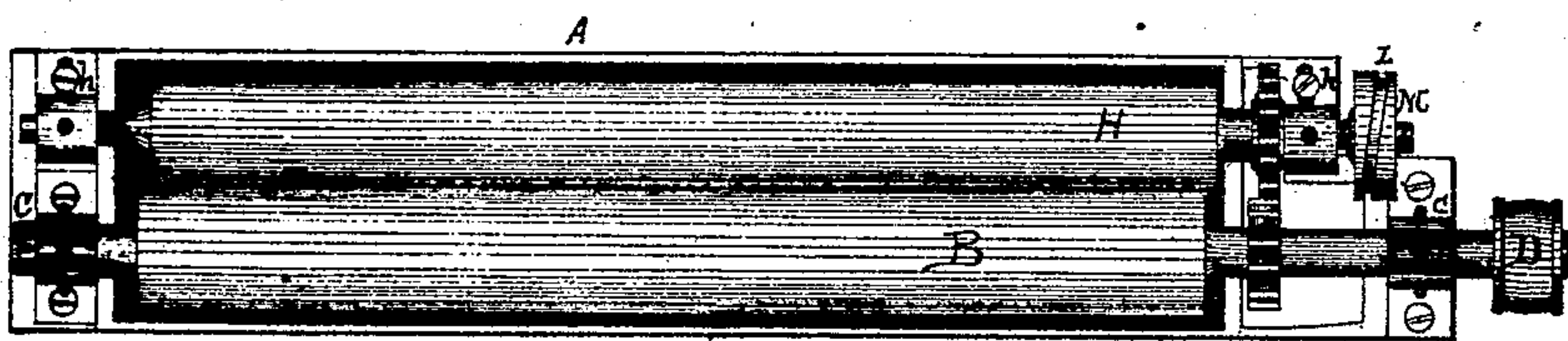


**B.F. Field.**  
**PASTING APPARATUS & PAPER LINING MACHINES.**

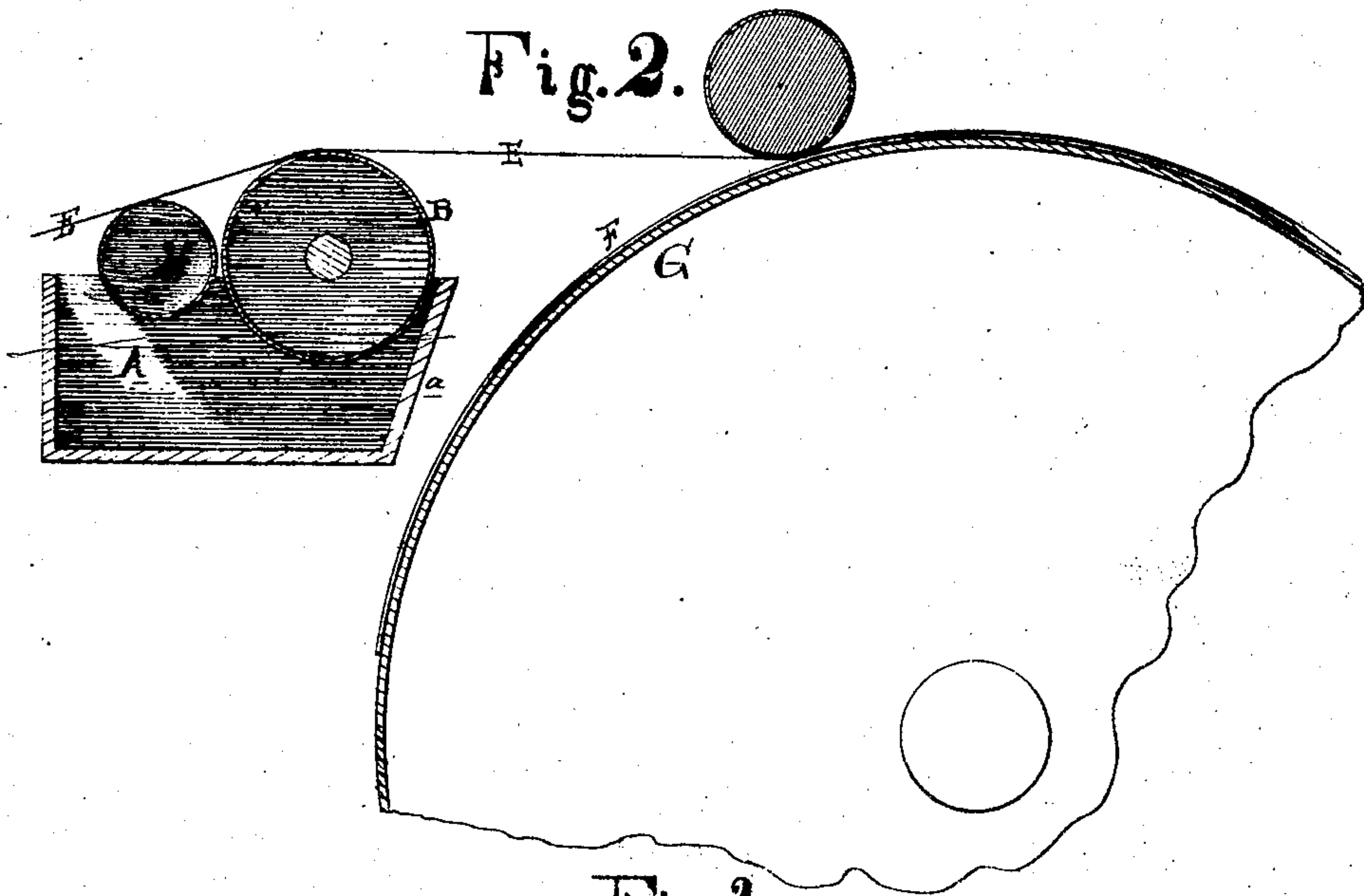
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