

No. 711,495.

Patented Oct. 21, 1902.

W. W. GRIER.
PRINTING CYLINDER.

(Application filed Feb. 4, 1901.)

(No Model.)

2 Sheets—Sheet 1.

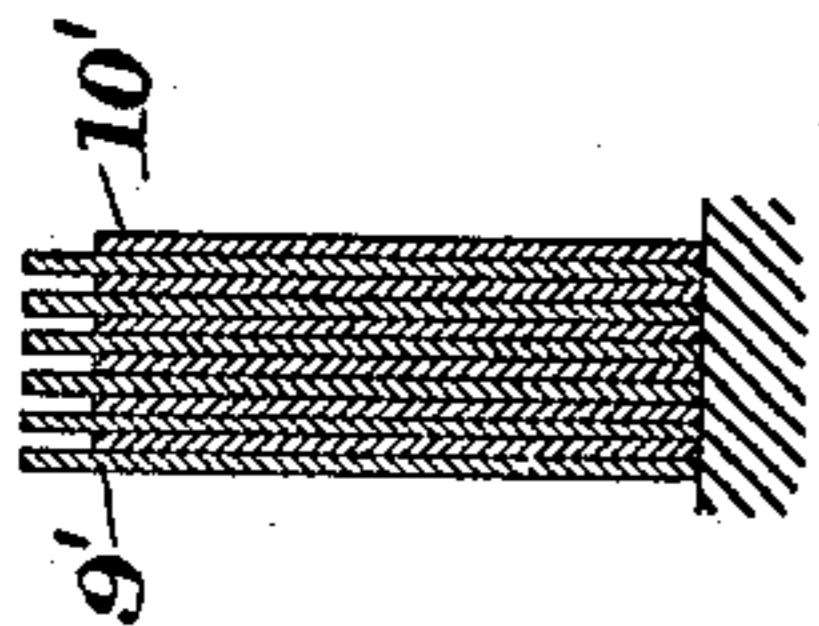


Fig. 5.

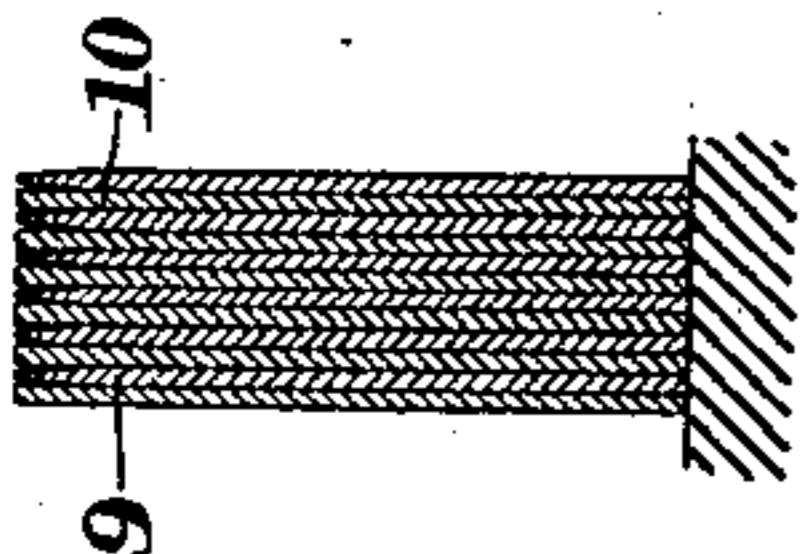


Fig. 4.

