

(No Model.)

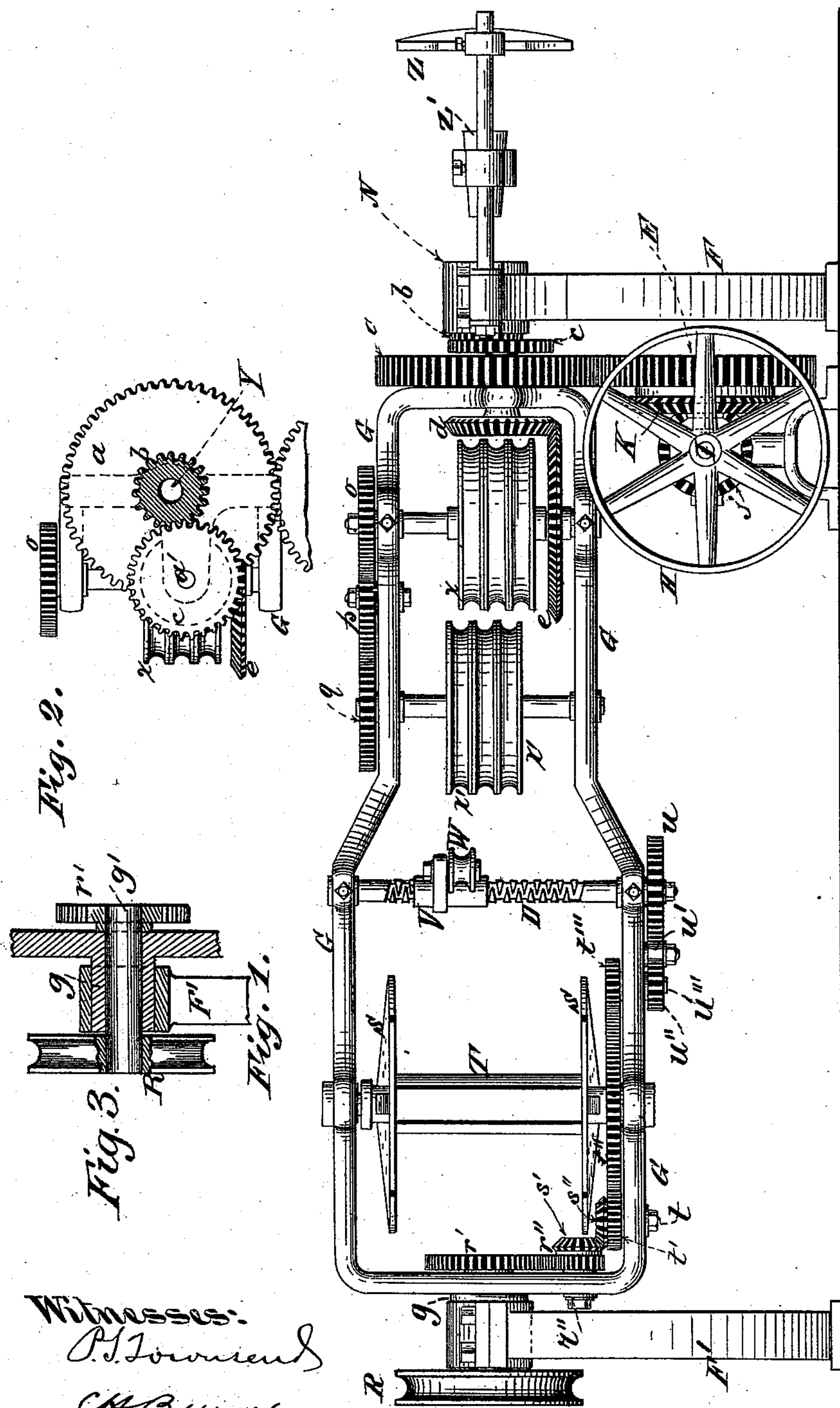
3 Sheets—Sheet 1.

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REEL FOR MACHINES FOR FORMING AND REELING ROPES OR STRANDS.

No. 402,004.

Patented Apr. 23, 1889.



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Fig. 6.



Fig. 4.

