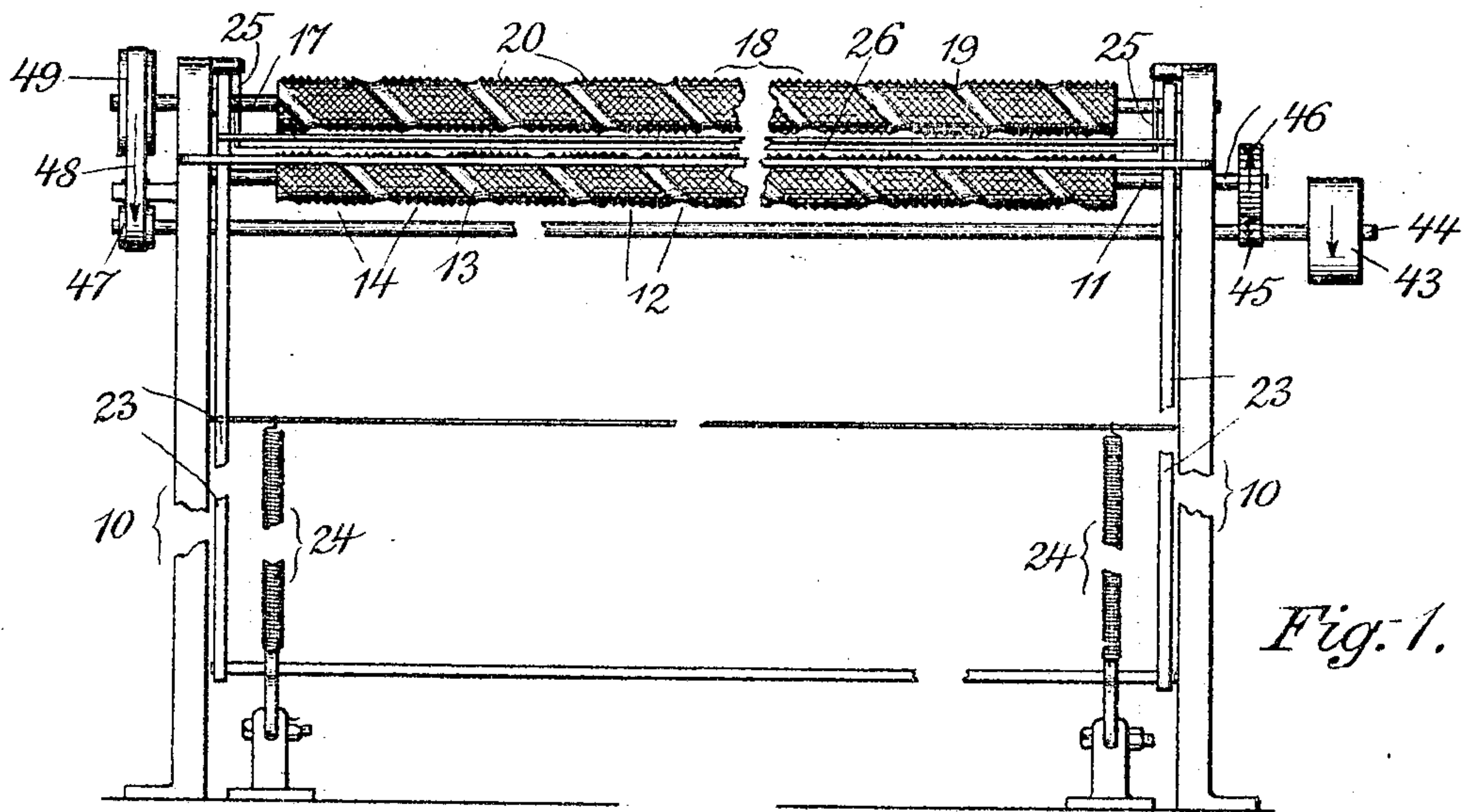
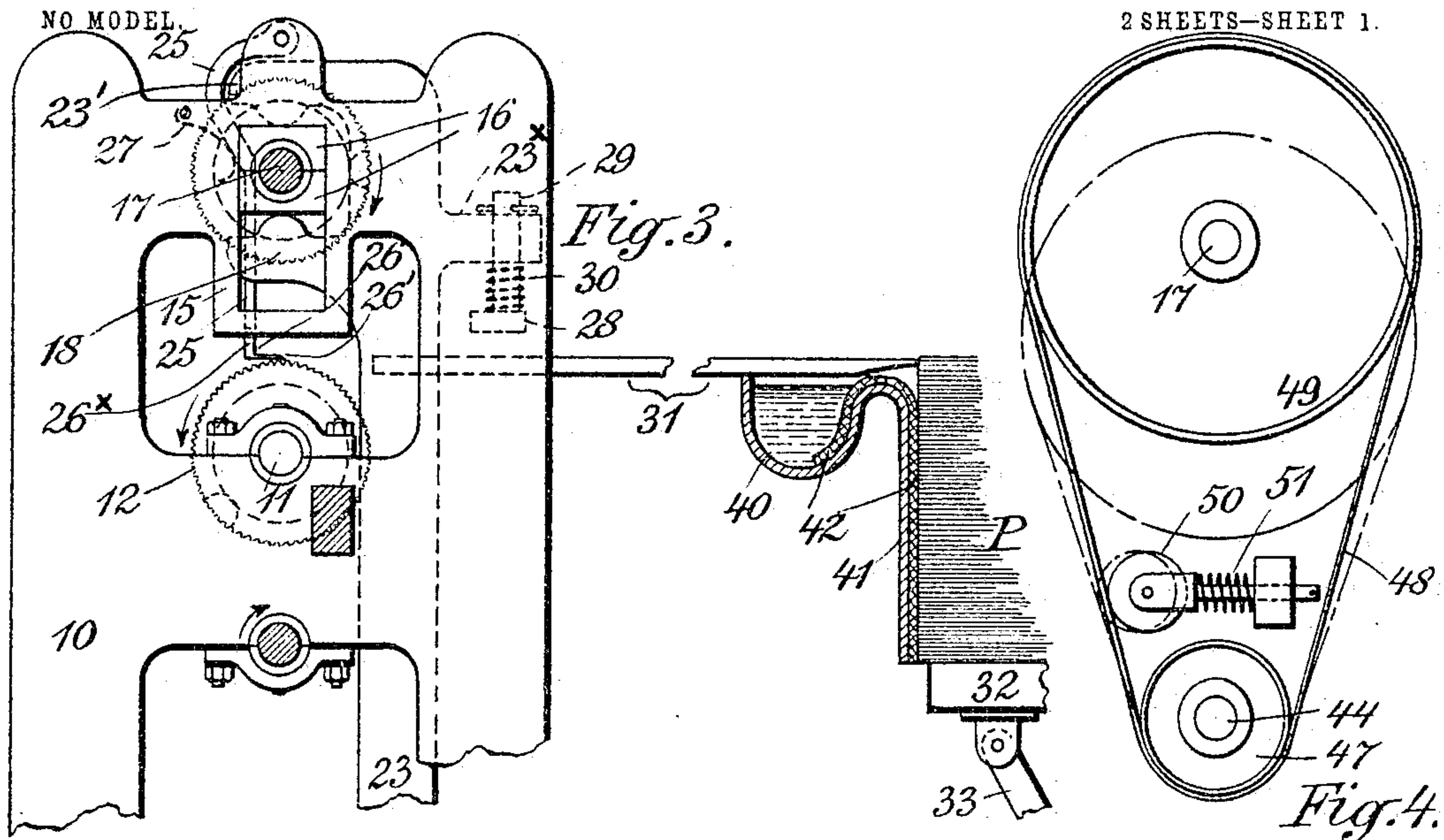


