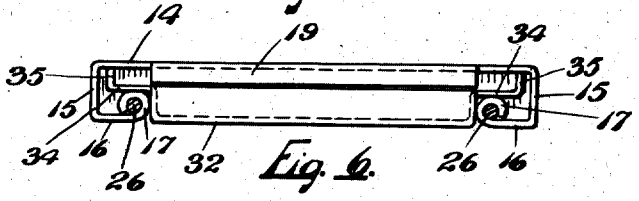


Fig. 6.

Witnesses

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3 SHEETS—SHEET 3.

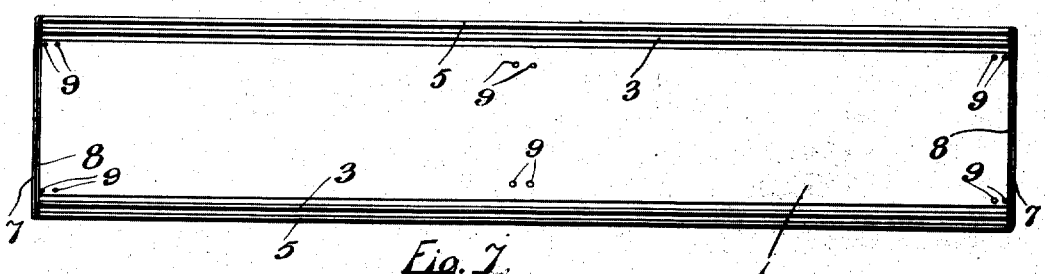


Fig. 7.

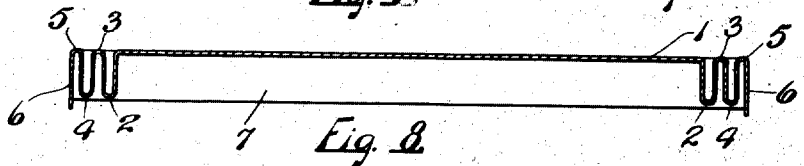


Fig. 8.

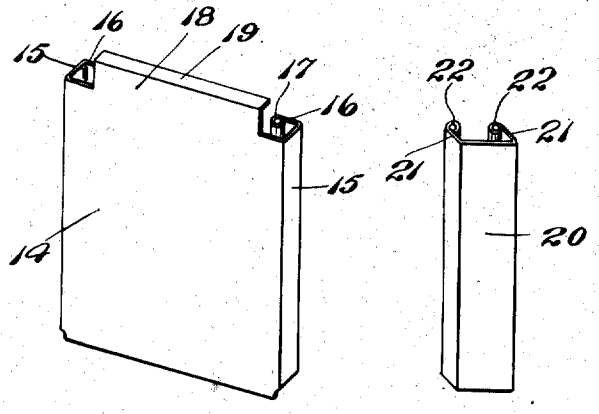


Fig. 10.

Fig. 11.

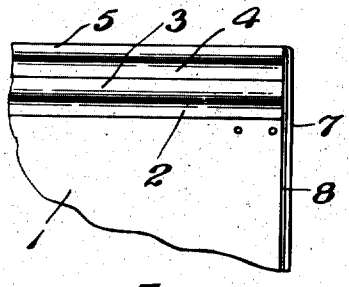


Fig. 9.

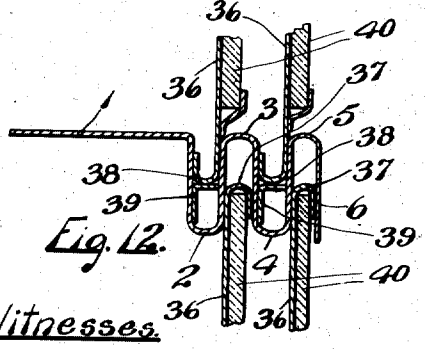


Fig. 12.

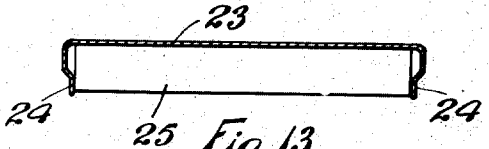


Fig. 13.

Witnesses.

