

(No Model.)

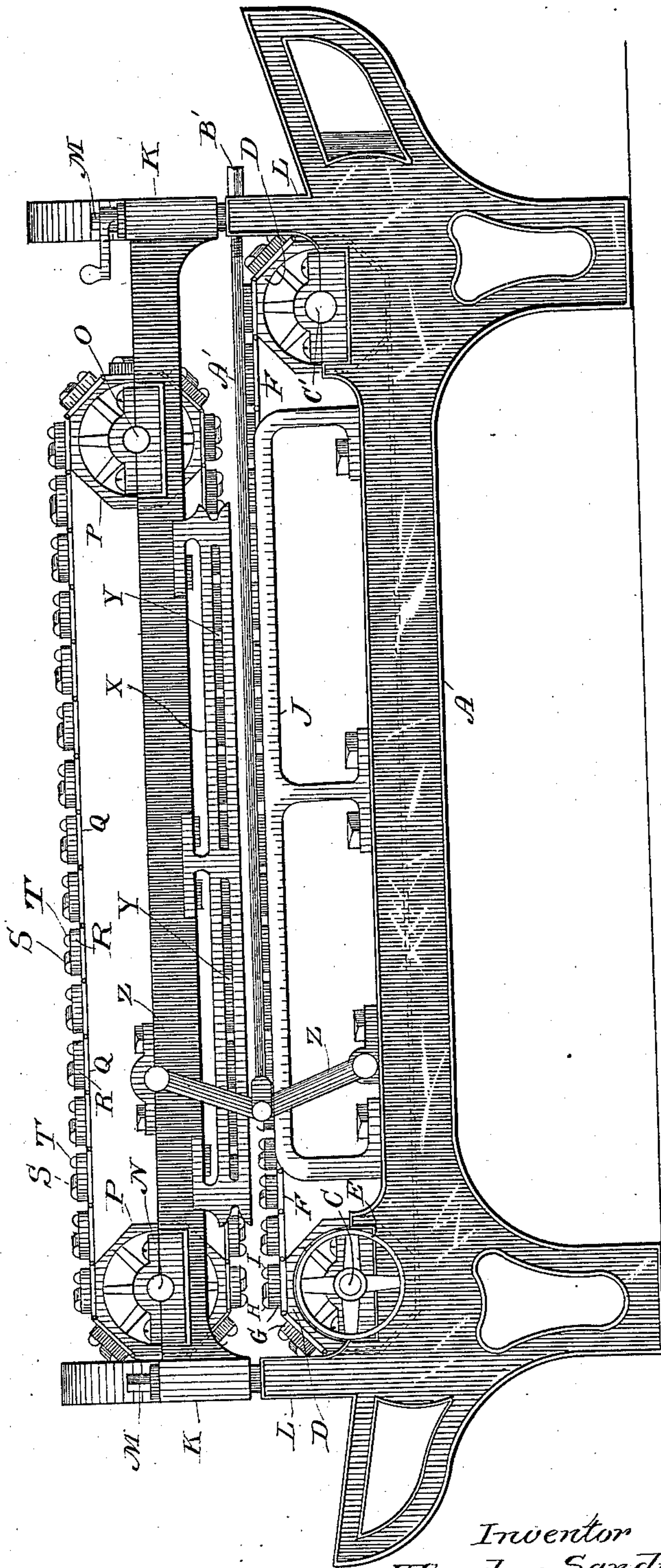
3 Sheets—Sheet 1.

T. SANDERS.
HAT SIZING MACHINE.

No. 304,565.

Patented Sept. 2, 1884.

Fig 1



Witnesses
S. Williamson
W. D. Haviland

Inventor
Theodore Sanders
By *Smith & Hubbard*
Attys.