No. 775,330.

PATENTED NOV. 22, 1904.

C. H. DUNNING.
MACHINE FOR SHAPING PAPER.

APPLICATION FILED MAR. 22, 1904.



Witnesses
Jno. W. Baker.
Chas. W. Blair

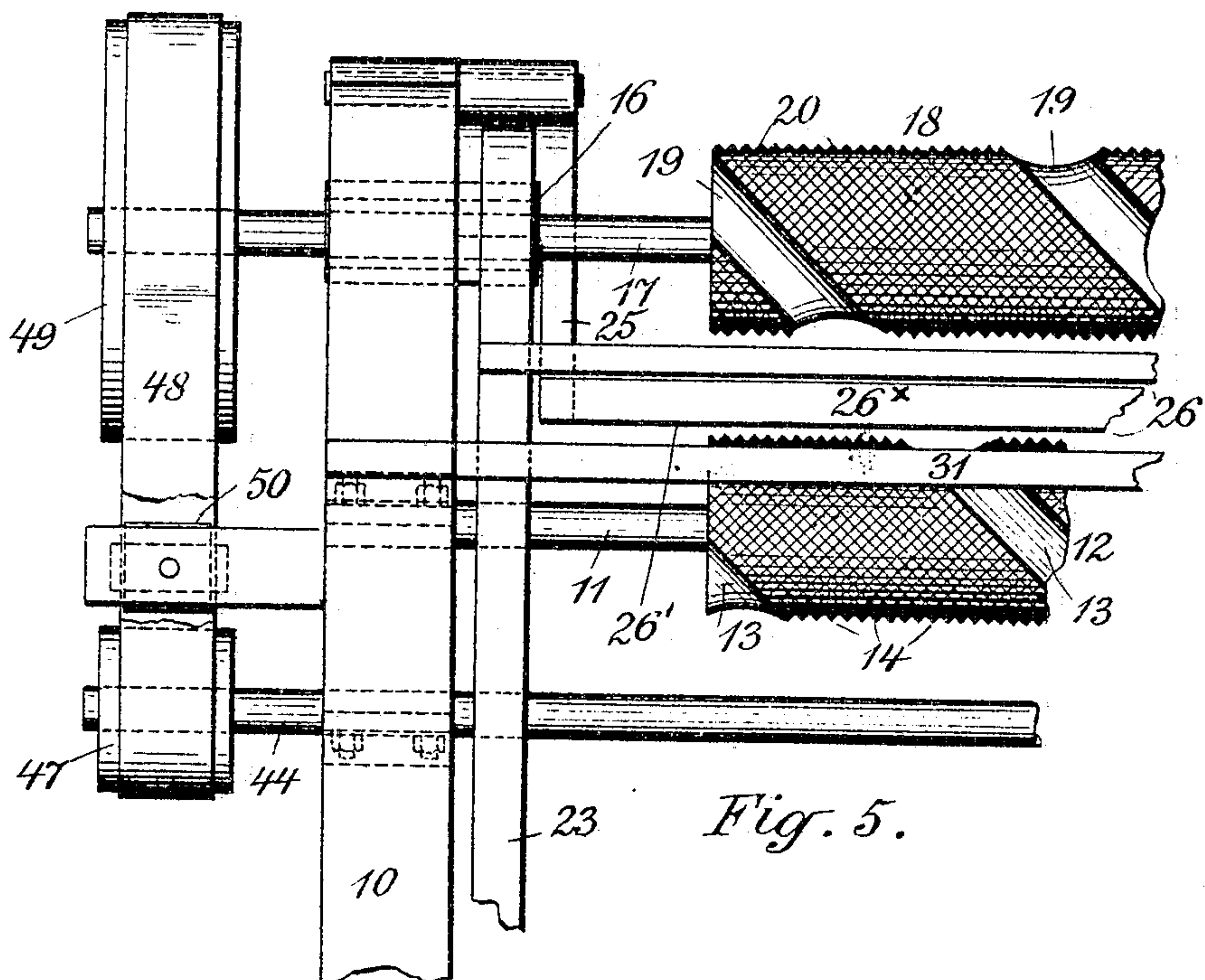
