

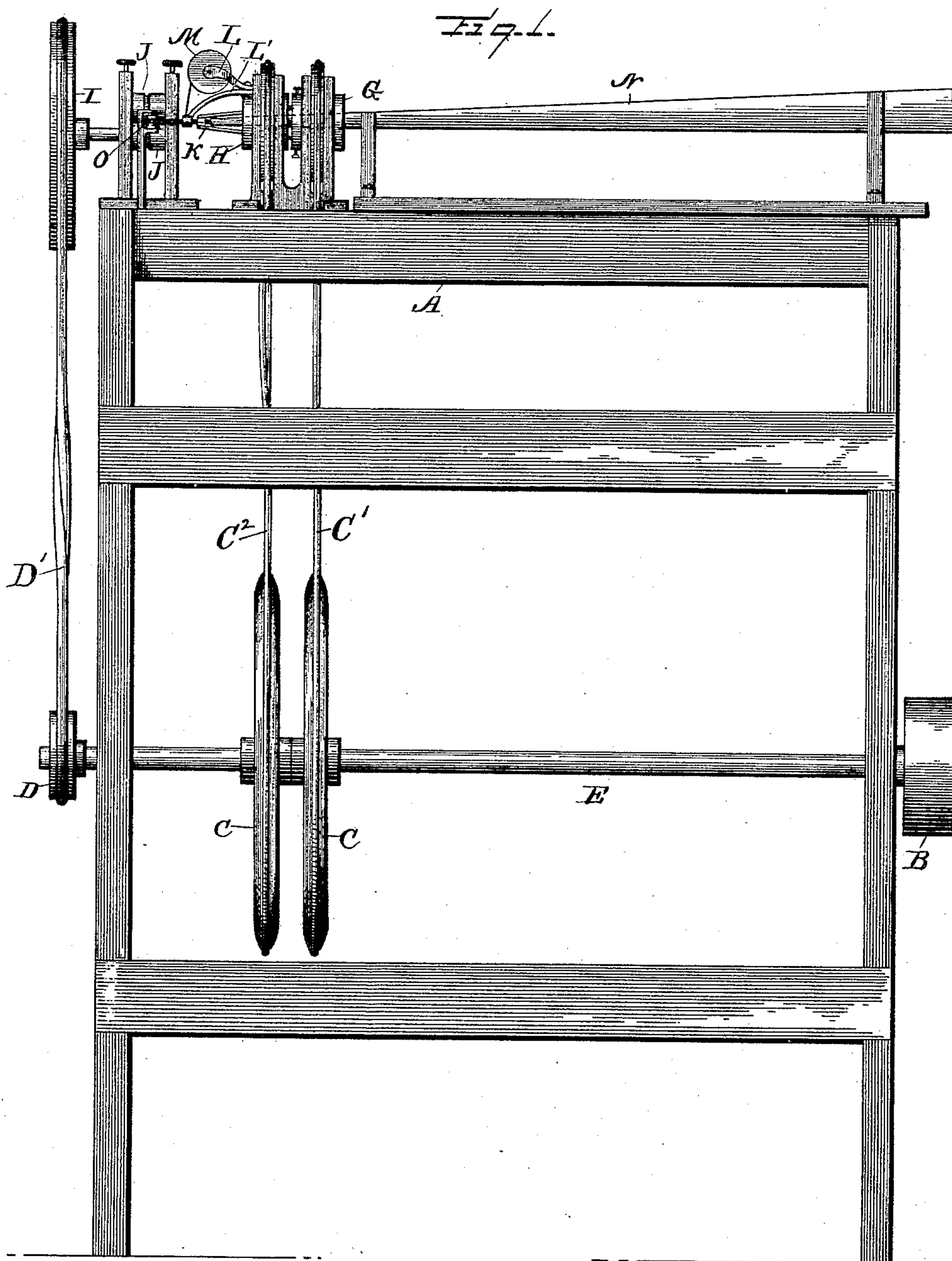
(No Model.)

3 Sheets—Sheet 1.

G. A. LOWRY.
MACHINE FOR MAKING TWINE.

No. 436,908.

Patented Sept. 23, 1890.



Witnesses:

Wm. M. Rheem.
E. Hurdeman.