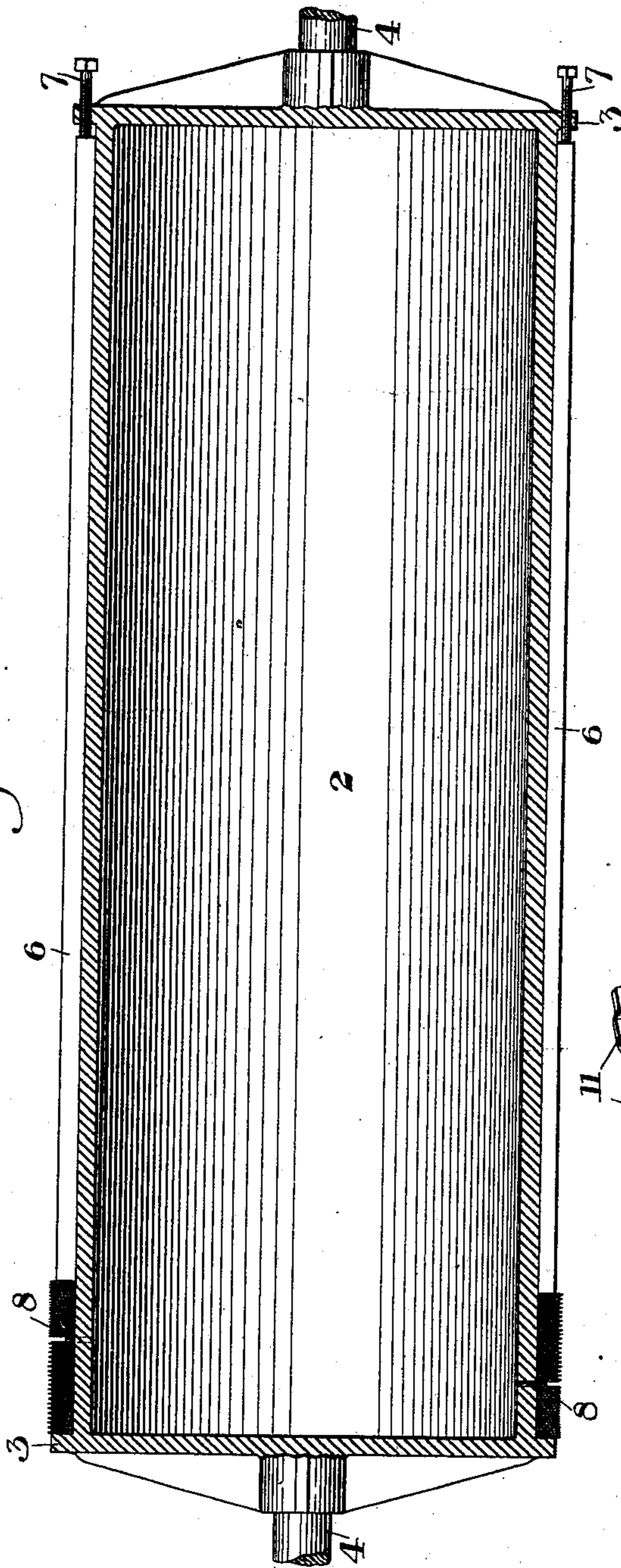


Fig. 1.



Fig. 7.