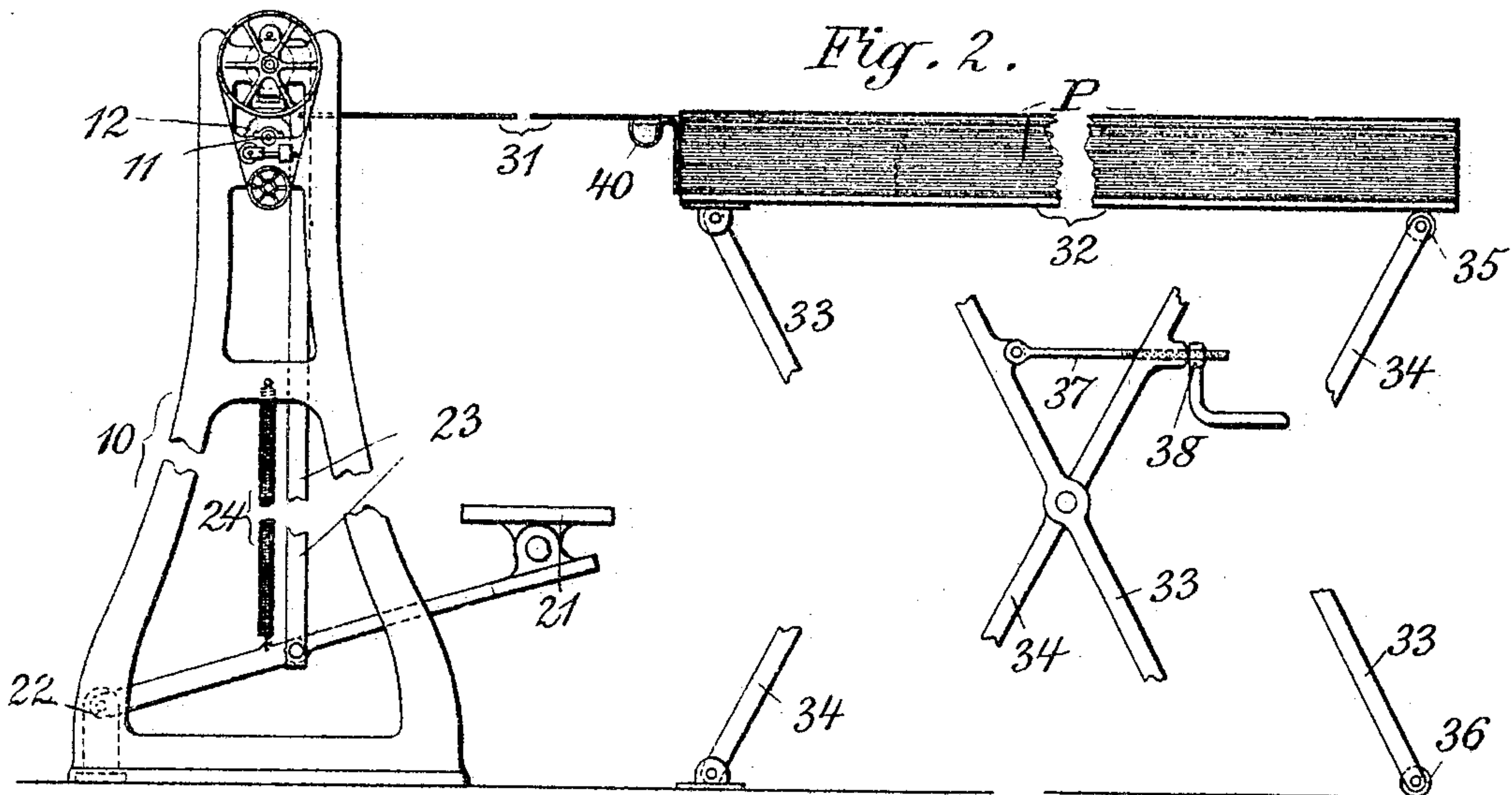
Inventor
Carroll H. Dunning
By his Attorney
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MACHINE FOR SHAPING PAPER.