Inventor:

George A. Lowry, by
Butterworth Hall Brown & Smith
his Attorneys

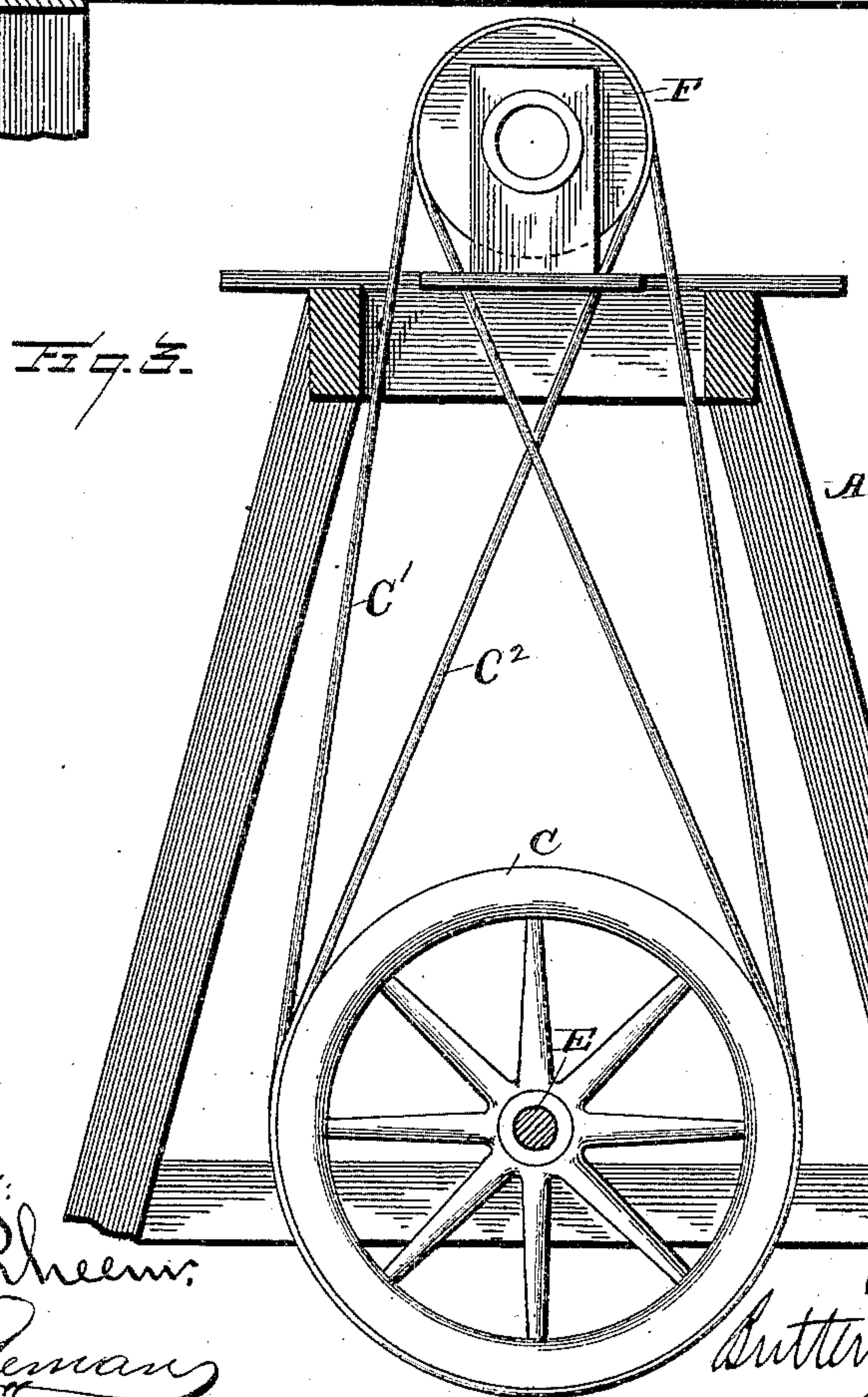
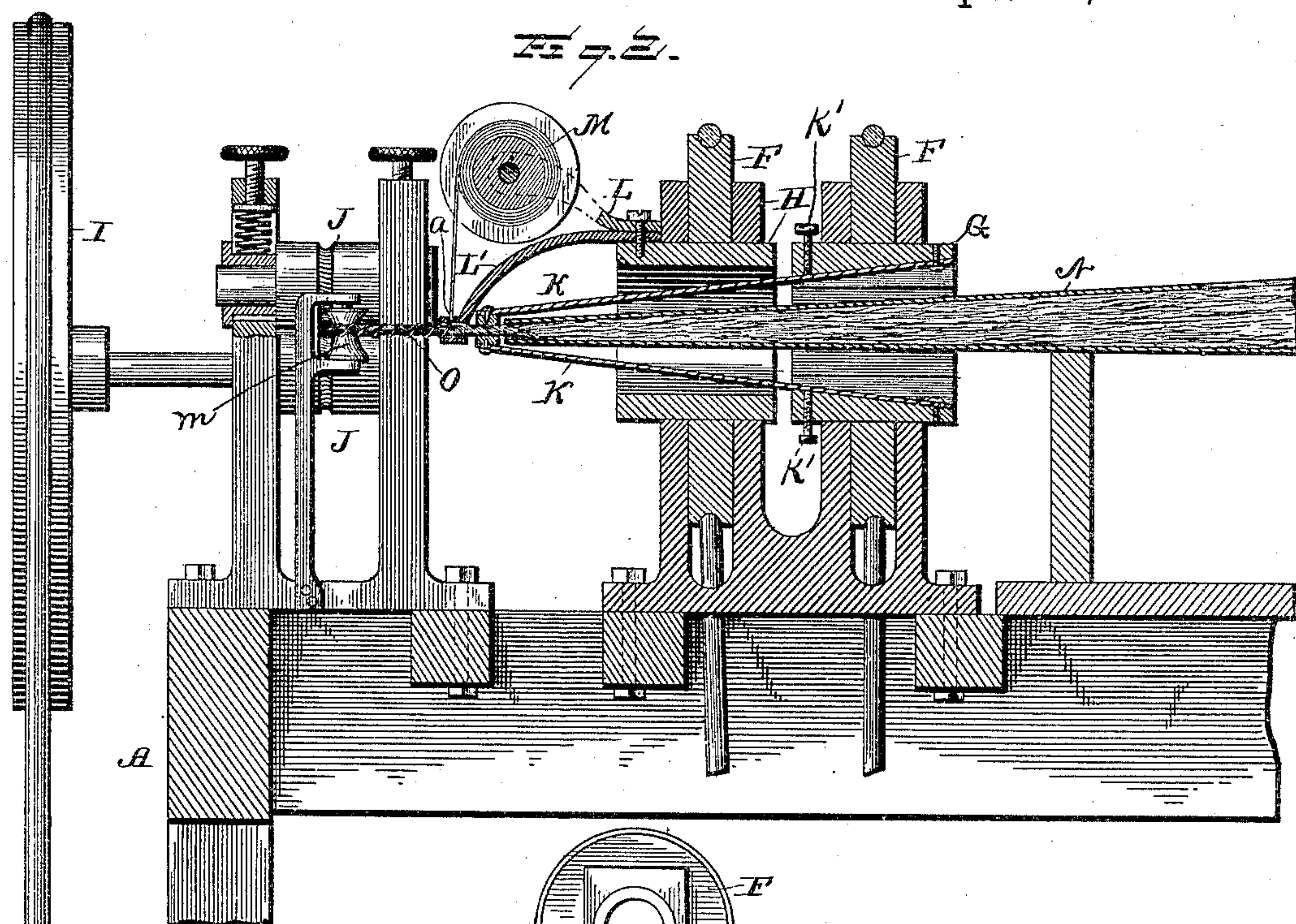
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3 Sheets—Sheet 2.