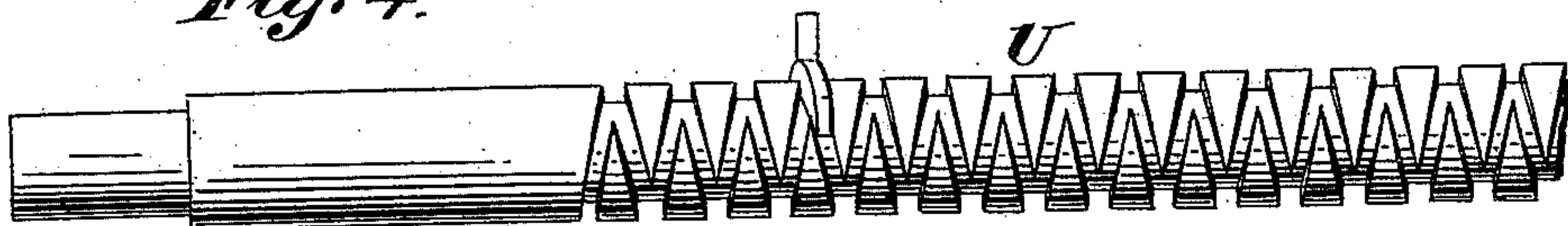


Fig. 5.

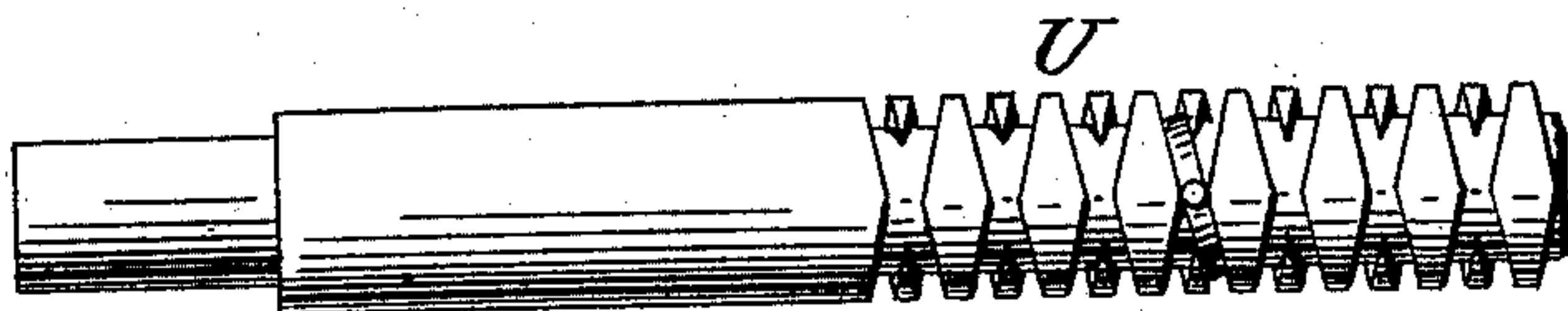
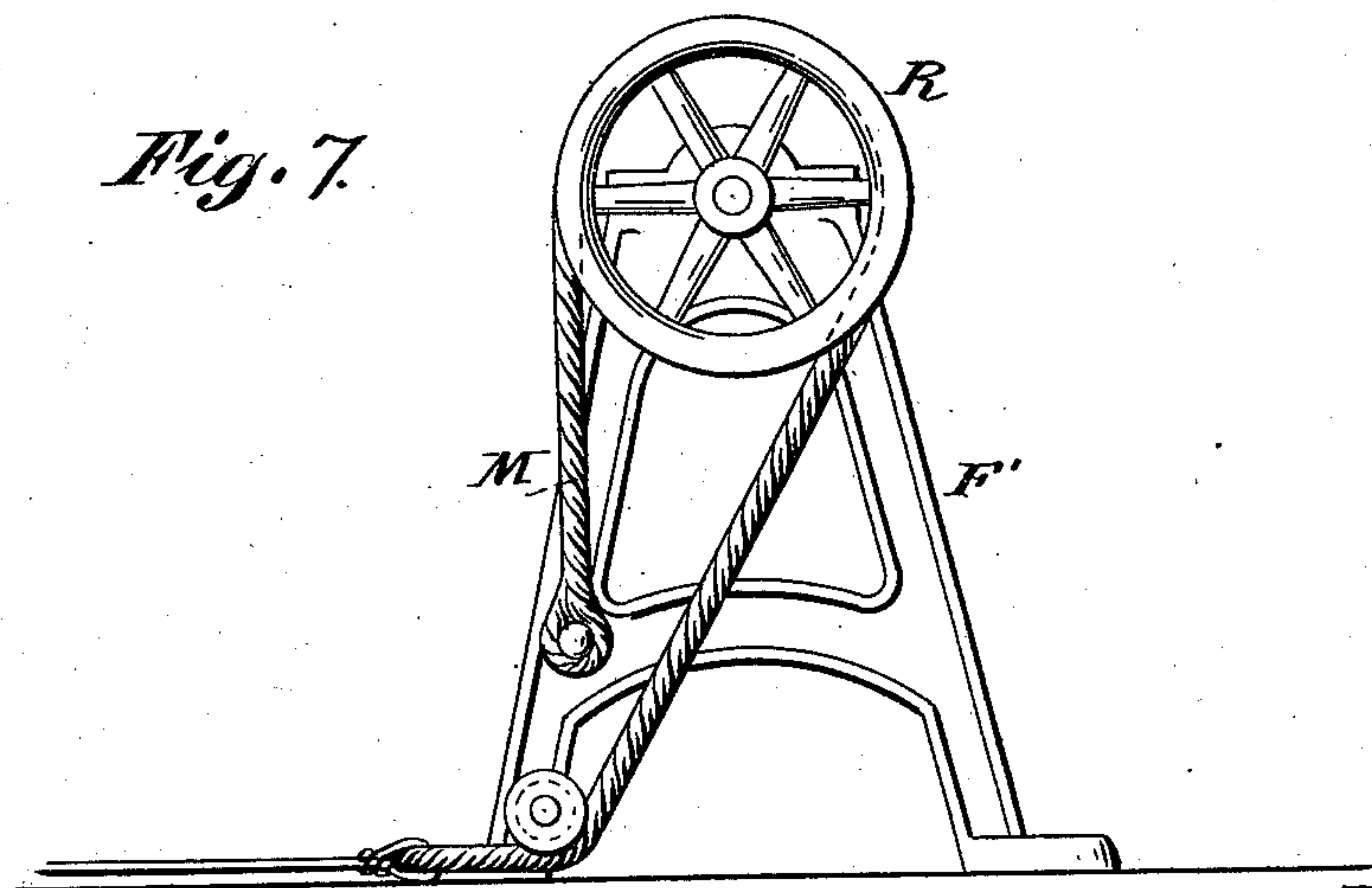


