

No. 621,099.

Patented Mar. 14, 1899.

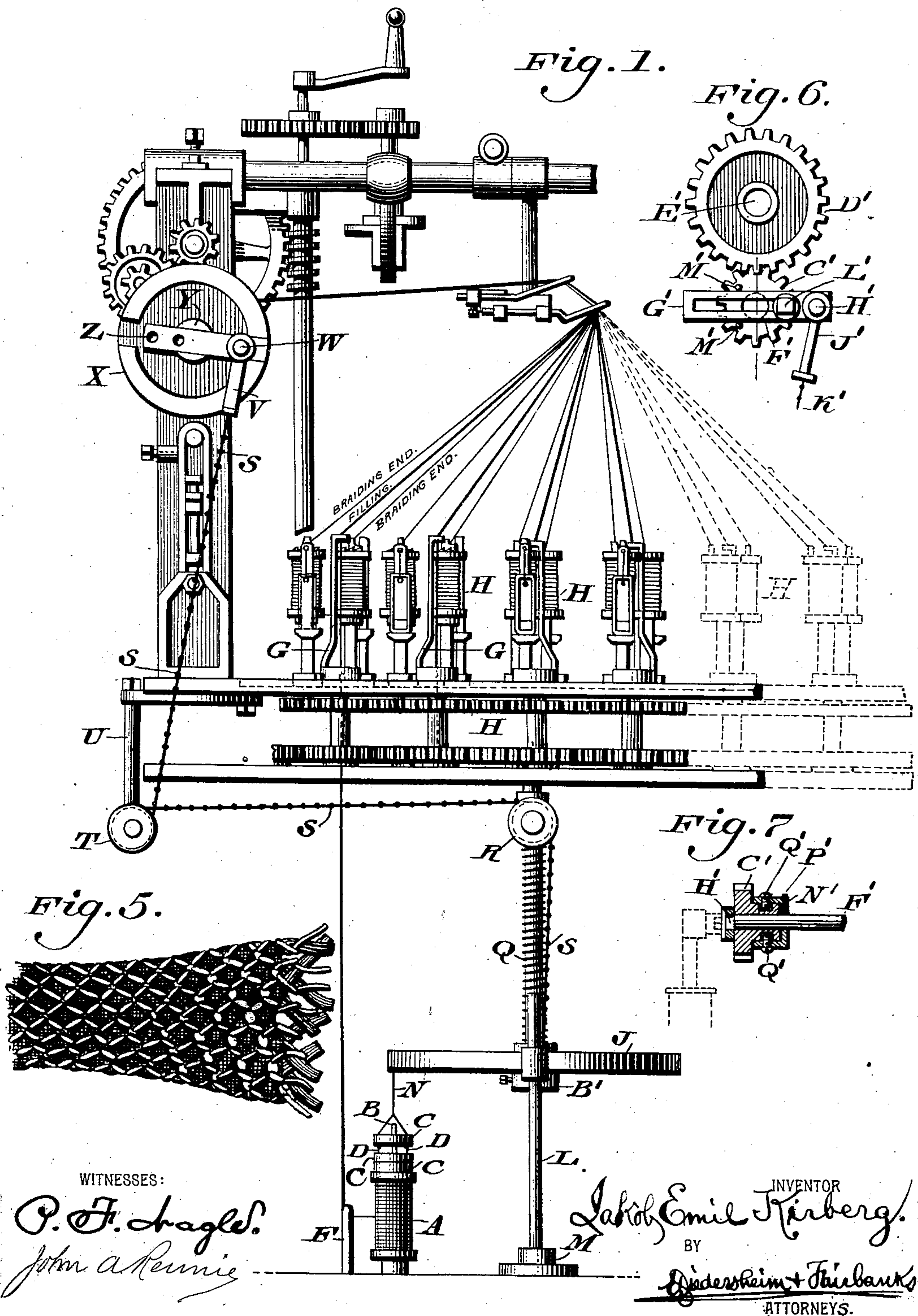
J. E. KIRBERG.

MACHINE FOR MAKING BRAID OF VARIABLE WIDTHS.