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Witnesses:

Wm M Scheer
E. W. Erdman

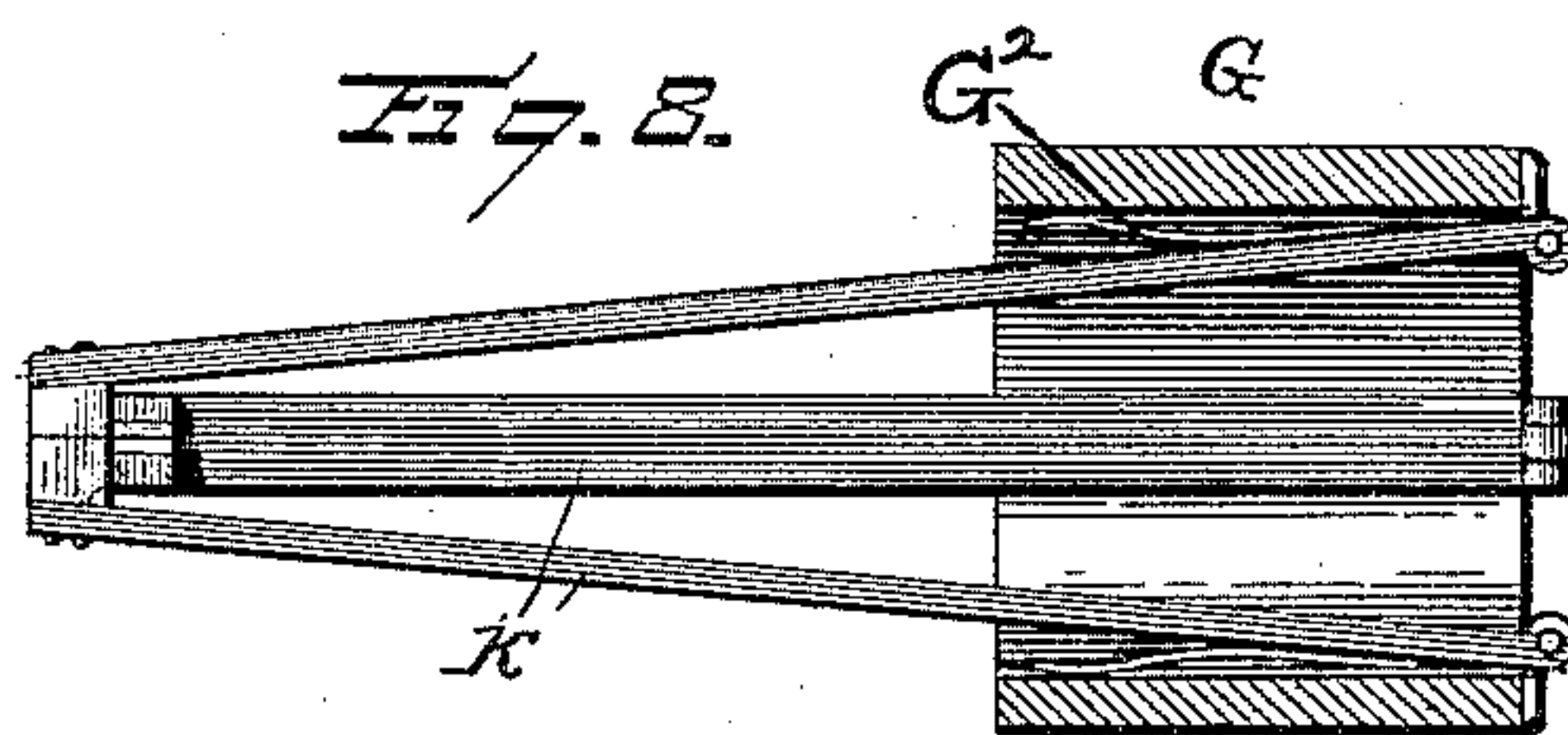
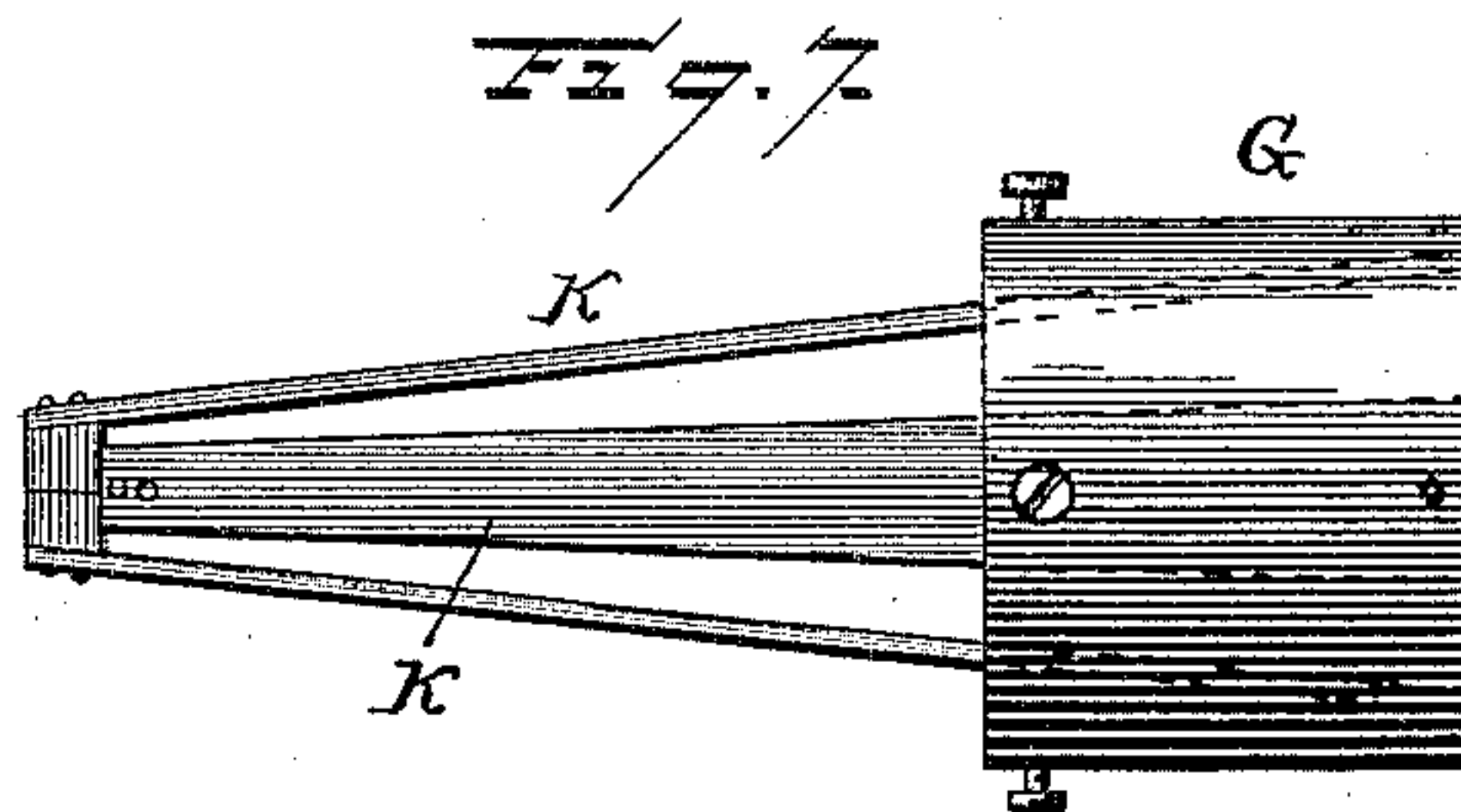
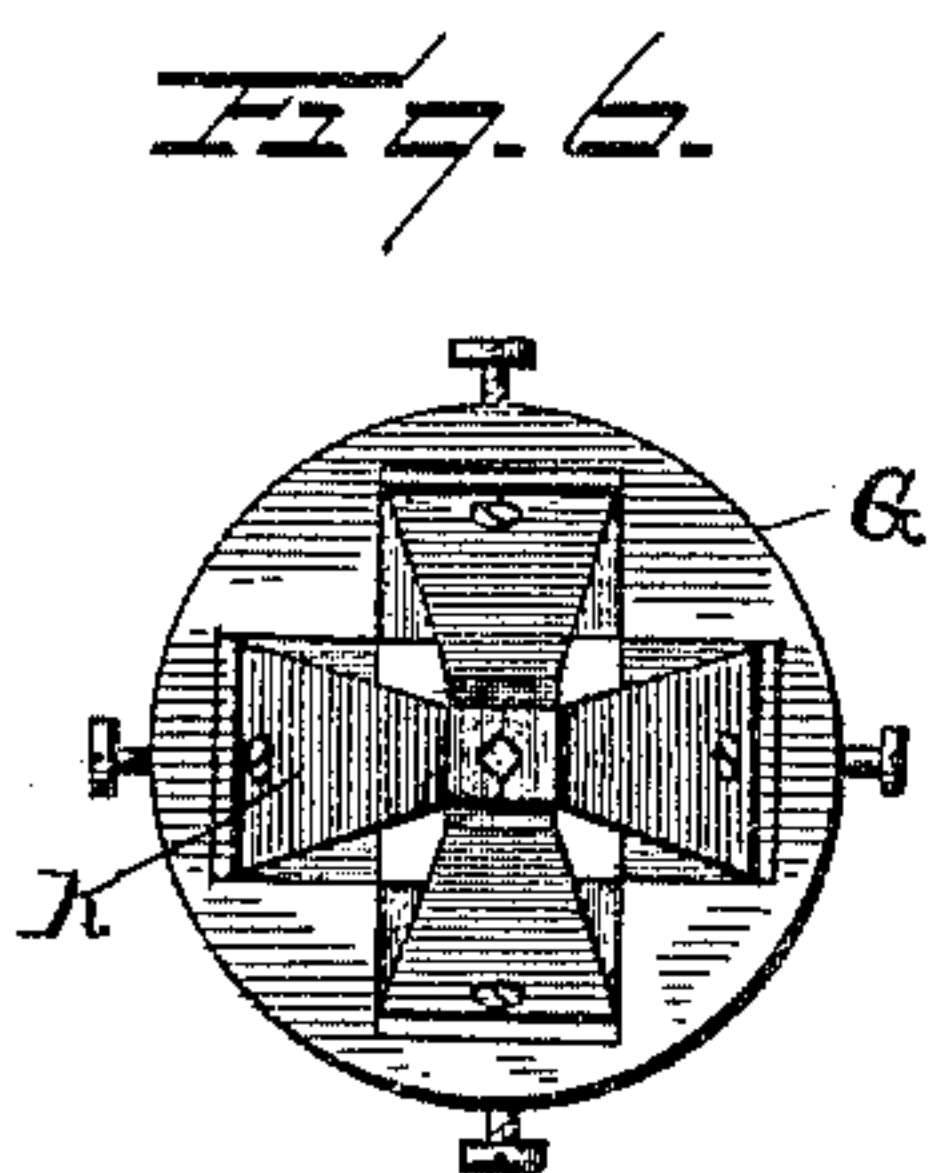