Fig. 7.



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Fig. 8.

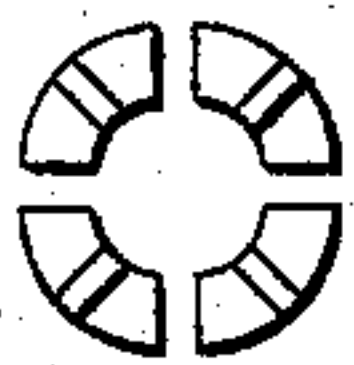


Fig. 11.

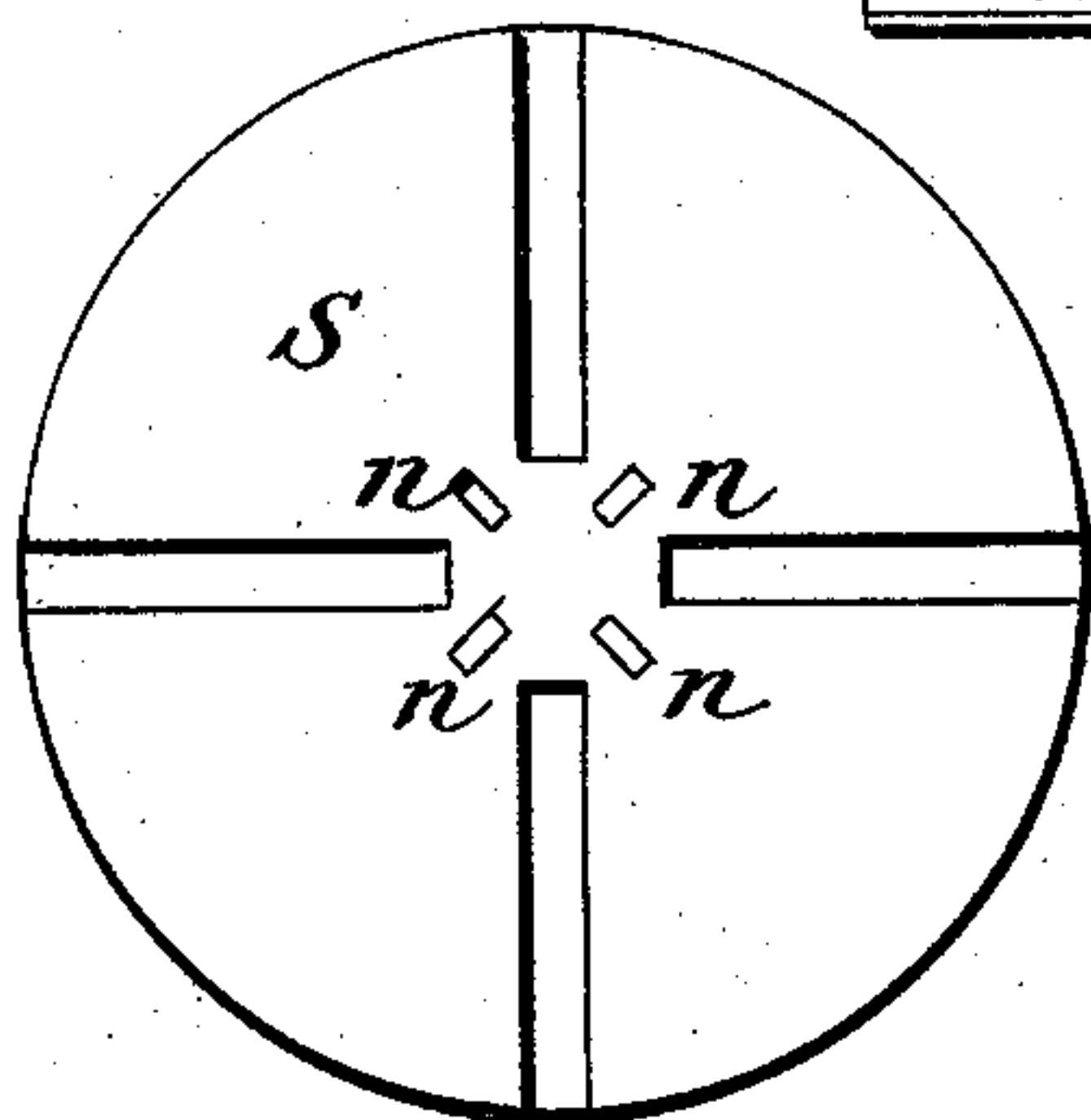


Fig. 10



Fig. 12.