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UNITED STATES PATENT OFFICE.

PETER M. WEGE, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO METAL OFFICE FURNITURE COMPANY, OF GRAND RAPIDS, MICHIGAN.

METAL FURNITURE.

1,251,719. Specification of Letters Patent. Patented Jan. 1, 1918.

Application filed February 23, 1915. Serial No. 9,919.

To all whom it may concern:

Be it known that I, PETER M. WEGE, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Metal Furniture; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to metal furniture of the type which can be built up to any desired height or length at will, the furniture being formed from various standard parts which may be properly positioned with reference to each other and tied together to form a complete whole to make an article of furniture adapted for use either in stores to carry articles of merchandise or in households as a book-case or the like. It is the object and purpose of this invention to provide a furniture construction of this character which may be made entirely of sheet metal of light weight but which is fashioned in such manner as to be of great strength and durability and able to withstand the usage to which it shall be subjected. Further objects and purposes of the invention consist in various novel features of construction as will more fully appear upon understanding being had of the embodiment disclosed in the accompanying drawings, in which;

Figure 1 is a front view of one end of the furniture, the doors therefor not appearing.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1, and looking in the direction indicated by the arrows.

Fig. 3 is a horizontal section of one end of the furniture taken on the line 3—3 of Fig. 2.

Fig. 4 is a front elevation of the parts used in building a complete article of furniture of this character, shown separated.

Fig. 5 is a plan of the base used.

Fig. 6 is a plan view of an end member and the finishing panel therefor.

Fig. 7 is a plan view of the shelf, a plurality of which are used in each article of furniture.

Fig. 8 is a transverse section thereof.

Fig. 9 is an enlarged plan of a fragment of one side and end of the shelf.

Fig. 10 is a perspective view of an end member.

Fig. 11 is a similar view of the intermediate supporting posts between the ends.

Fig. 12 is a transverse section through the front of one of the shelf members showing the mounting of the sliding doors; and

Fig. 13 is a transverse section through the top used to finish the furniture.

Like reference characters refer to like parts throughout the several views of the drawings.

In the construction of the furniture shown there are provided a plurality of shelf members 1, each formed of sheet metal and at each side thereof being fashioned with a plurality of corrugations 2, 3, 4 and 5 as shown, each side terminating in a downwardly turned ledge 6. The corrugations extend the full length of the shelves and serve to give them strength and rigidity. Each shelf at each end is provided with a transverse bar 7 of sheet metal, and connected at its ends to the down turned ledges 6, being spaced from the ends of the shelf a short distance to make a long slot as indicated at 8. Also at each end of the shelf a pair of openings 9 are provided spaced a short distance apart while at the middle point of each shelf similar pairs of openings 9 are provided as best shown in Fig. 7.

The base for the furniture consists of parallel sides 10 of angle iron, the ends of which are connected together by angle iron members 11, the frame thus formed being supported at each corner by posts 12 and reinforced at the middle by transverse braces 13 which also may be of angle iron. In assembling an article of furniture a shelf is located above the base, the upwardly extending legs of the angles 10 being received in the groove formed by corrugations 5 while the upwardly extending legs of the members 11 are received immediately within the end bars 7 of the shelf, the shelf in this manner being attached to the base against endwise or sidewise movements.

End members are provided each consisting of a body 14 having a width substantially equal to the width of the shelves 1, said body at each edge having a section 15 turned at right angles thereto for a short distance and then turned inwardly at 16 parallel to the body 14 for a distance finally terminating in a bead 17. At the upper side the body 14 is narrowed and extended upwardly a short distance as shown at 18 being

then turned inwardly at right angles to form the section 19 as indicated in Fig. 10. At its lower edge the body 14 is slightly narrowed in width and extends downwardly a short distance below the angular extensions 15.

Supporting posts are also required intermediate the length of the shelves and each consists of a central section 20 having bent at right angles at each edge thereof the sections 21 which also terminate in the beads 22, as best shown in Fig. 11.

The top which is used to finish the upper side of the furniture consists of a sheet metal plate 23 turned downwardly at its sides and ends as indicated at 24 and 25, the portions 24 being bent toward each other as shown so that when applied to the upper shelf member 1, the downwardly extending edges thereof will be received in the grooves formed by corrugations 4 while the sections 25 will pass through slots 8 lying between the ends of the shelf and the members 7.

