

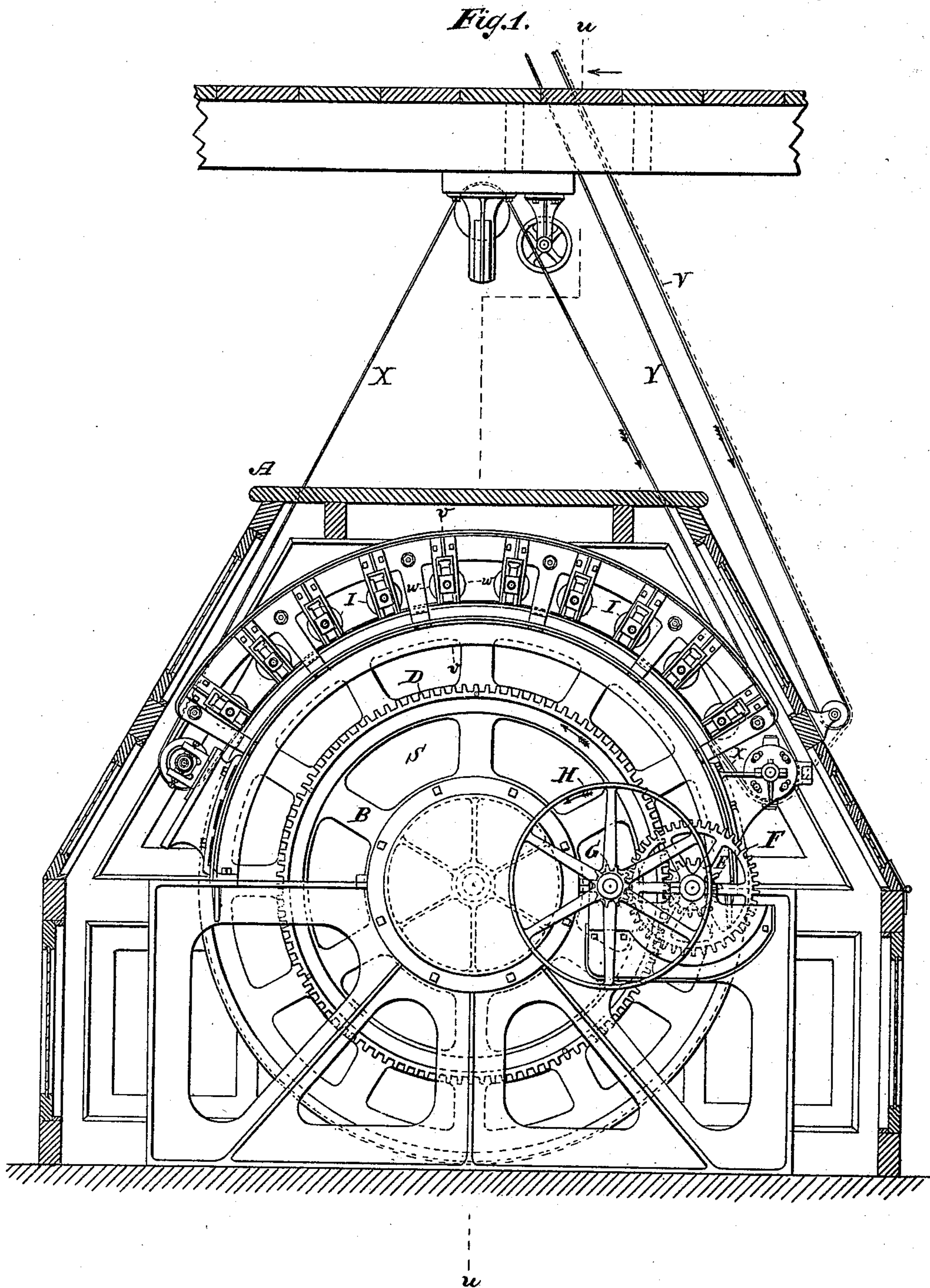
(No Model.)

