

No. 726,761.

PATENTED APR. 28, 1903.

J. H. RIVERS.
STOPPER.

APPLICATION FILED JAN. 2, 1903.

NO MODEL.

Fig. 1

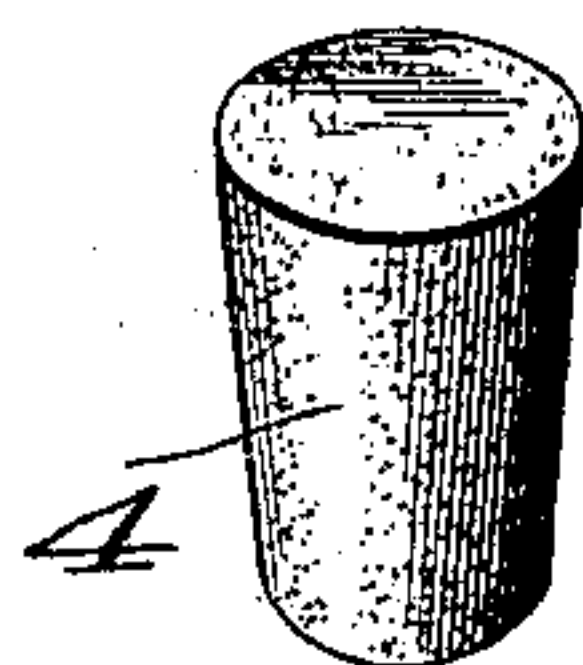
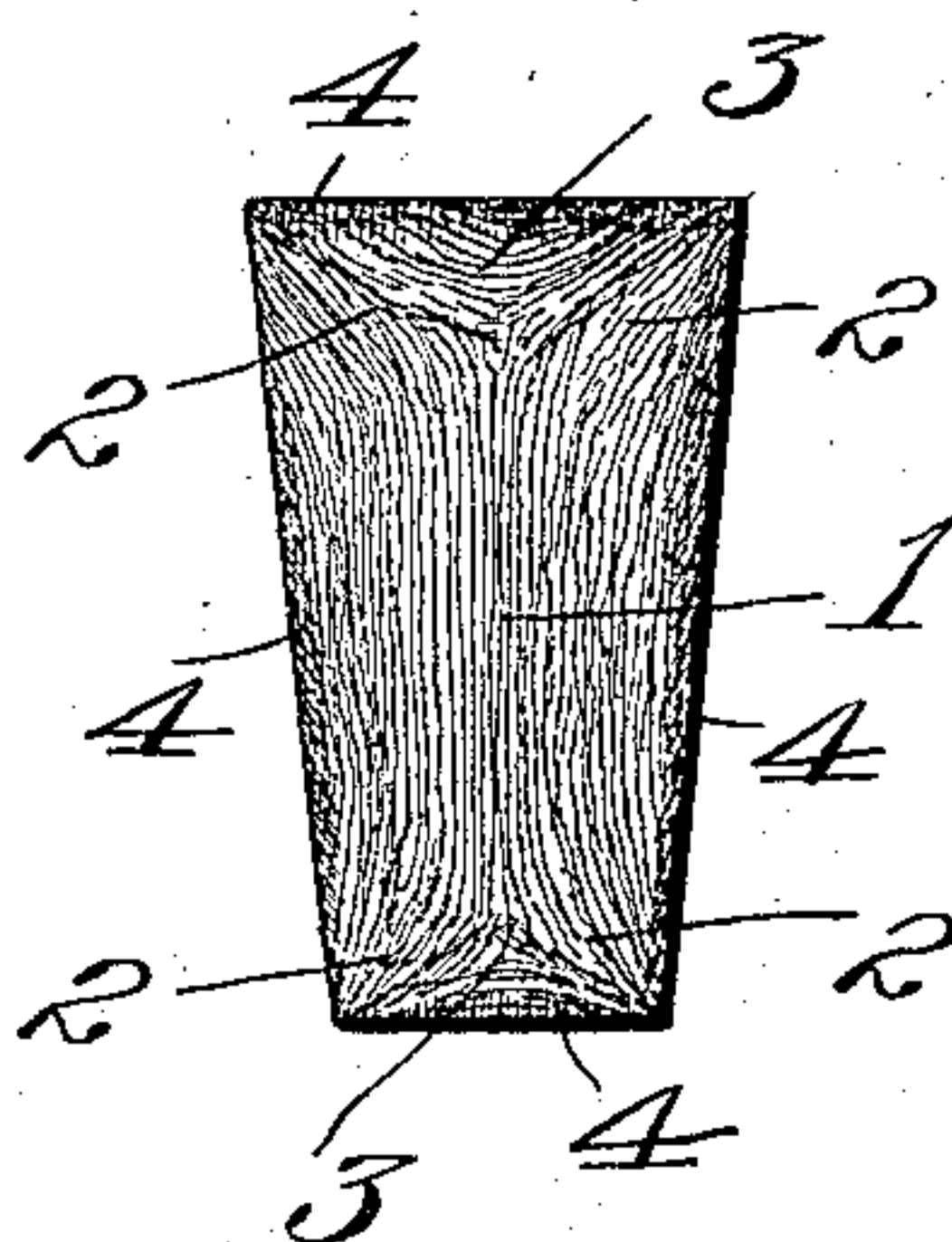


Fig. 2



Witnesses:

Wm. H. Scott

Ralph H. Hark

Inventor:
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By Bakewell & Cornwall
Attys.

