J. M. HALL. 2 Sheets--Sheet 1.

Making Wooden-Mats.

No. 163,986. Patented June 1, 1875.

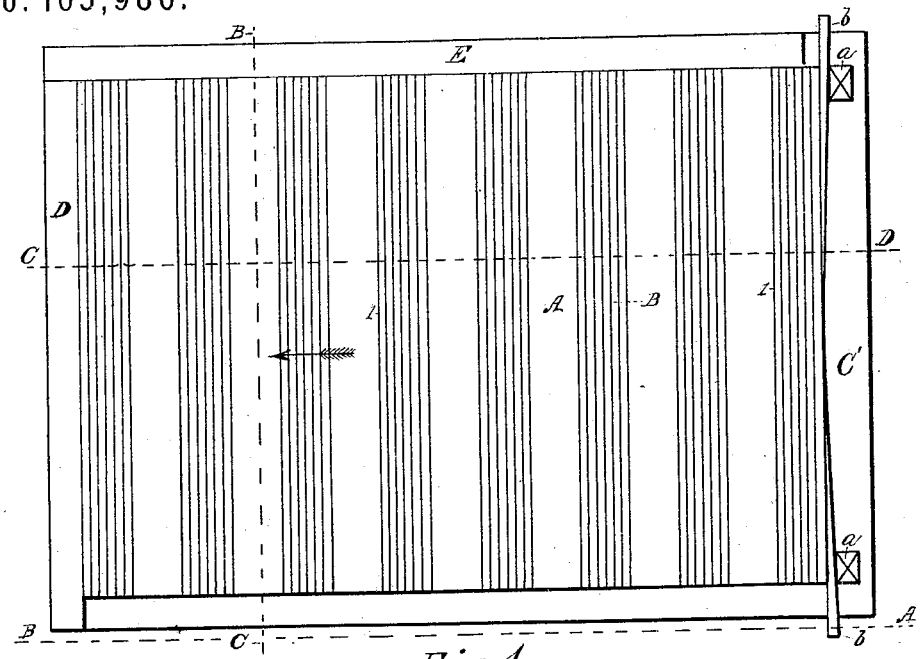

Fig. 1.

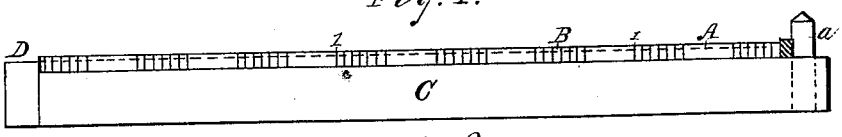

Fig. 2.

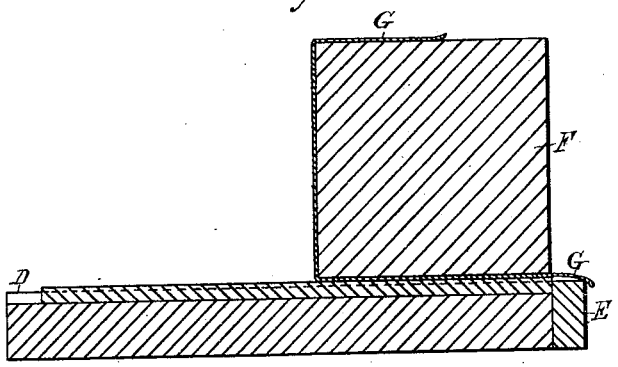

Fig. 3.

Witnesses;

Thos. H. Dodge

Edwin E. Moore

Inventor:

James M. Hall

2 Sheets--Sheet 2.

J. M. HALL.

Making Wooden-Mats.

No. 163,986. Patented June 1, 1875.

