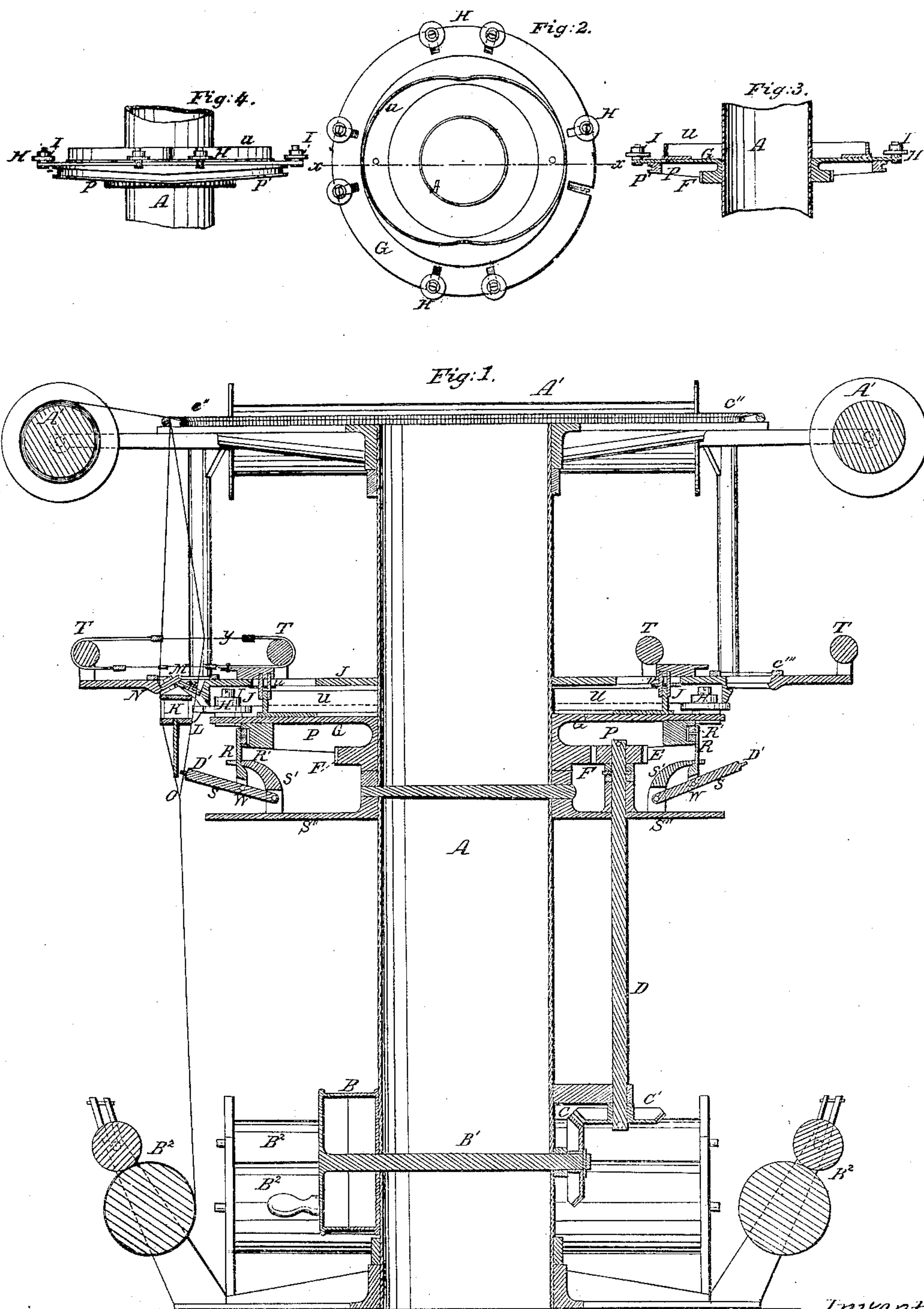


Walton & Nandain. Circular Weaving.

Sheet 1-3 Sheets.

N^o 44,902.

Patented Nov. 1, 1864.



Witnesses:

Chas. E. Hore.
James T. Graham.

Inventors:

William Henry Walton
Andrew Nandain.
By Thos P. Hore,
Atty.

Walton & Nandain
Circular Weaving.