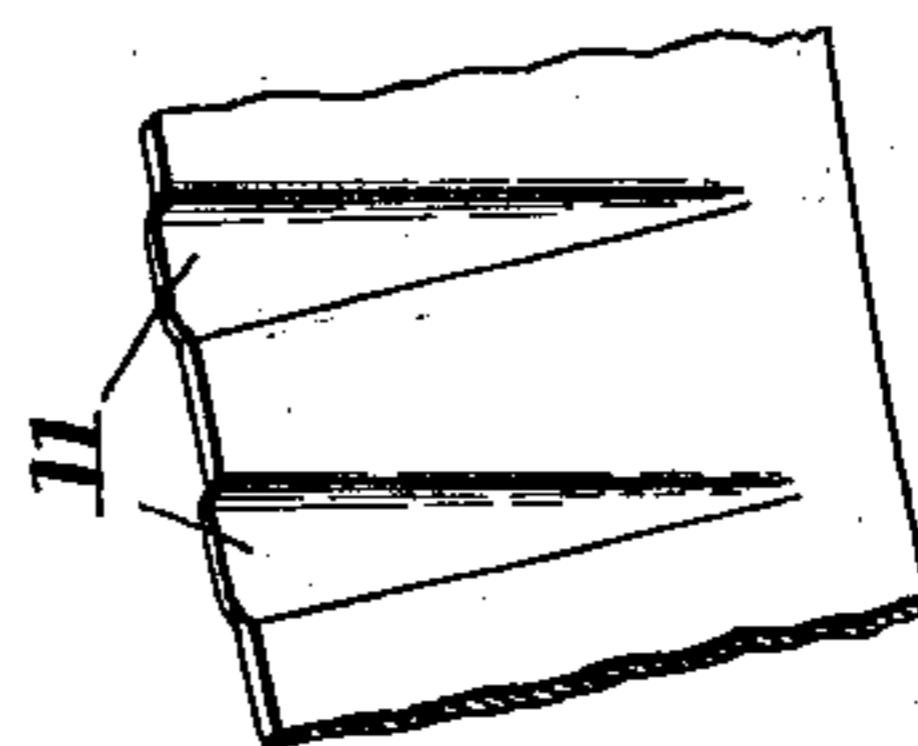


Fig. 6.

WITNESSES

Warren W. Bewartz
G. J. Holdship

INVENTOR

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W. W. GRIER.
PRINTING CYLINDER.

(Application filed Feb. 4, 1901.)

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2 Sheets—Sheet 2.

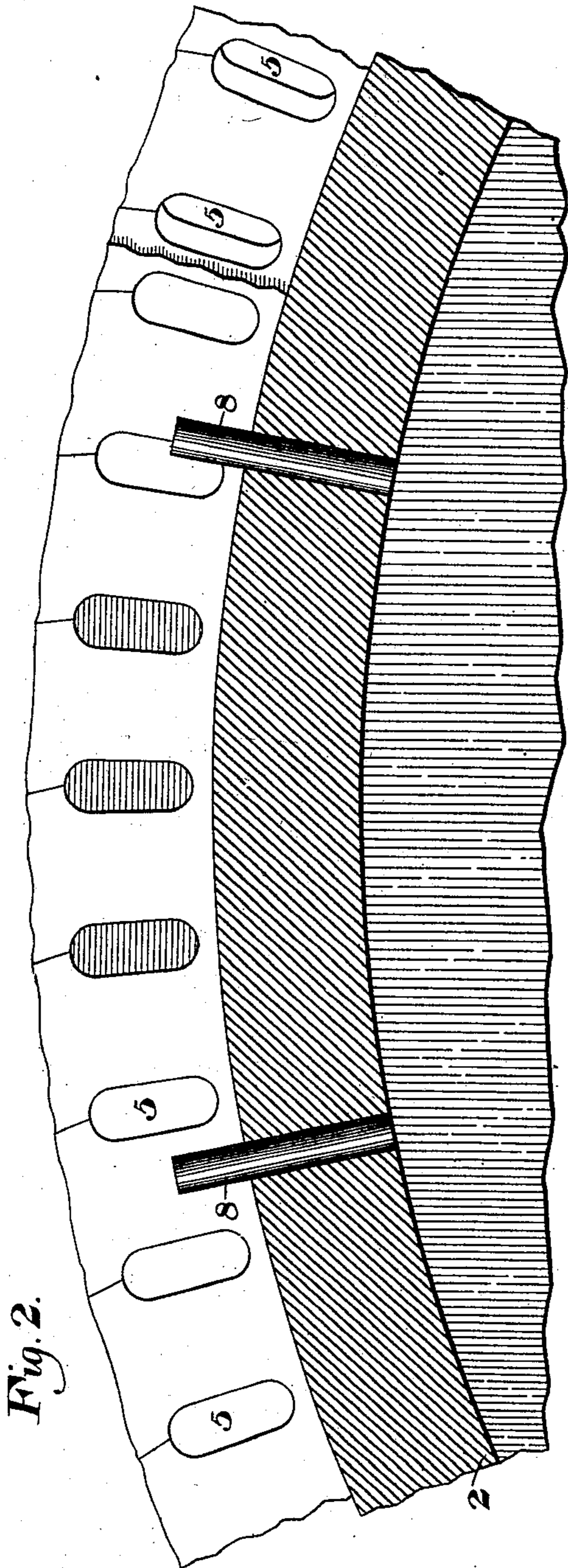
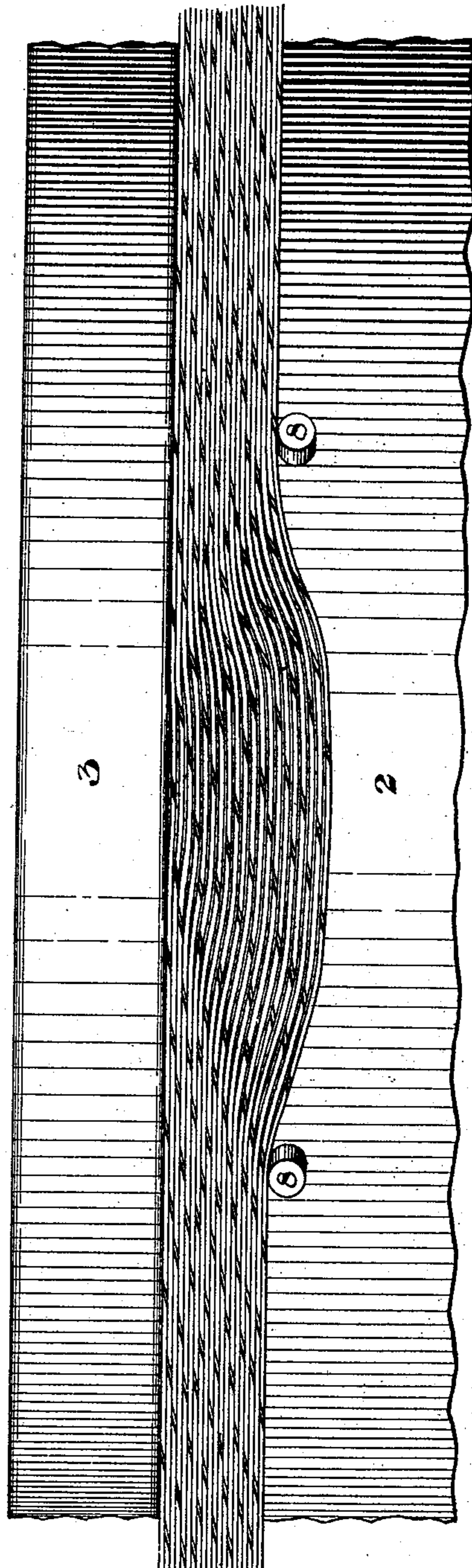


