No. 670,518. Patented Mar. 26, 1901.

C. F. W. SCHUMACHER.

MACHINE FOR COATING PAPER.

(Application filed Nov. 28, 1898.)

(No Model.) 4 Sheets—Sheet 1.

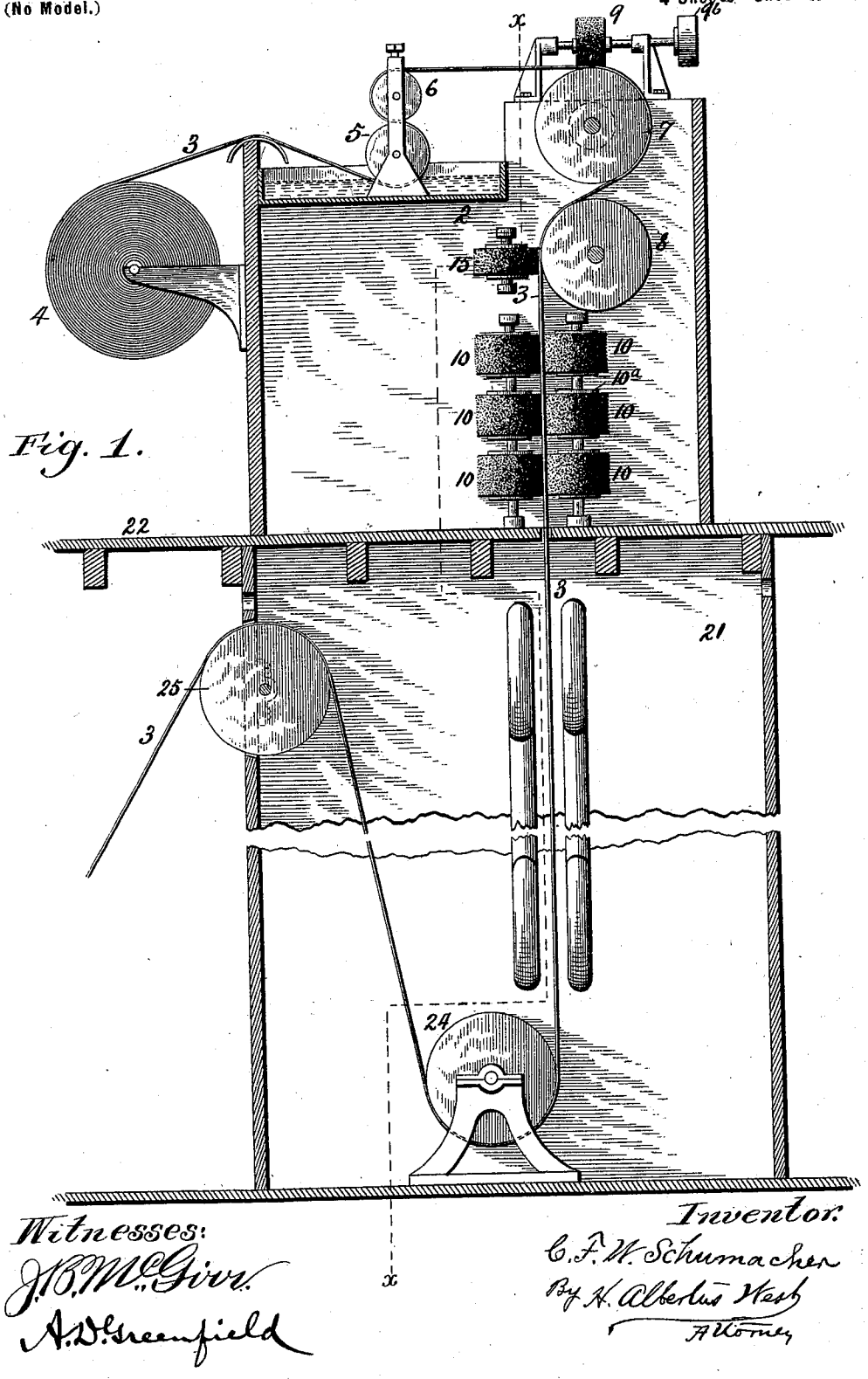


Fig. 1.