Sheet 2 - 3 Sheets

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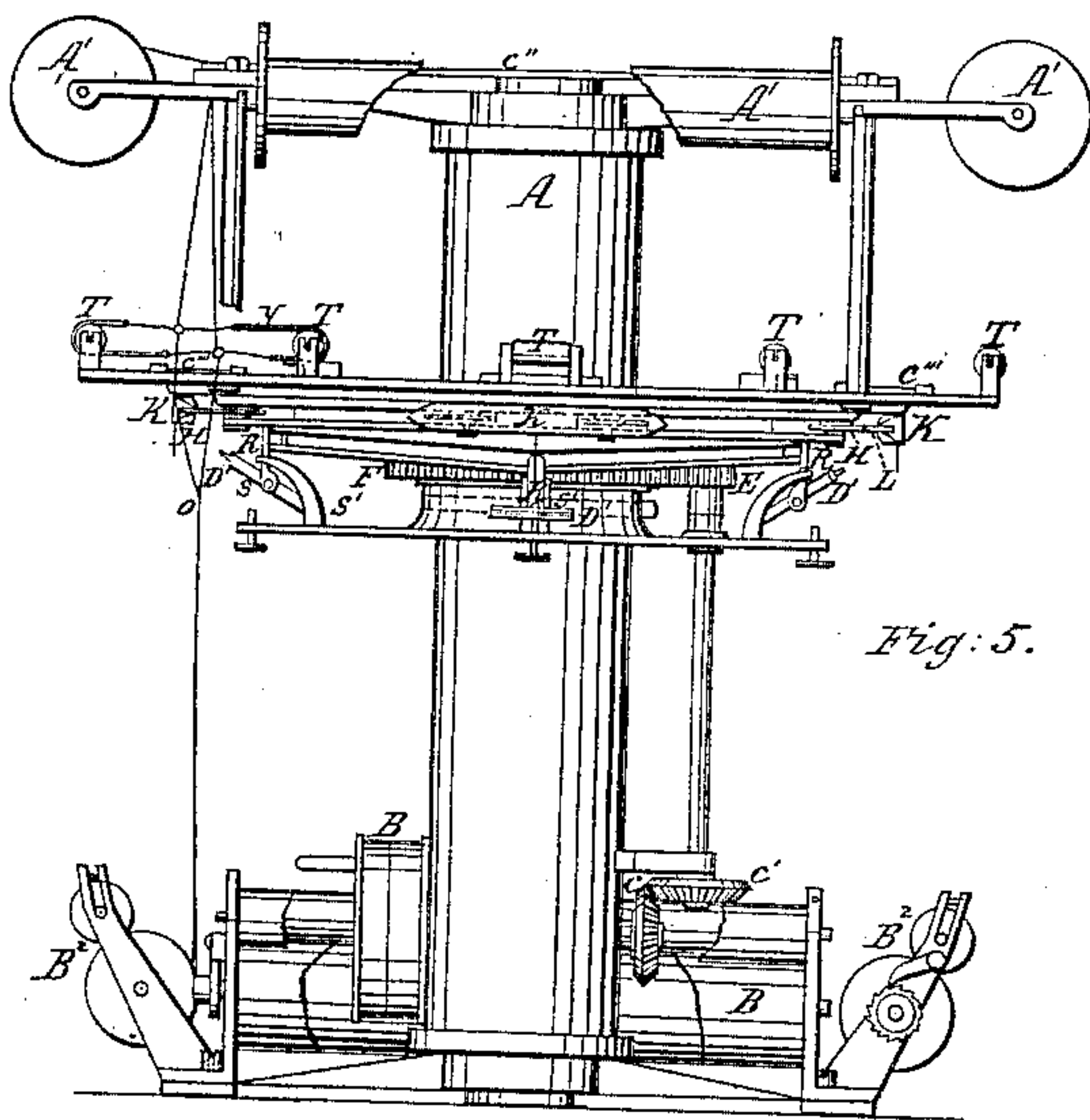
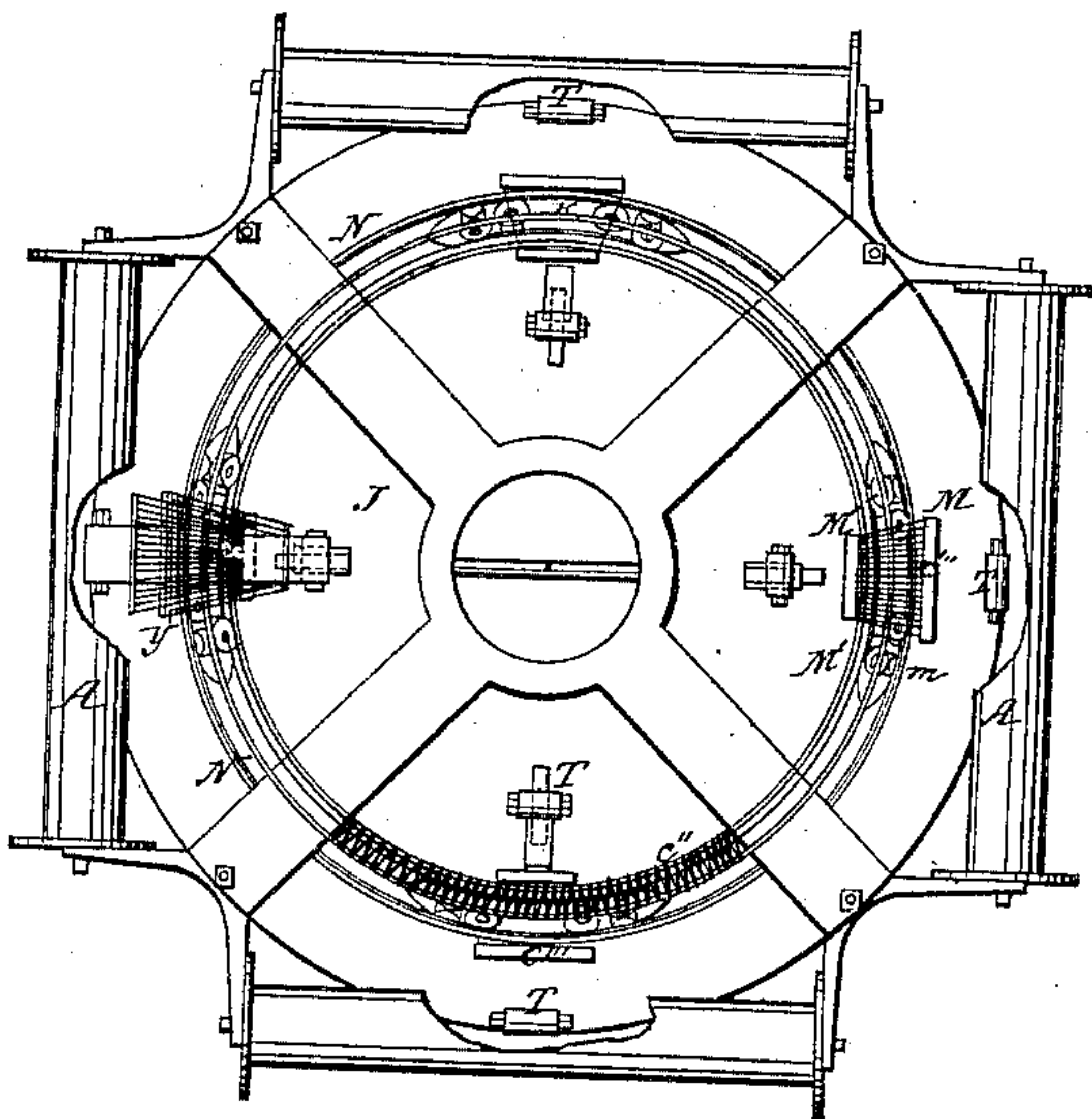


