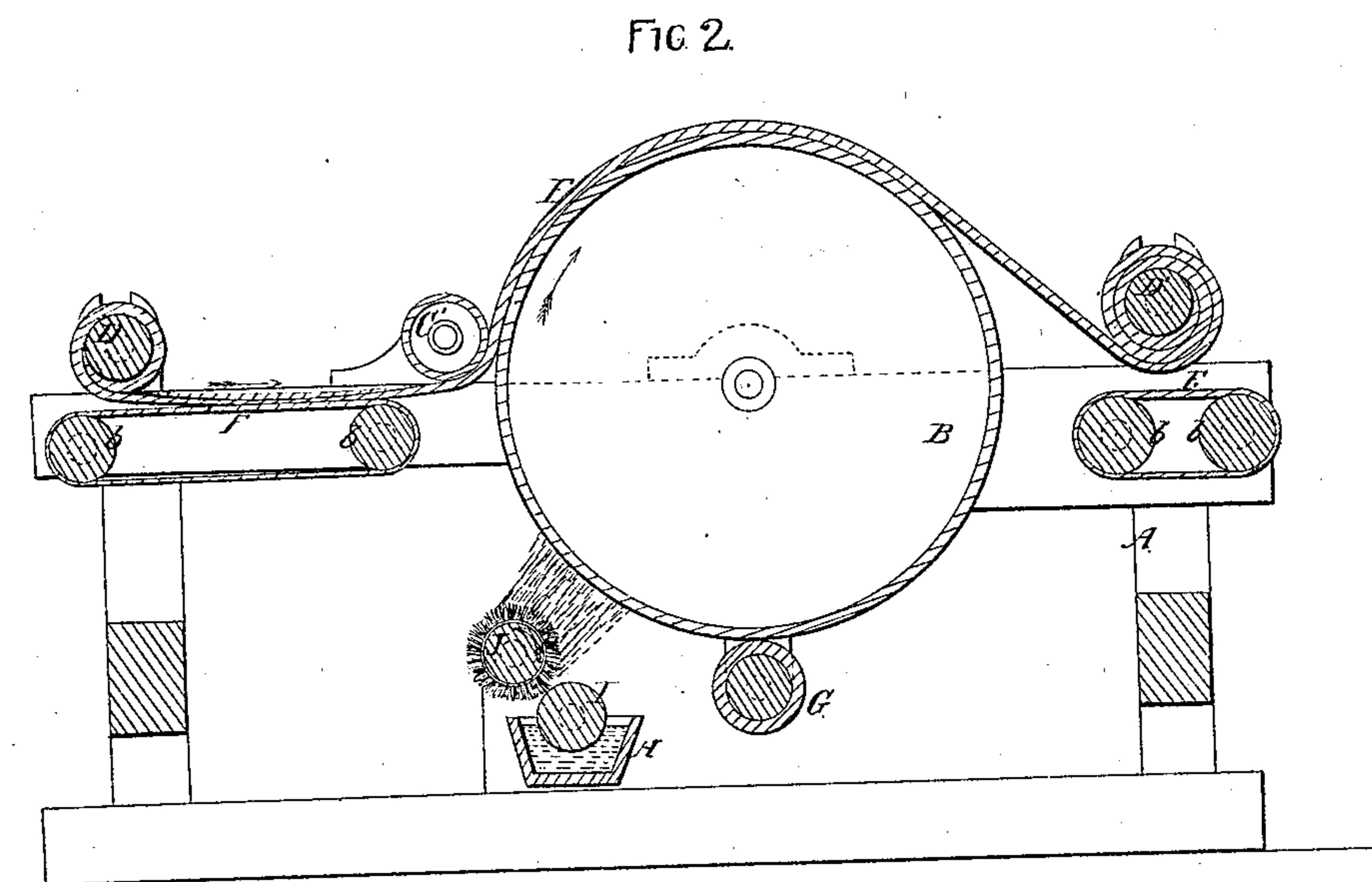
