

No. 760,124.

PATENTED MAY 17, 1904.

F. B. HOW.
MACHINE FOR MAKING CARBON PAPER.

APPLICATION FILED SEPT. 26, 1903.

NO MODEL.

Fig. 1.

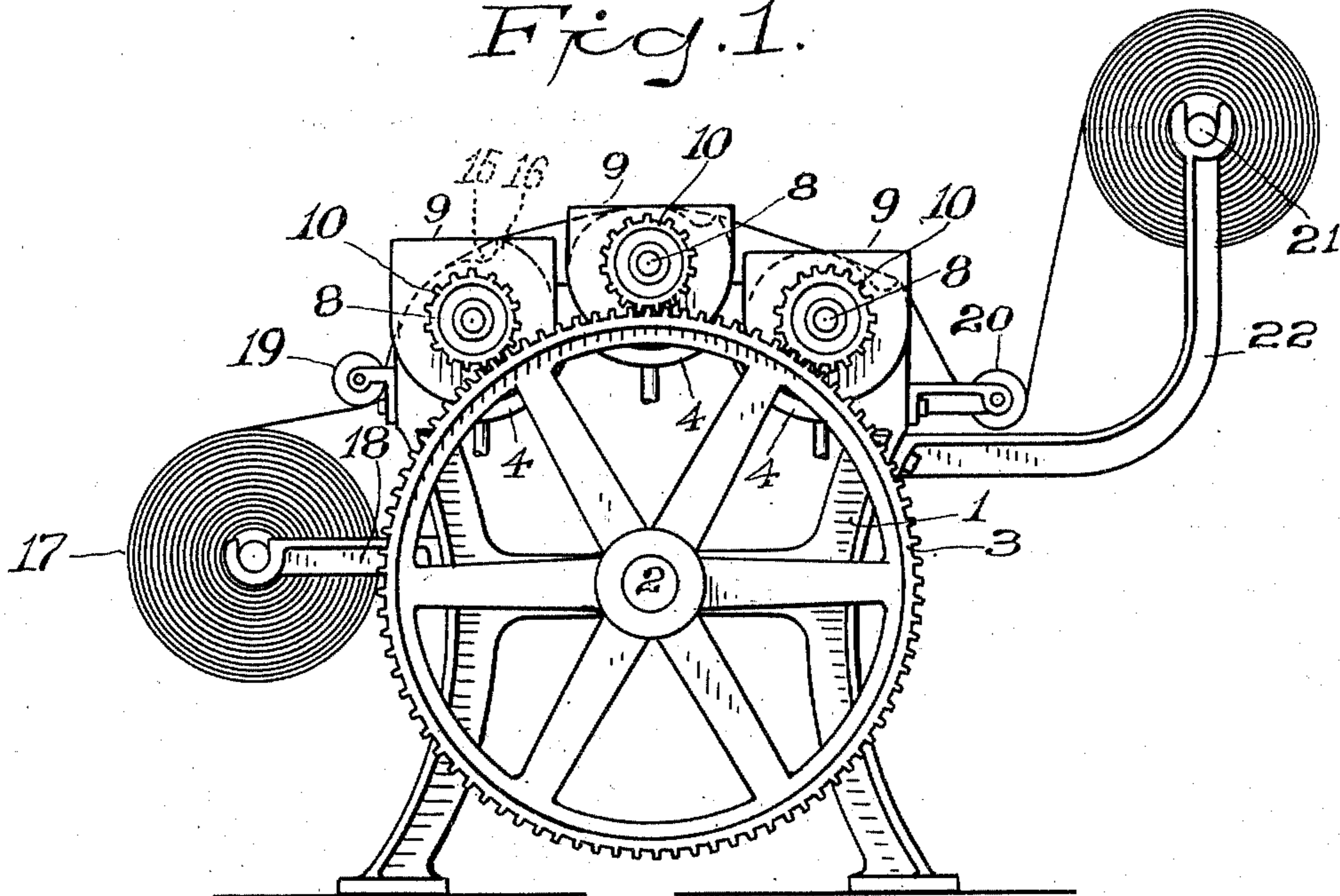


Fig. 2.