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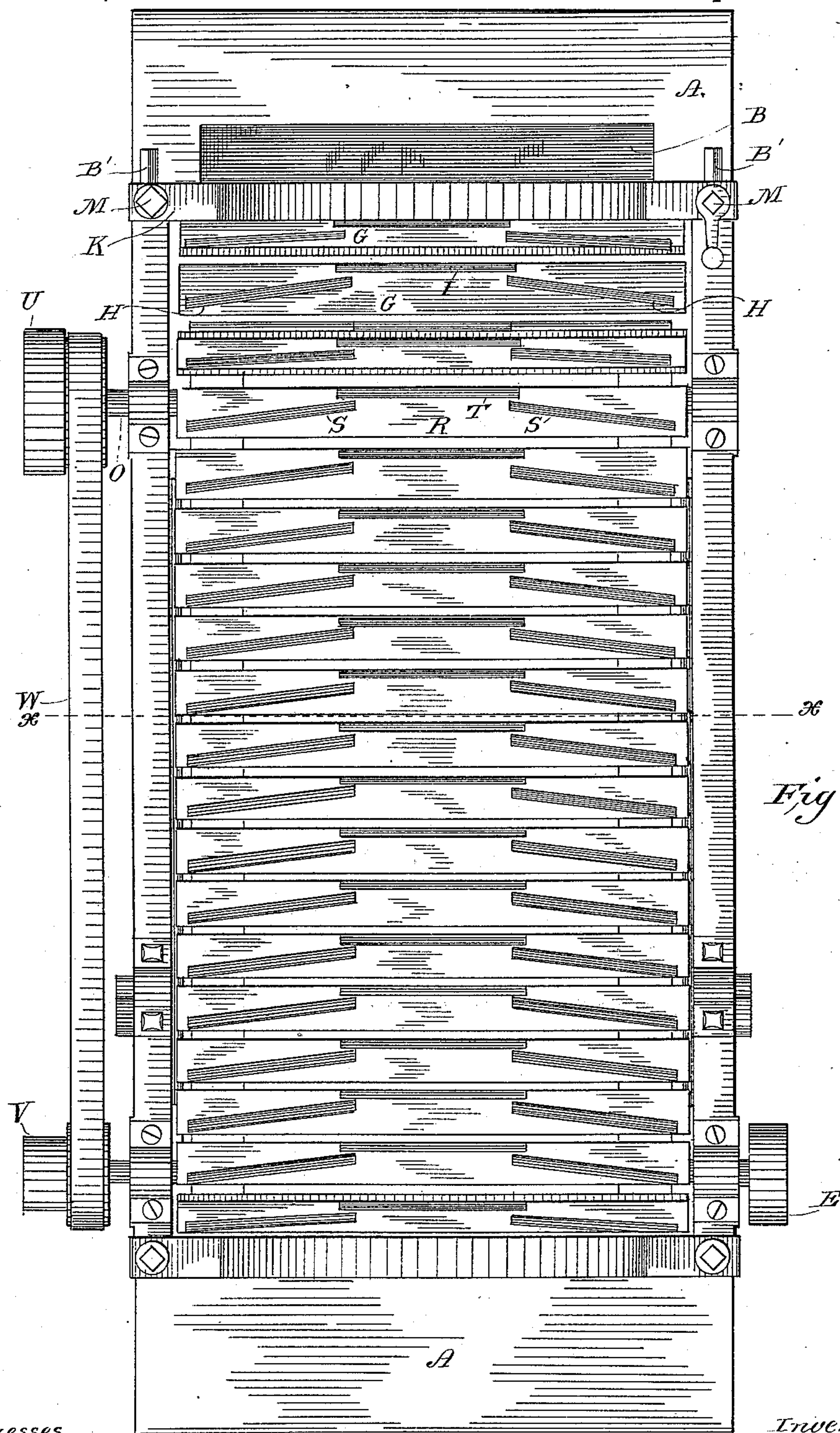


