

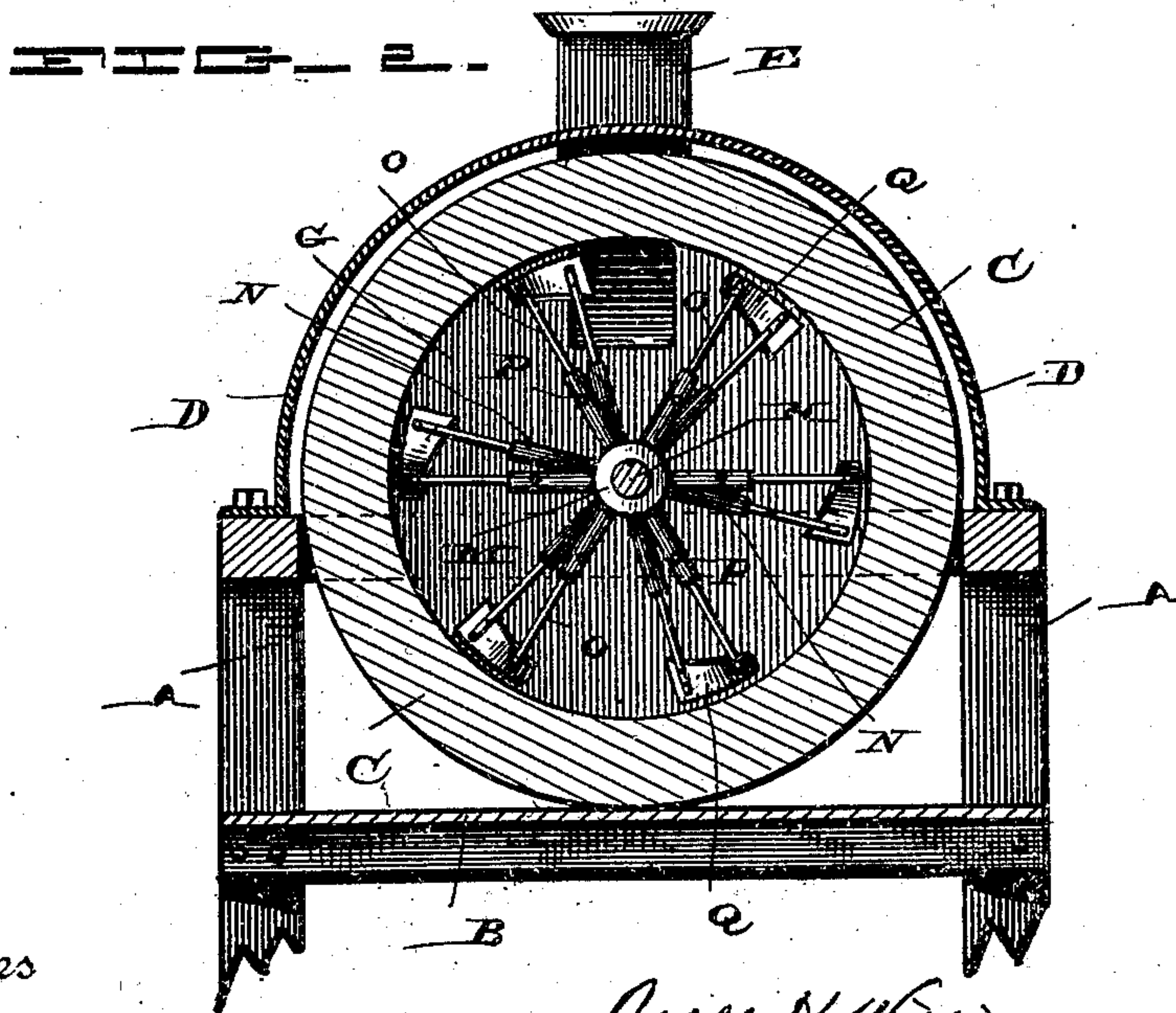
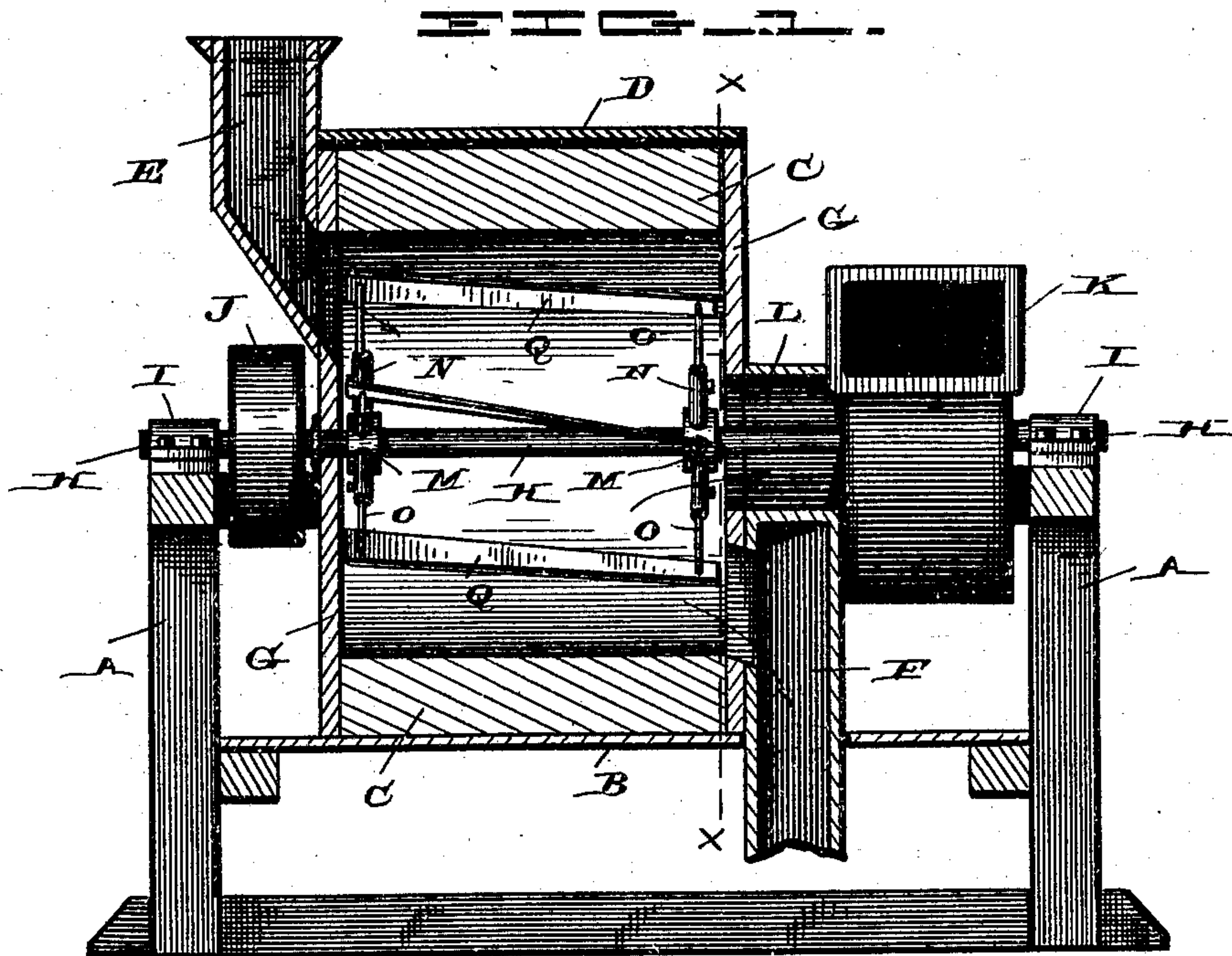
(No Model.)