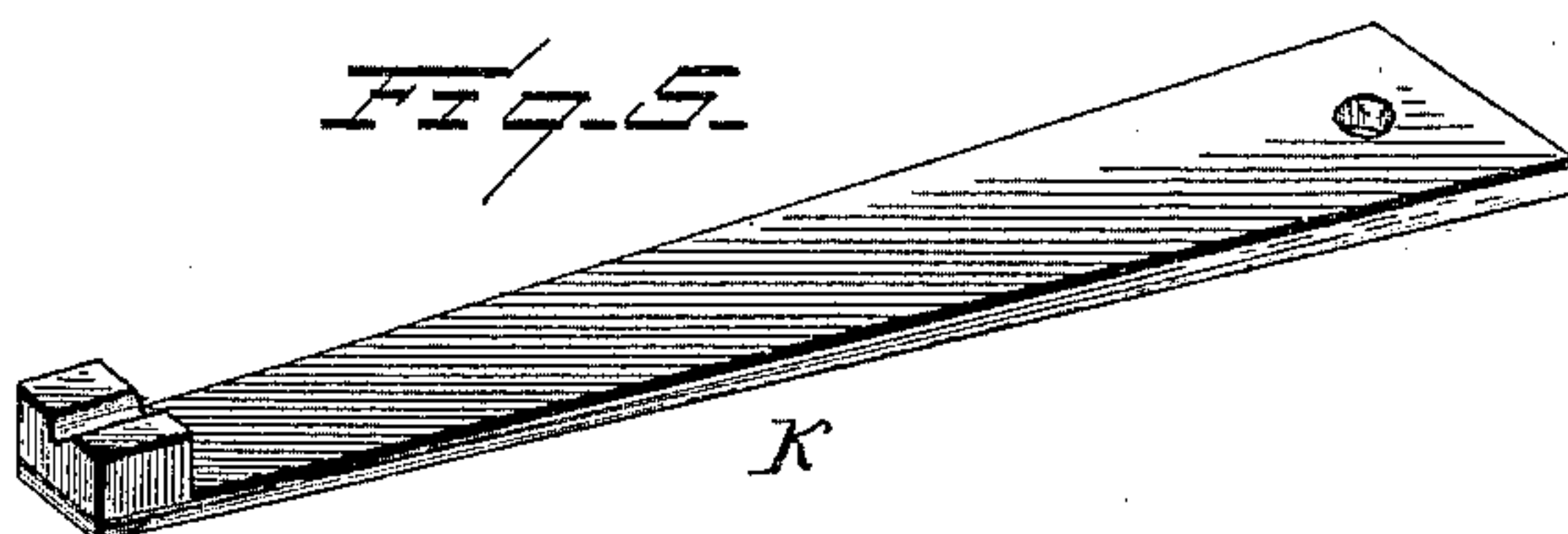
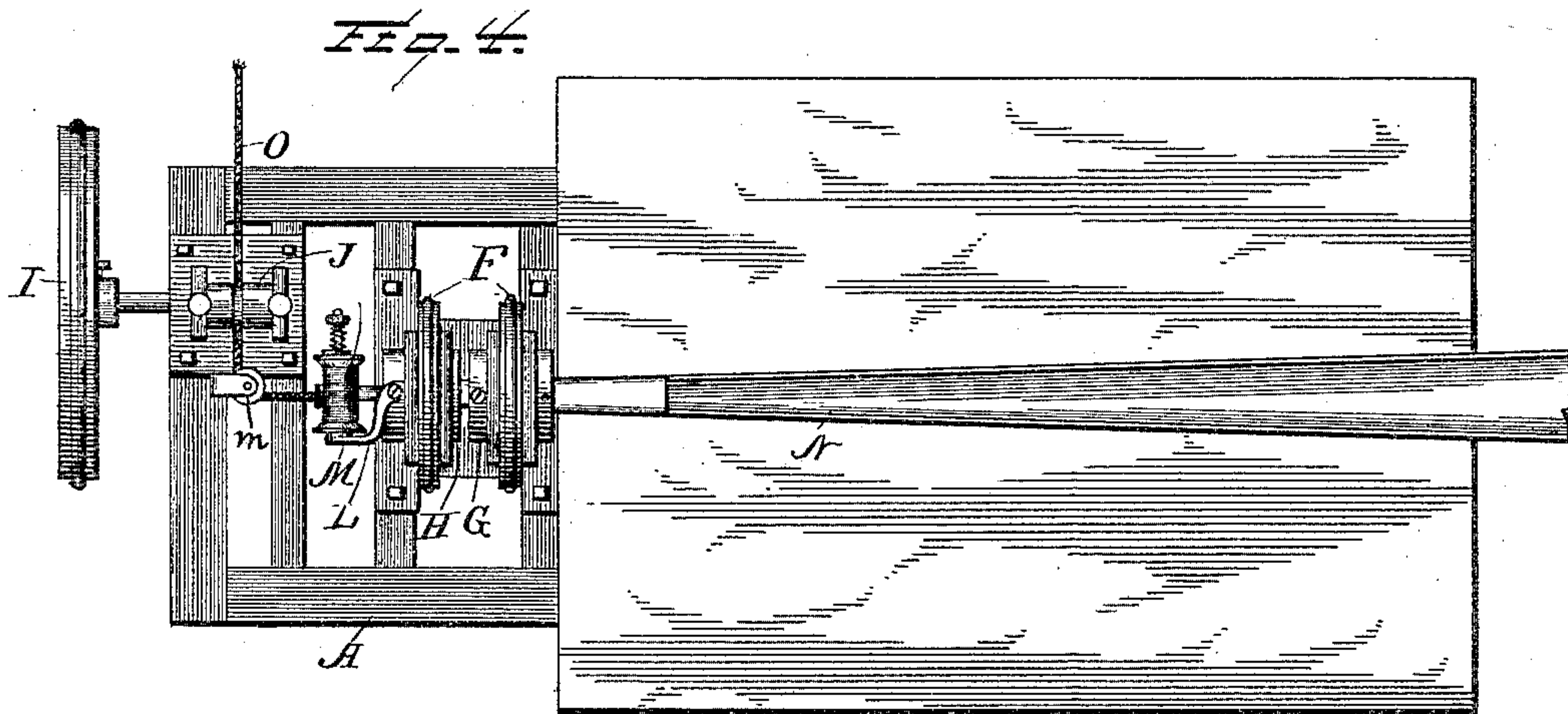
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UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY, OF DES MOINES, IOWA.