5 Sheets—Sheet 1.

J. W. MILLET.  
FELTING MACHINE.

No. 491,901.

Patented Feb. 14, 1893.



WITNESSES:

*Edward Wolff.*  
*William Miller*

INVENTOR:

*John W. Millet.*

BY

*Van Gantvoord & Rupp*  
ATTORNEYS.



(No Model.)

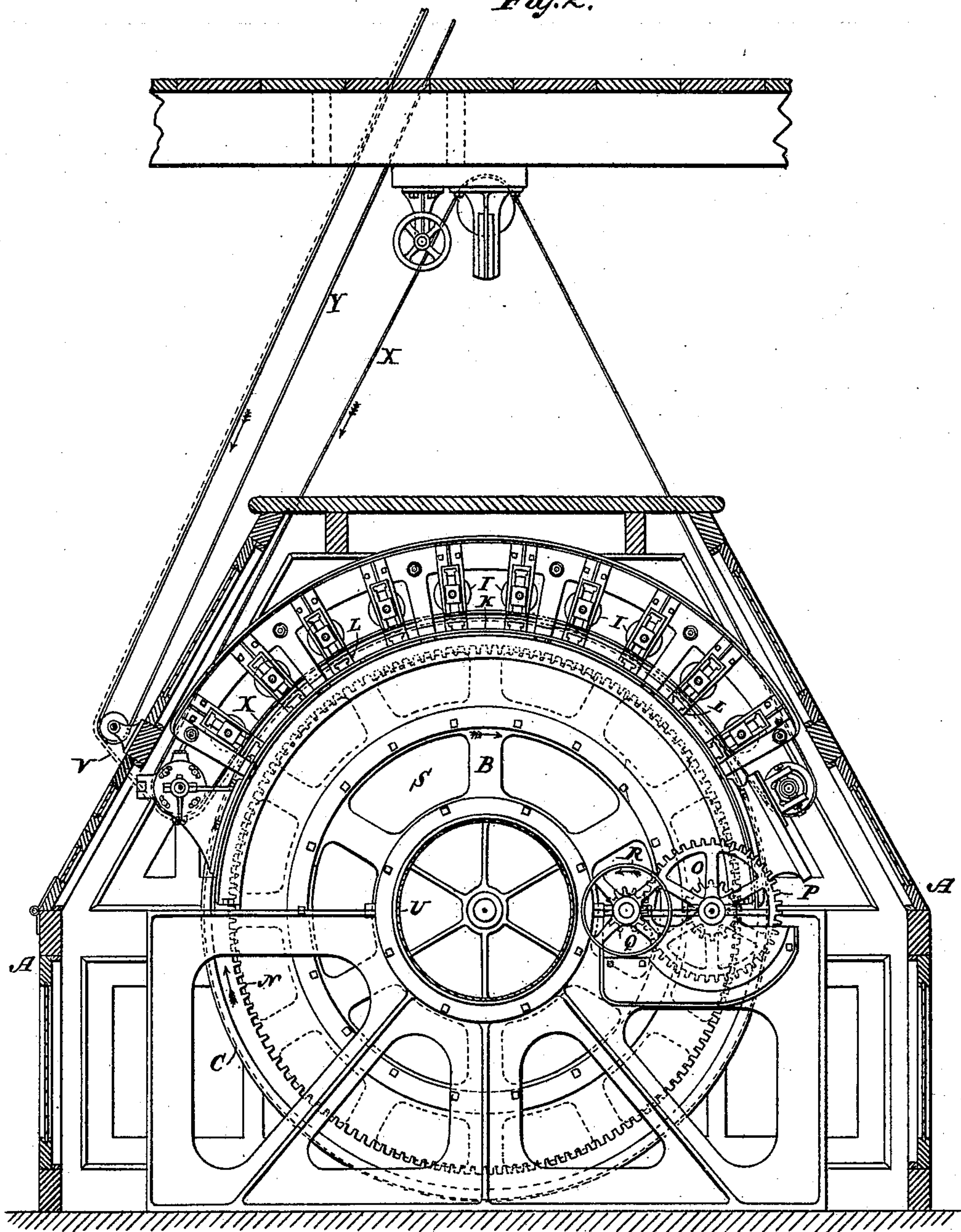
5 Sheets—Sheet 2.