(Application filed May 13, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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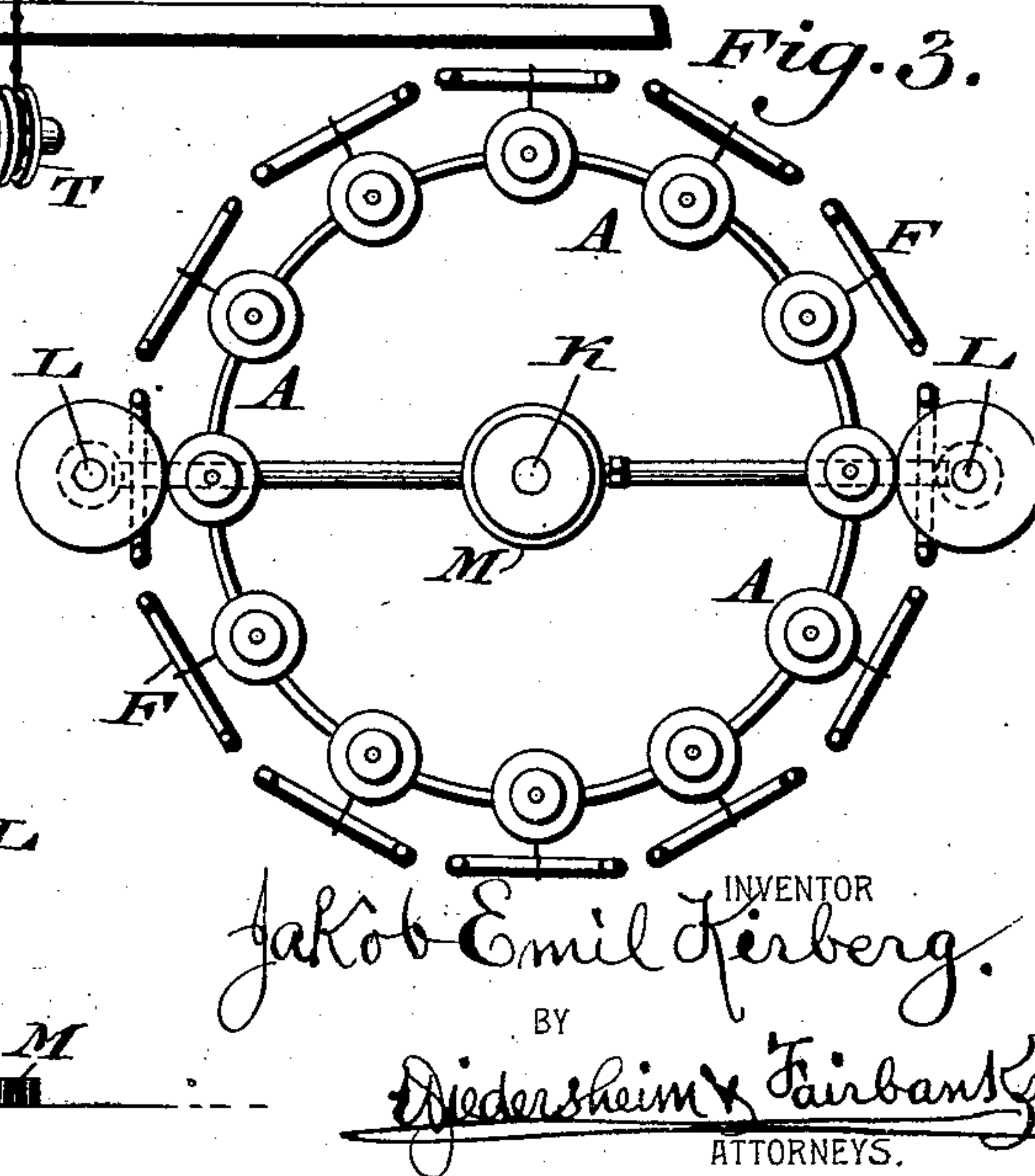
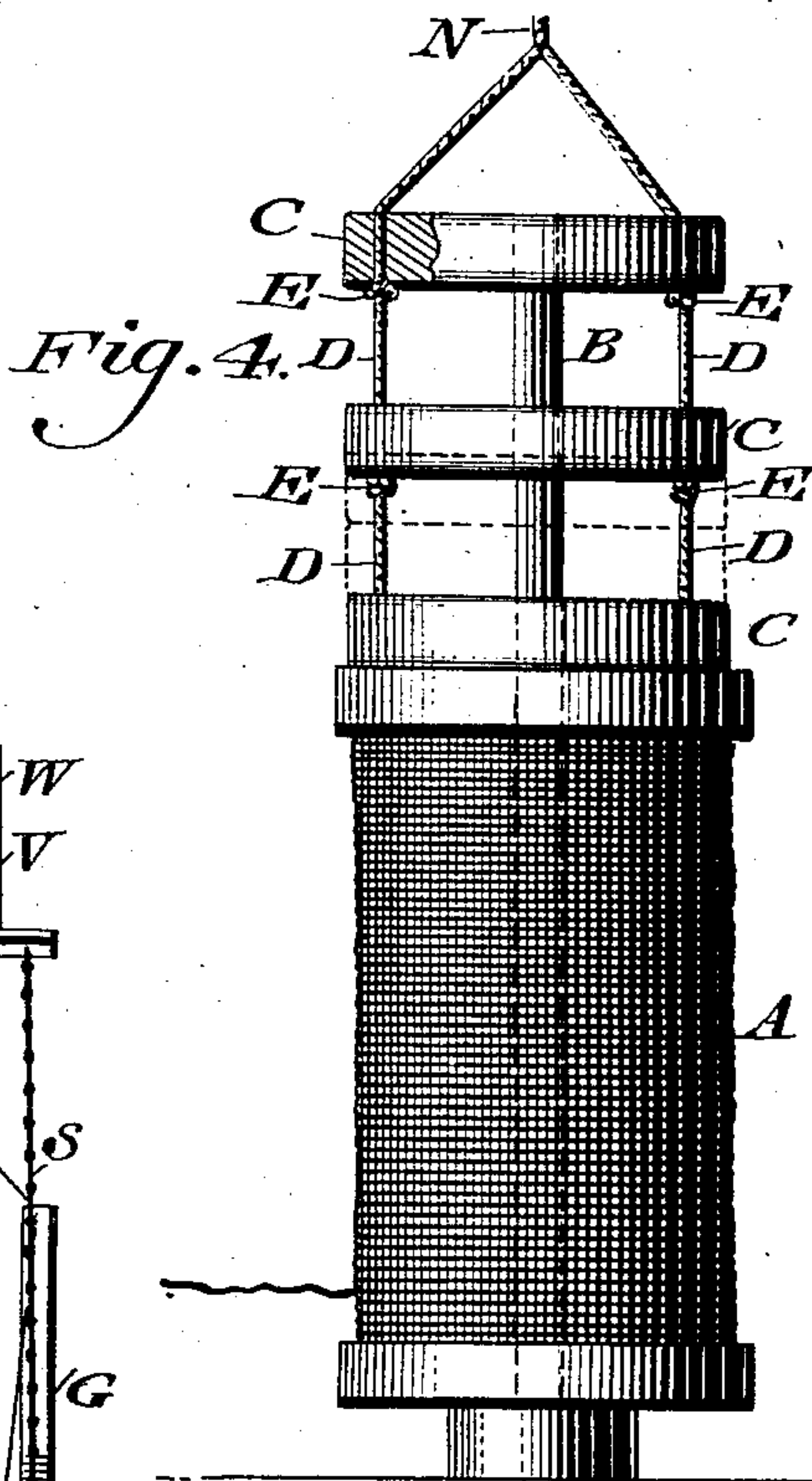
