

T. J. KELLY.
YARN PRINTING MACHINE.
APPLICATION FILED JUNE 15, 1910.

998,780.

Patented July 25, 1911.

2 SHEETS—SHEET 1.

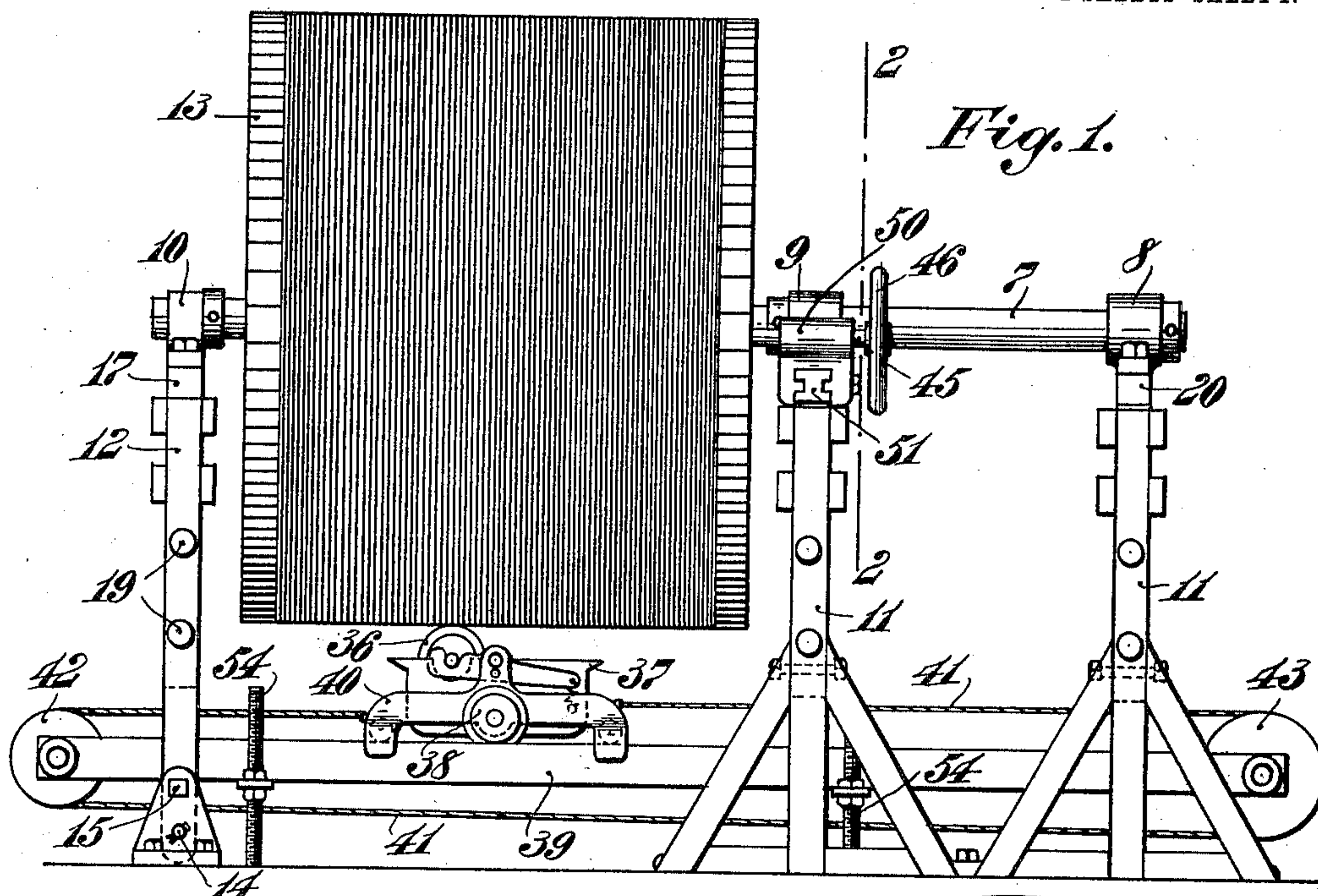


Fig. 1.