J. W. MILLET.  
FELTING MACHINE.

No. 491,901.

Patented Feb. 14, 1893.

*Fig. 2.*



WITNESSES:

*Edward Wolff.*  
*William Miller*

INVENTOR:

*John W. Millet.*

BY

*Van Sxtoord & Hauff*

ATTORNEYS.

(No Model.)

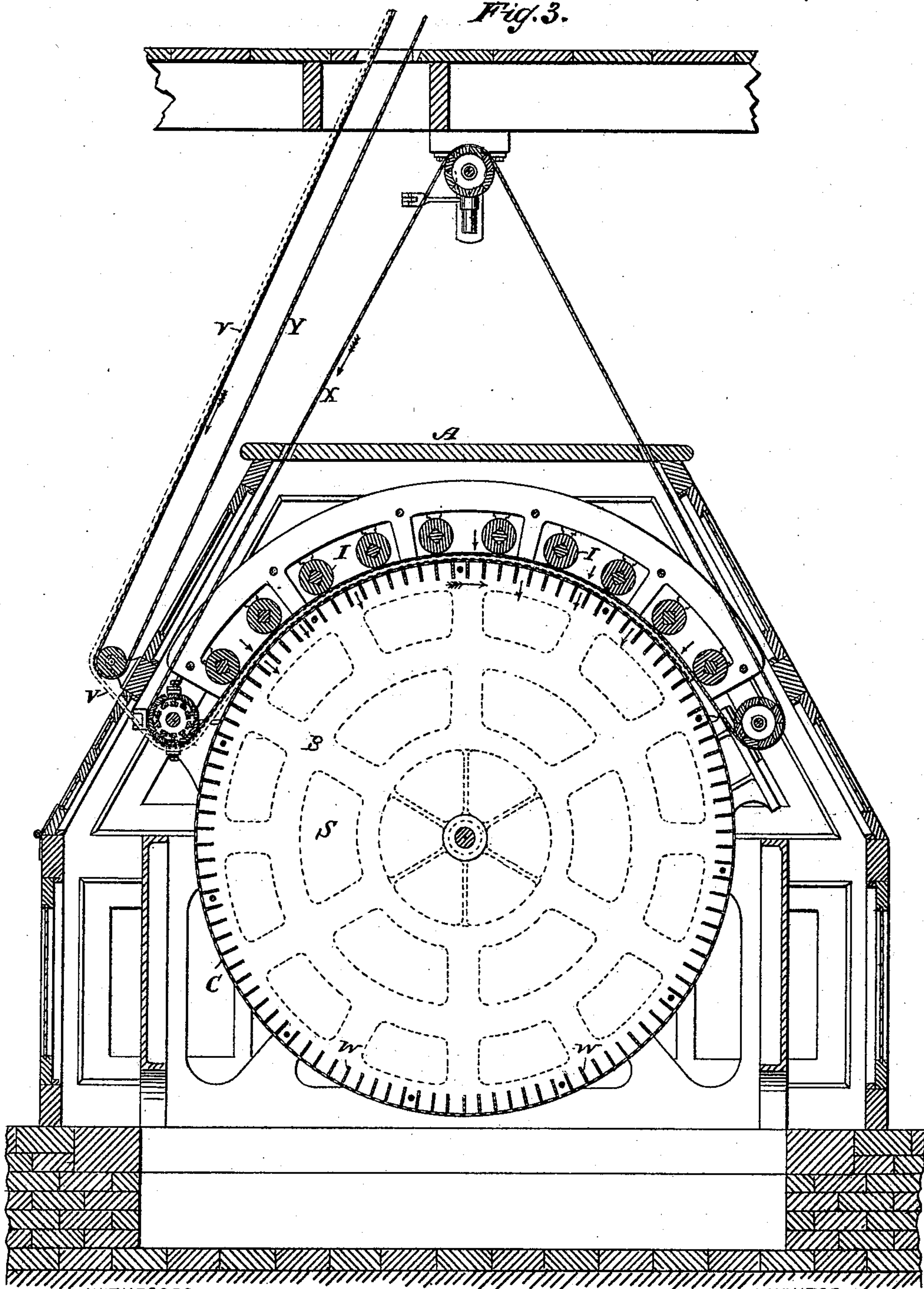
5 Sheets—Sheet 3.