2 Sheets—Sheet 1.

J. H. WILLIAMSON.
GRAIN SCOURING AND POLISHING MACHINE

No. 503,889.

Patented Aug. 22, 1893.



Witnesses

H. D. Neal
H. L. McCulloch

Inventor

Jesse H. Williamson

(No Model.)

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FIG. 3.

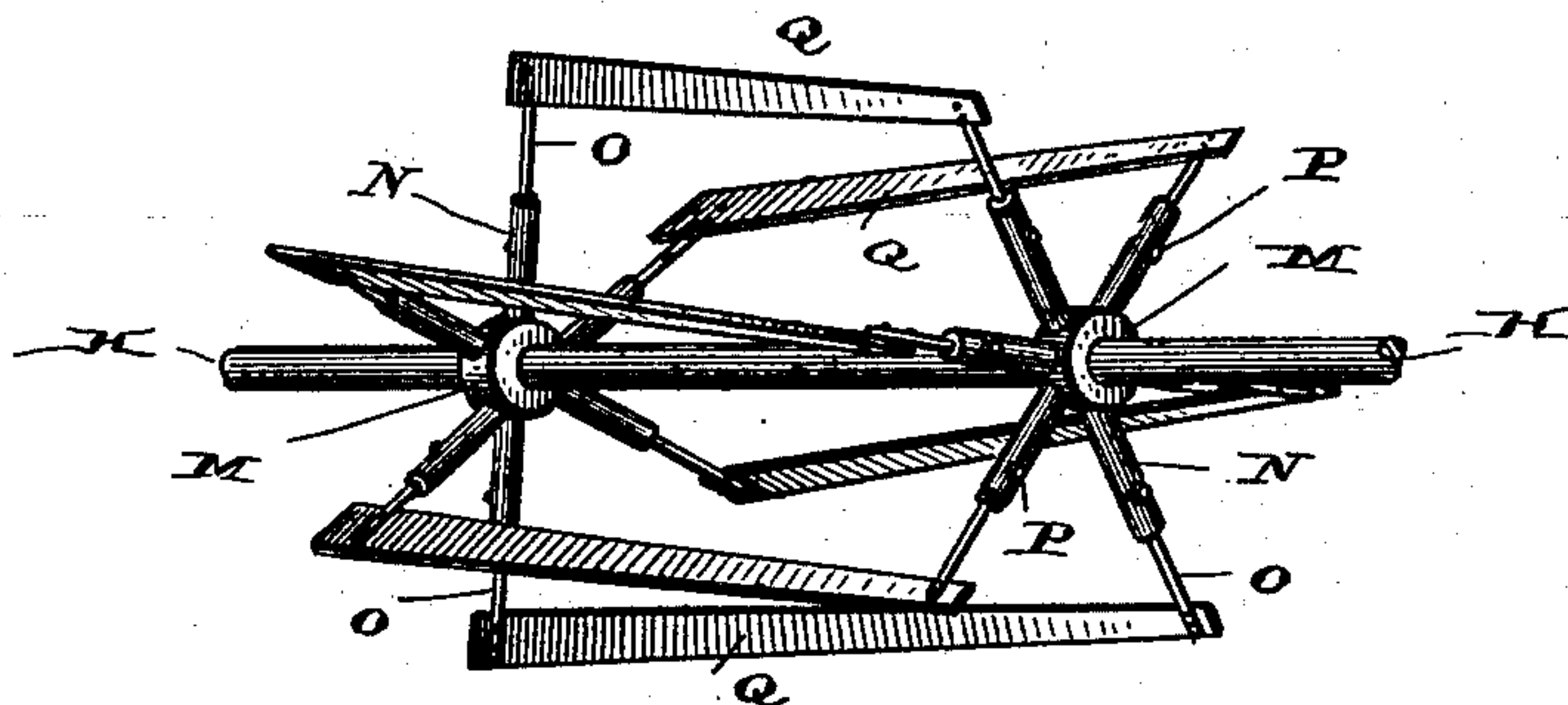


FIG. 4.