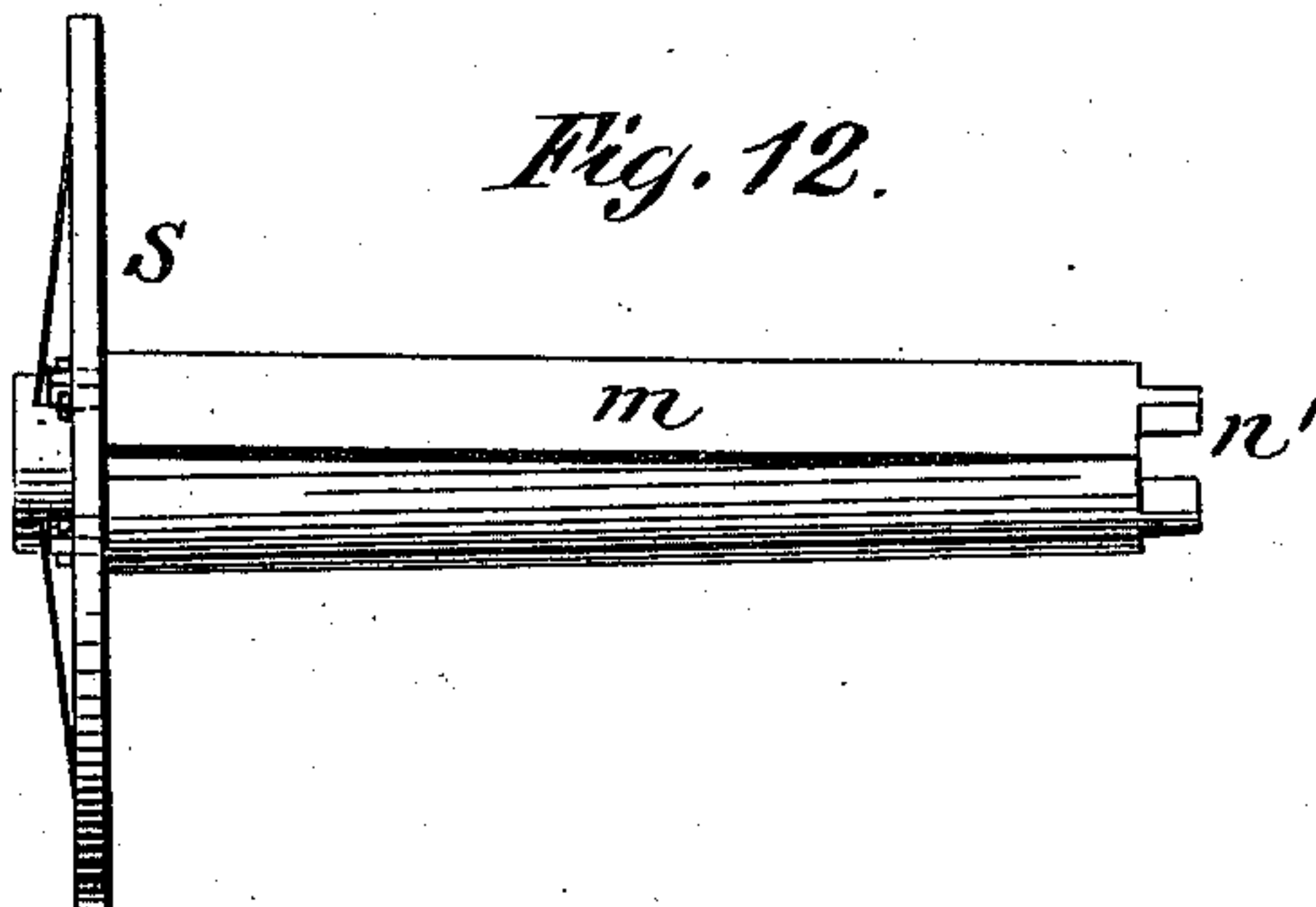
