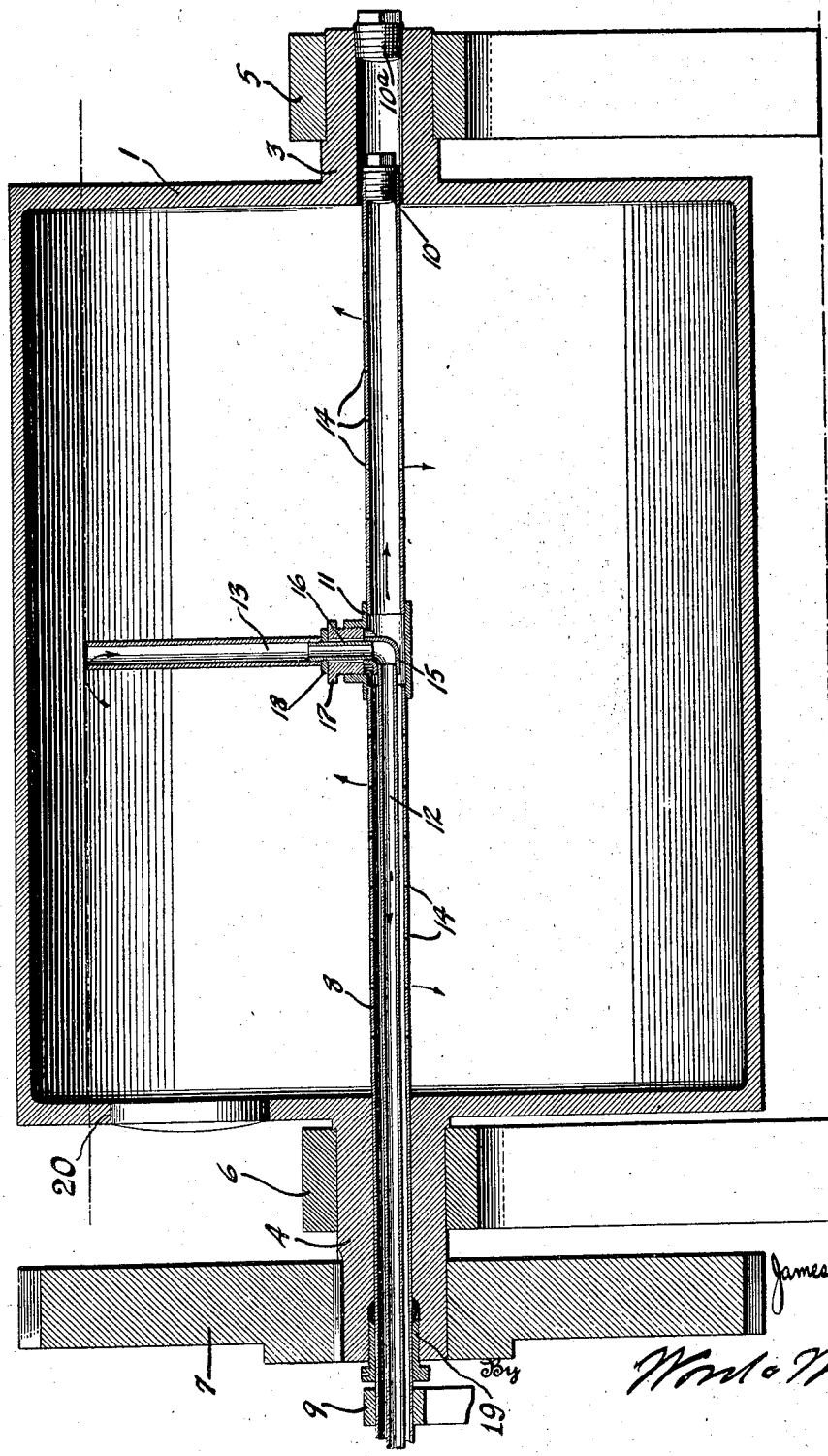
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J. D. McCRACKEN

HEATING OR DRYING DRUM

Filed June 25, 1923



Inventor
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By

Attorneys

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UNITED STATES PATENT OFFICE.

JAMES D. McCRACKEN, OF CINCINNATI, OHIO, ASSIGNOR TO THE UNITED STATES PLAYING CARD COMPANY, OF NORWOOD, OHIO, A CORPORATION OF OHIO.

HEATING OR DRYING DRUM.

Application filed June 25, 1923. Serial No. 647,424.

To all whom it may concern:

Be it known that I, JAMES D. McCRACKEN, a citizen of the United States, and residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Heating or Drying Drums, of which the following specification is a full disclosure.