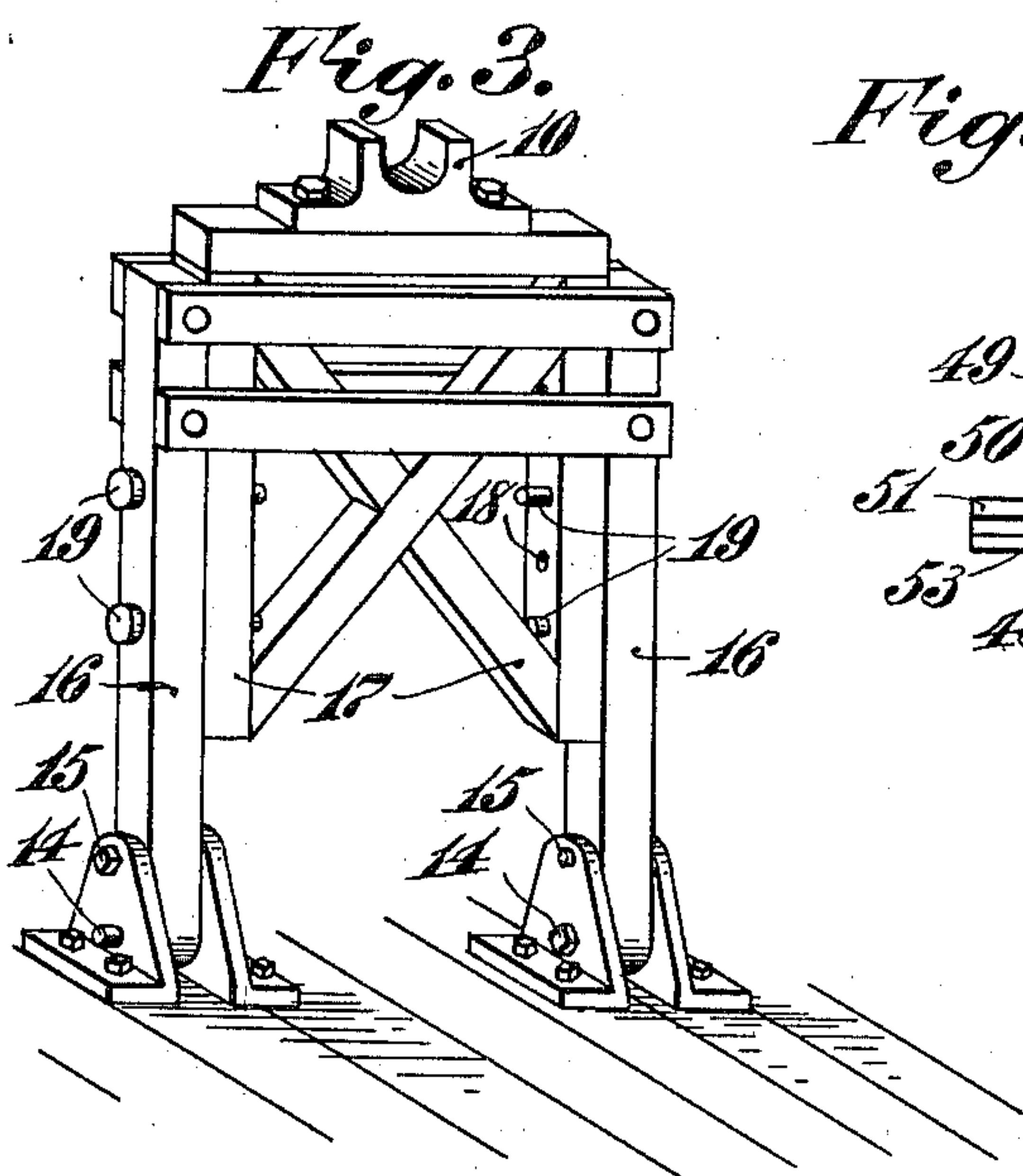