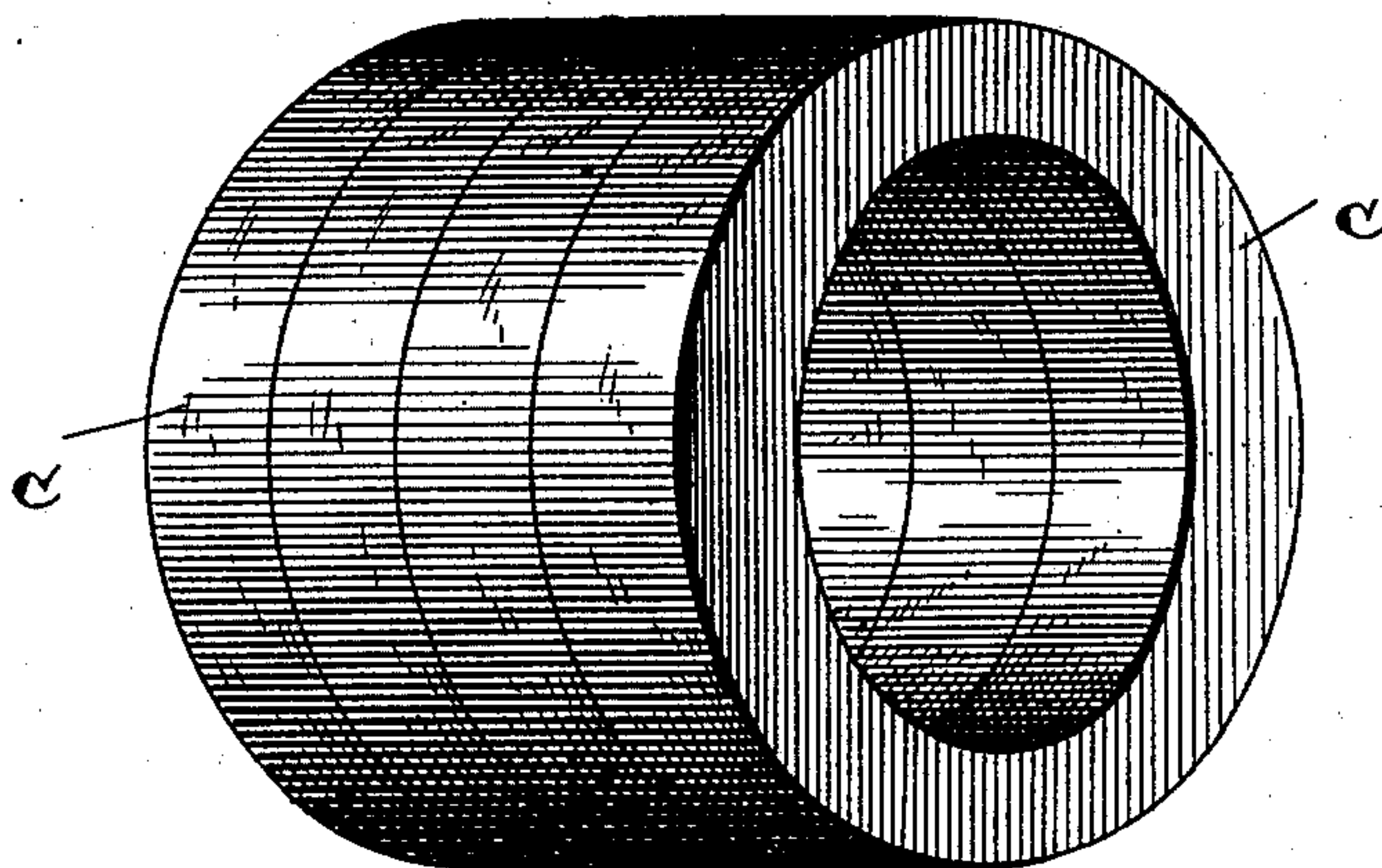