Fig. 2.

WITNESSES

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Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM WATSON GRIER, OF GOSHEN, INDIANA.

PRINTING-CYLINDER.

SPECIFICATION forming part of Letters Patent No. 711,495, dated October 21, 1902.

Application filed February 4, 1901. Serial No. 45,839. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WATSON GRIER, of Goshen, in the county of Elkhart and State of Indiana, have invented a new and useful Printing-Cylinder, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section of a cylinder, showing the method of building up the same according to my invention. Fig. 2 is a broken cross-section, on a larger scale, of a cylinder with the type-strips thereon. Fig. 3 is a partial side elevation of the cylinder with a portion of the type-strips applied thereto. Figs. 4 and 5 are detail cross-sections showing different arrangements of the strips, and Figs. 6 and 7 are broken detail views of another form of type-strip.

My invention relates to the printing of graining designs upon wooden panels to imitate the natural grain of woods, such as quartered oak, and is designed to provide an improved cylinder therefor which can be cheaply and simply made and will give continued service without injury thereto.

In the drawings, 2 represents the body of the printing-cylinder, having end flanges 3 3 and supporting-trunnions 4 4.

The types for printing the design are formed from a strip or strips which are wound around the cylinder in planes substantially at right angles to the cylinder-axis, the edges of the strips forming the type. In order to give the desired design, I preferably cut the type-strip into separated type, each connected to a common base-strip in the following manner: The strip is first punched to form transverse slots 5, and then diagonal cuts are made extending from the top edge of the strip into these slots or holes. The diagonal cut leaves the type with sharp edges, having acute angles at one side thereof, these types all being held together by the strip extending along the base portion of the slots. The upper edge portions of the strip are then hammered or rolled upon the sides, so as to reduce the thickness of the strips and give the proper opening between the adjacent type. This operation at the same time elongates and sharpens the printing edge of the