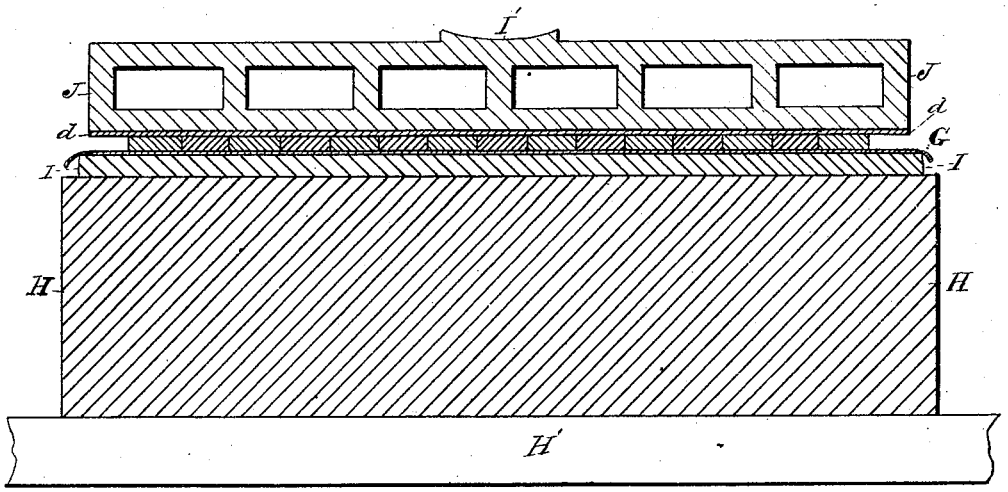

Fig. 4.

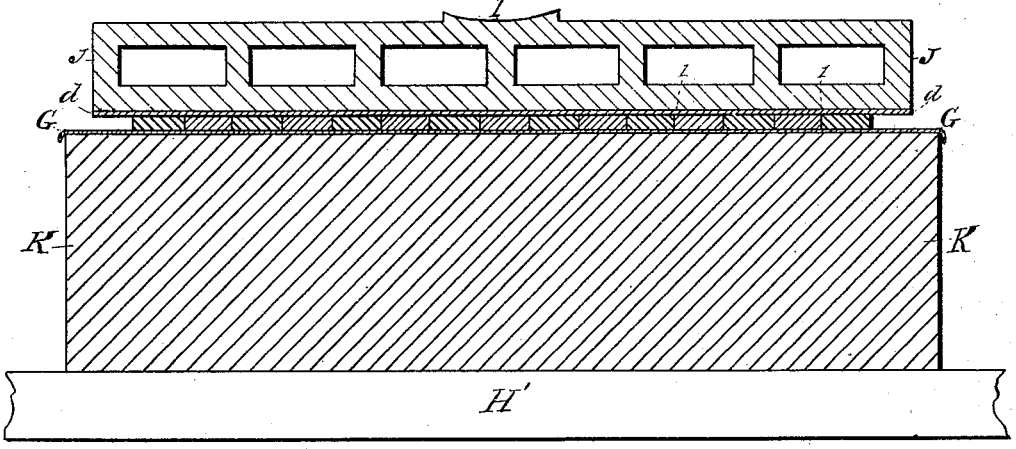

Fig. 5.

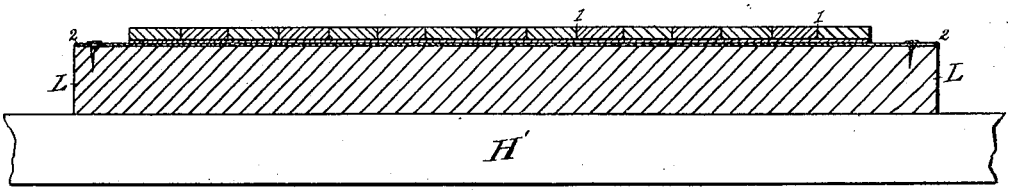

Fig. 6.

Witnesses;

Thos. G. Dodge

Edwin C. Moore

Inventor;

James M. Hall,

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JAMES M. HALL, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN MAKING WOODEN MATS.

Specification forming part of Letters Patent No. **163,986**, dated June 1, 1875; application filed February 15, 1875.