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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

CARROLL H. DUNNING, OF NEW YORK, N. Y.

MACHINE FOR SHAPING PAPER.

SPECIFICATION forming part of Letters Patent No. 775,330, dated November 22, 1904.

Application filed March 22, 1904. Serial No. 199,505. (No model.)

To all whom it may concern:

Be it known that I, CARROLL H. DUNNING, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented a certain new and useful Machine for Shaping Paper, of which the following is a specification.

My invention refers to machines for producing a deckle edge on paper, cardboard, leather, cloth, leatherette, or any other material made in layers or sheets.

As paper with deckle edges is used very extensively, I will in the following specification and claims refer to producing such edges on paper without, however, intending to confine myself in the use of my appliances to treating paper.

Heretofore deckle edges have been produced incidentally during the making of the paper, said edges representing the margins or untrimmed edges of the sheets. As machines for manufacturing paper are complicated and expensive, there is not a great variety of such machines, as far as their widths are concerned, in use, and consequently, particularly in making books of all sizes with deckle edges on the leaves, it is difficult to produce the proper sizes of sheets, and it is impossible to have deckle edges all around said leaves.

The objects of my invention are to provide simple and efficient means for putting deckle edges on sheets of paper or other fabric after the process of manufacturing the paper has been completed. I accomplish these and other useful objects by the means hereinafter specified, and set forth more particularly in the claims.

In the accompanying drawings, forming part of this specification, and wherein corresponding figures of reference refer to corresponding parts, Figure 1 is a front view of the principal part of a machine embodying my improvements, only fractional supports, however, being shown, while Fig. 2 is an end view thereof. Fig. 3 is a side view, partly in section, of the principal portion of the machine; and Fig. 4, an end view of the means for actuating its rollers, while Fig. 5 is a front view of one end of the machine. Figs. 1 and 2 are

drawn to a smaller scale than the remaining figures.

