No. 703,217. Patented June 24, 1902.

C. A. RIDLON.

APPARATUS FOR DRYING AND POLISHING BROOM HANDLES.

(Application filed Dec. 23, 1901.)

(No Model.) 3 Sheets—Sheet 1.

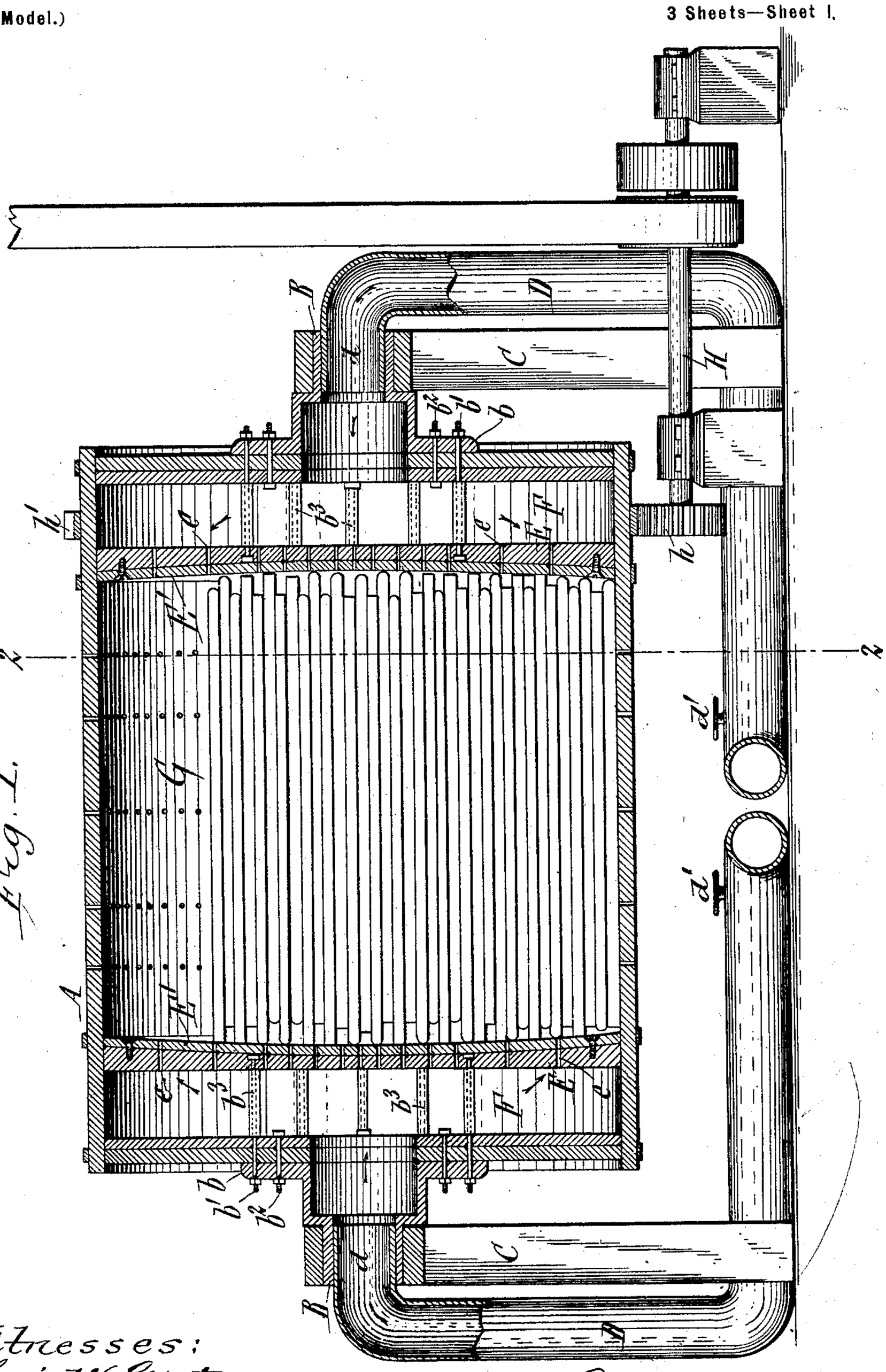

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

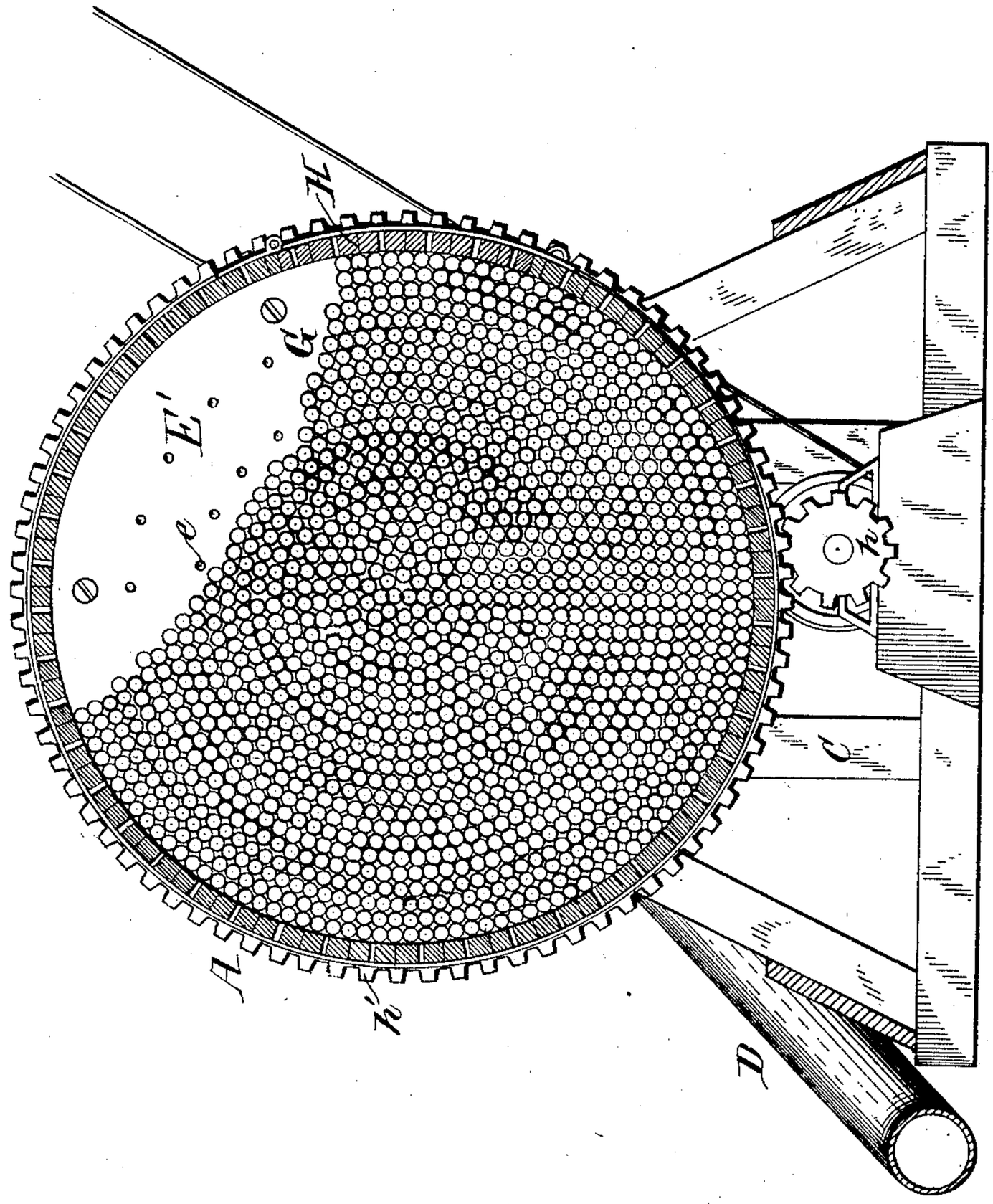