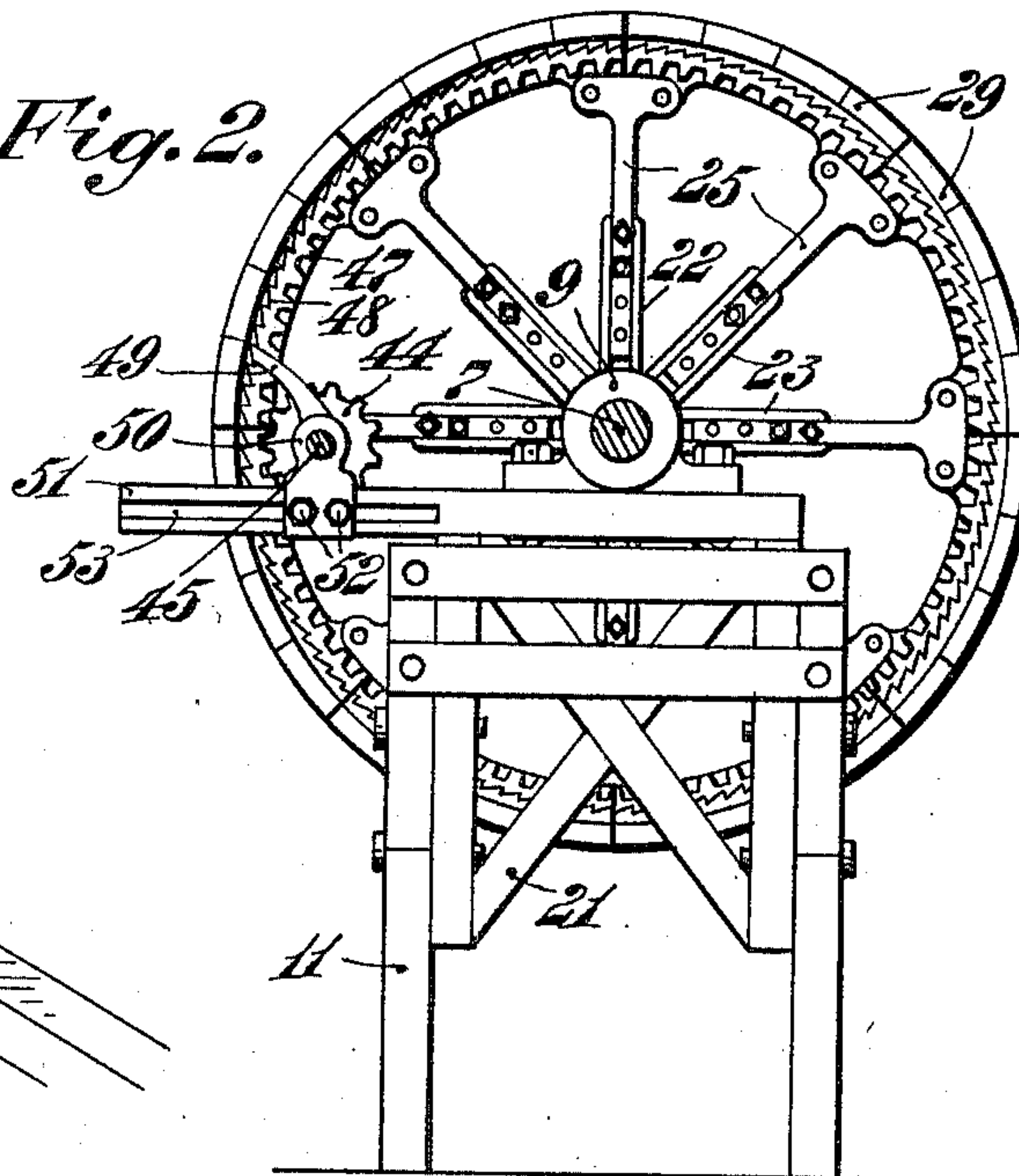