To all whom it may concern:

Be it known that I, JAMES M. HALL, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Wood Mats, for table and other use; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings forming a part of this specification, and in which—

Figure 1 represents a top or plan view of the several strips of wood employed to make a mat after they have been placed upon the trap or locking-table and wedged together, preparatory to receiving a coat of glue on one side and a cloth covering, as will be hereafter explained. Fig. 2 represents a view on line A B, Fig. 1. Fig. 3 represents a section on line B C, Fig. 1, after the process of gluing and covering the strips or pieces of wood which form the mat has commenced. Fig. 4 represents a vertical central section through the partially-finished mat, on line C D, Fig. 1, after the mat has been transferred to the glue heating and evening apparatus, as will be hereafter explained. Fig. 5 represents a vertical central section of the mat on line C D, Fig. 1, after the mat has been transferred from the glue heating and evening apparatus to the glue cooling and setting apparatus, as will be hereafter explained; and Fig. 6 represents a similar view and section of the mat after it has been transferred from the glue cooling and setting apparatus to the sand-paper table, to be planed and finished, as will be hereafter explained.

To enable those skilled in the art to which my invention belongs to use and practice my said improvements in the art of making wood mats for table and other use, I will proceed to describe the same more in detail.

The shape of the outer edge of the mat is produced by cutting or trimming, and forms no part of my invention.

The first step in making wood mats is to pass the boards from which the strips of wood for making the mats are to be cut through proper planing or jointing machines, for the purpose of planing the sides of the boards in an even and perfect manner, after which the boards are sawed up into narrow strips, and then cut cut up into short pieces of the desired length to make the mat of the size required. The operator then takes such short pieces or strips and places them on a flat table, as indicated in Fig. 1, in which the pieces marked A represent light wood, and those marked B, dark wood. Table C, upon which said strips are placed, is provided with straight edges or projecting flanges D E, whereby the operator is able to arrange the pieces in an even and uniform manner, as indicated in Fig. 1 in the drawings. After the pieces A and B have been laid upon the flat table C, as indicated in Fig. 1, a weight, F, of sufficient length to reach the entire length of the wood mat is laid upon the top of the pieces, to keep them from buckling or springing up out of place while they are wedged between the flange D and the studs or pins *a a*, by means of the wedges *b b*. The operator now, standing at the front end C′ of the flat table or bed C, moves the weight so that it will bear upon the left-hand ends of the pieces A and B, thus leaving the right-hand ends of the pieces exposed to view and uncovered. He then, by means of a hand-brush, covers the right-hand ends of the pieces A and B with glue, melted to the proper consistency. He then takes the cloth covering G and places it upon the glue-covered portions of the wood-mat pieces, smoothing it down with his hand. Weight F is then removed from the left-hand ends of the mat sticks, and placed upon the right-hand side, the free end of the cloth covering G, for convenience, being turned over upon the weight, as indicated in Fig. 3. The operator now applies the glue to the left-hand ends of the mat-sticks, after which the cloth covering G is drawn down upon the sticks, forming the left-hand end of the mat, and the cloth smoothed down by hand, as before explained.

The mat is now ready to be transferred to the glue heating and evening apparatus, which consists of a block of soap-stone or marble, H, or other suitable material, upon which a rubber bed, I, is laid, and upon that is laid the partially-finished mat, with the cloth covering G next to the rubber bed—the block of soap-stone or marble being first heated to

such a degree that it will heat the rubber bed to about, or little more than, blood heat.

A platen or pressing-box, J, the under side of which is faced with carpeting *d*, or some similar substance, is then placed above the mat, as indicated in Fig. 4 of the drawings. The block of soap-stone or marble rests on a strong bench or table, H′, above which is suspended a toggle or jointed lever, of any suitable construction, the lower end being free, and which free end the operator places in the center I′ of the platen or pressing box J, and then, by means of a hand-lever, or other device, straightens the toggle or jointed lever, thereby compressing with great force the wooden pieces A and B, and their cloth covering G, between the block H and the platen J, in which position the parts are allowed to remain about five minutes, or until such time as the glue becomes completely melted, and is spread evenly over the entire surfaces of the lower sides of the pieces A and B and the upper side of the cloth covering G, and fully saturating all the fibers in contact.

