

J. TURNER & I. E. PALMER.

Machine for Making Covered Twist and Cord.

No. 38,190.

Patented April 14, 1863.

Fig: 1.

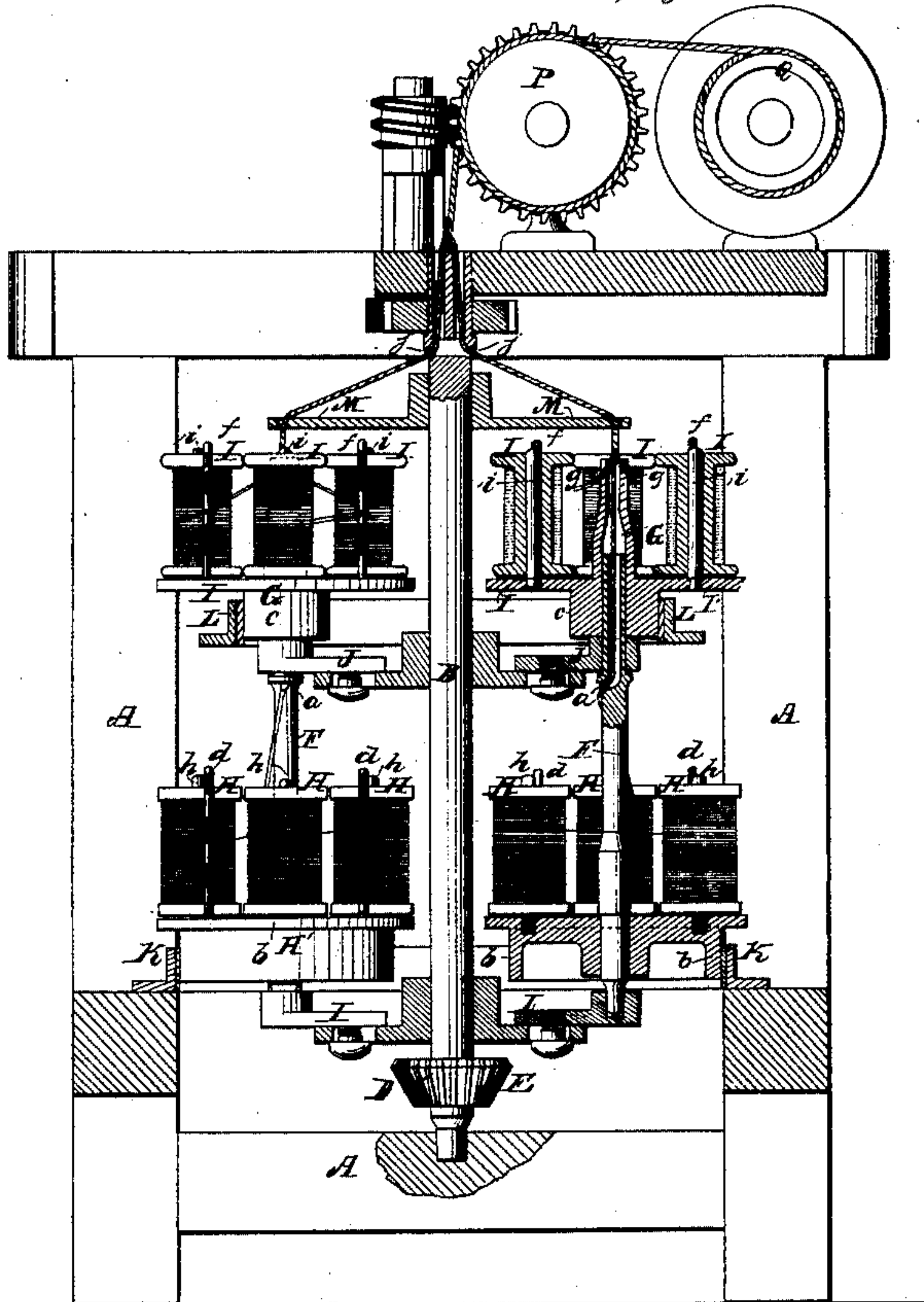


Fig: 3.