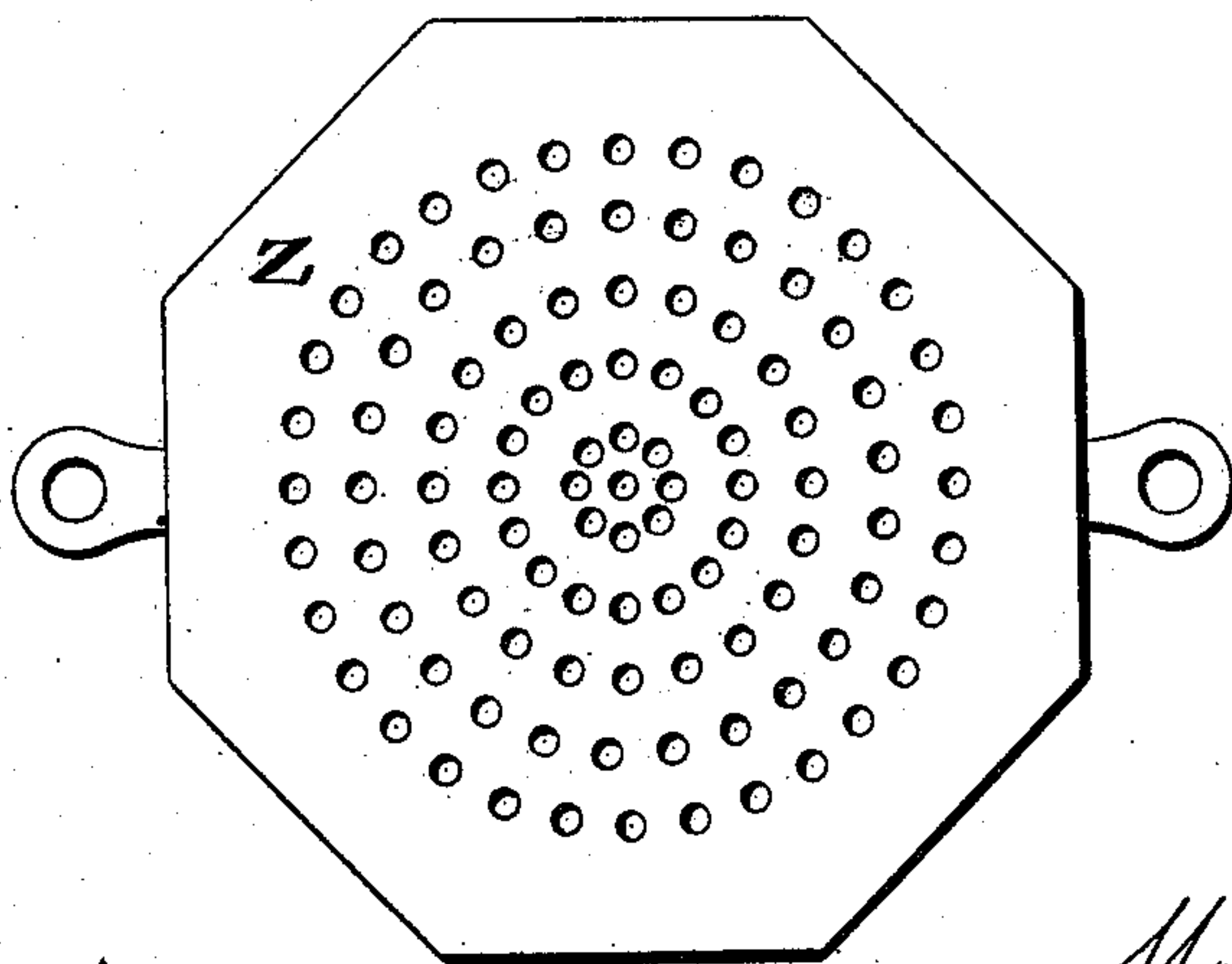