Fig. 5.

Fig. 6.



Witnesses.

Chas. E. Here.
James T. Graham.

Inventors.

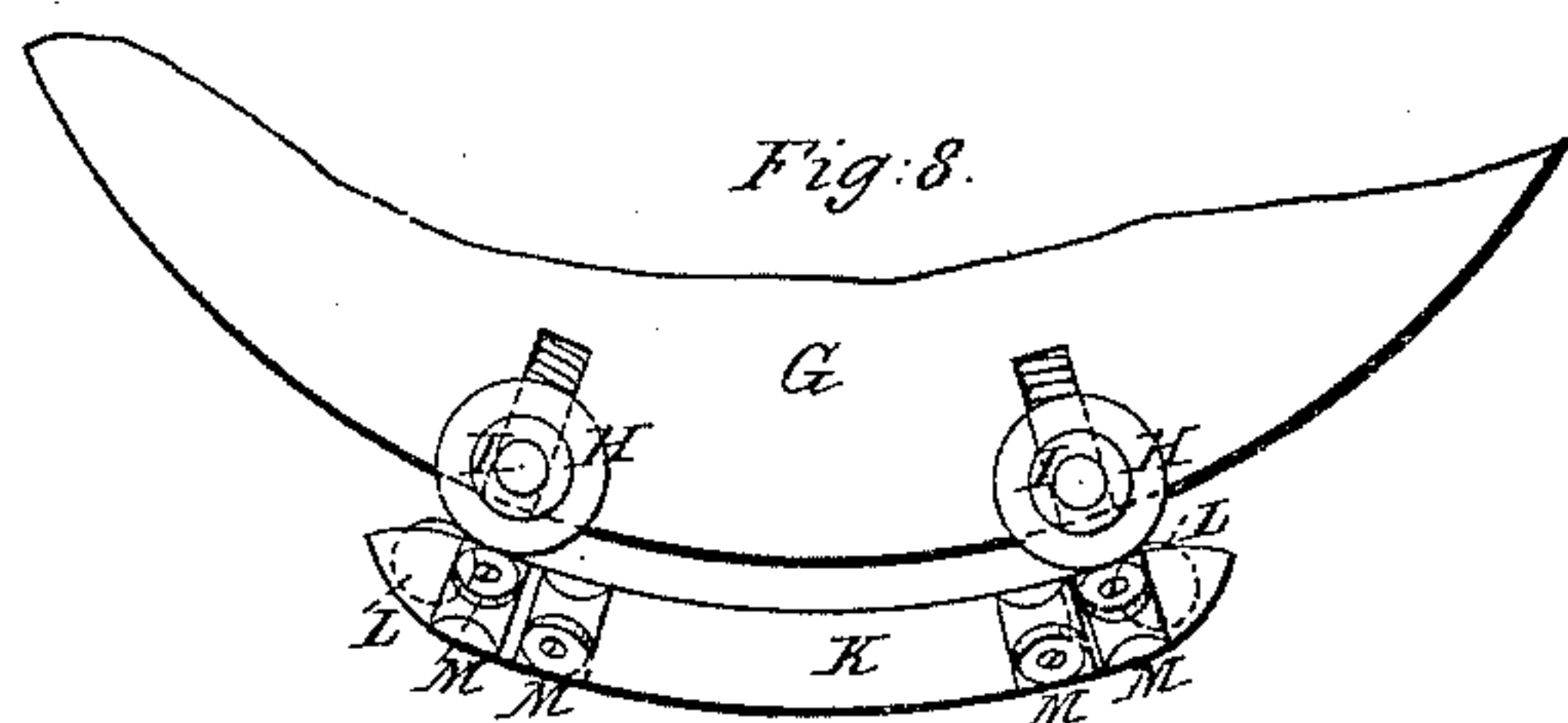
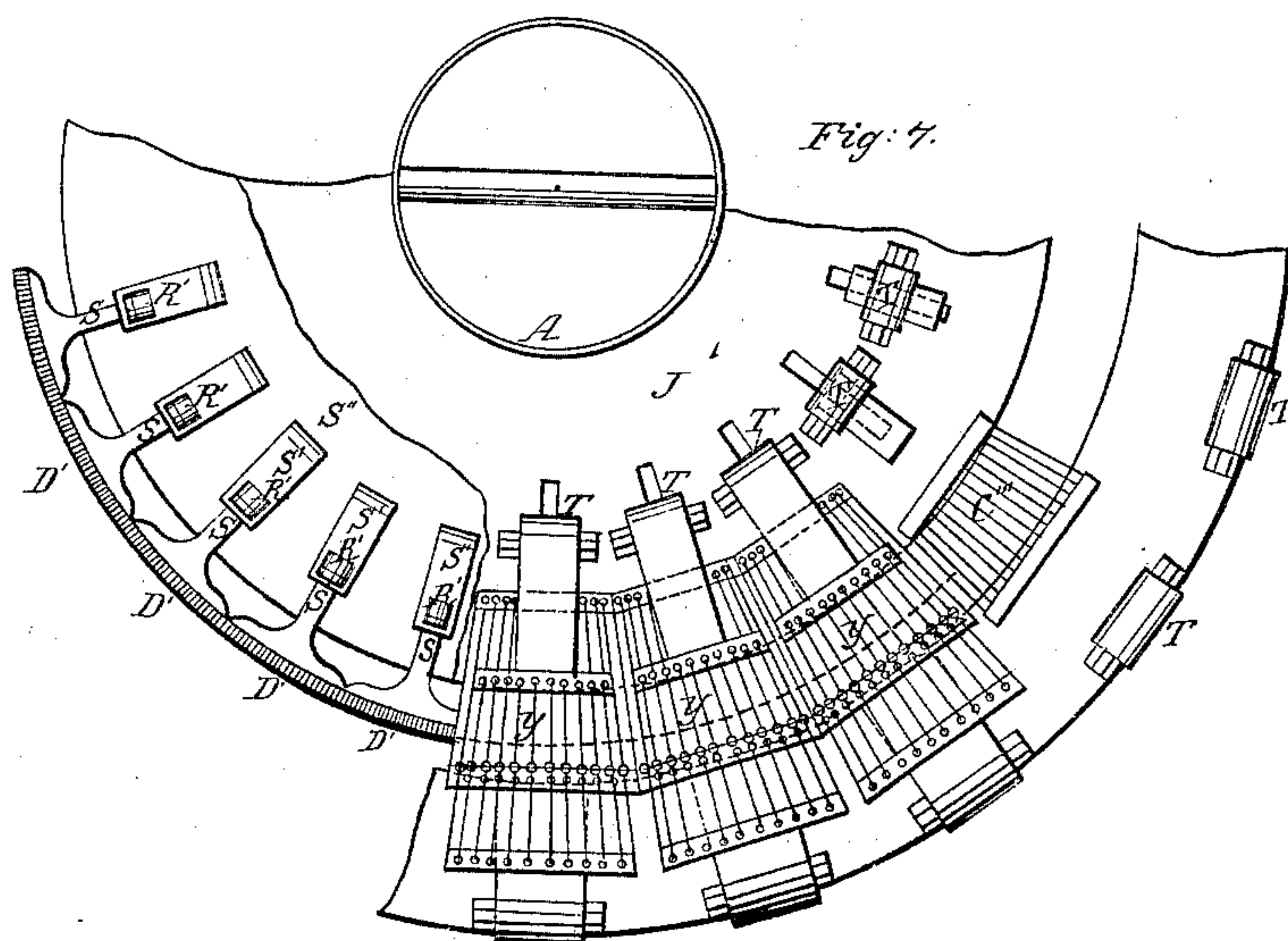
William Henry Walton
Andrew Nandain
By Thos P. Kew
Atty