Witnesses:
J. B. McGivr.
A. D. Greenfield

Inventor:
C. F. W. Schumacher
By H. Alberlus Wash
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

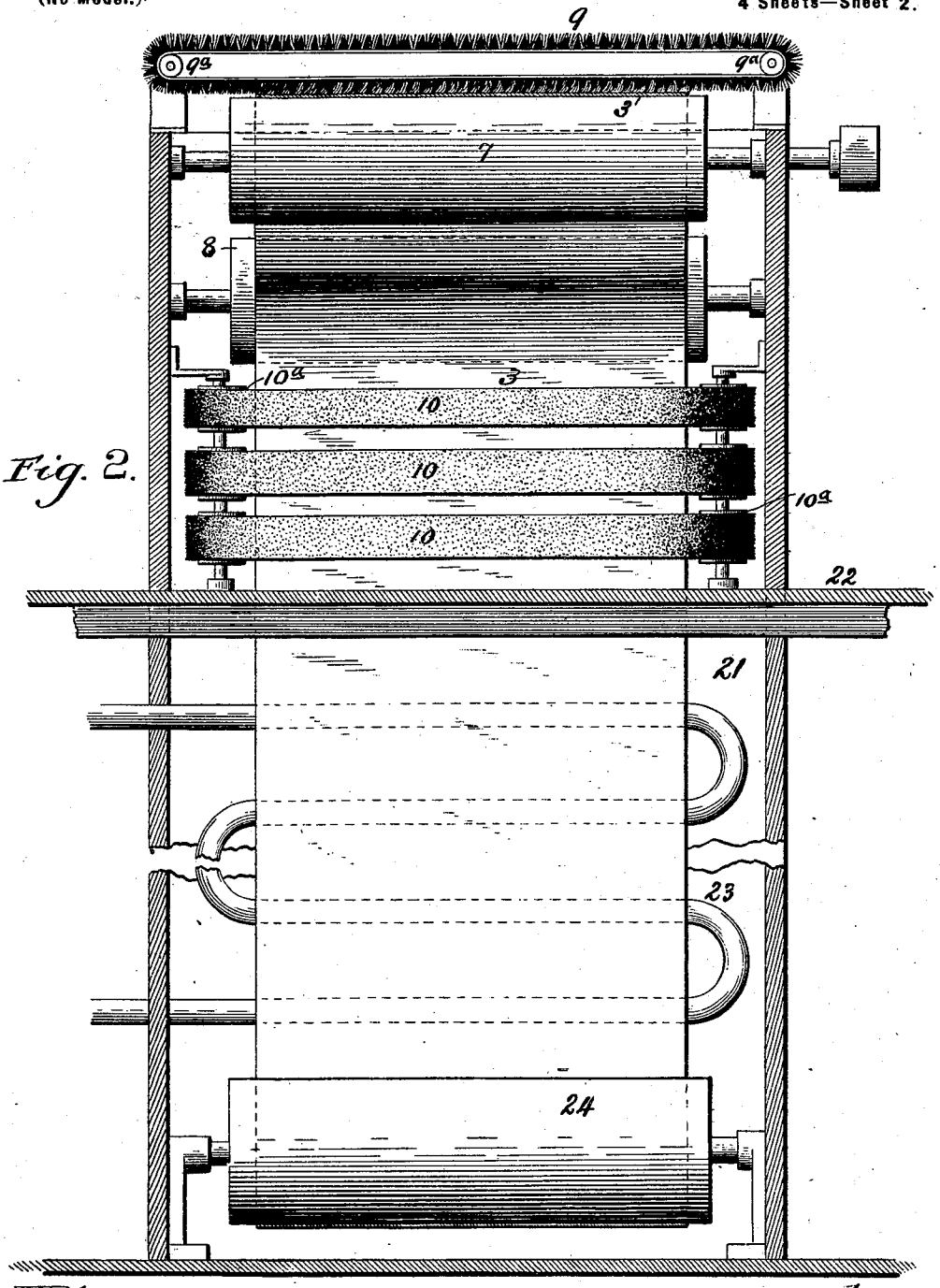
No. 670,518. Patented Mar. 26, 1901.

C. F. W. SCHUMACHER.

MACHINE FOR COATING PAPER.

(No Model.) (Application filed Nov. 28, 1898.) 4 Sheets—Sheet 2.

Fig. 2.



Witnesses:
J. B. McGirr.
A. D. Greenfield

Inventor:
C. F. W. Schumacher
By N. Alberius West
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 670,518. Patented Mar. 26, 1901.

C. F. W. SCHUMACHER.

MACHINE FOR COATING PAPER.

(No Model.) (Application filed Nov. 28, 1898.) 4 Sheets—Sheet 3.

