S. R. Parkhurst.

Carding Mach.

No. 6,043. Patented Jan. 23, 1849.

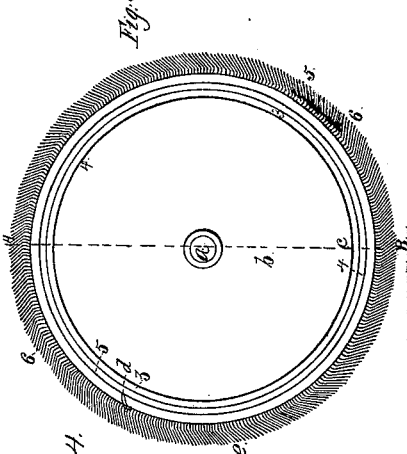


Fig. 3.

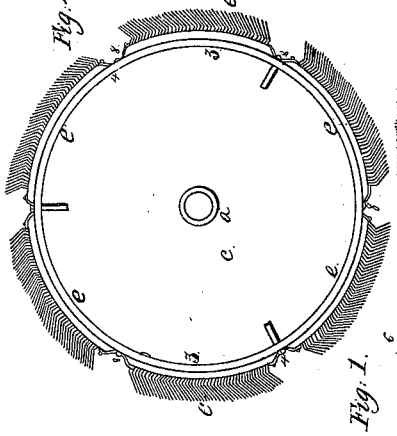


Fig. 4.

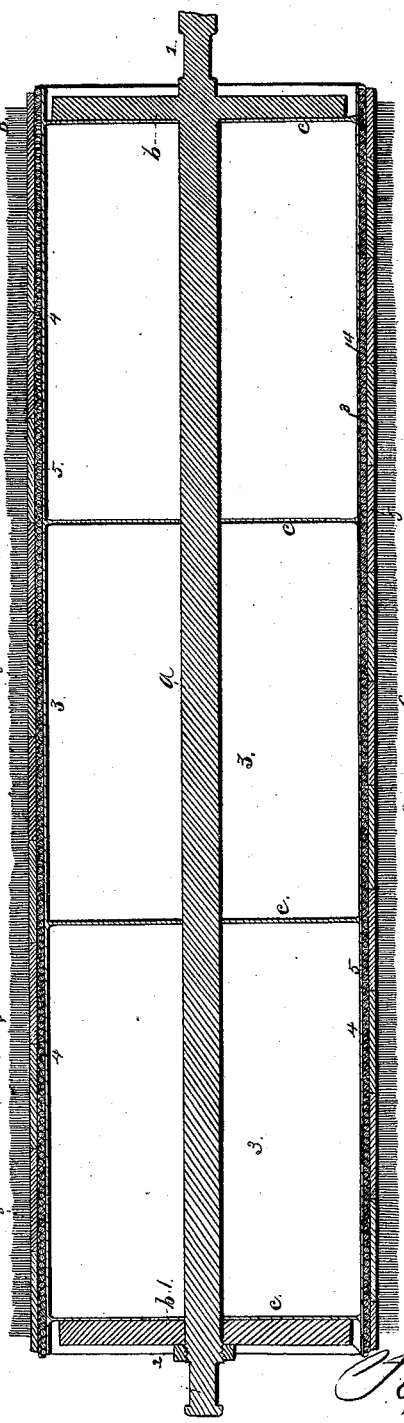
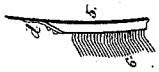


Fig. 1.

Fig. 6.



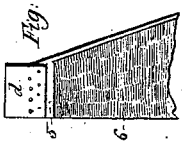


Fig. 5.

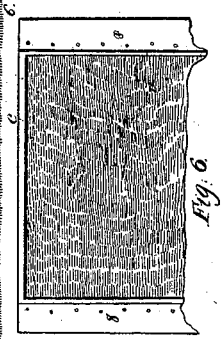


Fig. 6.

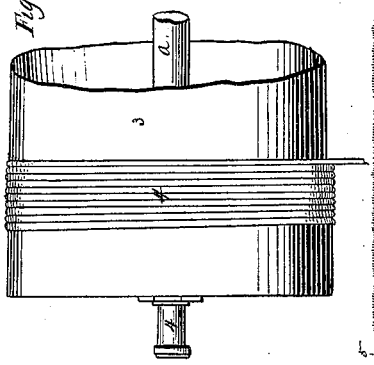


Fig. 2.

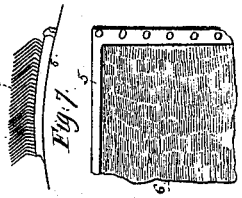


Fig. 7.

Witnesses:

Wm. Serrell

Samuel W. Serrell

Inventor.

S. R. Parkhurst

UNITED STATES PATENT OFFICE.

STEPHEN R. PARKHURST, OF WEST BLOOMFIELD, NEW JERSEY.

IMPROVEMENT IN CYLINDERS FOR CARRYING AND SUPPORTING CARDS, &c.

Specification forming part of Letters Patent No. **6,043**, dated January 23, 1849.

To all whom it may concern:

Be it known that I, STEPHEN R. PARKHURST, machinist, of West Bloomfield, Essex county, New Jersey, have invented and made and applied to use certain new and useful Improvements in the Mechanical Construction of Cylinders to be Used with Carding-Machines or for any other purpose to which such cylinders can be applied; that the said improvements commence by preparing a cylinder of any proper size in diameter or length, of plate or sheet tin, or of any other fit metal plates, which cylinder is then to be covered by turned wire woolded or wound and tightly secured round the cylinder of plates, which is then to be washed or floated with hot and fluid solder to fix the parts, so that the whole can be turned true and will remain unaltered by heat, cold, moisture, or dryness, possessing the strength without the weight of an ordinary metal cylinder, and free from all the inconveniences usually attendant on the use of wood or cast-iron cylinders for any or all purposes, for which improvements I seek Letters Patent of the United States; and I do declare that the said improvements are constructively and substantially set forth and shown in the following description and in the drawings annexed to and making part of this specification, wherein—

Figure 1 represents a sectional elevation, through the line A B of Fig. 3, of a cylinder constructed in this improved mode and shown applied to use as a carding-cylinder. Fig. 2 is an interrupted or partial external elevation of the same without the cards. Fig. 3 is an end elevation of the same, shown as fitted with carding-fillets wound around it; and Fig. 4 is an end elevation of a like cylinder with six sheets of carding secured on the surface.

