UNITED STATES PATENT OFFICE.

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MANUFACTURE OF TUBES, PIPES, AND THE LIKE FROM PULP.

1,234,701. Specification of Letters Patent. Patented July 24, 1917.

No Drawing. Application filed November 14, 1916. Serial No. 131,346.

To all whom it may concern:

Be it known that I, HOWARD PARKER, a citizen of the United States, and a resident of Berlin, in the county of Coos, State of New Hampshire, have invented certain new new and useful Improvements in the Manufacture of Tubes, Pipes, and the like from Pulp, of which the following is a specification.

This invention relates particularly to tubes, pipes or the like which are made by forming the pulp or like stock on a mandrel, and the object of the invention is to provide a new method of removing the formed articles from the mandrel. While the term "tube" will be used to indicate the article for the purpose of disclosing the invention, it is not to be understood as having any limiting effect, but the new method here described is adapted for use with various articles formed from pulp or like stock on a mandrel or former.

In one method of making pulp tubes, a wet sheet of pulp is wound onto a mandrel under pressure, and when a wall of suitable thickness has been formed the mandrel with the tube on it is removed from the machine. The mandrels are usually longer than the tube, and so project at either end. In order to put the tube in proper condition for use it must be properly and thoroughly dried, and usually impregnated or treated in such manner as will best fulfil the requirements of the use to which the tube is to be put.

This invention has to do particularly with a new method of removing the tube from the mandrel, and consists in subjecting the newly formed tube to the action of a warm moist temperature, preferably in a closed chamber with insulated walls. The moisture in the chamber prevents the drying of the tube, and the heat liberates or decomposes some of the moisture carried in the pulp, possibly as a vapor or steam, which forms a film against the wall of the mandrel, with the result that the tube will readily slip off the mandrel. In order to provide a sure indication as to the sufficiency or extent of the treatment I set the tubes on end with the mandrel projecting beyond the tube, and when it is found that the tubes have slipped down on the mandrel it obviously means that the treatment has been carried far enough so that the tubes can be readily slipped off the mandrel.

The temperature of the moist air should preferably be between 140° F. and 180° F., but of course the action can be expedited by increasing the temperature still further. Care must be taken to avoid the drying of the tube, and the amount of moisture introduced or the rate of its introduction must therefore be determined to some extent by the temperature used.

It is to be remembered that the terms hereinabove used are terms of description and not of limitation.

I claim as my invention:

1. That improvement in the method of removing wet tubes from mandrels which consists in subjecting them to the action of a warm moist atmosphere.

2. That improvement in the method of removing wet tubes from mandrels which consists in subjecting them to the action of heat without materially drying the tube wall.

3. That improvement in the method of removing wet tubes from mandrels which consists in subjecting the tube to heat treatment in a humid atmosphere to loosen the tube on the mandrel.

4. That improvement in the method of removing wet tubes from mandrels which consists in placing the tubes on end in a closed chamber, and while they are in the chamber subjecting them to heat treatment in a partly saturated atmosphere.

HOWARD PARKER.