Fig. 3.

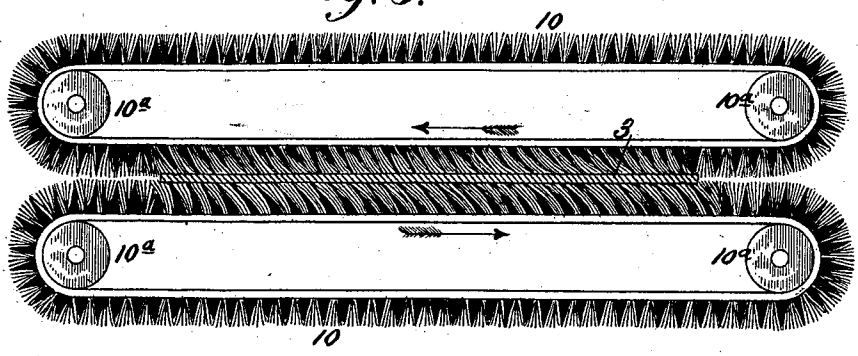
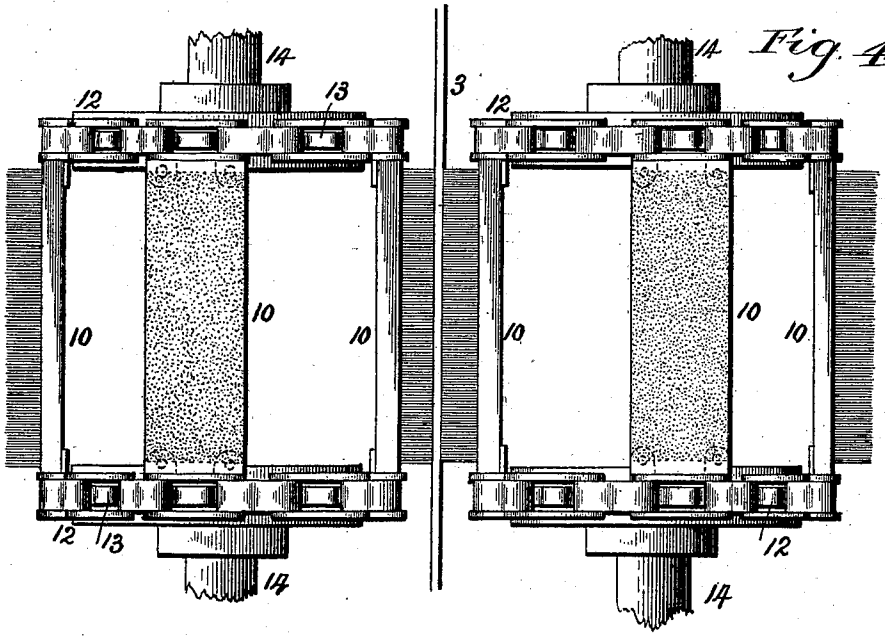


Fig. 4.



Witnesses:
J. B. McGirr.
A. D. Greenfield

Inventor:
C. F. W. Schumacher
By H. Alberts West
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 670,518. Patented Mar. 26, 1901.

C. F. W. SCHUMACHER.

MACHINE FOR COATING PAPER.

(Application filed Nov. 28, 1898.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 5.