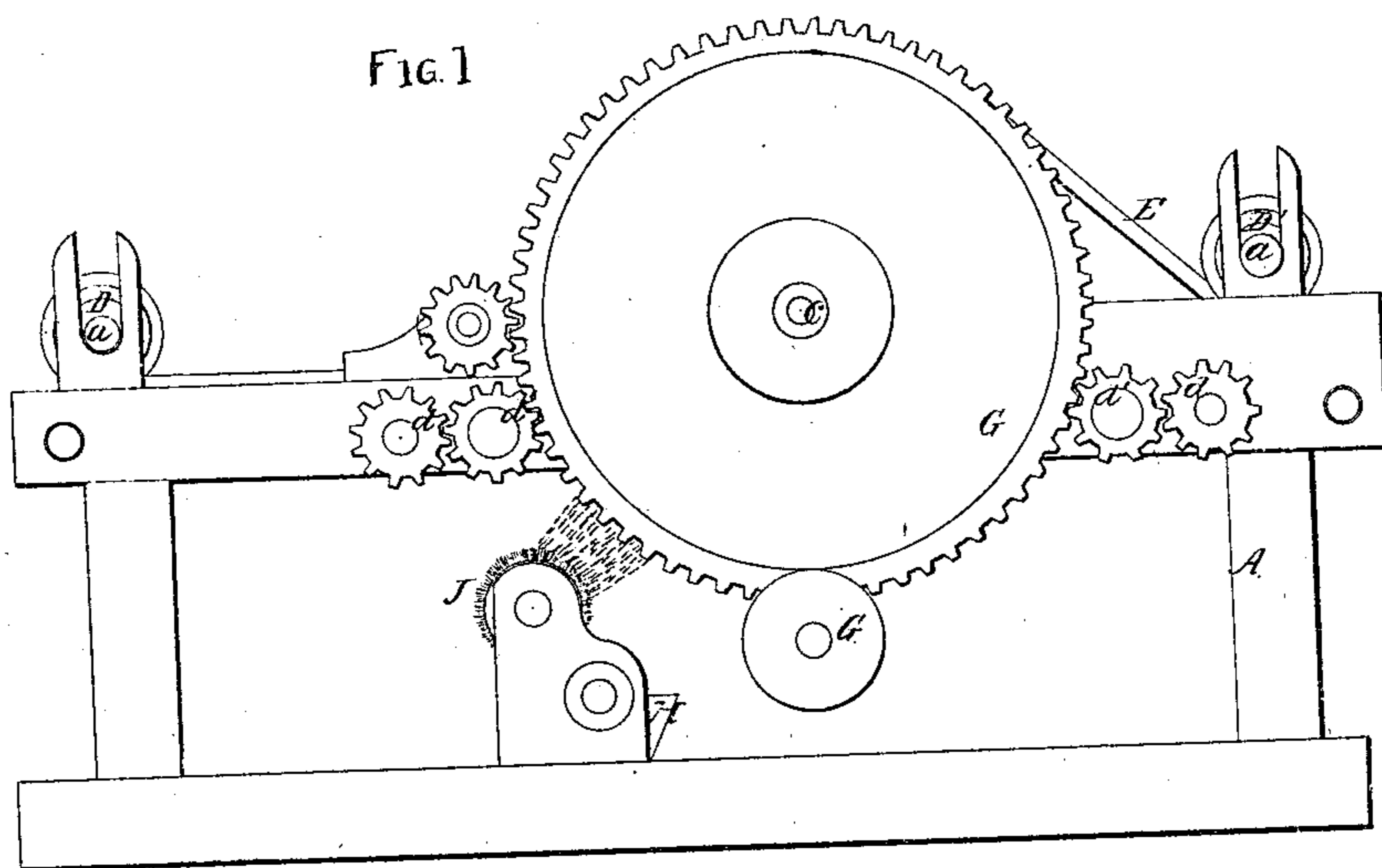