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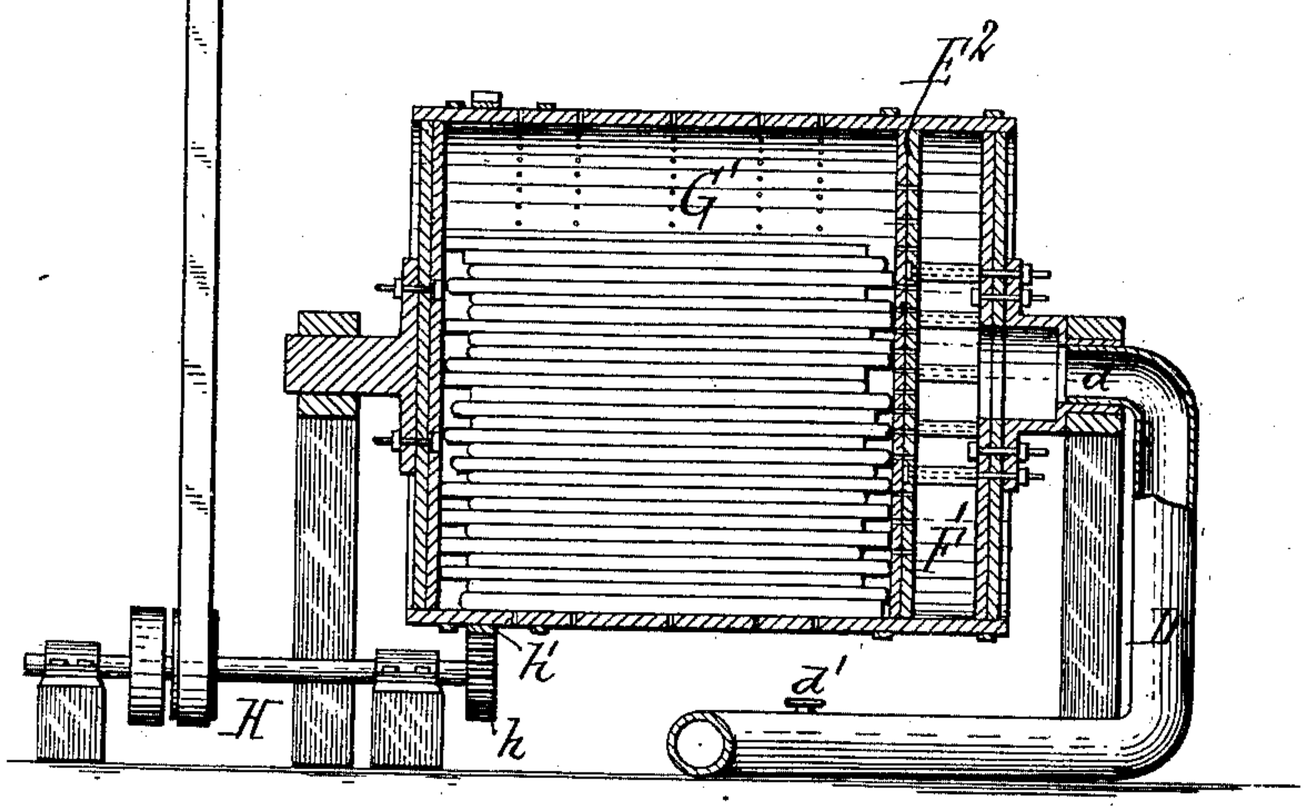
Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DRYING AND POLISHING BROOM-HANDLES.