Fig. 13.



Witnesses:

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UNITED STATES PATENT OFFICE.

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REEL FOR MACHINES FOR FORMING AND REELING ROPES OR STRANDS.

SPECIFICATION forming part of Letters Patent No. 402,004, dated April 23, 1889.

Application filed July 29, 1887. Serial No. 245,631. (No model.)

To all whom it may concern:

Be it known that I, MOSES H. DAY, of Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Reels for Machines for Forming and Reeling Ropes or Strands, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to avoid the necessity of coiling or reeling the rope or strand a second time. This I accomplish by using a reel with a detachable head and a collapsible barrel, upon which the coil is directly built and from which it can be taken in a condition ready for market.

In order to explain my invention and its application, I have illustrated it in connection with a suitable machine, of which it forms a part; and the entire machine, including the part which constitutes my invention, will be found hereinafter described.

In the accompanying drawings Figure 1 is a side elevation of such a machine. Fig. 2 is a detail showing the standing and other gear at the end of the flier. Figs. 3 to 13, inclusive, are details of my machine on an enlarged scale.

F F' are standards which support the machine, and G is the flier. Within the flier G are the grooved capstans $x x'$, the endless screw U, and the reel T, all journaled in suitable bearings in the sides of the flier G.

H is a pulley which communicates power to drive the flier and capstans. The shaft I of the pulley H is provided with a bevel-gear, J, which meshes with a bevel-gear, K, bolted to the spur-gear E. The gear E meshes with the gear a , which is keyed to the nose of the flier G, which revolves within the tube N, the latter being supported by the standard F. The tube N is provided on its inner face with a standing gear, b .

Within a box in one of the arms of the spur-gear a revolves the shaft a' , on which is keyed the spur-gear c upon the outside of the spur-gear a and the bevel-gear d on the inside of the flier. The gear c meshes with the gear b , and the bevel d meshes with a bevel-gear, e , keyed on the shaft of the capstan x .