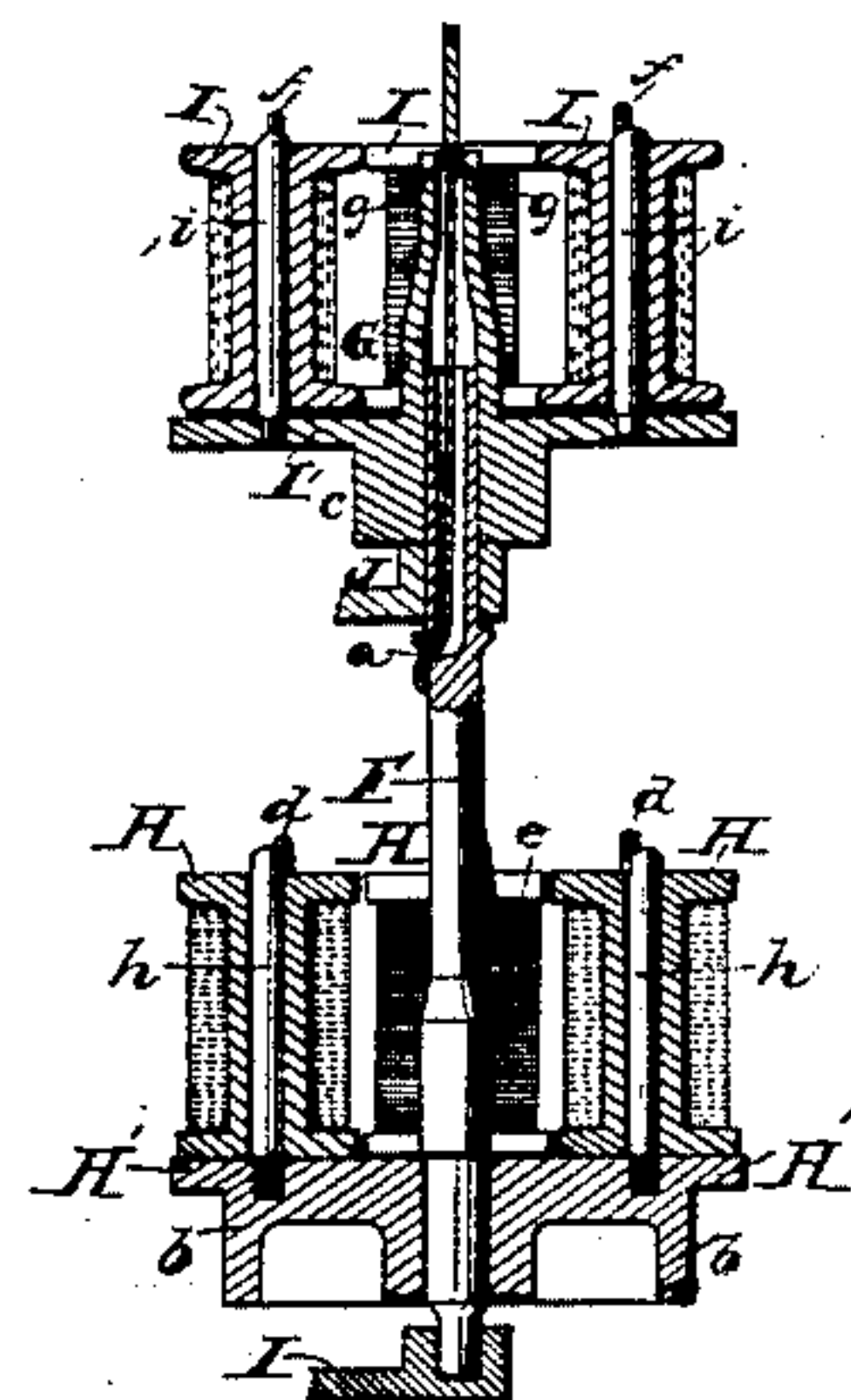


Fig: 2.