In building an article of furniture a base is provided and a shelf placed thereon in the manner heretofore described. Then at each end of the shelf an end member of the character shown in Fig. 10 is placed, its lower extending edge passing into the slot 8 and being frictionally held between the end of the shelf and the cross members 7. Small rods 26 having previously been inserted through the inner openings 9 at the ends of the shelf and through all of the openings at the center of the shelf extend upwardly and the beads 17 pass over and receive the end rods 26 while those located midway the length of the shelf are each received by the beads of the central supporting posts heretofore described. After a pair of ends have been attached together with a front and rear supporting post the second shelf may be put in place, its openings 9 receiving the upwardly extending rods 26 and its under surface at the ends bearing on the inwardly extending ledges 19 of the end members. This process may be carried on until the article of furniture has reached the desired height, the uppermost shelf members 1 being placed in position after which nuts may be threaded on to the upper ends of the rods 26 binding the parts together. The final step in making the article of furniture is the application of the top as previously described.

The furniture thus constructed is tied together so that it may be moved as a unitary structure to any place desired and this construction will be preferred in stores where the furniture is used in the center of the store, the rods 26 being cut the proper length for any desired number of shelves. When the furniture is built along the side of a store, however, a slight modification may be resorted to consisting in making the rods in sections to be received by the beads 17 and 22 and having each joint between the ends of the sections of rods coming at a point between two shelves 1. In this way the furniture may be carried as high as desired without reference to any particular length of rod. Also when it is desired to have the furniture occupy a considerable length of wall space the shelves may be placed end to end on their respective bases and instead of supplying an end 14 for each shelf where they come together, supporting posts of the character used intermediate the length of the shelves may be used extending over from one shelf to another and having the rods 26 passing through the outer openings 9 in the shelves and through the beads 22. In this manner the furniture is extended to any desired length using a plurality of intermediate supporting posts.

A back may be provided to close the space between any two shelves 1 consisting of a sheet metal section 27 having its upper edge turned outwardly as at 28 and its lower edge turned inwardly as shown at 29, these edges being received by the groove in the corrugation 5 of the upper shelf and of the corrugation 4 of the lower shelf respectively as shown in Fig. 2. At each end each back has an extension 30 bent at right angles thereto and projecting forward far enough to pass beyond the sections 16 of the end members, being then bent again at right angles to pass alongside the bead 17. In this manner the back of the furniture may be closed if desired, these backs being placed in proper position as the article of furniture is being assembled.

It may be desirable to cover the space between the beads 17 of the end members and to this end I have provided a panel consisting of a body 32 bent at each end as shown at 33, 34 and 35 to fit between and be held by the beads 17 of the end members to which it is applied. When placed in position a smooth and unbroken appearance is made adding to the value of the furniture from the standpoint of design and being especially of value when furniture of this character is used in the home, for instance, as a bookcase.

The front of the furniture will be closed by sliding doors, each consisting of a sheet metal frame 36 at its upper edge formed with the U-shaped extension 37 bent forwardly from the body and at its lower edge into a similar extension 38 bent rearwardly, the lower portions 38 riding on fillers 39 of angle formation positioned in the grooves formed in corrugations 2 and 4 of the shelves while the upper extensions 37 are adapted to lie in the grooves of the corrugations 3 and 5. It will be apparent from this construction that two doors may be applied at each side of each shelf, one lying back of the other and adapted to slide one past the other for access to

the interior of the furniture. It will also be noted that the upper edges of the doors extend only a short distance into the grooves of corrugations 3 and 5 permitting the ready removal and replacement of the doors by merely elevating them sufficiently that the lower edges may be carried over the corrugations at 3 and 5. Any suitable glass front 40 may be applied to the doors so that visual inspection of the interior of the furniture and the contents carried thereby may be had.