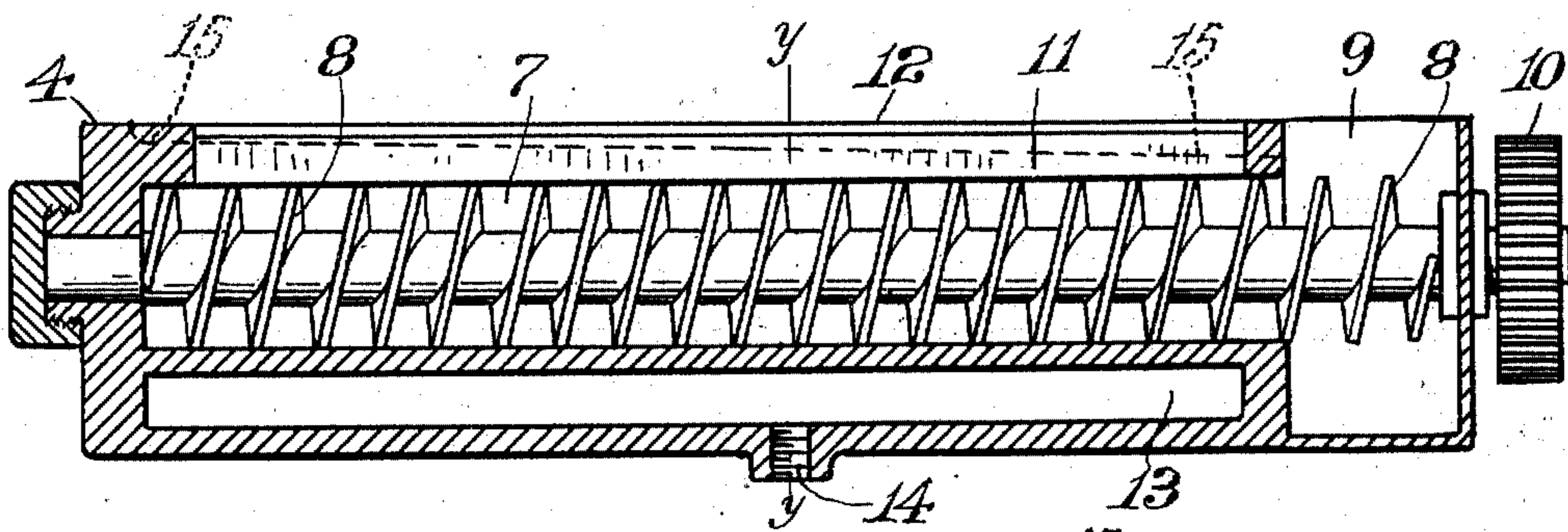
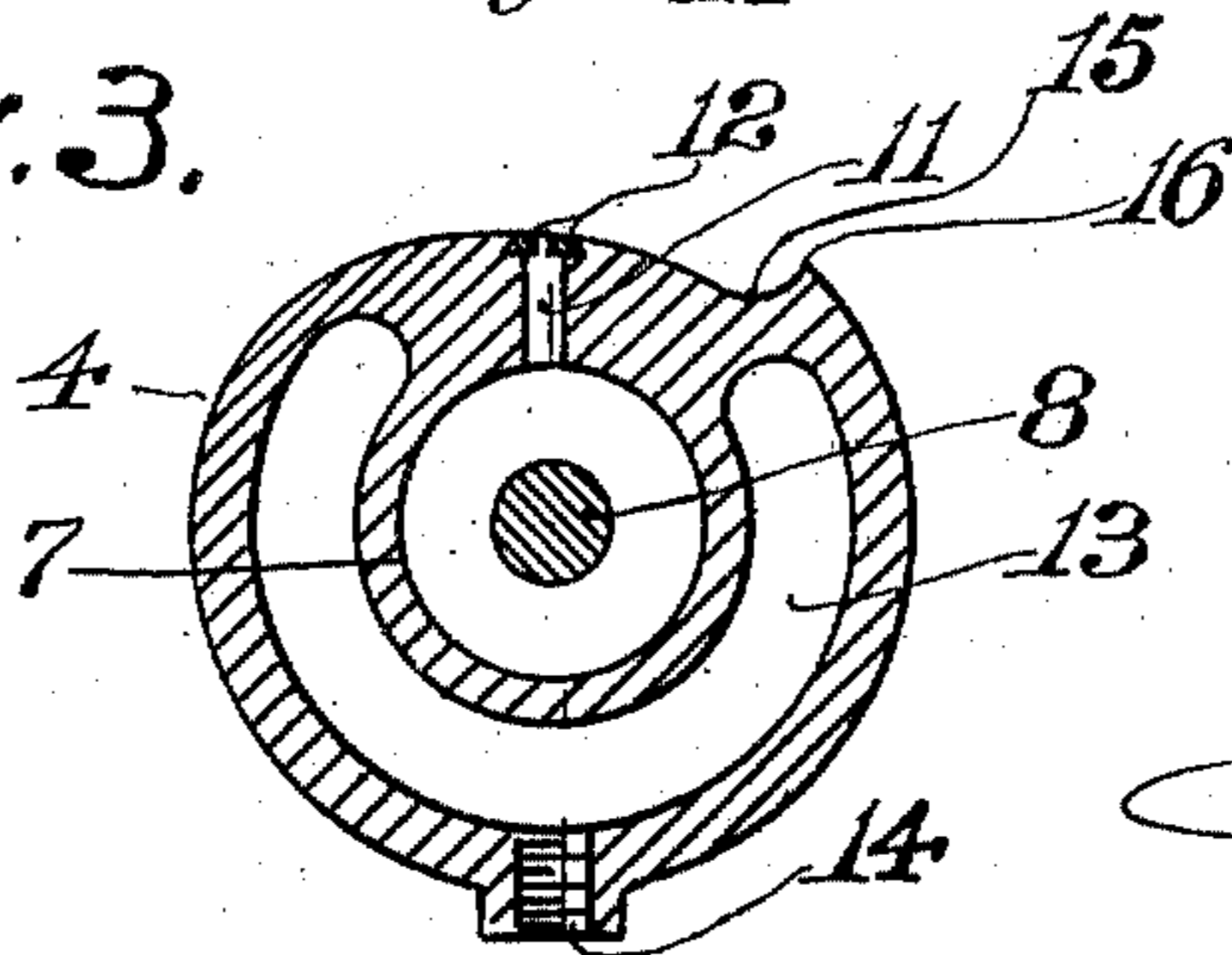