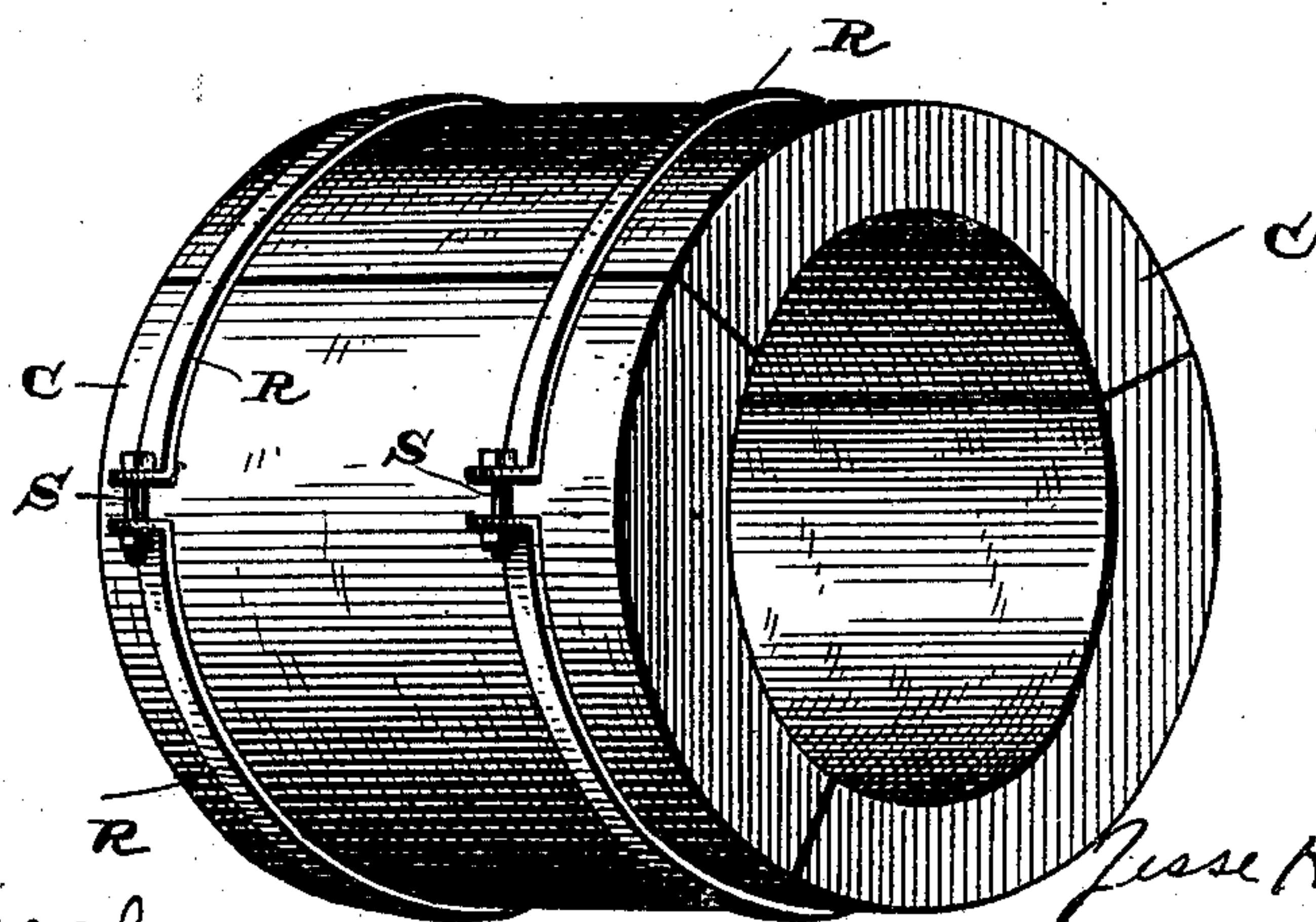