MACHINE FOR MAKING TWINE.

SPECIFICATION forming part of Letters Patent No. 436,908, dated September 23, 1890.

Application filed February 14, 1890. Serial No. 340,399. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LOWRY, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Machine for Making Twine, of which the following is a specification.

My invention relates to a machine for making twine, cord, rope, or any similar article. Such twine, cord, rope, &c., may be used to bind grain, to make bagging and matting, and for other purposes.

The object of the invention is to simplify and render more efficient the machines of this class heretofore in use for such purposes, and the invention consists in the construction and combinations hereinafter described, and more particularly pointed out in the claims.

In the drawings like letters refer to the same parts.

Figure 1 is a side elevation of the machine. Fig. 2 is a vertical and longitudinal section thereof. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a plan view of the machine. Fig. 5 is a detail view of one of the spring twister-arms. Fig. 6 is an end view looking inward of the twister-head with the four spring twister-arms mounted therein. Fig. 7 is a side view of the same, and Fig. 8 is a vertical section of a modified form of twister-head and twister-arms.

In the drawings I have shown the operative parts of the machine mounted in a convenient portable frame A; but it is obvious that such parts may be readily mounted upon the frame of a harvesting-machine or of the weaving-loom with which it may be used or otherwise placed or mounted.

The operative parts of the machine may be driven by any suitable device—such as a crank or treadle—or by any of the known forms of motors.

In the drawings I have shown a power-pulley B, two transferring-pulleys C C, and a smaller transferring-pulley D, mounted upon a shaft E, which is journaled in the frame A. The pulleys C C are connected by belts C' C² with suitable pulleys F F, arranged upon the twister-head G, and the thread-carrier head H. The pulley D is connected by a belt D' with a pulley I upon the extended shaft

of one of the feeding-rolls J. In place of these several pulleys it is manifest suitable gearing might be employed. The mechanism which connects one of the pulleys C with the pulley upon the thread-carrier head must be arranged so as to cause the latter to be rotated in a reverse direction to that in which the twister-head is being moved, and in the construction illustrated I accomplish this object by crossing one C² of the bands.

I prefer to use two twister-arms K K, made of spring metal, the outer ends of which are fastened to the twister-head and the inner ends of which project beyond such head a convenient distance, and are provided with clamps to grasp the material to be twisted. The construction which I prefer to employ is shown in Fig. 2 of the drawings, and in this form the inner surface of the twister-head is inclined to cause the spring-arms to converge, and the tension of such arm is adjusted by suitable set-screws K'.