In the drawings, 10 represents a frame for supporting the various parts of the apparatus. The same comprises in its end portions stationary bearings for a shaft 11, upon which is fixedly mounted a roller 12, provided with a spiral groove 13, the elevated spiral portions 14 being provided with teeth similar to the teeth of a file.

15 15 are vertical guides on each of said end portions of the frame, along which bearings 16 of another shaft, 17, are adapted to travel.

18 is a roller of substantially the same construction as roller 12, fixedly mounted on shaft 17, its spiral groove being indicated by 19 and its elevated toothed portion by 20.

21 is a treadle hinged to the main frame at 22, and 23 23 are bars near the ends of the frame, extending from said treadle upward, each being provided with two horizontal arms, the curved lower surfaces of the upper arms each resting on one of the bearings 16 and each of the lower arms supporting one of said bearings.

24 24 are tension-springs for normally holding the treadle and with it bars 23, bearings 16, shaft 17, and roller 18 in their elevated positions. (Illustrated in Figs. 3 and 5.)

Two levers, as 25, are hinged to the end portions of the frame, their lower ends being connected by a bar 26 of angular cross-section, which runs parallel with the rollers, the thin front edge of its horizontal flange 26' extending close to the upper surface of roller 12 and its rear vertical flange 26^x being placed approximately vertically above the axis of said roller. A leaf-spring, as 27, engages with each lever 25 for normally holding the same in such position. Each bar 23 has a projection 23' extending toward the nearest lever 25 and adjusted to actuate said lever and to swing it rearward and to thereby swing bar 26 out of the way of roller 18 as the latter is being lowered. A presser-foot 28, preferably provided with an elastic lower operative surface and having its stem 29 sliding through a perforation in projection 23^x on one of the levers 23, is mounted near each end of the

frame. Said stems are adapted to be forced downward by springs 30.

31 is a table extending along and in front of the rollers, its upper surface being substantially even with the upper surface of flange 26'.

32 is a board extending in front of table 31. The same is mounted near each end upon two levers 33 and 34, the rear end of 33 being articulated to said board and that of lever 34 to the floor and the two levers at half their lengths being jointed together, while a roller 35 at the free end of lever 34 supports said board and a roller 36 at the free end of lever 33 rests on the floor.

37 37 are screws each passing through lever 34 and having their rear ends attached to the corresponding levers 33. Nuts 38 on screws 37 are provided with handles, so that turning of the same in one direction will raise board 32 and turning in the opposite direction will lower the same.

40 is a trough underneath table 31 and provided with a downward-extending apron 41, to which a strip of felt 42 is attached so as to have its upper edge extend into said trough, the latter being kept filled with water by any suitable means.

Pulley 43 drives a shaft 44. Upon said shaft is mounted a cog-wheel 45, which meshes with a cog-wheel 46 on shaft 11, so as to drive roller 12 in the direction of the arrow. Shaft 44 also carries a pulley 47, from which power is transmitted by a belt 48 to a pulley 49 on shaft 17. 50 is a tension-pulley forced against said belt by a spring 51, so as to keep the same tight when roller 18 is either in its elevated or in its depressed position. By these means the rollers will be revolved in the direction of the arrows in Fig. 3.

P represents a number of sheets of paper placed upon board 32 so as to have their rear edge extend up to the face of felt 42, so that water sucked from trough 40 by such felt will come in contact with and moisten said edges, the top sheet of paper being placed slightly above the level of table 31.

The operation of the apparatus is as follows: The operator standing at one end of the machine moves the top sheet of paper P forward until its main body comes to rest on table 31 and its rear edge on flange 26' and strikes flange 26^x. Then he forces the treadle downward. This will cause presser-feet 28 to confine said sheet of paper between them and table 31, while bar 25 will be swung rearward and the teeth of roller 18 will be forced against and into the sheet of paper, so as to firmly confine the same between the two rollers, and the teeth on both rollers will then tear out portions of the edge of the paper and will reduce in thickness other portions thereof, so as to give to the latter the deckle edge desired, grooves 13 and 19 serving to carry off the chips of paper so removed and to prevent

clogging of the teeth of the rollers by the same. The tearing action takes place not only in the direction of the plane of table 31, but there are also two tearing actions in opposite directions to each other and substantially parallel to the axes of the rollers due to the spiral configuration of grooves 13 and 19, and these latter tearing actions are particularly instrumental in producing a more irregular edge than would result if said grooves were omitted or not made spiral, the two grooves where the paper is inserted between the rollers traveling in opposite directions. When the treadle is permitted to move upward, the various parts of the apparatus will again assume the positions indicated in Fig. 3, and thereupon the sheet of paper last treated may be withdrawn and another one from pile P inserted in its place. When the top of said pile gets down to the level of table 31, board 32 will have to be raised slightly by revolving screw-nuts 38, as referred to above.