Fig. 3.

WITNESSES:

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MACHINE FOR MAKING CARBON-PAPER.

SPECIFICATION forming part of Letters Patent No. 760,124, dated May 17, 1904.

Application filed September 26, 1903. Serial No. 174,803. (No model.)

To all whom it may concern:

Be it known that I, FRED BRADFORD HOW, a citizen of the United States, residing at Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Carbon-Paper; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in machines for applying a coating of transferable material, such as carbon, to one side of a suitable paper, and has for its object to provide a very simple and economical machine for this purpose.

A further object of my invention is to apply the coating continuously and uniformly, so that it shall be evenly spread on the paper, while at the same time any surplus coating shall be instantly removed and conveyed back again to the carbon-reservoir.

With these ends in view my invention consists in the details of construction and combination of parts, such as will be hereinafter fully set forth and then specifically designated by the claims.

In the accompanying drawings, which form a part of this application, Figure 1 is a side elevation of my improved machine; Fig. 2, a detail longitudinal sectional elevation of one of the inking-drums, and Fig. 3 a section at the line *y y* of Fig. 2.

Similar numbers of reference denote like parts in the several figures of the drawings.

1 is any suitable frame, 2 a power-shaft journaled therein, and 3 a large gear-wheel carried by said shaft.

4 represents drums which are fastened to the top of the frame in any suitable manner and which contain the carbon solution and to which I will hereinafter refer as "inking-drums." These drums are all alike, and therefore a description of one of them will be sufficient. Journaled within a chamber 7, extending longitudinally in the drum, is a screw 8, which chamber at one end opens into a reservoir 9 for holding the carbon solution. The screw extends through the reservoir, and out-

side the latter a spur-gear 10 is secured to the shaft of the screw and meshes with the large gear 3. The reservoir is open at the top, so that the carbon solution may be supplied therein from time to time, and a narrow gate 11 leads from the top of the chamber 7 to the outside of the drum, the outer mouth of which gate is preferably contracted by means of a slitted strip 12, of rubber or other suitable material, disposed within a dovetailed recess in the drum. Within the drum is a steam-jacket 13, which almost surrounds the chamber 7, which jacket has an inlet 14 for the steam. Immediately beyond the mouth of the gate 11 is a gutter 15, which is inclined toward and leads into the reservoir 9, as shown by dotted line at Fig. 2, and the farther or higher wall of this gutter is formed into a scraper 16.