W. Fuzzard.
Making Wadding.

N^o 41,214

Patented Jan. 12, 1864.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM FUZZARD, OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN MACHINE FOR SURFACE-SIZING FIBROUS MATERIALS.

Specification forming part of Letters Patent No. 41,214, Dated January 12, 1860.

To all whom it may concern:

Be it known that I, WILLIAM FUZZARD, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Surfacing Fibrous Materials; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a longitudinal vertical section of the same, taken through the center.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to machinery for applying a glazing or size to fibrous substances—such as cotton-wadding, &c.—in such a manner that a quite thin or attenuated sizing may be used and applied to the web or material to be glazed, sized, or “surfaced,” as it is technically termed, and said material dried at the same operation.

To this end the invention consists in the employment or use of a smooth or polished metal cylinder, heated by steam or otherwise, over a portion of which the web to be surfaced passes, and which has a pressure-roller (also heated by steam or otherwise) bearing against it, the metal cylinder having the glazing or size distributed upon its exterior by means of a revolving brush or its equivalent, and at a point sufficiently distant from that where the web comes in contact with the cylinder that the glazing may become partially dry before being brought in contact with and applied to the web.

The above parts are used in connection with a roller for cleaning the cylinder.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper manner to support the working parts of the machine; and B is a cylinder, the shaft of which is fitted transversely in the framing A. This cylinder is of metal or has a metallic exterior as smooth as possible, and is heated by steam passing within it or by other suitable means.

C is a small metal cylinder placed on the framing A and within a short distance of the cylinder B; and D D' are two rollers, the jour-

nals *a* of which are fitted in slotted uprights on the framing.

The web to be surfaced, which is designated by E, passes off from the roller D and is wound upon the roller D', the web passing between the small metal cylinder C and the large cylinder B and over the upper part of the same, as shown clearly in Fig. 2.

F F are two endless aprons, which are placed one at each end of the framing A. The aprons work over suitable rollers, *b*, which are rotated from a toothed wheel, G, on one end of the shaft *c* of the large cylinder B, through the medium of pinions *d d'*, the former being attached to one end of the inner rollers of the aprons F F. (See Fig. 1.)

G represents a roller, which is covered with felt or other suitable material which will polish or clean the cylinder B. This roller is so placed as to run in contact with the periphery of the cylinder B directly underneath its shaft.

H is a trough, which contains the glazing or size, and in which a roller, I, is fitted longitudinally and works or rotates in a partially-submerged state in the glazing or size, as shown in Fig. 2.

J is a brush-roller, which works in contact with the roller I. The brush-roller is some distance from the periphery of the cylinder B.

The roller I may be of metal, at least that would be the most preferable material for its surface or periphery, as the latter should be smooth.

The roller I, brush-roller J, and felt roller G may be rotated by belts or gearing arranged in any suitable way.

The glazing or sizing in the trough H is quite thin, dissolved or attenuated in water, so as to be like starch that is commonly used in sizing cotton goods.

The roller I as it rotates brings up on its surface a quantity of the glazing or sizing, which is wiped off by the brush-roller J, the latter rotating very rapidly and throwing the glazing or sizing in very fine particles, like mist, against the cylinder B, and the latter is heated to such a degree that evaporation commences the instant the glazing or sizing touches the cylinder B, and the former is partially dried before it comes in contact with the web E at the point between the cylinder C and the cylinder B. The cylinder C, being also heated,

dries off the steam that passes through the web at this point, and the web in passing over the upper part of the cylinder B is glazed or sized and dried, the two processes being performed simultaneously and finished before the web reaches the point where it leaves the cylinder B. The cylinder C also presses the web E to the cylinder B, and causes it to adhere to the glazing or sizing on cylinder B. One or more of these cylinders C may be used. The web E, being thus pressed on the glazing or sizing and moving with it on the hot cylinder B, becomes, as previously stated, dry before or as it reaches its point of discharge from cylinder B, the web taking off with it from said cylinder the fine glazing. To accomplish this result in a perfect manner, the cylinder B requires to be well polished or cleaned, which is done by the felt roller G, the latter revolving rapidly.

A little beeswax or tallow may be occasionally rubbed on cylinder B, to aid the cleaning process.

Thus it will be seen that by this simple arrangement a liquid or semi-liquid glazing or sizing may be applied to the web, and the latter surfaced and dried expeditiously at one and the same operation, and by a very compact device.

I would remark that in cases where the web is made of a long and strong fiber it is possible and practicable to throw the glazing or

sizing directly on the web, the latter passing over the cylinder B in the same way as previously described; but when the fiber is short and weak the former or first-described process must be adopted.

The endless aprons F serve as guides or supports, and also as feeders for the web E, in passing on and off from the cylinder B.

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

1. The employment or use of a heated metallic cylinder, B, or one having a metallic exterior or periphery, in connection with a heated pressure-cylinder, C, one or more, and a polishing-roller, G, or its equivalent, arranged as shown, for the purpose of surfacing and drying simultaneously or at one operation fibrous materials, as set forth.

2. The distributing or throwing of the glazing or sizing upon or against the cylinder B or the web E by means of a rapidly-revolving brush-roller, J, or its equivalent, running in contact with a roller, I, partially submerged in the glazing, whereby the glazing or sizing is thrown against the cylinder or web in a fine mist, as set forth.

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Witnesses:

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