While I prefer to dampen the edges of the paper to be treated in manner as described or in any other suitable manner, so as to thereby make the paper more pliable and less apt to be torn abruptly, I may with certain kinds of paper do away with that feature.

I do not wish to confine myself to the details and the detail combinations above described, as it will readily be seen that they might be varied materially without departing from the spirit of my invention. Thus in place of one of the rollers 12 and 18 a stationary support, round or flat and with or without teeth and grooves, as described, might be substituted. Instead of employing gearing for actuating said rollers, as described, the main driving-pulley might be put on shaft 11 and friction-rollers on said shaft might be made to actuate friction-rollers on shaft 17 when the latter is in its depressed position.

Raising and lowering of roller 18 might be accomplished automatically instead of by foot-power, and the teeth on rollers 12 and 18 may be made of the same or of different sizes and configurations.

I claim—

1. In a machine for shaping paper, the combination with a supporting-frame, of appliances for tearing irregular parts of the edge portion of the paper from the main body, and means for actuating said appliances.

2. In a machine for shaping paper, the combination with a supporting-frame, of appliances for tearing parts of the edge portion of the paper from the main body, said appliances acting in different directions with reference to said edge, and means for actuating the same.

3. In a machine for shaping paper, the combination with a supporting-frame, of appliances for reducing the thickness of parts of the edge portion of a sheet of paper and for tearing off other parts thereof, and means for actuating said appliances.

4. In a machine for shaping paper, the combination with a supporting-frame, of means for moistening the edge portion of paper, appliances for tearing parts of said edge portion
5 from the main body, and means for actuating said appliances.

5. In a machine for shaping paper, the combination with a supporting-frame, of a support for the paper, a roller mounted on the
10 frame and having a spiral groove, and provided with teeth or projections along said groove, and mechanism for revolving said roller in close proximity to said support.

6. In a machine for shaping paper, the combination with a supporting-frame, of a support for the paper, a roller mounted on the
15 frame and adapted to be revolved in close proximity with said support, and means for varying the distance between the support and the roller.
20

7. In a machine for shaping paper, the combination with a supporting-frame of two rollers each having a spiral groove and provided with teeth or projections along said grooves,
25 and mechanism for revolving said rollers in close proximity with each other.

8. In a machine for shaping paper, the combination with a supporting-frame, of a roller provided with a spiral groove and teeth or
30 projections along said groove, a support for the paper, mechanism for increasing and decreasing the distance between support and roller, means for revolving said roller in close proximity to said support, a second support
35 adapted to hold the edge of the paper prior to bringing together the first support and the roller, and mechanism for displacing said second support as the first support and the roller are brought together.

40 9. In a machine for shaping paper, the com-

bination with a supporting-frame, of two rollers each provided with a spiral groove and teeth or projections along said groove, a temporary support for the edge of the paper, and mechanism for increasing and decreasing the
45 distance between said rollers and for displacing said temporary support as the distance between the rollers is being decreased.

10. In a machine for shaping paper, the combination with a supporting-frame, a support
50 for the edge of the paper, a roller provided with a spiral groove and teeth along the same, a table, a presser-foot for confining the paper in contact with said table, and means for increasing and decreasing the distance between
55 said support and said roller and for actuating said presser-foot.

11. In a machine for shaping paper, the combination with a supporting-frame, of means for holding the edge of the paper in contact
60 with a wet surface, appliances for tearing portions of the paper so wetted from the main body, and mechanism for actuating said appliances.

12. In a machine for shaping paper, the combination with a trough for holding liquid, of
65 a suction device for withdrawing liquid therefrom, means for holding the edge of the paper in contact with said suction device and thereby wetting the same, and mechanism for
70 tearing portions of such edge portion from the main body.

Signed at New York, in the county of New York and State of New York, this 21st day of March, A. D. 1904.

CARROLL H. DUNNING.

Witnesses:

CHAS. L. HORACK,
M. FLINT.