It will be evident that doors may be applied to either side of the furniture thus made and such will be the construction where the furniture is used in stores away from the walls, the backs being used only when the furniture is placed alongside the store walls. By reason of the peculiar formation of the shelf members a great variety of functions are had. For instance, such member is readily applicable in a very simple manner to the base, and it may be used to support sliding doors very simply and easily permitting the ready detachment of the doors, it also may be used for the attachment of a closing back while at the same time the upper shelf lends itself readily for the attachment of a simple and economically constructed finishing top, the shelves also from their formation being reinforced and strengthened so as to be able to carry loads without unduly increasing the thickness of the material from which they are made. The construction made is very economical in manufacture, there being required but few parts, many of which are duplicates and all of which may be stamped and formed from sheet metal.

In this connection it may be noted that the construction lends itself readily to the building of other types of furniture than shelving or cases such as counters or the like. Accordingly I do not wish to be limited to the precise disclosure made, but consider myself entitled to all modifications in construction falling within the scope of the appended claims defining the invention.

I claim:—

1. Metal furniture including a shelf member formed from sheet metal and having a plurality of corrugations at each side thereof extending the full length of the shelf and a transverse bar secured at its ends at each end of the shelf member and slightly spaced from its ends, substantially as described.

2. Metal furniture comprised of a base, a shelf member formed with a plurality of corrugations at each side extending the full length thereof, detachably connected to the base, a second shelf member similarly formed positioned above the first shelf member, end members connected to and spacing the shelf members apart, means tying the shelf and end members together, and doors slidably mounted in the grooves formed by the corrugations of the upper and lower shelf members, substantially as described.

3. Metal furniture comprised of a plurality of spaced apart shelf members, each formed of sheet metal with a plurality of corrugations at each side thereof and having at each end a transverse bar connected at its ends to the shelf member, sheet metal end members at each end of the shelf members spacing them apart and having extensions at their lower ends passing between the transverse bars and the ends of the shelf members, means detachably connecting the shelf and end members together, and backs of sheet metal located between the shelf members at one side thereof, each having an inturned lower edge and an out-turned upper edge seated in the grooves formed by the corrugations on the under and upper sides respectively of the shelf members, substantially as described.

4. Metal furniture comprised of shelf members, each formed of sheet metal and formed with corrugations at each side extending the full length thereof, end members spacing the shelf members apart, means detachably connecting the shelf and end members together, fillers located in the grooves on the upper side of a shelf member, and doors resting on said fillers and having their upper edges received in the grooves formed by the corrugations in the underside of the shelf member next above, substantially as described.

5. Metal furniture comprised of shelf members and end members spacing said shelf members apart, means connecting the shelf and end members together, corrugations formed in the shelf members at each side and extending the full length thereof, a base having upstanding sides received in the grooves formed by said corrugations on the underside of the lowermost shelf member and a top having downwardly extending side edges received in the grooves formed by said corrugations in the upper side of the uppermost shelf member.

6. In combination, shelf members, end members for vertically spacing the shelf members apart, means detachably connecting the shelf and end members together, supporting posts positioned between the shelf members between the end members, each post comprised of a channel of sheet metal having the edges of the flanges thereof formed into beads, and rods extending through the shelf members and beads of said posts detachably connecting them together.

7. In combination, sheet metal shelf members, sheet metal end members interposed between the shelf members and spacing them apart vertically, each end member being comprised of a body having right angular extensions at its front and rear edges, said extensions being bent toward each other for

a distance and then formed into beads, a panel of sheet metal comprised of a body having a width equal substantially to the distance between said beads and at each edge formed with angular extensions each of which is again bent outwardly parallel to said body of the panel, and inserted back of said beads, and rods passing through the shelf members and beads of the end members to secure them together and hold the panels in position.

8. In combination, shelf members, end members spacing said shelf members apart one above the other each end member being comprised of a body of sheet metal having sections at the front and rear edges bent at right angles to the body for a distance and then inwardly parallel to said body and terminating in vertical beads, rods extending through the shelf members and beads to connect said shelf and end members together, and a panel filling the space between the beads of each end member and interlocked therewith between the shelf members.

In testimony whereof I affix my signature in presence of two witnesses.

PETER M. WEGE.

Witnesses:

FRANK E. LIVERANCE, Jr.,

LEWIS DE BOIS.