FIG. 5.



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JESSE H. WILLIAMSON, OF MUNCIE, INDIANA.

GRAIN SCOURING AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 503,889, dated August 22, 1893.

Application filed June 6, 1892. Serial No. 436,777. (No model.)

To all whom it may concern:

Be it known that I, JESSE H. WILLIAMSON, a citizen of the United States, residing at the city of Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Improvement in Grain Scouring and Polishing Machines for Use in Flouring and other Grain Mills, of which the following is a specification.

My invention relates to improvements in that class of grain mill machines used to clean, scour and polish wheat and other grains for grinding into flour, meal and other bread stuffs; and my improved machine is designed for use upon grain after all the straw, chaff, light stuff, gravel, cheat, cockle and other foreign substances usually removed by the screws and separators, and the smut removed by the smutters have all been taken out of it and nothing remains to be done to it but to clean, scour and polish the berry and detach and remove therefrom the fuzzy ends and all adherent matter and separate the result from the mass of cleaned, scoured and polished grain to the end that nothing but the cleaned, scoured and polished grain will find its way to the rolls, burrs or other grinding machines. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a central, vertical longitudinal section of a machine which embodies my invention. Fig. 2 is a cross section through the stone cylinder C. C. on the line X—X in Fig. 1. Fig. 3 is a detailed perspective view of the main shaft of the machine with the stirring blades mounted thereon. Fig. 4 is a perspective view of a modified form of the stone cylinder or tube C. C. Fig. 5 is a similar view of another modified form of the same.

Similar letters refer to similar parts throughout the several views.