Walton & Nandain.
Circular Weaving.

Sheet 3-3 Sheets.

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Witnesses:

Chas. E. Hove.
James T. Graham.

Inventors:

William Henry Walton
Andrew Nandain
By Thos. P. Hove
Atty

UNITED STATES PATENT OFFICE.

WILLIAM H. WALTON, OF NEW YORK, ANDREW NAUDAIN, OF WEST FARMS, N. Y.; ELLEN S. NAUDAIN AND ARNOLD NAUDAIN, ADMINISTRATORS OF SAID ANDREW NAUDAIN, DECEASED.

IMPROVEMENT IN CIRCULAR LOOMS.

Specification forming part of Letters Patent No. **44,902**, dated November 1, 1864; antedated October 23, 1864.

To all whom it may concern:

Be it known that we, WILLIAM HENRY WALTON, of the city, county and State of New York, and ANDREW NAUDAIN, of the town of West Farms, county of Westchester, and State of New York, have invented a new and useful Improvement in Circular Looms; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a vertical section of the loom; Fig. 2 is a view or plan of the cam for working the heddles and the pulleys for carrying the shuttles. Fig. 3 is a vertical section of the same through the line *x x*, Fig. 2. Fig. 4 is a horizontal or side view of the same, showing also the cam for working the reed-comb and the gear for imparting motion. Fig. 5 is a horizontal or side view of the loom. Fig. 6 is a top view of the loom. Fig. 7 is a top view of a section of the heddle-plate, showing the stationary reeds, the heddles, and the reed-combs. Fig. 8 is a top view of a segment of the shuttle-plate, showing the shuttle and the manner in which it is carried.

Our improvement consists in combinations for weaving with a continuous motion by carrying one or more shuttles around a circle.

A is a fixed central column for supporting the frames, plates, and machinery of the loom.

B B' are the driving pulleys and shaft for communicating motion to the machinery of the loom.

C C' are two bevel-gears, one on the shaft B' and the other on the vertical shaft D.