This invention relates to a rotating heating or drying drum primarily for carrying over its outer cylindrical surface a web or sheet of paper to be dried and particularly applicable in connection with printing or lithographing apparatus.

An object of the invention is to provide a hollow revolving cylindrical drum, with stationary concentric tubes extending axially into and through the axis of the drum as independent conduits in communication with the interior of the drum, one for supplying steam to a body of water within the drum, and the second having an angle extension for an overflow or drawoff connection for maintaining a determined and uniform water capacity or level within the drum, establishing a method of heating whereby a more uniform distribution of temperature will be attained.

Further objects and advantages of the invention will be more fully set forth in the description of the accompanying drawing forming a part of this specification, in which the figure represents a central vertical section through the drum, its supporting bearings, and tubes for heating the water within the drum.

1 indicates a hollow cylindrical drum usually of cast iron which is normally filled with water heated by steam, and in operation the drum is revolved about its axis carrying over its outer surface a web of paper or the like to be dried. The drum, at each of its opposite ends and axially therewith, is provided with tubular trunnions 3, 4 preferably formed integral with the end of the drums, and respectively journalled in the bearings 5, 6. Upon the end of the trunnion 4, which is of extended length, a gear 7 is fixed, affording means for rotating the drum.

A tube or pipe 8 is extended into the drum axially through the tubular trunnion 4 which at one end exterior of the drum is supported or sustained in a stationary and horizontal position axially of the drum by a suitable bearing or support 9 adjacent the end of the trunnion 4. The pipe 8 is projected through a stuffing box 19 or packing in the trunnion 4 for sealing against leakage of water from the drum. The opposite or inner end of the pipe 8 is closed by a plug 10 engaged with the end of the pipe and this end of the pipe is engaged into the bore of the trunnion 3 to centralize the pipe within the drum. The trunnion 3 likewise being provided with a plug 10^a as a removable closure for the bore of the trunnion. The pipe 8 within the drum is composed of sections connected by a T-coupling 11 approximately disposed centrally of the interior of the drum through which a pipe connection is made and supported for a right angle pipe extension 13 of an overflow or drain pipe 12 concentrically disposed within the forward portion of the pipe 8. The pipe 8 serves as a steam supply conduit and for its length within the drum is perforated to provide a plurality of openings 14 communicating with the interior of the drum.

The overflow or drain pipe 12 at its inner end within the T-coupling is provided with an elbow 15 to which a nipple 16 is attached, the nipple being engaged through a reducer plug 17 engaged into the angle hub of the T-coupling. Upon the end of the nipple 16 the pipe section 13 is secured which engages against a washer 18 upon the reducer plug and the pipe section 13 extends vertically to provide for establishing an appropriate water level height within the drum. Any excess water supply in the drum, resulting from the condensation of the steam admitted into the drum from the perforated steam supply pipe 8 for heating the water within the drum, rising above the height of the overflow pipe section 14 will be drained from the drum. The overflow connection may lead as a return line to the boiler and a pump may be introduced in the line to assist the exit of the water. The water level in the drum is thus held uniformly and any excess water drained off from the center of the drum. The steam is admitted axially of the drum and approximately for the entire length thereof resulting in a complete and uniform heating of the water and a more uniform distribution of temperature to the drum than is provided with a direct steam heated drum.

The drum has one of its ends or heads provided with a manhole opening 20 through

which access is had to the interior of the drum which is provided with any serviceable form of closure.

Having described my invention, I claim:

1. A drying cylinder, comprising a rotative hollow cylindrical drum adapted to hold a volume of water, a steam admission conduit extending axially into the drum and through the axis of the drum at one end thereof for non-rotatively sustaining said conduit within said drum, and a second conduit extending axially into the drum and terminating at an angle thereto providing a water level controlling offtake conduit.

2. A drying cylinder, comprising a rotative hollow cylindrical drum adapted to hold a volume of water, a steam admission conduit extending through the axis at one end of the drum axially into the drum and for the length thereof for discharging steam into the water in the drum to heat the same, and a second conduit extending axially into the drum and terminating at an angle thereto providing a water level controlling offtake conduit.

3. A drying cylinder, comprising a rotative hollow cylindrical drum adapted to hold a volume of water, a steam admission conduit extending axially into the drum through one end of the drum, and a second conduit extending axially into the drum concentrically within said first conduit and terminating at an angle thereto centrally of the drum providing a water level controlling offtake conduit.

4. A drying cylinder, comprising a rotative hollow cylindrical drum adapted to hold a volume of water, a stationary steam admission conduit extending axially into the drum, and a second conduit within said first conduit extending and terminating at an angle thereto providing a water level controlling offtake conduit.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

JAS. D. McCRACKEN.

Witnesses:
OSCAR FOURNIER,
B. J. WELAGE.