A. A. are the legs of the frame of the machine, B. the floor or deck whereon rests the hollow stone cylinder secured to the frame: C. C. the rim of stone composing the hollow stone cylinder, D. the cap or covering of the machine: E. the spout through which the grain enters the machine: F. the spout through which the cleaned, scoured and polished grain leaves the machine and is conducted to the

rolls, burrs or other grinding machinery below: G. G. the caps by which the ends of the hollow stone cylinder are closed: H. H. and 55 H. the shaft for driving the moving parts of the machine: I. I. the boxes in which the shaft runs: K. the suction blower: L. the spout communicating between the inside of the hollow stone tube and the suction blower and 60 through which the fuzzy ends of the grain and other refuse matter detached from the grain by the action of the machine in cleaning, scouring and polishing it, is drawn away from the grain into the blower by suction and 65 thence expelled: M. M. collars upon driving shaft serving as hubs to hold the arms or spokes carrying the stirring blades: N. N. the lower or inner portion of arms for the stirring blades: O. O. the outer portions of the arms 70 for stirring blades: P. P. the set screws fastening and holding in position the outer portion of the arms O. O. working in N. N.: Q. Q. the stirring blades: R. R., in Fig. 5, the metallic draw bands holding together the longitudinal sections of the hollow stone cylinder: S. S. in Fig. 5, the draw bolts by which the draw bands are tightened, loosened and held together.

My improvement consists in a stationary 80 hollow cylinder, C. C. made of gritty stone or composition of sand, emery, crushed stone, corundum or other gritty substance with cement, plaster, glue or other plastic adhesive material producing a hard, gritty body, which 85 is to be cut, dressed, molded, by hand or machinery, or otherwise formed into hollow cylinders of any size and length preferred. Usually cut out of grindstone rock, round and flat as grindstones are formed, about four (4) inches 90 thick and about thirty (30) inches in diameter, but these may be thicker or thinner than four inches and may be of greater or less diameter than thirty (30) inches; these circular flat stones are to be dressed to a perfect and even 95 surface and an even thickness all over so as to fit closely and perfectly together side by side: through the center of these circular flat stones, from side to side, a true circular hole is bored twenty (20) inches in diameter, but 100 the diameter may be more or less as the blank rocks are greater or less than thirty inches in diameter, always leaving a rim of solid stone around the center hole of not less than five

inches deep in any sized stone used: the inner surface of this center hole is to be dressed to a true and perfect circle, smooth and even so that when four, five or six, more or less, of the flat stones, each with its center hole bored in it, are laid side by side and drawn tightly together there results a hollow stone cylinder or tube twenty inches, more or less, in diameter inside, with sides at least five inches thick, and two feet, more or less in length owing to the number of flat stones used and the thickness of each from side to side. The length and diameter of this stone tube may be increased or diminished at will as more or less capacity and power in the machine is desired. Or this stone tube, may be cut, dressed, bored and turned out of one solid block of stone of sufficient size for the purpose; or it may be cut and dressed out of two or more pieces of stone as long as the required tube and of proper sizes and shapes to make halves, thirds, quarters, fifths or sixths, closely fitting these sections together when dressed, by longitudinal close fitting joints so as to form a perfect stone tube with sides at least five inches thick, forming a cylinder of stone externally: or these sections or the entire tube and cylinder (Figs. 4 and 5) may be molded out of a composition of sand, emery, crushed stone, corundum, or other gritty substances with cement, plaster, glue or other plastic, adhesive material producing a hard, gritty body; when the tube, as in Fig. 5, is made in longitudinal sections, either cut or molded, they are to be tied together and held in position by two or more metallic draw bands, each having but one opening, held together, tightened or loosened by bolts and nuts; the ends of the bands being turned back squarely outwardly to form lips, the bolts to pass through the lips as shown in Fig. 5 R. R. and S. S. The draw bands R. R. in Fig. 5 to be of sufficient thickness and width to firmly draw together, by the bolts and nuts, S. S. Fig. 5, and hold firmly in position the several sections of the stone tube, iron or steel bars, one to two inches wide and at least one-half inch thick, should be used in making the draw bands, R. R. Fig. 5, and there should be one band near each end of the stone tube, C. C. Fig. 5, and the bands should be shaped to fit around the external surface of the stone cylinder C. C. as in Fig. 5. The stone tube or hollow cylinder C. C. thus formed is to lie in a wooden or metal frame A. A. Figs. 1 and 2, and its side resting upon a platform B. in Fig. 1 provided for the purpose, in a horizontal machine, the sides of the frame A. A. supporting this platform B. Figs. 1 and 2 and the cross pieces of the frame A. A. Fig. 2, holding it together and in position longitudinally.