SPECIFICATION forming part of Letters Patent No. 703,217, dated June 24, 1902.

Application filed December 23, 1901. Serial No. 86,953. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. RIDLON, a citizen of the United States, residing at Alba, in the county of Antrim and State of Michigan, have invented new and useful Improvements in Apparatus for Drying and Polishing Broom-Handles, &c., of which the following is a specification.

This invention relates to an apparatus designed more especially for drying and polishing green broom-handles, although the same is equally useful for drying similar articles, such as dowel-rods and the handles of rakes, pitchforks, &c. Such handles have heretofore been dried and polished by tumbling them in a rotary horizontal drum having in its axis a perforated supply-pipe through which hot air is delivered into the drum, the air passing radially from the central supply-pipe to the cylindrical wall of the drum, where it escapes through numerous perforations in its periphery. As the handles lie lengthwise in the drum and against one another, the air in an apparatus of the above construction cannot pass freely through the mass of handles in a radial direction and seeking the course of least resistance passes along the central air-inlet pipe and around the ends of the handles. Only those handles adjacent to the air-pipe are thus effectually exposed to the hot-air current, while the remaining handles are exposed principally at their ends, thus not only drying them unevenly and imperfectly, but requiring a comparatively long period besides.

My invention has for its object the construction of an apparatus by which such handles can be dried and polished in a comparatively short time and in a thorough and uniform manner, so as to prevent warping of the handles and improve their appearance.

In the accompanying drawings, consisting of three sheets, Figure 1 is a longitudinal section of my improved machine. Fig. 2 is a transverse section on line 2 2, Fig. 1. Fig. 3 is a longitudinal section of a modified construction of the machine.

Like letters of reference refer to like parts in the several figures.

A indicates a rotary horizontal drum or cylinder provided at its ends with hollow journals or trunnions B, which are supported in suitable bearings mounted in upright end frames C. These journals register with air-inlet openings in the heads of the drum, and in the construction shown in the drawings the journals are provided with flanges *b*, which are secured to the heads by two rows of bolts b' b^2.

D D indicate stationary pipes or conduits which supply hot air to the drum through its hollow journals and which are connected with a blower or other air-forcing device (not shown in the drawings) which withdraws hot air from a heater and delivers it into the drum. These air-conduits have horizontal branches *d*, which are loosely but snugly fitted in the reduced ends of the journals, as shown in Fig. 1. Ordinary dampers d' may be arranged in the conduits for regulating the supply of air to the drum.

The drum is provided near its ends with internal partitions or auxiliary heads E, forming, with the adjacent main heads, two air inlet and distributing chambers F, with which the hollow journals *b* communicate. The main heads and the portions of the drum-body surrounding the air-inlet chambers F are air-tight, while the partitions E are provided with numerous perforations *e*, through which the hot air issues lengthwise of the drum into the main or drying chamber G, located between the perforated partitions. The portion of the drum which incloses this drying-chamber is perforated for the escape of the hot air and moisture and is provided with a door H for introducing the handles, this door having a hasp or other suitable fastening.

The partitions E are rigidly secured in place, preferably by the outer row of bolts b', which are long enough for this purpose, and spacing-tubes b^3, applied to the bolts between the heads of the drum and said partitions.

The drum is slowly driven by any appropriate means, the mechanism shown in the drawings consisting of a gear-pinion *h*, mounted on a driving-shaft H and meshing with a gear-rim h' on the drum.