J. W. MILLET.  
FELTING MACHINE.

No. 491,901.

Patented Feb. 14, 1893.

*Fig. 3.*



WITNESSES:

*Edward Wolff.*  
*William Miller*

INVENTOR:

*John W. Millet.*  
BY  
*Van Santvoord & Hauff*  
ATTORNEYS.



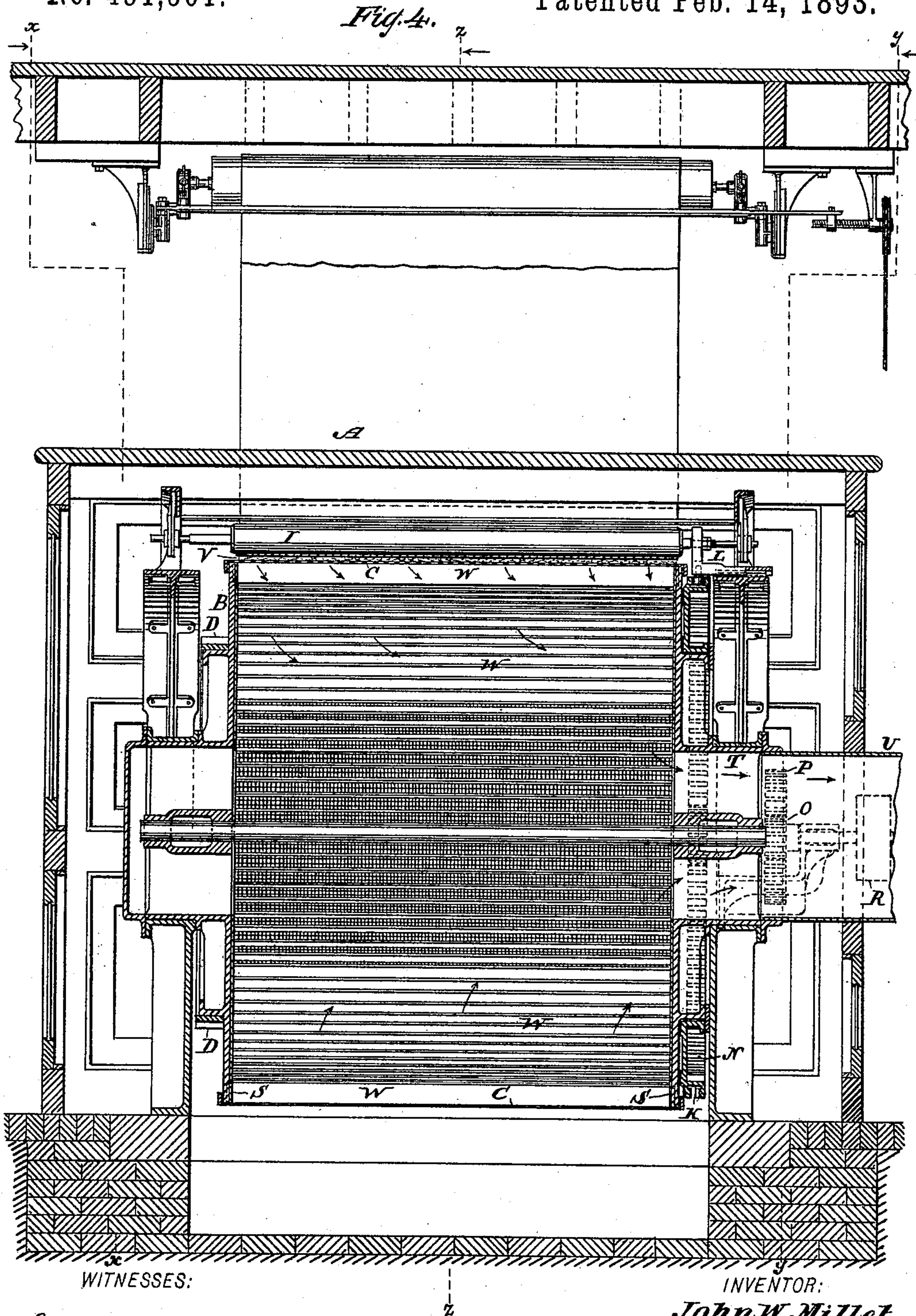
(No Model.)