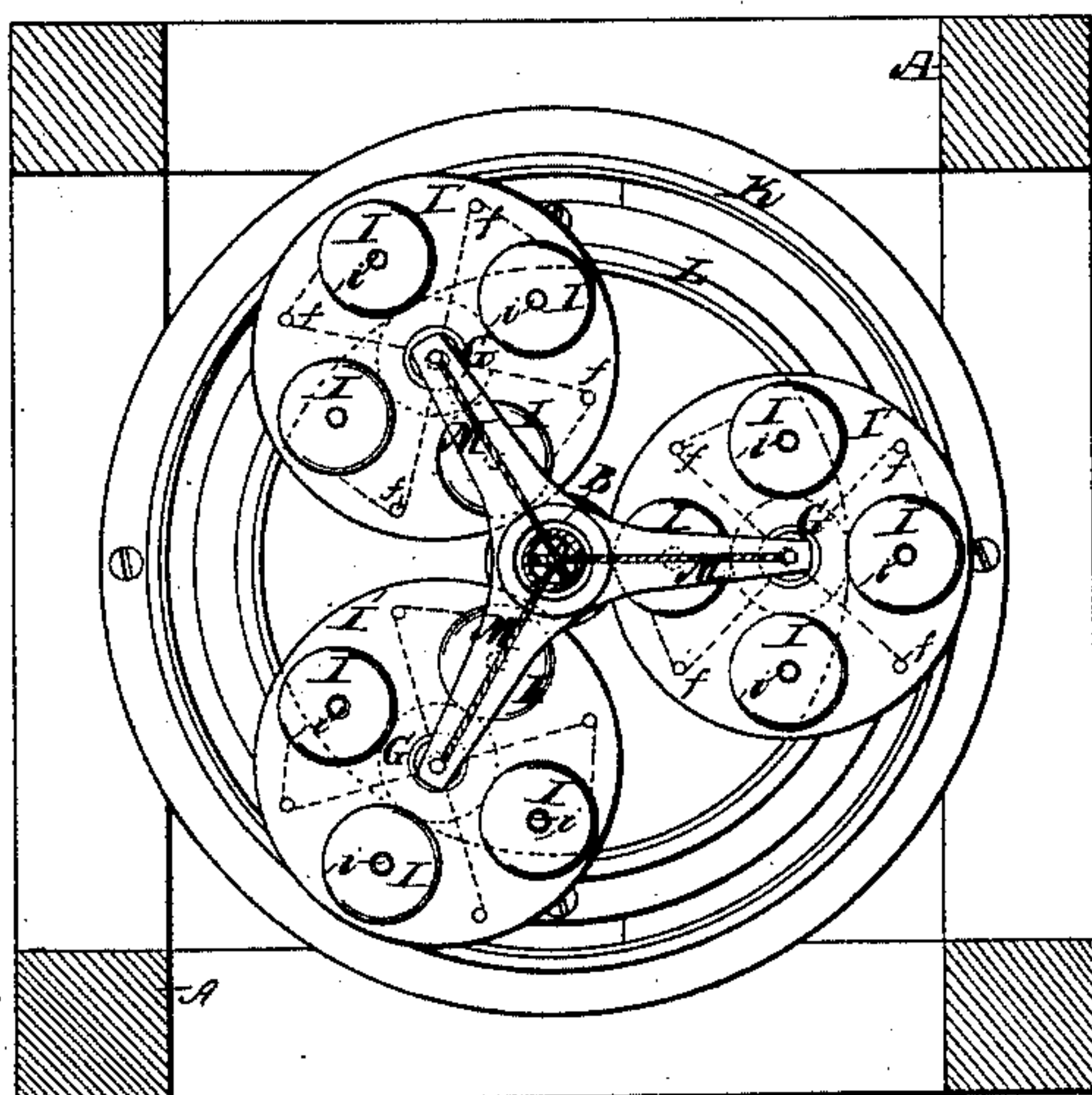
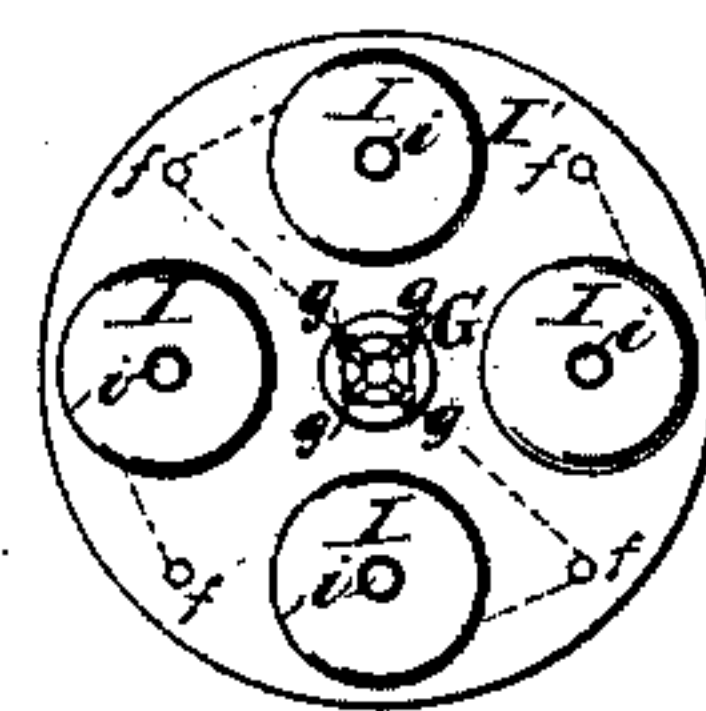