The partially-formed mat is now removed to the glue cooling and setting apparatus, a section of which is shown in Fig. 5, and which differs from the device shown in Fig. 4 but little, excepting that the soap-stone or marble block K is cold, and the rubber bed is dispensed with, thus allowing the cloth covering G of the mat to rest directly upon the upper side of such cold block, while a platen, J, is applied to press down the pieces A and B upon such cloth covering, as it rests upon the cold block K, the same as the pressure was applied in Fig. 4.

The partially-formed mat is allowed to remain in the cooling and setting apparatus for about five minutes, and by which operation the glue is cooled and set, adhering strongly to all fibers upon the lower sides of the pieces A and B, and all the fibers upon the upper side of the cloth covering G.

It will be seen that by the use of the rubber bed I, interposed between the mat and the stone bed H, each portion of each piece receives a uniform pressure, notwithstanding the pieces A and B may be of unequal thickness, since the rubber, as it becomes warm, yields and presses the cloth covering G into, and causes it to fit, the entire lower surfaces of the wooden mat pieces A and B. The facing *d* on the platen J also contributes to the same result.

By applying the glue and cloth covering G to the mat pieces in the manner above described, an even and uniform application of the glue to the adhering surfaces is obtained, and a secure and durable union effected between the wooden pieces A and B and their cloth covering G, and that, too, while the joints 1 1 between the wooden pieces are kept free from glue, and which result can be obtained alone by pursuing the mode of construction above described.

The upper surfaces of the wooden pieces A and B are now to be planed, filled, and polished, and in order not to unduly stretch the cloth covering G at any one particular point, it is necessary that the resistance to the action of the plane should be borne as far as possible by the entire cloth-surface, since when so distributed the strain upon any particular part is so slight as to obviate all danger of either unduly stretching any portion of the cloth covering, tearing or separating the wooden pieces from the cloth, or of twisting the pieces so as to open their joints; and I have found that this result can be obtained by planing and finishing the mat upon a sand-paper or sanded table.

In the drawings such a table is shown in section at L, Fig. 6, and which figure also represents a section of the mat on the line C D, Fig. 1, as the mat appears when laid, cloth down, upon the sand-paper table preparatory to its being planed. The sanded portion of the table in this instance is formed by tacking sheets of sand-paper 2 to the upper surface of the table L, upon which the mat is placed when it is to be planed, filled, and polished.

The friction of the cloth upon the sand-covered surface is so uniform and perfect that the mat is held from either slipping, twisting, or turning during the various operations of planing, filling, and polishing.

Those skilled in the art will readily perceive the importance and value of this part of my said mode or process of manufacture, since the mat can be planed and rubbed in the direction of the length of the wooden pieces, or in any other direction, and that, too, without the necessity of the operator being obliged to place his hand upon the mat to keep it in place, which would be the case if placed upon a smooth table during such operation, and held by being forced against rigid projections, as in the ordinary way of planing, since there is liability of staining or soiling the wood pieces if they are subjected to the touch of dirty hands after the fibers have been planed off smooth, and before the filling and polishing process has been completed.

Mats made and finished by my said improved mode or process are so perfect that they look like one solid piece or sheet of wood, the joints scarcely being detected by the naked eye, and the great practical value and importance of the invention is proved and shown by the constantly increasing demand for the mats by the public.

If preferred, a cold rubber bed may be used upon the cold block K in the glue cooling and setting apparatus, and, in lieu of rubber beds I, any other suitable material may be substituted therefor.

In preparing the wooden pieces, the boards may be first cut up into short lengths, and then cut up into narrow strips. The pressing device may also be varied to suit the convenience of the manufacturer.

What I claim as my invention, and desire to secure by Letters Patent, is—

The described improvement in the art of manufacturing wooden mats for table or other use, which consists in subjecting the prepared strips, preliminarily put together, glue-coated, and furnished with a cloth covering, as described, to pressure on a yielding heated bed, where the mat is evened, and the glue caused to bind the strips to the cloth, and subsequently pressing the mat in a cooling and setting apparatus, and smoothing off the wood face of the mat, all substantially in the manner set forth.

JAMES M. HALL.

Witnesses:

THOS. H. DODGE,

EDWIN E. MOORE.