UNITED STATES PATENT OFFICE.

JULIAN H. RIVERS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO UNITED STATES FIBER STOPPER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF SOUTH DAKOTA.

STOPPER.

SPECIFICATION forming part of Letters Patent No. 726,761, dated April 28, 1903.

Application filed January 2, 1903. Serial No. 137,524. (No model.)

To all whom it may concern:

Be it known that I, JULIAN H. RIVERS, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Stoppers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved stopper, and Fig. 2 is a vertical longitudinal sectional view through the same.

This invention relates to a new and useful improvement in stoppers for bottles and the like, the object being to produce a stopper from fibrous material, such as paper-pulp, which is impervious to the contents of the bottle, one which is sufficiently yielding to make a tight joint, one which has a hard-finished surface, preventing the stopper from unduly swelling, one which is durable and light, and one which is cheap and easily made.

With these objects in view my invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings the stopper is shown as an ordinary bottle-stopper whose body portion is tapered, as usual, for well-understood purposes. The center of this stopper, as will be seen, has its fibers lying longitudinally, as at 1, said fibers diverging at each end of the stopper, as at 2, so that at the ends of the stopper the fibers 3 extend at angles to the longitudinally-disposed fibers. This arrangement of the fibers places the long fibers practically in parallelism with the longitudinal axis of the stopper and at an angle to pressure externally applied, so that said longitudinally-disposed fibers are better able to resist such pressure and yield under the application thereof, the stopper thus being provided with a yielding interior to permit the stopper to adapt itself to bottle-necks and the like. The surface of the stopper is felted or matted, as indicated at 4, these matted or intertwined fibers acting as a bonding integu-

ment, and the surface formed by said matted or felted fibers is calendered, which produces a relatively hard smooth exterior, which prevents the swelling of the stopper in the presence of moisture and also tends to prevent dirt or other substances from adhering to the stopper or permeating the same. It will be noticed that this felted or matted surface is present at both ends and entirely around the periphery of the stopper.

In applications filed by me of even date (serially numbered 137,527 and 137,526) I have illustrated and described improved apparatus for and method of making pulp stoppers having the characteristics described in the present application.

If desired, this stopper may have its interstices filled with paraffin or other moisture-resisting substances for well-understood reasons.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a pulp stopper whose fibers lie principally in lines parallel to the axis thereof; substantially as described.

2. As a new article of manufacture, a pulp stopper whose fibers lie principally in lines parallel to the axis thereof and diverge outwardly at the ends of the stopper; substantially as described.

3. As a new article of manufacture, a pulp stopper whose fibers lie principally in lines parallel to the axis thereof, the fibers at the ends of the stopper lying in planes at angles to the said first-mentioned fibers; substantially as described.

4. As a new article of manufacture, a pulp stopper whose fibers lie in lines parallel to the axis thereof, the fibers at the ends of said stopper diverging and lying in planes at angles to said first-mentioned fibers; substantially as described.

5. As a new article of manufacture, a pulp stopper having a felted or matted surface on its periphery which acts as a bonding integument; substantially as described.
- 5 6. As a new article of manufacture, a pulp stopper whose entire surface is composed of felted or matted fibers; substantially as described.
- 10 7. As a new article of manufacture, a pulp stopper whose fibers lie principally in a direction at an angle to their adjacent surfaces; substantially as described.
- 15 8. As a new article of manufacture, a pulp stopper having a matted surface acting as a bonding integument, and whose interstices are filled with a moisture-resisting substance; substantially as described.
- 20 9. A fibrous stopper whose exterior surface is calendered; substantially as described.
10. A pulp stopper whose exterior surface is calendered; substantially as described.
11. A pulp stopper whose fibers adjacent its surface are felted; substantially as described.
- 25 12. A pulp stopper whose fibers adjacent its surface are felted and whose surface is calendered; substantially as described.
13. A pulp stopper whose fibers are principally longitudinally disposed, the fibers at the ends of said stopper being felted; substantially as described.
- 30 14. A pulp stopper whose fibers are principally longitudinally disposed, the fibers at the periphery of the stopper being felted; substantially as described.
- 35

15. A pulp stopper whose fibers are principally longitudinally disposed, the fibers at the ends and periphery of said stopper being felted; substantially as described.

16. A pulp stopper whose fibers lie principally in substantially parallel lines, certain of the fibers being felted; substantially as described. 40

17. A pulp stopper whose fibers are principally longitudinally disposed and whose exterior is calendered; substantially as described. 45

18. A stopper having a yielding interior body and a relatively hard exterior; substantially as described. 50

19. A homogeneous stopper having a yielding interior body and a relatively hard exterior; substantially as described.

20. A pulp stopper having a yielding interior body and a relatively hard exterior; substantially as described. 55

21. A stopper having a yielding interior body and a relatively hard and smooth exterior; substantially as described.

22. A pulp stopper having a yielding interior body and a calendered exterior; substantially as described. 60

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 31st day of December, 1902.

JULIAN H. RIVERS.

Witnesses:

GALES P. MOORE,
GEORGE BAKEWELL.