Fig: 4.



Witnesses:
J. W. Coombs
G. W. Rich

Inventors:
J. Turner
I. E. Palmer
per Munn & P.

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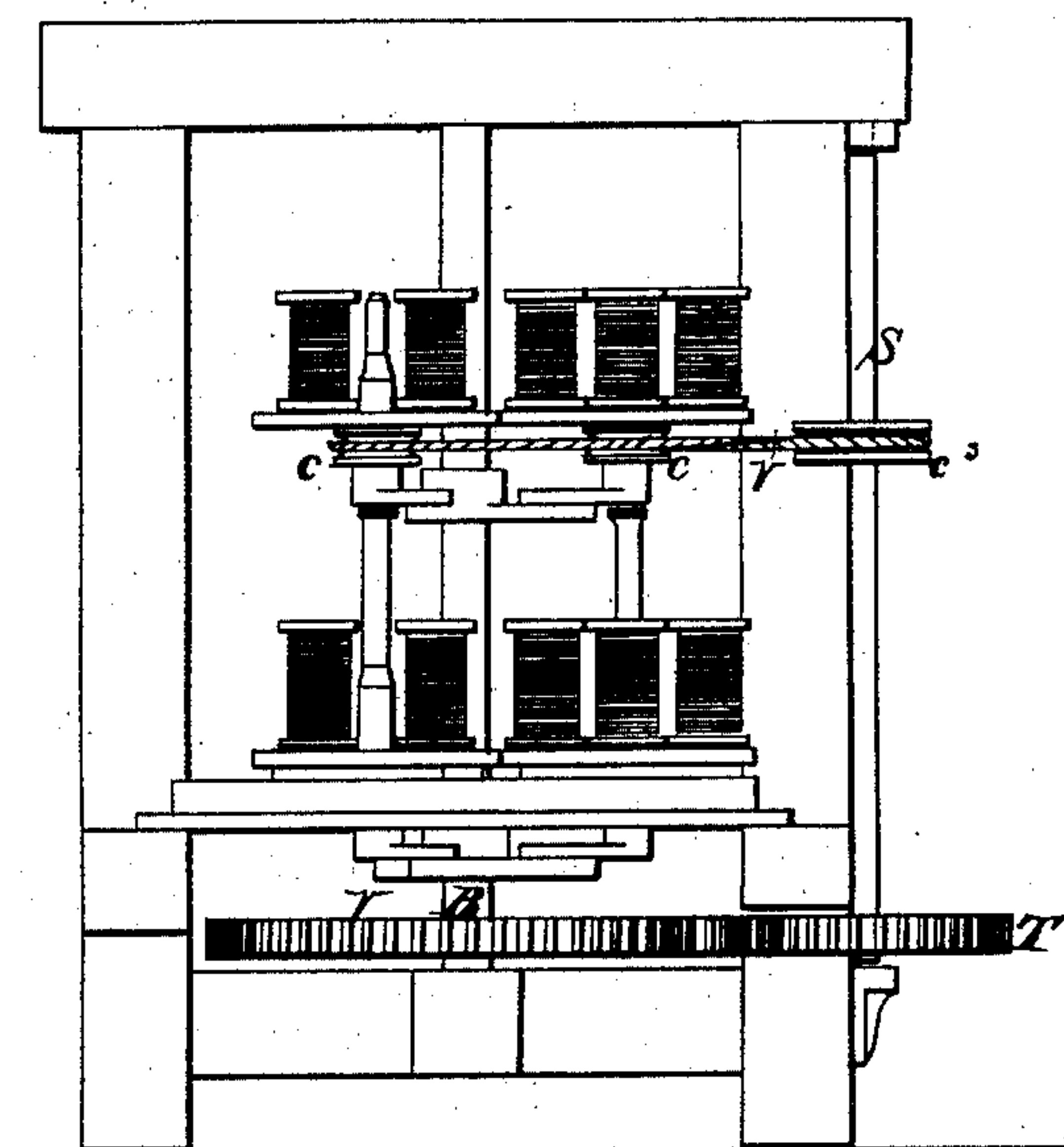
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Fig. 5.