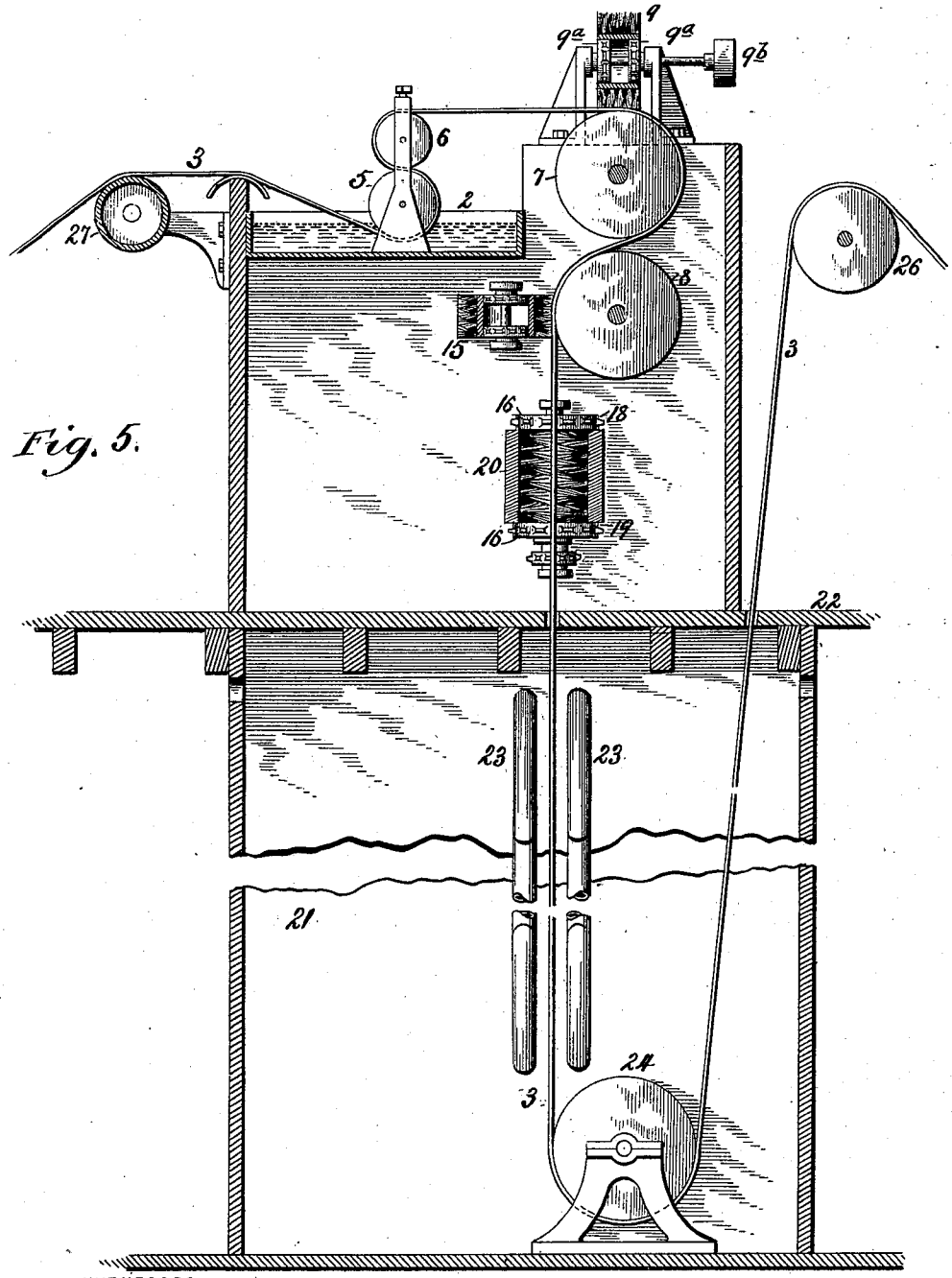
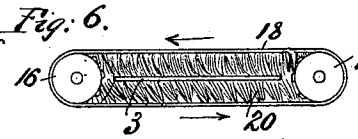


Fig. 6.



WITNESSES:

J. B. McGirr.

A. D. Greenfield

INVENTOR

C. F. W. Schumacher

BY H. A. Wehr

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES F. WILLIAM SCHUMACHER, OF WABASH, INDIANA.

MACHINE FOR COATING PAPER.

SPECIFICATION forming part of Letters Patent No. 670,518, dated March 26, 1901.

Application filed November 28, 1898. Serial No. 697,638. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FREDERICK WILLIAM SCHUMACHER, a citizen of the United States, and a resident of Wabash, in the county of Wabash and State of Indiana, have invented certain new and useful Improvements in Machines for Coating Paper, of which the following is a specification.

My invention relates to coating paper and a new and improved machine therefor which operates to coat the fabric upon both surfaces and apply the coating in a superior manner; and to these ends my invention consists, namely, in combining with the necessary operative parts of the machine rotatory brushes, each of which operates constantly in one direction upon the surface coated and which also enables the machine to be so located and arranged that the surfaces coated need not come in contact with any roll or other object until after the coating has become thoroughly set or dry or so dry that the coated surface will not be injured by any such contact.

The invention also consists in the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

Figure 1 shows my invention in side elevation, the frame, housing, and supports being shown in section. Fig. 2 is a sectional elevation of the same, taken on line X X of Fig. 1. Fig. 3 is an enlarged view illustrating the operation of the brushes. Fig. 4 is an enlarged elevation showing sprocket-gearing for operating the brushes. Fig. 5 is a sectional elevation similar to Fig. 1, showing a modification of the brushes and of the means for operating the same and illustrating two rolls of a paper-machine with which my invention may be employed; and Fig. 6 is a detailed plan view of one of the modified forms of brushes.