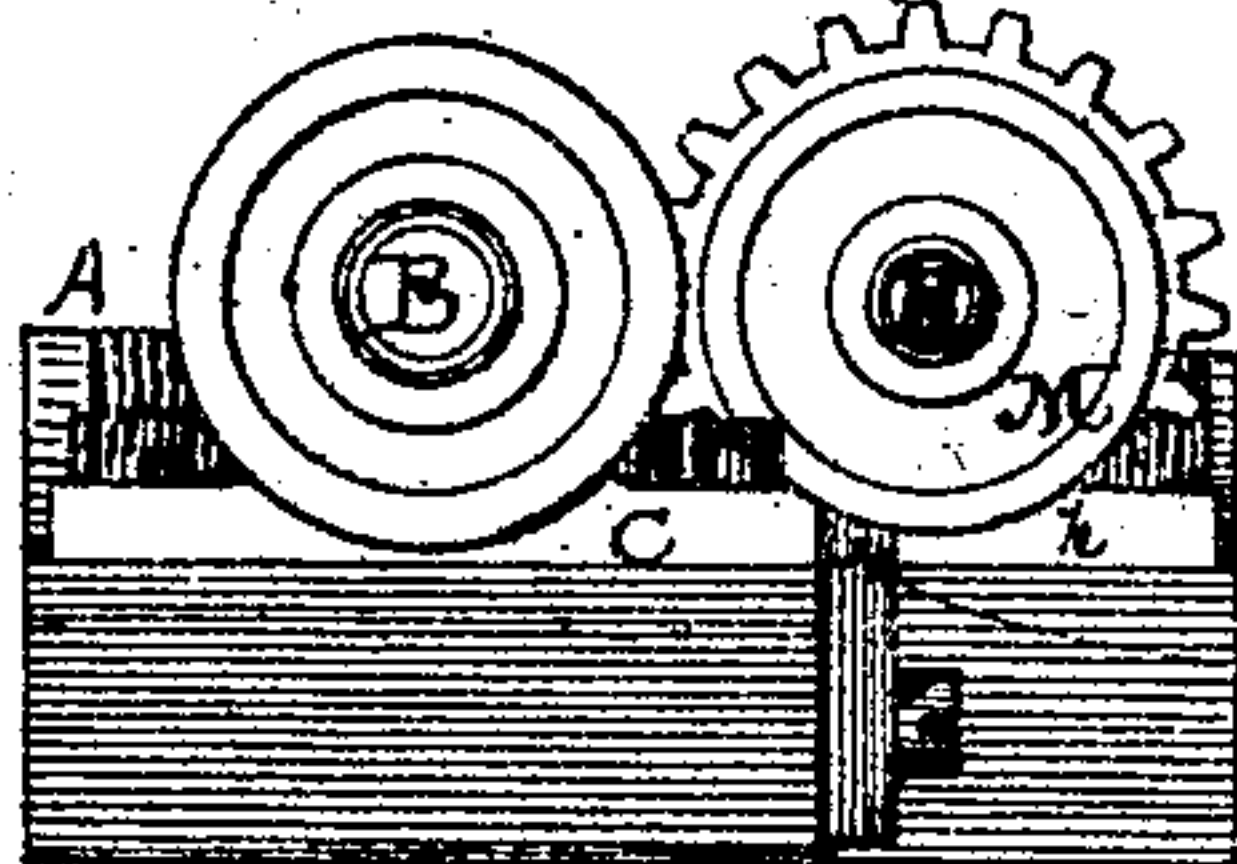
**Fig. I.**



**Fig. 2.**



**Fig. 3.**



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WITNESSES.