Fig 2

Witnesses
S. Williamson
W. D. Harland

Inventor
Theodore Sanders
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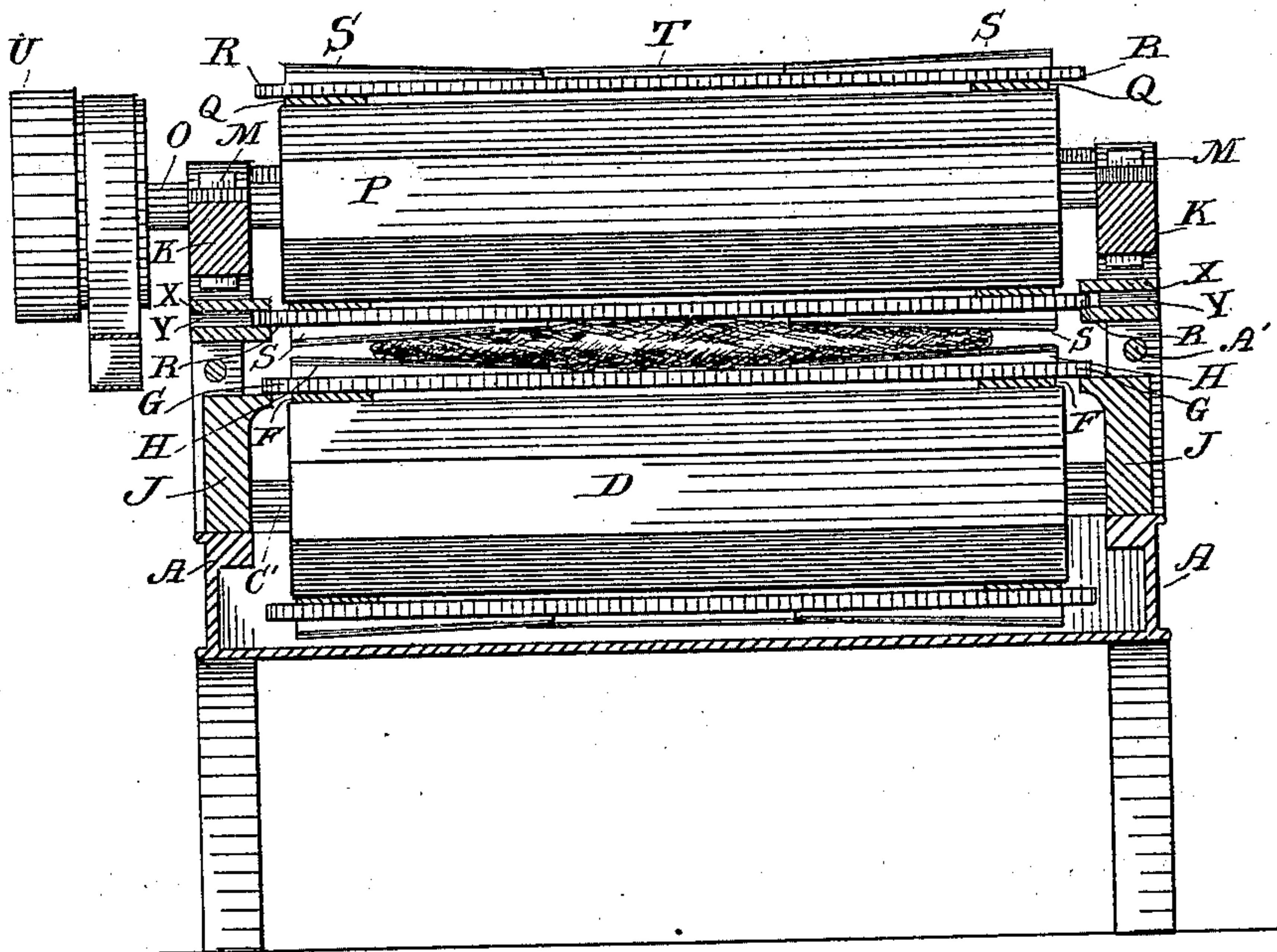
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Fig 3



Witnesses
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W. T. Harland

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UNITED STATES PATENT OFFICE.

THEODORE SANDERS, OF DANBURY, CONN., ASSIGNOR OF TWO-THIRDS TO
JOHN B. NICHOLS AND EDWARD A. HINE, BOTH OF SAME PLACE.

HAT-SIZING MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,565, dated September 2, 1884.

Application filed March 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, THEODORE SANDERS, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Sizing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in hat-sizing machines; and has for its object to size a hat more after the manner of hand-sizing than has yet been accomplished, while at the same time the process technically known as "second sizing" is readily performed; and also to greatly facilitate and cheapen the manufacture of felt hats by thoroughly sizing them in an exceedingly short space of time, and, furthermore, to do away with the adjustable rolls now in use; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully and in detail explained, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand its construction and operation, I will proceed to describe the same in detail, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my improvement; Fig. 2, a plan view; and Fig. 3, a cross-section at the line *x x* of Fig. 2.