Fig. 3.

Fig. 2.



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Fig. 4.

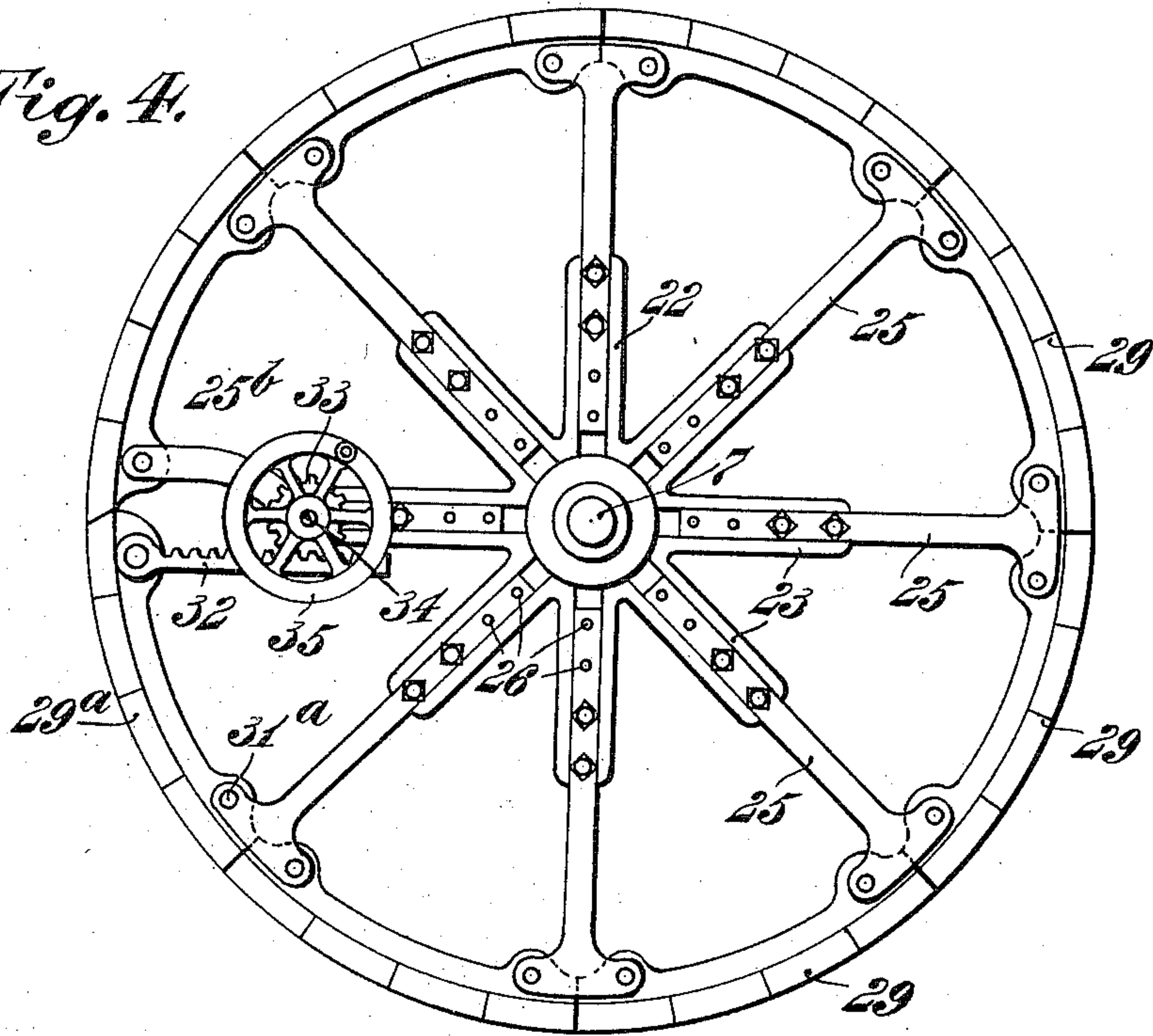


Fig. 6.