type and gives a curve to the ribbon or strip, so that it will fit the curve of the cylinder. A strip formed into type in this manner is wound around the cylinder-body at one end, and the adjacent layers are then forced together in any desired manner and secured in place. I preferably wind the strip or ribbon upon the cylinder under a considerable tension, so that it fits to the cylinder tightly, and to pack the type together I preferably employ bars 6, whose ends are placed against a strip, the other ends then being acted upon by screws 7, extending through the opposite flange of the cylinder. When a ribbon has thus been pressed to place, I preferably secure it by drilling small holes through the cylinder and driving steel plugs 8 into these holes, as shown in Figs. 2 and 3. To vary the type from extending in straight lines around the cylinder in addition to the curves naturally produced by pressure of the pins 8, I insert between the successive layers of the strip short pieces of the strip having varying lengths. These short pieces form curves in the main type-strip and also aid in putting heavy tension upon the bands of type, so as to press them rigidly to the cylinder. In Fig. 3, I show a curved part of the ribbon thus formed. These short lengths may be driven in wherever desired and according to the design of graining which is wanted. A pleasing variation can thus be introduced by the insertion of the short lengths, by the pressure of the pins, or by other suitable means. Successive lengths of the type-ribbons are thus wound and secured, and the holding-pins may be removed successively as the adjacent strips are secured. The cylinder may thus be filled its entire length with the type-bars or for a portion only of its length if narrower panels are to be printed. After the cylinder is thus completed the type may be filed or otherwise altered to vary the graining and give the desirable variation in the graining-lines.

In Fig. 4 I show the arrangement of strips above described on a larger scale, the type-strips 9 being reduced in thickness, while the intermediate strips 10 may be of the same thickness throughout.

In Fig. 5 I show another arrangement of the strips, in which the main type-strips 9' are wider than the spacing-strips 10', and conse-

quently project above them and need not be reduced in thickness. In this form the strip 10' would also be substantially continuous, being wound in spiral form in the same manner as the main strip. The supplemental strip may be composed of thin veneer-paper or other suitable material. The type strip or ribbon may be formed as shown in Figs. 6 and 7. In this form a straight steel ribbon is compressed, with tapering recesses 11 on one or both sides, by passing it under a hammer or press. This action forms the desired curve in the strip and at the same time makes divisions resembling type.

15 This cylinder may be used in the same manner as ordinary printing-cylinders, the type being inked and the panel being passed under it, so as to print the graining design thereon.

20 The advantages of my invention will be apparent to those skilled in the art, since a printing-cylinder may thus be obtained which is not liable to get out of order and can be made at comparatively small expense, while beautiful effects in graining-lines may be obtained.

Many variations may be made in the shape and size of the type ribbons or strips, as well as in the formation of the type, without departing from my invention.

I claim—

1. A printing-cylinder having a printing-ribbon wound edgewise in spiral form thereon; substantially as described.
- 35 2. A printing-cylinder having a series of ribbons wound thereon in spiral form, the edge portions of the ribbons being formed into type; substantially as described.

3. A printing-cylinder having a metallic ribbon wound thereon in spiral form, the edge portions being severed into separated type by a diagonal cut; substantially as described. 40

4. A printing-cylinder having a metallic ribbon wound thereon, said ribbon having holes or slots in its body and cuts extending into the said slots forming type; substantially as described. 45

5. A printing-cylinder having metallic strips wound thereon in spiral form, said strips being bent into a curve at various points; substantially as described. 50

6. A printing-cylinder having strips of metallic ribbon wound edgewise thereon in spiral form and held under endwise compression, said strips having separated type portions at their outer edges; substantially as described. 55

7. A type-cylinder having lengths of steel ribbon wound thereon and held under endwise pressure by pins extending into the cylinder, said strips having edge portions forming type; substantially as described. 60

8. A type-cylinder having a ribbon wound edgewise thereon in spiral form, the adjacent layers of the ribbon being separated by spacing-strips of less height; substantially as described. 65

9. A printing-cylinder having a metallic ribbon wound edgewise thereon, said ribbon having tapering indentations pressed therein; substantially as described. 70

In testimony whereof I have hereunto set my hand.

WILLIAM WATSON GRIER.

Witnesses:

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MARY I. BROWN.