In the use of the machine the broom-handles or similar articles are placed in the drying-chamber G of the drum, preferably by bringing the door-opening to the top of the

drum and spouting the handles into the same, the drying-chamber being filled to about two-thirds of its capacity. After closing the door the drum is set in motion and hot air admitted thereto. The hot air entering the inlet-chambers F is distributed in the same and passes thence through the perforated partitions E into the drying-chamber G and lengthwise through the numerous small cells or spaces left between the mass of cylindrical handles. The two air-currents forced into opposite ends of the drying-chamber encounter each other in the spaces between the handles, producing a pressure which causes the air and moisture to be forced outwardly in all directions toward the periphery of the drum, where the same finally escapes after permeating the mass of handles. By thus passing the hot air lengthwise through the handles from opposite ends of the same instead of delivering the air into the axis of the drum the air is compelled to filter through the whole mass of handles both lengthwise and radially, thus completely exposing all of the same to the action of the air and thoroughly and uniformly drying them. As the hot air is effectually utilized in this manner the period required to dry the handles is correspondingly shortened.

As the handles are constantly rolled and tumbled by the rotation of the drum they become polished by attrition. In order to increase this polishing action, the partitions E are preferably concave on the side facing the drying-chamber G. By this construction the handles as they roll over one another strike and slip over the concave sides of the partitions and are thereby wedged or shifted lengthwise of the drum, causing them to rub against one another and more effectually polishing the same. The concave partitions also serve to polish the rounded ends of the handles.

The partitions, which are usually made of wood, receive considerable wear from the friction of the broom-handles, and to save the expense and loss of time incident to replacing the same when worn out they are provided with removable wear facings or disks E′, which can be readily renewed when necessary. These facings are removably secured to the partitions by screws or other suitable fastenings and provided with air passages or perforations which register with those of the partitions, as shown in Fig. 1.

It has been found that broom-handles treated in this apparatus are so evenly and completely dried that when removed from the machine they are straight and not liable to warp and at the same time comparatively white and free from sap marks, thus improving their appearance. A larger percentage of No. 1 or first-grade handles is also obtained from the same kind and quantity of timber, thereby enhancing the market value of the handles.

If desired, the drum may be provided with a single air-receiving chamber F′ and perforated partition E^2, as shown in Fig. 3. In this case the air-current passes lengthwise through the mass of broom-handles from the inlet end toward the opposite end of the drying-chamber G′ and then escapes from the drum through the perforations in its periphery. In this modification the perforated partition E^2 has a straight instead of a concave face. If desired, the partition E′ of the first-described machine may be likewise constructed.

I claim as my invention—

1. An apparatus for drying broom-handles, &c., consisting of a rotary drum having one of its heads provided centrally with an air-conduit which communicates with the drum, and a partition arranged near said head and forming separate air-distributing and drying chambers, said drying-chamber being provided with air-escape openings, and said partition having passages through which the air issues into said drying-chamber lengthwise of the same, whereby the air-current passes lengthwise through the spaces between the handles placed in the drum, substantially as set forth.

2. A drying apparatus, consisting of a rotary drum having tight heads provided with hollow journals which communicate with the ends of the drum, and perforated partitions arranged in the drum near its ends and forming air inlet and distributing chambers at opposite ends of the drum and an intermediate drying-chamber, into which latter the air issues in opposite directions lengthwise of the drum, said drying-chamber being provided in its cylindrical wall with air-escape openings, substantially as set forth.

3. A drying apparatus, consisting of a rotary drum having tight heads provided with hollow journals which communicate with the ends of the drum, and perforated partitions arranged in the drum near its ends and forming air inlet and distributing chambers at opposite ends of the drum and an intermediate drying-chamber, the latter having air-escape openings in its cylindrical wall, and said partitions being concave in the side facing the drying-chamber, substantially as set forth.

4. An apparatus for drying broom-handles, &c., consisting of a rotary drum having one of its heads provided centrally with an air-conduit which communicates with the drum, and a perforated partition arranged near said head, forming separate air-distributing and drying chambers and provided with a removable wear-facing having perforations which register with those of the partition, said drying-chamber being provided with air-escape openings, substantially as set forth.

Witness my hand this 16th day of December, 1901.

CHARLES A. RIDLON.

Witnesses:
CHARLES R. DUGGAN,
WILLIS K. JACKSON.