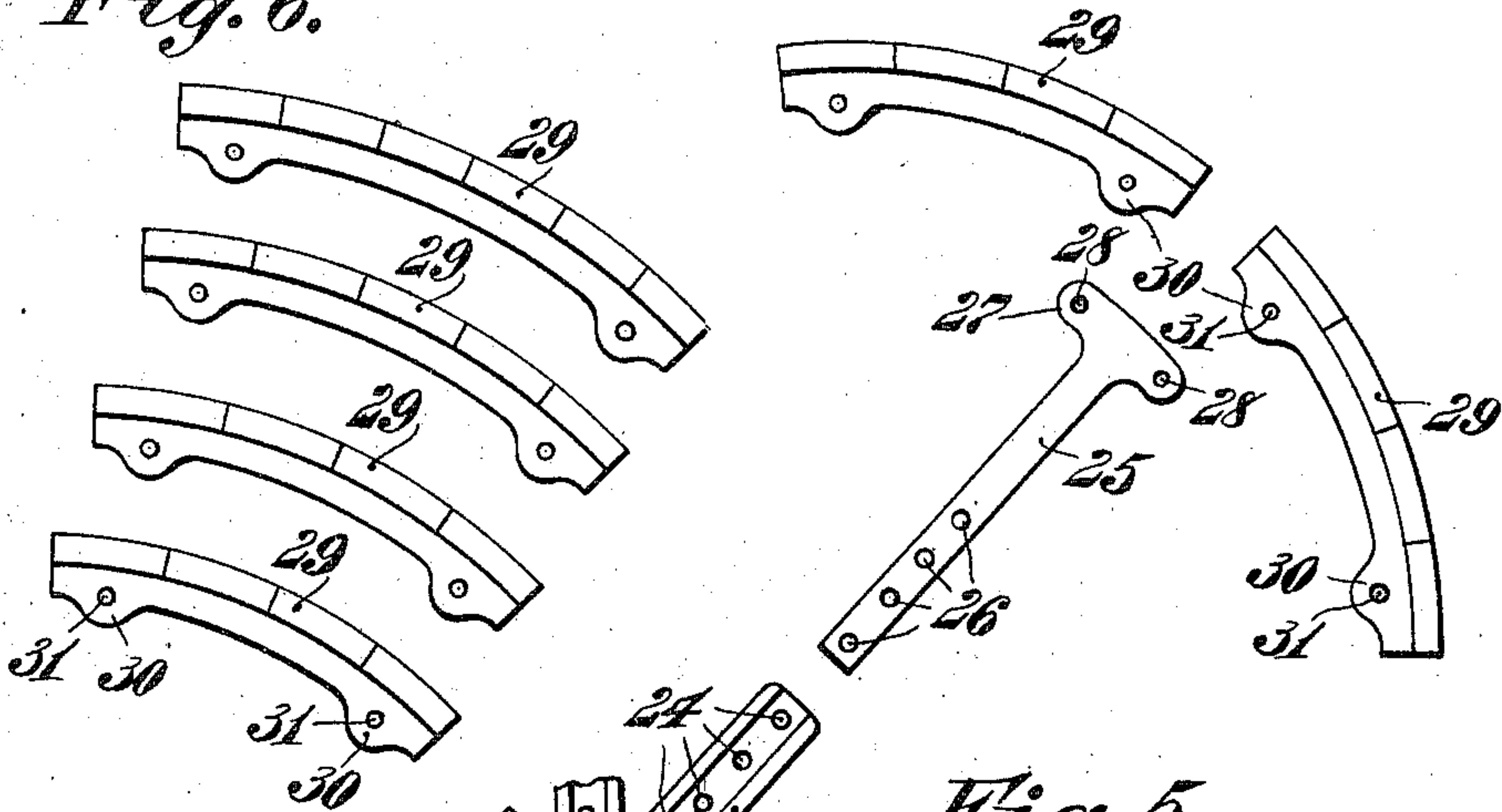
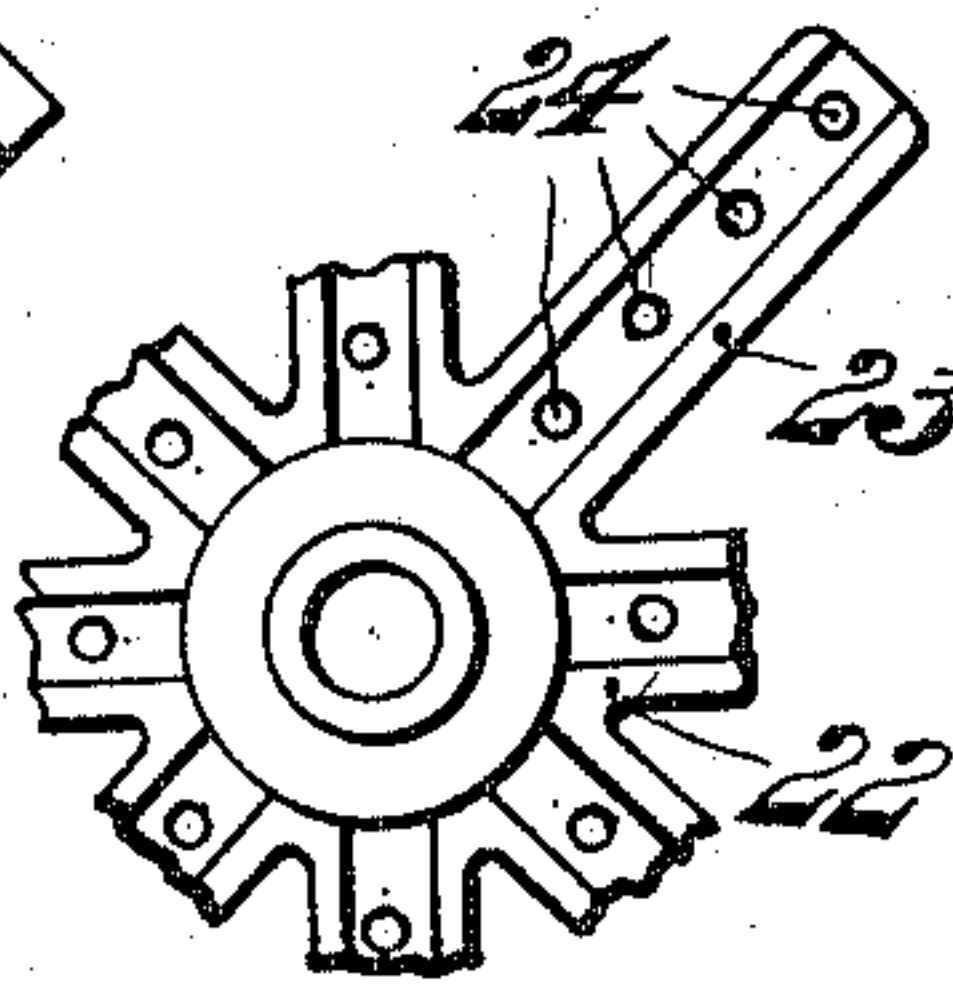