5 Sheets—Sheet 4.

J. W. MILLET.  
FELTING MACHINE.

No. 491,901.

Patented Feb. 14, 1893.



WITNESSES:

*Edward Wolff.*  
*William Miller*

INVENTOR:

*John W. Millet.*

BY

*Van Lantvoord & Hart*

ATTORNEYS.

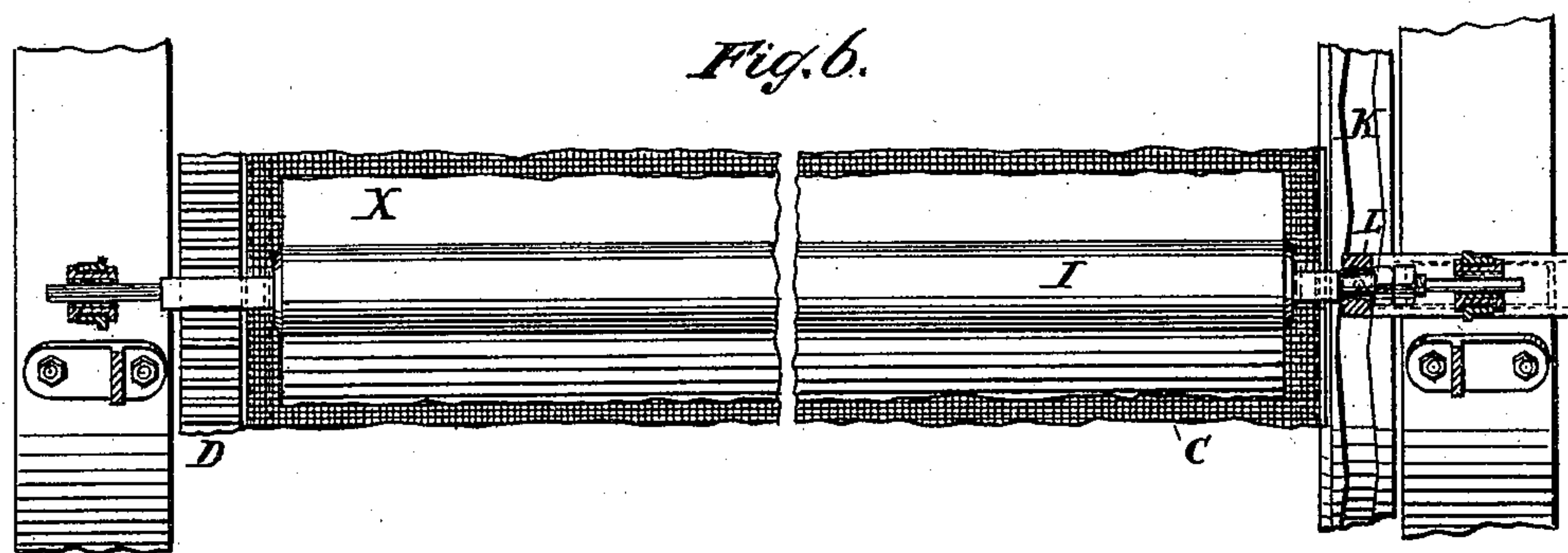
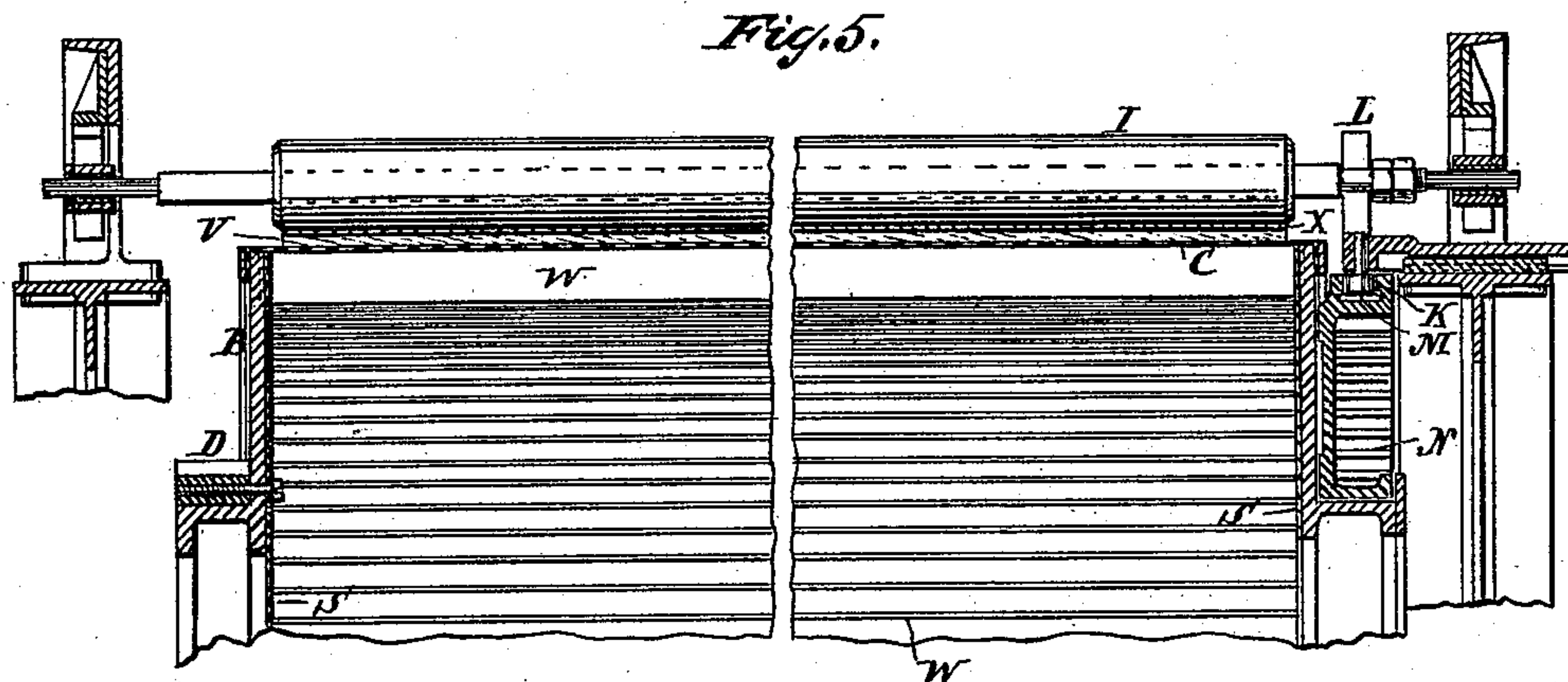
(No Model.)

5 Sheets—Sheet 5.

J. W. MILLET.  
FELTING MACHINE.

No. 491,901.

Patented Feb. 14, 1893.



WITNESSES:

*Edward Wolff.*  
*William Miller*

INVENTOR:

*John W. Millet.*

BY

*Van Santvoord & Hauck*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN W. MILLET, OF DOLGEVILLE, NEW YORK.

## FELTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 491,901, dated February 14, 1893.

Application filed October 15, 1892. Serial No. 449,000. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. MILLET, a citizen of the United States, residing at Dolgeville, in the county of Herkimer and State of New York, have invented new and useful Improvements in Felting-Machines, of which the following is a specification.