Witnesses:

W. Morris Smith
Edw. O. Smith

Inventors:

John Turner
Isaac E. Palmer
by Attorneys
Brown, Coombs & Co

UNITED STATES PATENT OFFICE.

JOHN TURNER, OF NORWICH, AND ISAAC E. PALMER, OF MONTVILLE,
CONNECTICUT.

IMPROVEMENT IN MACHINERY FOR MAKING COVERED TWIST AND CORD.

Specification forming part of Letters Patent No. **38,190**, dated April 14, 1863.

To all whom it may concern:

Be it known that we, JOHN TURNER, of Norwich, in the county of New London and State of Connecticut, and ISAAC E. PALMER, of Montville, in the same county and State, have invented a new and useful Improvement in Machinery for Manufacturing Covered Twist and Cord; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of a machine for making covered cord. Fig. 2 is a horizontal section of the same above the upper series of bobbins. Fig. 3 is a sectional elevation of one of the strand-spindles, and Fig. 4 a top view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

To enable others skilled in the art to make and use our invention, we will proceed first to describe the construction and operation of the machine represented in the drawings, and then to explain how a portion of the said machine can be used separately for making covered twist.

A is the frame of the machine, having arranged in the center of it the upright main rotating spindle B, and in its lower part a horizontal shaft, from which the said spindle derives rotary motion through a pair of bevel-gears.

F F and G G are the strand-spindles carried by and arranged parallel with and at equal distances from the main spindle B, the lower ones, F F, carrying the bobbins H H, which supply the yarn or thread to make the body of the twist of which the strands are to be composed, and the upper ones, G G, carrying the bobbins I I, which supply the covering yarn or thread.

The lower spindles, F F, are fitted to bearings in arms I I and J J, which are firmly secured to the main spindle B, and the upper spindles, G G, are made hollow and fitted to rotate upon the upper parts of their respective spindles F F, but supported by the upper arms, J J, of the main shaft. The upper parts of the spindles F F are also hollow down to a point below the arms J J, and an open-

ing, *a*, leading into the interior of the said hollow portion of each, is provided through the side of the spindle. The several bobbins, H, are fitted to turn easily upon upright spindles *h* secured in disks H' H', which are fast upon their respective spindles F F, and the several bobbins, I I, are fitted to turn easily upon spindles *i* *i*, secured in disks I' I', provided upon their respective spindles G G. The lower portions, *b b*, of the disks H' are made in the form of pulleys to work in contact with the inner periphery of a fixed ring, K, secured to the framing, and for the purpose of obtaining a rotary motion of the spindles F F on their respective axes, through the agency of the friction produced between the said portions *b b* against the said ring in the revolution of the spindles F F about the axis of the main spindle B.