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS J. KELLY, OF PHILADELPHIA, PENNSYLVANIA.

YARN-PRINTING MACHINE.

998,780.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed June 15, 1910. Serial No. 566,927.

To all whom it may concern:

Be it known that I, THOMAS J. KELLY, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Yarn-Printing Machines, of which the following is a specification.

My invention relates to a machine for printing yarn for warp which is afterward to be woven into tapestry or velvet carpet and the like.

The principal object of my invention is to provide a machine which by slight adjustments may be readily used in printing warp for different sized rugs or other fabrics.

My invention contemplates means whereby the drum may be readily enlarged or reduced in diameter and in which the other parts of the machine may be readily adjusted to such changes in size of the drum.

The nature and characteristic features of my invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part hereof in which:—

Figure 1 is a side elevation of a warp printing machine embodying the main features of my invention; Fig. 2 is a vertical section thereof taken on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the outer bearing frame for supporting the drum shaft; Fig. 4 is an enlarged end elevation of the drum; Fig. 5 is a fragmentary elevational view of certain portions of the drum showing the same in detached relationship; and Fig. 6 is an end elevation of one each of the several series of drum segments used for forming drums of different diameters.

Referring to the drawings, 7 is the main shaft for supporting the drum, which shaft is mounted in suitable bearings 8 and 9 at the rear and in the bearing 10 at the front. The bearings 8 and 9 are mounted on a suitable frame work 11 which as hereinafter described may be made so that the bearings 8 and 9 may be vertically adjusted. The bearing 10 is mounted on a frame work 12 which is likewise provided with means for vertical adjustment of the bearing 10, and the frame work 12 is also arranged as to be readily swung away from the front of the drum 13 when it is desired to remove the printed yarn therefrom. The preferred

manner of so arranging the frame work 12 consists in pivoting the same as at 14 near the bottom thereof and providing removable pins or bolts 15 some distance above the pivots 14 which lock the frame work 12 in its normal vertical position. The frame work 12 comprises the vertical uprights 16 suitably braced together, and between the uprights 16 is mounted an adjustable portion 17 which carries the bearing 10 at its upper portion. The adjustable portion 17 is provided with a series of openings 18 which are adapted to register with similar openings in the vertical uprights 16 whereby the adjustable portion 17 may be raised and lowered to desired positions and locked at such positions by means of the pins 19 as clearly shown in Fig. 3 of the drawings. The frame work 11 is similarly provided with adjustable portions 20 and 21 which carry the bearings 8 and 9 to permit the required vertical adjustment thereof.