The top of the frame A. A. should be so high, with reference to the height of the top of the stone cylinder C. C., that the boxes I. I. Fig. 1 resting upon the top of the end pieces of the frame A. A. as in Fig. 1 will throw the

driving shaft H. H. exactly in the center of the stone tube C. C. when in position. This shaft H. H. should be at least one inch in diameter and should be turned to a perfect cylinder and be made straight: it runs in the metallic boxes I. I. and by them is held exactly in the center of the stone tube C. C. as shown in Fig. 1. Upon this shaft H. H. two iron collars are fastened by a set screw in each to be used as hubs of the stirring blades. M. M. represent these hubs in position. Six metallic spokes N. N. and O. O. are attached to the hubs M. M.: the spokes are compound, the extensions thereof O. O. work in hollows in the outer ends of N. N. and are held in position by set screws P. P. in Fig. 2. By means of this arrangement the length of the spokes may be increased or diminished by drawing O. O. farther out or pushing them farther in and fastening them by the set screws P. P. The outer ends of O. O. are fastened to the stirring blades Q. Q. by rivets or bolts substantially as shown in Figs. 1, 2 and 3. The stirring blades are three inches wide at the end where the grain enters the tube through the spout E., and taper to two inches wide at the other end, the taper being made all on the under or inner side of the blades Q. Q., so when in position the outer edges of the blades will be equidistant from the inner surface of the stone tube C. C. The stirring blades Q. Q. extend from one end to the other of the stone tube C. C. and are so adjusted as to assume something of the shape, with reference to the shaft H. H., and position of the revolving cutting blades of the ordinary lawn mower, to-wit: a sort of spiral form as shown in Figs. 1, 2 and 3. The shaft H. H. is to be given from five hundred to one thousand revolutions per minute owing to the size and capacity of the machine and the condition of the grain to be treated. The grain enters the stone tube at the end where the wide end of the stirring blades Q. Q. are situated, through the spout E. and is kept in rapid motion by the rapidly revolving stirring blades Q. Q. and the spiral arrangement of the blades Q. Q. keeps it moving toward the point of exit at the opposite end of the stone tube C. C. where it leaves the stone tube C. C. by way of the spout F. whence it is carried down to the rolls, burrs or other grinding machinery there to be ground. The narrow end of the tapered stirrers allows the grain to more freely pass out the exit opening. On its way through the stone tube C. C. as shown the grain is constantly changing position as stated and every part of the berry is thrown violently against the inner surface of the stone tube C. C., many times the grit cutting and scouring off every particle of dirt and refuse matter upon the berry when it first enters the stone tube C. C., setting it free and it is then drawn off by the suction draft of air produced by the suction blower K. through the passage way L. from the stone tube C. C.

into the suction blower K. whence it is expelled into a spout and carried off to a place of deposit to be provided to receive it at any convenient point in or about the mill, leaving
5 the grain clean, scoured and polished free from all adherent foreign matter to be ground into pure, clean flour and other breadstuffs. The cleaning, scouring and polishing are effected by the grit in the stone forming the
10 sides of the stone tube C. C. and the agitation of the grain by the revolving stirring blades Q. Q. on its passage through the machine as stated. The open ends of the stone tube are to be closed by stone, metal, or wooden caps with
15 openings therein to admit the grain through the spout E. at one end and at the other for the discharge of the cleaned grain through the spout F. and for the dirt and refuse matter to be drawn out of the stone tube C. C. by
20 the suction draft from the suction blower K. through the passage L.

When the stone cylinder is composed of several rings, as illustrated in Fig. 4, the rings

are held together by the side rails of the frame of the machine, and by the caps G. 25

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of a horizontal cylinder, ends or caps closing the ends of said cylinder, a concentric shaft, one of the ends or caps
30 having an inlet opening in its upper edge, the opposite end or cap having a concentric dust outlet opening and a grain outlet opening in its lower edge below and adjacent to the dust outlet, a spout for the said grain outlet, a concentric fan casing outside of the said grain
35 outlet spout, a fan upon the shaft within the fan casing, and a horizontal passage way above the grain outlet connecting the fan casing and the concentric dust outlet, all operating in the
40 manner described.

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Witnesses:

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F. G. JACKSON.