In Figs. 6 and 7 I have shown four arms arranged as just described, and in Fig. 8 of said drawings I have exhibited a modified construction, which in practice I have found to work quite well. In this modified construction the twister-arms are rigid and hinged to the twister-head, and have small springs G² interposed between them and the inner surface of such head. The thread-carrier head is hollow, and besides having the pulley mounted thereon has two arms L L' carried thereby. The arm L is the support for a spool M, upon which is wound any suitable thread, while the arm L' has a hollow outer end, through which the twisted material passes, and a perforation a, through which the thread from the spool is guided. The hollow portion of the arm L' operates to prevent the twisted cord, &c., from rising or buckling under the pulling action of the thread being wound upon such cord. Some sort of conveyer of the materials to be twisted must be employed, and I have found most effective a tapering trough or spout N, the inner end of which extends immediately adjacent to the clamps upon the twister arms. It is very convenient to pass this trough or spout through the hollow heads G H, but of course other arrangements are practicable.

The extension of the trough or spout adja-

cent to the twister-arms is in practice found very advantageous, for it confines the material adjacent to such arms and prevents it from bulging or breaking under the strain of the twisting operation, and thus presents a compact smooth mass to be clasped by said arms.

Many kinds of devices for drawing the twisted twine, cord, or rope through the machine may be used; but I prefer to change the direction of such twine, &c., by a friction-roller *m*, and cause it to be fed forward by a pair of grooved rollers J J, mounted on the main frame so as to feed at right angles to the direction of the passage of the material through the twisting mechanism.

The operation is as follows: The hay, jute, manila, or other material is placed in the conveyer or trough and fed forward, either automatically or manually, to the twister-arms, which grasp and compress and at the same time twist such material to the desired degree. The size of the twine or rope is regulated by the amount fed forward, by the opening between the clamps, and the tension of the spring employed. The amount of twist is also regulated by the tension of the springs used. After the twine is twisted it passes through the hollow guiding-arm L', before mentioned, and at that point the thread is wound around it by the thread-carrier, which latter is revolving in the opposite direction to that of the twister-arm. At the same time the feeding-rolls are drawing the twine through the machine. Hence the thread is wound in a spiral manner. After passing through the feed-rolls the article is finished, and is wound upon a roll or otherwise delivered in the customary manner.

Many modifications and variations of my invention as heretofore described will readily suggest themselves to the skilled mechanic; and I do not attempt to herein specify them, for that would be impossible.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a revoluble twisting device with a reversely-revoluble thread-carrier, a conveyer for feeding the material to the twister, and suitable mechanism for drawing the twisted article through the machine.

2. The combination of a revoluble twisting device with a reversely revoluble thread-carrier, a tapering spout or trough, and suitable mechanism for drawing the twisted article through the machine.

3. The combination of the twisting-jaws with a trough or spout having its delivery end extending into immediate proximity to such twisting-jaws, and a suitable means for drawing the material from such spout or trough and through the twisting-jaws, substantially as and for the purpose set forth.

4. The combination of a revoluble twisting device with a reversely-revoluble thread-carrier, a conveyer for feeding the material to

the twister, a guiding and supporting device for the twisted article while it is being wrapped with the thread, and suitable mechanism for drawing such twisted article through the machine.

5. The combination of the revoluble twisting device with a reversely-revoluble thread-carrier, a trough or spout having the inner end extending into immediate proximity to such twisting device, a hollow guide and support for the twisted article while it is being wrapped, and suitable means for drawing the article through the machine.

6. The combination of a revoluble twisting device with a reversely-revoluble thread-carrier, a trough or spout, a hollow guide or support for the twisted article, a friction roller or pulley for changing the direction of travel of such article, and drawing-rollers arranged so as to feed at right angles to the other operating mechanism, substantially as and for the purpose set forth.

7. The combination of a pulley having a hollow hub, an independent feeding spout or trough extending therethrough, and twisting-arms secured at one end to such hollow hub and projecting beyond the same, substantially as shown and described.

8. A revoluble twisting device, a thread-carrying device, and an arm supporting and guiding both the twisted article and the thread to be wound upon the same, substantially as shown and described.

9. A twisting device comprising elastic arms secured at one end to the inner surface of the hollow hub of a revoluble pulley and their other ends projecting and provided with clamping-jaws, and adjusting devices for such springs, also secured to such hub, substantially as shown and described.

10. In a machine for making twine, the combination of a revoluble twisting device, a thread-carrier, and an arm having a grooved portion for supporting and guiding the twisted article, and a perforation at an angle to such grooved portion for guiding the thread to the twisted article, substantially as shown and described.

11. In a machine for making twine, &c., the combination of a hollow revoluble hub carrying the twister, another such hub bearing the thread to be wound upon the twisted article, and a spout or trough extending through such hubs and to the twisting-jaws.

12. In a machine for making twine, &c., the combination of a hollow revoluble hub carrying arms with clamps at their ends, another hollow hub reversely revoluble carrying a spool of thread, and an arm provided with a hollow portion with an aperture in its wall, and suitable drawing-rollers, substantially as shown and described.

GEORGE A. LOWRY.

Witnesses:

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