In the drawings, 2 represents a vat or receptacle which contains the coating material to be applied to both surfaces of the fabric 3, held on a reel 4 at the front of the machine. From the reel 4 the fabric passes beneath a submerging-roll 5, which depresses the fabric down into the coating material, as illustrated in Fig. 1. A couch-roll 6 is held above the submerging-roll 5 and from the couch-roll 6 the fabric passes over the larger roll 7 and thence down against the roll 8, arranged on the opposite side of the fabric, so that rolls 5 and 8 act against one side of the fabric, while rolls 6 and 7 act against the opposite side or surface thereof.

Upon roll 7 as a support one surface of the fabric is acted upon by a brush 9, which is by preference an endless brush placed on pulleys or sprockets 9^a 9^a, the shaft of one of which is provided with a power-pulley 9^b for operating the said brush. The movement of the bristles of the brush 9 being constantly in one direction and the fabric 3 being constantly moved in a transverse direction over the roll 7 produces a curvilinear wiping of the coating material over or upon the surface of the fabric and results in a perfectly-uniform spreading of the coating material.

10 10 represent brushes arranged in pairs below the roll 8 on opposite sides of the fabric, so as to brush both surfaces of the fabric held between them, as indicated in Figs. 3 and 4. These brushes are endless brushes and move constantly in opposite directions at the same time the fabric moves along between them. The brushes complement each other in pairs on opposite sides of the paper and produce a uniform finish. The brushes 10 may be continuous, as illustrated in Fig. 3, and passed around rolls or pulleys 10^a, or they may be in block form, as shown in Fig. 4, each brush being attached to endless chains 12, which pass around sprocket-wheels 13 on the shafts 14, one of which is an operating or power shaft.

15 represents a brush similar to the brush which spreads the coating material while the paper is in contact with the roller 8.

In Figs. 5 and 6 I employ at each edge of the paper two sprocket-wheels 16 16 and 17 17, the lower one in Fig. 6 not shown. Two sprocket-chains or brush-carriers 18 19 pass around the pairs of sprocket-wheels 16 17, and to these chains the edges of a brush-back 20 are connected, so that the free ends of the bristles stand inward to come in contact with the paper on both of its surfaces, as illustrated clearly in Fig. 6.

From the brushes 10 or the double-acting brush 20, as the case may be, the web passes down into a drying-chamber 21, usually constructed below the floor 22, and in which drying-pipes 23 are arranged in any suitable manner, preferably adjacent to both surfaces of

the web, as shown in Figs. 1 and 5. The web is suspended in the drying-chamber, and at the bottom thereof may be placed a roll 24, under which the web passes and from which it may be led to an outgoing roll 25, as shown in Fig. 1, or it passes up to a roll 26, as shown in Fig. 5, which latter roll may be one of the rolls of a paper-machine.

In Fig. 5, 27 illustrates another roll of a paper-machine.

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

1. In a machine for coating paper a receptacle for containing the coating material, means contained in said receptacle for applying the coating material to both surfaces of the paper, a roll adjacent to the said receptacle over which the paper passes from said receptacle, an endless brush applied lengthwise to said roll and means for rotating said brush continuously in one direction, another roll located beneath the last-mentioned roll, an endless brush applied lengthwise to said roll and means for rotating the brush continuously in one direction, in combination with endless brushes beneath the last-mentioned roll arranged to simultaneously wipe both surfaces of the paper, a drier beneath the last-mentioned brushes, a roll at the bottom of the drier and another roll to take the paper from the last-mentioned roll, substantially as described.

2. In a machine for coating paper a receptacle for holding coating material, means located therein for submerging the paper in the coating material, and guide-rolls for leading the paper to a drier, in combination with two pairs of sprocket-wheels held on two opposite vertical shafts held in line with the two edges of the paper, two sprocket-chains placed on the said sprocket-wheels and an endless brush the back of which is attached to said sprocket-chains so that the bristles point inwardly, the said sprocket-wheels, shafts, and brushes being located between the drier and the said guide-rolls substantially as described.

C. F. WILLIAM SCHUMACHER.

Witnesses:
JOHN H. DICKENS,
CLAUDE D. STITT.