This invention relates to an improvement in felting machines and the object of the invention is to enable the process of felting to be thoroughly and effectively accomplished as set forth in the following specification and claim and illustrated in the annexed drawings in which

Figure 1, is a side elevation of the machine sectioned along  $xx$  Fig. 4. Fig. 2, is a section along  $yy$  Fig. 4. Fig. 3, is a section along  $zz$  Fig. 4. Fig. 4, is a front elevation of the machine sectioned along  $uu$  Fig. 1. Fig. 5, is a section along  $vv$  Fig. 1. Fig. 6, is a section along  $ww$  Fig. 1.

In the drawings the letter A indicates a case or housing for distributing steam or other heat equally and uniformly. The steam or hot air is led into the housing from any suitable source or conduit (not shown). Within the housing is a cylinder or drum B covered with gauze or brass wire cloth C and having a driving gear D actuated by the train of gears or pinions E F G and pulley H located outside of the housing. The longitudinally reciprocating or shaker rollers I are of any suitable number as for example ten and are placed into contact with a belt X which runs in contact with the drum B and serves to rotate the shaker rollers I. The cam ring or cam K is mounted independently of or loosely upon the drum B so as to be capable of independent rotation or speed. The slides or actuators L secured to each shaker roller or shaker roller shaft are provided with antifriction rollers M running in the groove or cam part of the cam ring K. The cam ring K has a gear N actuated by the train of gears O P Q and pulley R on outside of housing A. The cam ring K is run faster or slower as required by the operation or the material under treatment. The heads of the drum or cylinder B are preferably of cast iron and provided with a lining S of suitable material, as for example sheet

brass, to make the cylinder ends air tight. At one end of the cylinder is a tube or exit T made to communicate with an exhaust U for the purpose of exhausting air and steam from the inside of the cylinder. The hot air and steam are thus drawn through the material or web of wool V. The web or material forms between the drum B and shaker rollers I. The cylinder heads are tied together by strips W of brass or other suitable material which hold the gauze or covering C in its cylindrical shape. Said covering C is soldered or secured to the strips W. The steam or other heat as already stated is drawn or forced by the exhaust through the web as it is distributed in the machine so that the degree of heat and moisture required to assist the hardening process can be applied to the wool. Uniformity of heat and steam being of importance I have found it of disadvantage to force the heat and steam from inside a roller, drum or cylinder outward against the wool on the drum, since thereby the layers of wool next to such heated roller or drum harden quickly and prevent the heat and steam from penetrating sufficiently to the portion of the wool located at the upper side or away from the drum so that said lateral portions are insufficiently felted or not felted at all. By exhausting or drawing the heat and steam into the drum or cylinder I find that all parts of the wool will be equally affected and felted. The belt X is suitably supported and caused to travel between the wool or material V and the shaker rollers I, whereby the wool is prevented from collecting on such rollers.

The apron Y is intended for carrying the material V to be treated to the machine.

A thermometer can be applied to the housing in any suitable well known way so that the operator can note the degree of heat and instruments for indicating the density of atmosphere and the degree of moisture in the housing can also be suitably applied. The operator can then regulate the degrees of heat and moisture as may be required.

By housing the machine as above indicated and automatically registering or noting the heat and moisture the proper control can be exercised so that even an inexperienced oper-

ator can successfully harden felt on this machine and that the desired uniformity of heat and moisture can be readily maintained.

5 What I claim as new and desire to secure by Letters Patent is,

10 The combination of a drum provided with air tight heads and a perforated shell, a series of reciprocating or shaker rollers around said shell, between which rollers and shell the material is felted, a casing surrounding the shell and shaker rollers, and a carrier belt passing

through the casing and between the cylinder and shaker rollers, substantially as and for the purpose described.

In testimony whereof I have hereunto set 15 my hand in the presence of two subscribing witnesses.

JOHN W. MILLET.

Witnesses:

EDW. DEDICKE,  
LOUIS KUEHN.