One end of this shaft extends outside the flier G, and is provided with a spur-gear, o , which drives the spur-gear q , mounted on the end of the shaft of the capstan x' , by means of the intermediate gear, p . As the flier and the spur-gear a revolve, the gear c is carried round the gear b , and, the latter being stationary, motion is imparted to the gear c and, through the medium of the beveled gears d and c and the gears $o p q$, to the capstans x and x' .

Motion is imparted to the reel T and the screw U as follows: The end of the flier G which is supported by the standard F' is provided with a sleeve, g , which rests and revolves in suitable bearings on the standard F'. A shaft, g' , passes through the sleeve g , one end projecting inside the flier G and the other end outwardly from the sleeve, and having the pulley R rigidly secured thereto. The end projecting inside the flier is provided with a gear, r' , which is firmly secured to it. The gear r' meshes with the gear r'' , mounted on a short shaft, r''' , secured to the flier. The gear r'' carries with it the bevel-gear s' , which meshes with the bevel-gear s'' , the latter carrying with it the gear t' , which is mounted on a short shaft, t , secured to the flier. The gear t' meshes with the gear t'' , mounted on the shaft which carries the reel T. One end of the screw U projects outwardly beyond the flier G, and is provided with a gear, u , which meshes with the gear u' , mounted on a short shaft secured to the flier, and the gear u' meshes with the gear u'' , mounted on one end of a shaft, u''' , which passes through the flier, the other end of the shaft carrying the gear t''' , which meshes with the gear t'' . The shaft g' fits sufficiently tight within the sleeve g to be revolved with it, in which case the reel and screw will not be rotated. On applying sufficient pressure to the pulley R, by means of the drag-rope M, to overcome, or partially overcome, the friction between the shaft g' and the sleeve g , the gear r' will remain stationary or revolve more slowly than the flier, and thus rotate the reel T and screw U, by means of the interposed gearing, their speed being regulated by the amount of pressure applied to the pulley R.

The screw U is cut with both a right and left hand thread, as shown in Figs 4 and 5. A piece of steel, *v*, fits into the thread, and is provided with a shank, *v'*, by means of which it is pivotally connected to the dog V, to which is fastened the whirl or eye W. As the screw U turns always in the same direction, the piece of steel, *v*, follows the thread until it reaches the end, when it enters the opposite thread, its pivotal connection to the dog V allowing it to adjust itself, and travels back across the screw, this operation being repeated as long as the screw revolves.

The reel T is collapsible, and constructed in the following manner: The heads S are provided with mortises *n*, which receive the tenons *n'* on the ends of the blades *m*, of which there are four. These blades are semi-cylindrical and constitute the barrel of the reel. The tenons are pinned into one of the heads only, the pressure of the cordage as it is wound around the blades serving to hold the tenons in the other head. Fig. 8 shows the relative position of the blades when the reel is put together, there being a space between each of them. When the reel is full, the head which is not pinned to the blades is pried off, and the ends thus released will be compressed, as shown in Figs. 9 and 12, when the coil can be easily taken off. Fig. 13 is a face view of the plate Z, which is provided with perforations through which pass the strands to be made into rope.

The operation is as follows: The bobbins of yarn or strands for rope are placed upon a frame standing beyond the plate Z. The yarn passes through the perforations in the

plate Z, and is carried to and through the iron tube Z', and thence through the nose of the flier G, which communicates the turn or twist to the rope or strand. The rope or strand enters the body of the flier at Y, and is carried to and around a groove on the capstan *x'*, thence to the corresponding groove on the capstan *x*, and so on till it is passed around all the grooves on the capstans *x x'*. It is then carried to the eye or whirl W, and thence to the reel, on which it is wound, the eye W, traveling to and fro on the screw U, serving as a guide in the building of the coil on the reel. As a bobbin becomes empty, a full bobbin can be substituted and the ends of the yarn knotted without stopping the machine.

The function of the collapsible reel has been hereinbefore described. The use of such a reel is found to greatly facilitate the work to be done, the invention being an important adjunct to machines of this class.

Having described my invention, I claim—

In a collapsible reel for receiving a rope or strand as produced in a machine such as described for forming ropes or strands, the combination, with the heads having mortises, of the semi-cylindrical blades having a tenon at each end to fit in said mortises, the tenons being secured by pins in the mortises of one head and detachable from the mortises in the other head, substantially as specified.

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Witnesses:

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