Upon the shaft 7 are mounted spiders 22, one at each end of the drum 13, and each arm 23 of said spiders is provided with a series of apertures 24 or if desired a slot may be substituted for these apertures. The spokes 25 are mounted on the spiders 22, one on each arm 23 thereof, and each spoke 25 is provided with a number of apertures 26 which are adapted to register with the apertures 24 whereby the spokes may be extended by bolting the same through different apertures. Each spoke 25 is provided at its outer end with a pair of ears 27 each having a bolt hole 28 to permit the segments 29 to be secured thereto by means of the ears 30 which are similarly provided with bolt holes 31. The segments 29 forming the outer face of the drum 13 are provided in series of different sizes as shown in Fig. 6 and the circumferential dimensions of the several series of segments 29 are correlated to the positions of the apertures 24 of the spider arms 23 and the apertures 26 of the spokes 25 so that one series of segments 29 is provided for each possible location of the spokes 25. One of the segments 29^a of each of the series thereof is pivoted as at 31^a (see Fig. 4) to one of the spokes 25 and to the other end of the segment 29^a is secured a rack 32 which meshes with a pinion 33 which is suitably journaled in a specially formed spoke 25^b and is mounted upon a shaft 34 which carries a hand wheel 35. By the manipulation of

the hand wheel 35, the rack 32 may be retracted to cause the segment 29^a to swing inwardly and thus loosen the tension of the yarn upon the drum to allow it to be removed therefrom after the yarn has been printed.

The mechanism for printing the yarn comprises a printing wheel 36 which is suitably journaled within a box 37 adapted to contain the color. The box 37 is mounted in a suitable frame work 40 which is provided with wheels 38 which run upon tracks 39 extending parallel to the axis of the drum shaft 7. The frame work 40 and the color box 37 are adapted to be reciprocated on the track 39 by means of the rope 41 which passes over pulleys 42 and 43 at the front and rear respectively and is actuated by any suitable mechanism not shown. The arrangement is such that as the color box 37 is reciprocated backward and forward on the track 39 the printing wheel 36 which is partly submerged in the color contained within the box 39 will contact with the yarn and print a short length of each convolution of the warp which is wound upon the drum 13.

To rotate the drum to bring the proper portion of the yarn to position to be printed by the wheel 36 there is provided a pinion 44 mounted upon a shaft 45 which shaft also carries a hand wheel 46 for the manual control of the operator. The pinion 44 meshes with an internal gear 47 which is secured in sections one to each of the segments 29 and to insure the stoppage of the drum at the proper exact location, each of the segments is also provided with a section of ratchet teeth 48, which teeth are adapted to be engaged by a pawl 49 which may be loosely mounted upon the shaft 45. To enable the foregoing drum actuating mechanism to be used with all sizes of the drum, the shaft 45 is preferably mounted in a bearing 50 which may be adjustably secured to an extension 51 of the frame work 21 by means of the bolts 52 and the slot 53 in the extension 51.

If desired the means for vertically adjusting the bearings 8, 9 and 10 as hereinbefore described, may be dispensed with and in lieu thereof the tracks 39 may be made vertically adjustable by means of the threaded supporting members 54 as clearly shown in Fig. 1 of the drawings.

Having thus described the nature and characteristic features of my invention what

I claim as new and desire to secure by Letters Patent is:—

1. In a machine for printing yarn, the combination of a drum adapted to be altered in diameter, printing mechanism, means for changing the location of the printing mechanism with respect to the drum to compensate for changes in the size of the drum, means for rotating the drum to bring various parts of the yarn to position to be acted upon by the printing mechanism, and means for shifting the drum rotating mechanism to compensate for changes in the size of the drum.

2. In a machine for printing yarn, the combination of the drum, means for altering the diameter of said drum, printing mechanism comprising a color box and printing wheel carried thereby and means for reciprocating said color box, tracks upon which said color box reciprocates, and means for raising and lowering said tracks to compensate for changes in the diameter of the drum.

3. In a machine for printing yarn, the combination of the drum, means for altering the diameter of said drum, printing mechanism, and means for changing the location of the printing mechanism with respect to the drum to compensate for changes in the diameter of the drum, the means for altering the diameter of the drum comprising extensible spokes mounted on the drum shaft and a plurality of series of various sized segments adapted to be interchangeably mounted on the outer ends of the spokes.

4. In a machine for printing yarn, the combination of the drum, means for altering the diameter of said drum, printing mechanism, and means for changing the location of the printing mechanism with respect to the drum to compensate for changes in the diameter of the drum, the means for altering the diameter of the drum comprising spiders carried by the drum shaft, spokes extensively secured to said spiders, and a plurality of series of various sized segments adapted to be interchangeably mounted on the outer ends of the spokes.

In testimony whereof, I have hereunto signed my name in the presence of two witnesses.

THOMAS J. KELLY.

Witnesses:

LILLIAN H. NEVEIL,
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