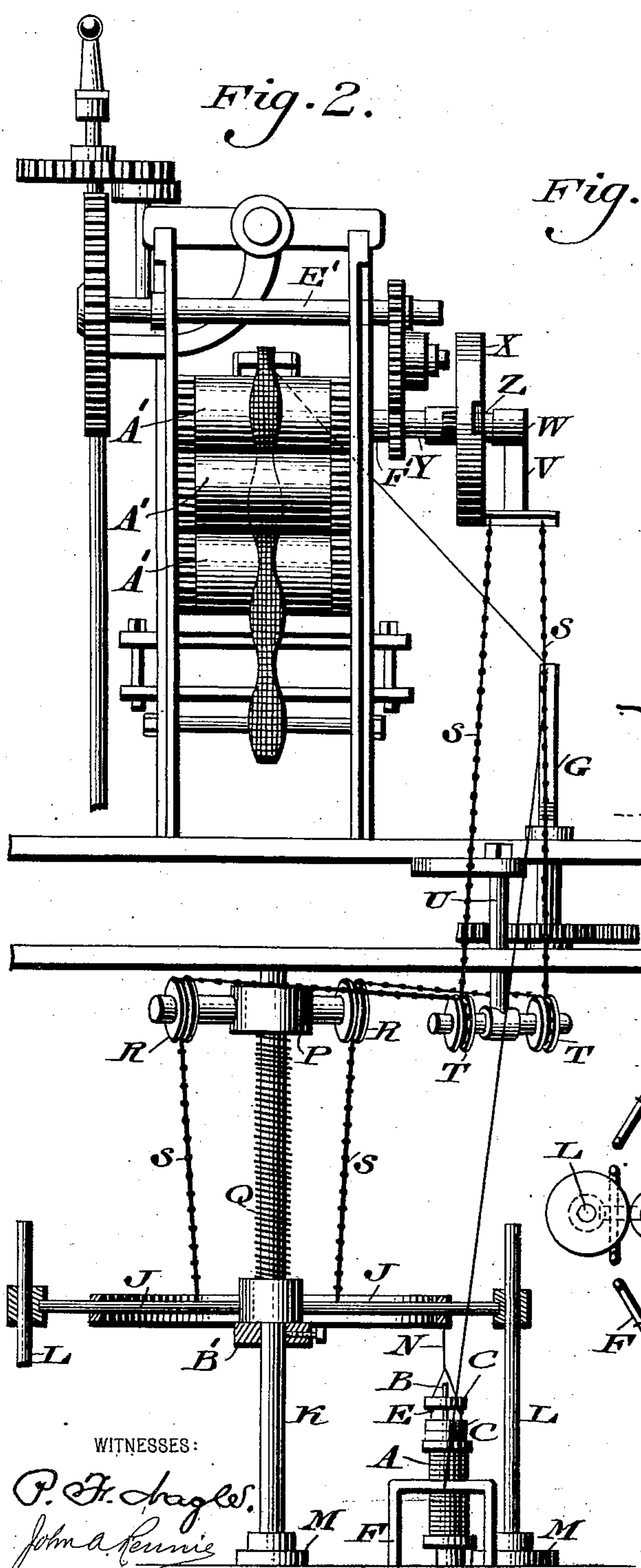
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(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING BRAID OF VARIABLE WIDTHS.