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. FIELD, OF BELOIT, WISCONSIN.

## IMPROVEMENT IN APPARATUS FOR PASTING LINING TO PAPER.

Specification forming part of Letters Patent No. 117,060, dated July 18, 1871.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. FIELD, of Beloit, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Pasting Apparatus for Paper-Lining Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view of my apparatus. Fig. 2 is a vertical cross-section of the same. Fig. 3 is an end elevation of the same.

This invention relates to an improvement in machinery for lining straw board, &c., with thin paper, heretofore patented to me; and it consists in an adjustable revolving paste-gauge.

That others may fully understand my invention, I will particularly describe its construction and operation.

A is the paste-box, which may be constructed of cast-iron or other material. It is mounted upon the frame of the paper-machine, and transverse to the same, in the manner described in my patent heretofore granted. The paste-roller B is mounted in bearings C, located at either end of said paste-box, and is moved by a belt around the pulley D, or by any other convenient and suitable means. The web E of thin lining-paper passes from a reel over the surface of the roller B, and is led thence upon the web F of thick paper or board to be lined as the same is passing over one of the driers G. Heretofore a scraper-gauge has been employed to regulate the quantity of paste taken over by the roller B; but it is found that small segregations or lumps will be formed in the paste, and these, being arrested by the scraper, will cause the delivery of the paste to be unequal. The quantity of paste at one end of the paste-box may also be greater than at the other, and the quantity of paste taken up by the paste-roller will correspondingly differ from end to end.

To produce a more uniform distribution of the paste, as well as to break up and utilize the small lumps referred to, I employ an adjustable gauge-roller, H, mounted in bearings h at either end of the paste-box. The roller H may be made adjustable most conveniently by making its bearings adjustable, so that the distance of the gauge-roller from the paste-roller may be perfectly reg-

ulated. In addition to the revolution of the gauge-roller upon its axis, I find it advantageous to impart to said roller a lateral motion in its bearings, so that points upon its surface move in directions oblique to the plane of revolution of the paste-roller, and this produces a grinding action between the surfaces of the two rollers, and thus effects the complete softening and distribution of all lumps or segregations which may be in the paste. The layer of paste taken over by the paste-roller will not be rendered completely uniform in thickness by the simple gauging of the distance between the two rollers, because any inequality in the consistency of the paste will have an effect to vary the quantity passing between the rollers. I therefore arrange the gear-wheels so that the gauge-roller shall revolve at a rate of speed different from the speed of the paste-roller, and thus produce a dragging action upon the layer of paste, and cause it to be not only regulated in thickness but more intimately commingled and uniform in consistency. The lateral motion of the gauge-roller H I produce by means of a cam-groove, L, cut in the cylinder M, and a stationary pin, N, rigidly secured to any convenient part of the frame. The gauge-roller should revolve in a direction opposite to that of the paste-roller, and at a less rate of speed. It should be about one-half the diameter of the paste-roller, and must not come in direct contact with the paste in the paste-box. The paper web E, used for lining the straw-board F, should, in its passage over the gauge-roller, be given such a direction as to press slightly upon the upper surface of said gauge-roller. A portion of the paste will thus be removed from the surface of the gauge-roller, and the web E will receive from the paste-roller a more perfect coating than would otherwise be the case. The paste and gauge-rollers should be made of brass or copper, because it will then be less affected by corrosion than if made of any other inexpensive metal. When the web E has received its coating of paste it is desirable to lay it upon the web F with as little delay as possible, because the moisture of the paste causes it to expand and it becomes difficult to avoid wrinkles. To that end I construct the paste-box with one side beveled, as shown at a, to enable the paste-roller to be brought close to the drier G, as shown. With

the improvements above described a coarser and cheaper quality of paste can be successfully used than heretofore.

Having described my invention, what I claim as new is—

1. In combination with the paste-roller B and adjustable gauge H, the cylinder M or its equivalent, provided with the cam-groove L and the stud N, to produce a lateral movement of the roller H, as set forth.

2. In combination with the paste-roller B and adjustable gauge-roller H, the pinions I K, to cause said rollers to revolve at different rates of speed.

BENJAMIN F. FIELD.

Witnesses:

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