The paper to be coated is supported in the usual manner in the form of a roll 17 on a bracket 18, extending from the frame of the machine, and is passed beneath an idle roll 19 up across the faces of the drums 4, thence down beneath an idle roll 20, and then is wound on any suitable roller 21, supported on a bracket 22, extending from the frame of the machine. The object of these idle rolls is to keep the paper snugly against the outer mouths of the gates 11 and the scrapers 16.

The steam-jackets 13 keep the carbon solution at the proper consistency, so that it will circulate and feed readily, while the action of the screws 8 delivers the solution from the reservoirs into the chambers 7 until the latter are full, so that the continued action of the screws will force the solution out through the gates 11. This feeding of the carbon solution is regulated by the speed of the gear 3, which speed may be varied in any usual well-known manner.

The operation of my improvement is as follows: The paper to be coated is disposed across the faces of the drums, as hereinbefore set forth. As the paper is wound on the roller 21 the under surface will be coated with the carbon solution, and any surplus of the latter will be removed by the scrapers and will drop into the gutters 15 and flow back into the reservoirs. If desired, the threads

of the screws may be made deeper at the reservoir end of the drums, so as to extend down near the bottom of the reservoirs; but this is not necessary, since the carbon solution will
 5 be kept sufficiently agitated by the screws, as shown by the drawings, so long as the proper temperature of the solution is maintained.

I have shown only three inking-drums; but it will of course be obvious that more or less
 10 of these drums may be employed without departing from the spirit of my invention.

In case the gates 11 or the strips 12 become clogged they can be readily cleared or the strips may be removed and other strips substituted. It will be seen that the screws serve
 15 to both agitate and feed the carbon solution continuously, and therefore there can be no interruption of the agitation during the feeding, and consequently so long as the steam-jacket maintains the proper temperature of
 20 the carbon solution the latter cannot cake or stick to the bottom or sides of the chambers or reservoirs.

The idle rolls are of course not necessary, since the means for supplying and taking up
 25 the paper may be so located that the paper will be properly disposed with respect to the inking-drums, and therefore I do not wish to be limited in this respect.

30 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 with carbon solution, the combination of a plurality of
 35 inking-drums having outlet-gates, rotary screws within said drums whereby the carbon solution is agitated and forced through said gates, and means for drawing the paper across said gates, substantially as set forth.

40 2. In a machine for coating paper with carbon solution, the combination of a plurality of stationary inking-drums having outlet-gates and scrapers, and provided with inclined gutters intermediate of said gates and scrapers,
 45 rotary screws within said drums whereby the carbon solution is agitated and forced through said gates, and means for drawing the paper snugly against said drums and across said gates and scrapers, substantially as set forth.

50 3. In a machine for coating paper with a carbon solution, the combination of a plurality of stationary inking-drums having ink-reser-

voirs at one end and interior chambers leading into said reservoirs, and provided with narrow
 gates leading to the external surfaces of said
 55 drums, screws journaled within said chambers and reservoirs, means for revolving said screws and means for drawing the paper across said gates, substantially as set forth.

4. In a machine of the character described, 60 the combination of a plurality of stationary inking-drums having reservoirs for holding the carbon solution and elongated chambers leading into said reservoirs and provided with narrow gates leading to the external surfaces
 65 of said drums the latter also containing steam-jackets around said chambers, screws journaled within said drums and extending throughout said chambers and reservoirs, means for revolving said screws whereby the
 70 carbon solution is fed within said chambers and forced through said gates, and means for properly delivering and feeding the paper snugly against the drums and across the gates, substantially as set forth. 75

5. In a machine of the character described, the combination of a plurality of inking-drums having at one end reservoirs for holding the carbon solution, and provided with elongated
 80 chambers which lead into said reservoirs and which have narrow gates that lead to the external surfaces of said drums, the latter also formed with steam-jackets around said chambers and also provided with scrapers beyond
 85 said gates and inclined gutters intermediate of said gates and scrapers, the screws journaled within said drums and extending lengthwise throughout said chambers and reservoirs and carrying spur-gears outside said drum, the
 90 large gear-wheel meshing with said spur-gears, a supply-roller from which the paper is delivered, a take-up roller on which the paper is wound after coating, and idle rolls intermediate of said rollers and superimposed upon
 95 the paper on opposite sides of the machine whereby said paper is caused to snugly lie against said gates and scrapers, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRED BRADFORD HOW.

Witnesses:

BESSIE L. WEBBER,
 THOMAS T. HINKLEY.