SPECIFICATION forming part of Letters Patent No. 621,099, dated March 14, 1899.

Application filed May 13, 1898. Serial No. 680,573. (No model.)

To all whom it may concern:

Be it known that I, JAKOB EMIL KIRBERG, a subject of the Emperor of Germany, (having resided in the United States one year last past and having declared my intention of becoming a citizen thereof,) residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Machines for Making Braid of Variable Widths, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to a machine for making braid of variable widths; and it consists of an attachment for such machine whereby the tension on the thread or yarn may be varied at intervals, and thus cause the braid to be formed wide and narrow.

Figures 1 and 2 represent side elevations, at a right angle to each other, of an attachment for a braiding-machine embodying my invention, including also portions of such machine necessary to illustrate the operation of said attachment. Fig. 3 represents a bottom plan of a detached portion thereof. Fig. 4 represents a side elevation of another detached portion on an enlarged scale. Fig. 5 represents a plan view of a piece of braid made in accordance with my invention. Figs. 6 and 7 represent a side elevation and a section, respectively, of a portion of a modification.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a series of spools which are freely mounted on the spindles B.

C designates tension-weights placed on the spools A, each consisting of two or more members flexibly connected by the cords or chains D, the latter having knots or shoulders E as stops on the under sides of the upper weights, so that when said connections are raised the upper weights are disposed as shown in Fig. 4, thus reducing the tension on the spools. The thread or yarn from the spool is guided through the stirrups F and twistors G, and thence to the braiding-machine H, which several features in their construction and operation (excepting the flexibly-connected weights

C) are well known in the art and need no special description at this time.

J designates a rising-and-falling head which is mounted on the standard K at the center thereof and the guides L at the sides thereof, said standards and guides rising from the feet or base M, which sustain the same, and said head being connected with the weights C by the cord or chain N. Bearing against the hub of said head J and the bearing P of the standard K is the spring Q, whose tendency is to quickly depress said head and permit the rapid descent of the weights C. On said bearings P are the pulleys R, around which are passed the chains or cords S, which are also passed around the pulley T, the latter being mounted on the hanger U, which is suitably connected with the frame or housing of the machine.

The chains S are attached to the crank-arm V, which is mounted on the wrist-pin W of the crank-wheel X, the shaft Y of the latter being connected with or forming an extension of one of the shafts of the rolls A' of the machine, by which the braid is carried away, said rolls being operated by suitable members of said machine.

The wrist-pin or stud W is connected with the diametrical bar Z, which is freely fitted to the crank-wheel X so as to be capable of adjusting said pin near to or farther from the center or axis of said wheel, and thus change the diameter of the circle described by the arm V, and consequently vary the degree that the head J and the upper weights C may be lifted in order to adjust the action of said weights on the spool. The head J may also be vertically adjusted in relation to the weights C and wrist-pin W by means of the movable collar B', which supports it on the standard K.