The lower portions of the spindles G G are made with pulley-like hubs *c c*, to work in contact with the inner periphery of a fixed ring, L, in the same manner as *b b* work in contact with K, for the purpose of producing the rotation of the spindles G G on their respective axes in an opposite direction to the rotary motion of the main spindle by their planetary revolution about the axis of the spindle B. The outer peripheries of *c c* and *b b*, or the inner peripheries of K and L, may be faced with leather, india-rubber, or other material, by which a suitable degree of friction to produce the rotation of the strand-spindles on their respective axes may be obtained.

The rotation of the spindles G G is in the same direction as that of F F; but the relative proportions between *b b* and K, and between *c c* and L, are such that G G are caused to rotate at a higher velocity than F F.

d d are guide-pins secured in the disks H' H' for conducting the several yarns or threads from the bobbins H H of each strand-spindle F to an eye, *e*, provided on one side of the spindle, the said eye conducting them to the opening *a*.

f f are guide-pins secured in the flanges G G for conducting the several yarns or threads from the bobbins I I to openings *g g*, provided in the upper parts of the spindles G.

M M are a number of arms corresponding with the number of the spindles F F and of

those G G firmly secured to the main spindle B above the spindles G G, and containing holes to guide the several strands from the latter spindles to the holes *j j*, which are provided in the upper part of the spindle B to constitute what is termed in cordage-machines the "laying top."

P Q is an apparatus arranged on the top of the frame A for taking up the cord as fast as it is made. This is substantially like the apparatus commonly used in rope-machines for taking up the finished rope, and derives motion through gearing from the main spindle B.

On setting the machine in operation the spindles F F twist together the yarns from the bobbins H H, the said yarns passing through the spindles G G, as well as through the upper parts of F F, and the twist taking place between the openings *a a* and the holes in the arms M M, and just before their twist is quite completed the strands receive the yarns from the bobbins I I, and owing to the increased velocity of the spindles G G, as compared with F F, the said yarns are wound upon and made to cover the exteriors of the strands before the latter pass the guide-arms M M, which conduct them to the laying top, to be twisted together between the said top and the take-up apparatus by the rotary motion of the main spindle.

The machine represented in Figs. 1 and 2 has three sets of strand spindles and bobbins for making three-strand cord; but the number of sets may be varied to make cord with a different number of strands.

When it is desired to make covered twist without manufacturing the twist into cord, a single spindle, F, and a single spindle, G, and their appendages, combined, as above specified, and shown in Figs. 3 and 4, may be so arranged and operated that the said spindles have simply a rotary motion about their own

axes, and the covered twist will be produced in the same manner as the strands, as above specified.

It may be practicable to produce the covered twist by making the upper spindles, G G, rotate in an opposite direction to the spindles F F; and therefore we wish such mode of driving the spindles to be considered as embraced by our invention.

The spindles G G, instead of being fitted to rotate upon F F, may be entirely separated from them, provided that they are arranged with the axis of each spindle G in line with that of its respective spindle F, but the spindle G must in all cases be hollow for the passage of the twist or strand.

We believe that our improvement, besides greatly simplifying the machinery, enables the process of manufacturing covered cord by machinery to be performed more perfectly than it can be by the machinery heretofore employed for the purpose.

We do not claim the invention of the disks H' and their bobbins, nor the means of operating them; but,

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

The combination, with the elongated spindles F, and the bobbins H and their disks H', of the hollow spindles G, the bobbins I, and the bobbin-disks I', the latter revolving independently of and at greater velocity than the disks H', all in the manner and for the purpose herein shown and described.

JOHN TURNER.

I. E. PALMER.

Witnessess for John Turner:

JNO. T. WAIT,

CARLISLE MCKEE.

Witnesses for I. E. Palmer:

HENRY T. BROWN,

J. W. COOMBS.