The same letters or numbers where used more than once refer to the like parts in all the figures.

In the drawings, *a* is a shaft, with journals 1 1, having a prolongation to receive a drum or pulley or wheel, one fixed metal head *b*, and a movable head *b'*, filling the interior diameter of the cylinder of plates, retained in place by a nut 2, passing on one inner shoulder of the journal 1.

c c are disks, of metal plate, forming inner heads at the ends and solid stays within the metal-plate cylinder 3 3, which, for carding-cylinders, may be made of tinned plates lapped and soldered together, and when so far completed the cylinder is to be covered or inclosed in tinned wire 4 4, put on by commencing with soldering one end of the wire on the surface at one end of the cylinder and then turning the cylinder in a lathe, or by any convenient means, so as to woold or wind the wire on in the line of a regular screw-thread, thus forming an inclosing helical cylinder of tinned wire over the surface of tinned plates within. A regular but small supply of hot fluid solder may be admitted to run onto the cylinder while the wire is winding, but only enough to fill the interstices between each two fakes of wire and the cylinder beneath, and when the wire is wound all over the plate-cylinder the surface of the wire helix is to be lightly floated with hot fluid solder to fill the interstices of the wire, and the solder is to be wiped off, so as to leave the surface ready to be finished smooth by turning the cylinder in a lathe from end to end truly cylindrical and parallel. The cylinder is then ready to receive the cards, which are to be placed and secured as follows:

Figs. 1 and 3 represent the cylinder fitted with a filleted card all over it. 5 is the leather, and 6 the wires of the cards. One end of the fillet is to be narrowed and beveled down, as shown in the two part, Fig. 5, and a strip of tin plate *d* is to be riveted on this narrowed end, so as to overlie the leather. The tail of the tin strip *d* is then to be soldered onto the cylinder at one end and the filleting of card is to be carefully woolded or wound around the cylinder in the usual way until the cylinder is fully covered, and on coming to the last fake the end of that is to be tapered widthwise and beveled on the surface to receive on the upper side a piece of tin plate *d*, riveted on, as in the two part, Fig. 5, and the tail of the tin strip is to be soldered onto the cylinder, which completes the formation of that as a filleted cylinder.

Fig. 4 is an end elevation of a cylinder of the same construction as before described fitted as a six-sheeted card-cylinder; but the number of sheets may be more or less, according to the size of the cylinder or the work it is intended for, and the sheets *e e* are each to

be prepared by beveling the lengthwise edges to receive a strip or set of strips of tin plate *t t*, riveted on, above, and along the whole of each beveled edge, as shown in the two part, Fig. 6. The sheets are then to be laid and held in place upon the cylinder and the strips of tin on each edge effectively soldered down, which completes the formation as a sheeted card-cylinder.

In place of the tin plates on the ends or edges of the card-leather a row of holes may be punched through near the edges of the card-leather, as in the two part, Fig. 7, and the sheet or fillet held to place on the cylinder, which must, for this mode of fastening the cards, be warmed, but not enough to run the solder or burn the leather, and then the heated end of a small piece of metal entered into each hole to warm the solder beneath preparatory to dropping into each hole so much fluid solder as will just fill the hole. This, uniting with the solder among the wire of the cylinder, will, as it cools, set in the form of a button or rivet-head, and will effectively hold the card in place for use. In either of these modes of securing the cards on the cylinders the cards can be detached, when worn out, by passing a thin sharp tool beneath the leather or tin strips and separating the soldering from the cylinder, which will not be injured by this operation and will be at once ready to receive new cards by repeating the same process of attaching them.

By care in forming cylinders of this construction they can be so equally balanced and at the same time so light and strong as to avoid all the practical inconveniences arising from inequalities of thickness, material, and weight of ordinary metal cylinders. Such cylinders cannot shrink, split, or warp, as wood cylinders are found to do in use by drying; nor will such cylinders expand and injure the parts near them by any degree of heat to which they may ordinarily be subjected in use. Wire, of any metal, may be used for woolding or winding the cylinders; but well-tinned iron wire will generally be preferable for this purpose, and, although the description and representation herein show such cylinder as applied to use in a carding-machine, it is not thereby intended that their use shall be limited to such objects; nor is it hereby intended to limit the construction of the parts between the bearing-shaft and the external cylinders to the mode herein described and shown; but it is intended to apply the described and shown construction of the cylinders themselves to any use to which they are or may become available and applicable, and to use such cylinders of any relative proportions as to diameters and lengths with any means of attaching them to their bearing-shafts that may be most proper for the intended purpose.

What I claim as new and of my own invention, and desire to secure by Letters Patent of the United States, is—

That constructive arrangement and conjoint application and action of the parts employed, as described and shown herein, by which metal plates surrounded by a wire helix and solder are united to form cylinders of more than usual strength in proportion to weight, and the application of such cylinders to any mechanical purposes for which they are or may be available.

In witness whereof I have hereunto set my signature this 23d day of March, 1848.

STEPHEN R. PARKHURST.

Witnesses:

W. SERRELL,

LEMUEL W. SERRELL.