As the wheel X rotates the arm V follows the rotary motion thereof and so raises and lowers the connection S, and with it the head J, whereby the upper weights C will likewise be raised and lowered, said weights thus being either removed from the lower weight or superimposed thereon, so as to decrease or increase the tension on the spools, and thus vary the draft on the thread or yarn, it being no

ticed that the lower weight C remains on the spool for imparting the established primary tension thereon.

The threads from the spools A constitute the filling, while those from the spools of the machine II constitute what may be termed the "braiding" ends of the braid, it being remembered that said machine is organized for making braid, as well known; but it will here be noticed that as the braiding progresses as the filling-threads are subjected to a greater tension by the descent of the upper or auxiliary movable weights on the lower one, as has been stated, the filling-threads will be drawn apart or spread at the point or place of braiding and so held as the braiding ends are interwoven therewith, producing a wide fabric. When, however, the tension is released, the filling-threads are permitted to be drawn together by the said ends, and thus the fabric will be made narrow or of normal width. Then at another interval the widening of the fabric is repeated and again narrowed, and so the operation continues, the length of each varying width of fabric being determined by the adjustment of the wrist-pin of the crank-wheel X.

In Figs. 6 and 7 I show the pinion C' employed in lieu of the crank-wheel X, the same receiving motion from the gear-wheel D', the latter being mounted on one of the shafts—say E'—located in the present case above the rolls A', the pinion C', however, being mounted loosely on one of the shafts F' of said rolls, as in Fig. 2. On the pinion is the adjustable diametric bar G', which is provided with the wrist-pin H', on which the arm J' is mounted, said arm having the chain or cord K' attached to it. The bar G' is connected with the pinion C' by means of the screw or pin L' and prevented from shifting by means of the studs M', which project from said pinion and embrace the opposite sides of said bar, whereby the connection K up and down receives motion similar to the connection S, Fig. 1.

In order to permit the pinion to rotate freely on the shaft F', which latter may be caused to operate by the action of the rollers A', said pinion has freely connected with it the collar N', which latter is secured to the shaft F' by means of the screw P', it being noticed that screws Q' pass through the periphery of said collar N' and freely enter a groove in the hub of the pinion C', so that while said collar may be rotated with the shaft F' it retains the pinion C' on said shaft, but permits the pinion to rotate independently of said shaft, the motion, however, of said pinion being imparted to it by the gear-wheel D', as has been stated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an attachment for a braiding-machine for forming braid of variable widths, means for varying the tension of the filling-yarn em-

ployed, consisting of primary and secondary weights one above the other, a connection for said secondary and primary weights, and a connection for the secondary weight with a rising-and-falling member of the machine for lowering the secondary weight upon the primary weight at predetermined intervals during the operation of the machine.

2. An attachment for a braiding-machine for forming braid of variable widths, consisting of primary and secondary devices, flexible connections for said devices for imparting variable tension to the filling of the braid, said devices being adapted to be supported on the spool for said filling, a rising-and-falling head connected with the members of said devices, and means connected with said head and a movable member of the braiding-machine, whereby said head may be raised and lowered.

3. In an attachment for a braiding-machine, a crank-wheel adapted to be operated by a movable member of said machine, a rising-and-falling head, a connection for said wheel and head and primary and secondary weights connected with said head and flexible connections for said weights for imparting variable tension to the filling-threads of braid, said weights engaging the spools for said thread.

4. In an attachment for a braiding-machine for forming braid of variable widths, a crank-wheel having an adjustable wrist-pin thereon, and primary and secondary weights superimposed on a filling-spool, and flexible connections for said weights for imparting a variable tension to the filling-threads of braid, said weights being connected with said pin.

5. In an attachment for a braiding-machine for forming braid of variable widths, means for varying the tension of the filling-yarn employed, consisting of primary and secondary weights one above the other, a connection for said secondary and primary weights, a stop on said connection for supporting the secondary weight freely above the primary weight and a connection for the secondary weight with a rising-and-falling member of the machine for lowering the secondary weight upon the primary weight at predetermined intervals during the operation of the machine.

6. In an attachment for a machine of the character stated, primary and secondary weights, and connections for said weights, for adjusting the tension of a filling spool, a head with which said weights are connected, a spring bearing against said head to lower the same, and means for raising said head at intervals said weights being superimposed on said filling-spool.

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Witnesses:

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