E is a small gear on the shaft D, which works in the teeth of the gear F, fixed or cast on the table G. Said gear F and the table G revolve on their axes on flanges cast or securely attached to the column A, or on any suitable bearings. The motion given to the shaft D by the shaft B' causes, by means of the gears E and F, the table G to revolve at any required speed or in any required direction.

On the table G are fixed one, two, four, or more arrangements of pulleys or rollers, H, for carrying one, two, four, or more shuttles

around the circumference of the revolving table G.

The loom represented in the accompanying drawings is designed for four shuttles, though the invention is not necessarily limited to that number, the number depending upon the size of the loom.

Attached to or forming a part of each of the pulleys or rollers H is a small friction-pulley or pinion-gear, I. This pulley or gear I is so arranged that when the table G is in motion it is caused to revolve, when a pulley, by being pressed against the flange J, and when a pinion-gear by working in teeth on the flange J. This flange J, or the frame or plate that supports it, is stationary, being securely attached to the column A. The pulleys H are so arranged as to push, when in motion, against two small pulleys, L, attached to the shuttle K. By this means the shuttle or shuttles K are carried around the circumference of the loom within the shed of the warp. At the same time, motion being given to the pulleys H by means of the friction-pulley or pinion-gear I, and also by contact with the pulleys L of the shuttles K, in one direction, and motion being given to the pulleys L of the shuttles K by contact with the pulleys H in an opposite direction, the shuttle or shuttles pass over the warp without friction, the warp being between the two sets of pulleys.

M are four small pulleys fastened to the upper side of the shuttles K in an angular or inclined position, as represented in Fig. 8, and designed to support the shuttles as they are running round the circle through the shed of the warp. The pulleys M bear up the shuttles, and those on the inner side run on the ring on the flange J, and those on the outer side run on the ring on the flange N. These pulleys run over the warp on each side as the shuttle passes through the shed; or, in other words, the warp is always between the pulleys and the rings upon which they run. The filling is laid from the shuttle at the point designated by the letter O, and is beat up to its place in sections by the reed-comb D'. The reed-comb D' is attached to one end of an arm, S. The other end of said arm is attached by

a joint to a stationary support, S', which is supported by the frame or plane S'', secured to the central column, A. Through the upper end of the support S' is a mortise, through which plays a rod, R, which said rod is attached at the lower end to the arm S by the joint W, and to the other end of said rod R is attached a small pulley, R'. The pulley R' moves on the lower side of the groove P' in the cam P, and rises and falls as that cam revolves, thus beating up the filling in sections either before or behind the shuttles, or both, as may be required. The filling may also be beat up by a reed acting from above the shuttles. The cam P is attached to the rotary table G and revolves with it.

Y are the heddles, designed to move the warp for the passage of the shuttles. Said heddles are connected with the rollers T, and move forward and back in sections as they are acted upon by the cam U, in connection with the stud b, said heddles changing their position immediately after the passing of the shuttle and the beating up of the filling in order to open a new shed for the passage of the next shuttle, and so on continuously.

We do not confine ourselves to the exact details above described, as in many parts of the loom many mechanical motions may be varied and applied.

B² are rollers, designed to receive the woven fabric when said fabric is cut or slit into strips; or the web may be allowed to pass down through an opening in the floor and otherwise disposed of.

A' are the rollers upon which the warp is wound preparatory to weaving.

C'' are guide-holes by which the warp is

brought into a position directly over the heddles.

C''' is a stationary reed, by which more stability is given to the warp during the passage of the shuttles through it than could be given by the heddles alone.

We need not describe the manner of applying feed, drop, take-up, and selvage motions to this loom, as they would be simply variations of well-understood motions.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the shuttle K with the pulleys L, M, H, and I, the rings of the flanges J and N, and the revolving table G, substantially as and for the purpose set forth.

2. The combination and arrangement of the heddles Y, the rollers T, and the stationary reed C''' with the stud V, the cam U, and the revolving table G, substantially as and for the purpose set forth.

3. The combination and arrangement of the reed-comb D', the arm S, the support S', the rod R, and the pulley R' with the frame or table S'', the groove P', and the cam P, substantially as and for the purpose set forth.

4. The combination and arrangement of the revolving table G with the cams P and U, the central column, A, and the gear F, substantially as and for the purpose set forth.

WILLIAM HENRY WALTON.
ANDREW NAUDAIN.

Witnesses:

JNO. L. HARLEY,
JAMES PEACOCK.