Similar letters denote like parts in the several figures of the drawings.

A is the bed of the machine, within the forward portion of which is the tank B. Mounted within the bed at each end thereof on shafts C C' are drums D.

E is the driving-pulley, mounted on the shaft C.

F is an endless flexible apron running over the said drums, and constructed after the manner of an ordinary drive-chain, and on the outside of each link composing said apron are secured in any suitable manner slabs G, having

on their faces ribs H I. These ribs H decrease in height from their outer extremities, and are inclined therefrom toward the ribs I, as shown at Figs. 2 and 3. These latter are arranged as shown at Fig. 2, so that the ribs H are inclined from their outer extremities toward the rib I.

J is a support bolted to the bed, and upon which the lateral extremities of the slabs G rest, so as to prevent the apron from sagging at the top.

K is a frame, which is secured to the bed A, so as to be capable of a vertical adjustment, as follows: The front and rear portions of the bed project upward, as seen at L, and over these projections the frame K fits, the latter being cored out for this purpose.

M are screw-threaded bolts passed through the extremities of the frame and abutting against the projections L, and by means of which the vertical adjustment of said frame is accomplished, for the purpose presently explained. Within this frame are journaled shafts N O, and on these latter are mounted drums P, which carry apron Q, constructed in the same manner as the previously-mentioned apron, and having secured thereto slabs R, provided with ribs S T, arranged precisely as in the former instance. On the extremities of the shafts O and C are mounted differential pulleys U V, connected by belt W, and by means of which the speed of travel of the two aprons may be varied relatively, as will be hereinafter explained.

X is a support bolted to the frame K, and having a longitudinal guideway, Y, within which the lateral extremities of the slabs R extend, and are retained as against any movement vertically.

The operation of my improvement is as follows: Motion is imparted from the driving-pulley E to the differential pulley V, and thence to the differential pulley U. I belt these two last pulleys, so that the speed of the latter shall be considerably less than that of the former. The drums which carry the aprons have faces which meet at angles, so as to afford a grasping-surface for the aprons, whereby the latter may be fed. The hat is taken from the cone as usual, and after being

properly prepared, placed on one of the forward slabs of the apron F. The upper portion of this apron and the lower portion, Q, travel of course in opposite directions, and when the hat is brought between these two portions it will be revolved and at the same time be carried toward the rear of the machine, owing to the greater speed of the apron F. The hat will drop from the apron at this part of the machine, and is then run through a similar pair of aprons on a machine situated alongside of the first, and so on, until the operation is completed. The shape of the rolled hat, when introduced between the aprons, is such that the greatest bulk and solidity is at the center of roll, so that it will be readily understood that the ribs being highest at the outer extremities, the contact of the sizing-surfaces with the hat will be close and firm at the ends thereof, while the central portion of the roll will be but slightly operated upon; also, the hat is continually being twisted and allowed to spring back by the action of the inclined ribs as they pass each other, and this is precisely similar to the hand-sizing process. After the hat has been shaved to remove whatever hair may still remain in the fur, it is again passed between the aprons and given a second sizing to further close up and strengthen the felt. It will be readily understood that the greater the speed of the lower apron relative to the upper the faster will the hat be carried, and the less will be the number of revolutions imparted to it, and by regulating the speed of said aprons relative to each other I am enabled to manipulate the hat more or less, as may be required. When it is desired to increase the distance between the operating-faces of the aprons, I accomplish this by means of toggle-jointed levers Z, secured at their extremities to the bed and frame, and operated by a rod, A', pivoted at one end to the toggle-joint, the other end being threaded and passed through the bed, so as to engage with any ordinary nut, B'. When the levers Z have been straightened out by the action of the nut B' on the rod A', the bolts M are set inward, so as to abut against the projections L, and thereby relieve the levers from any excessive strain. By increasing and decreasing the distance between the aprons, and by varying the relative speed of the latter, as hereinbefore set forth, I am enabled to operate on the hats from the time

when they are taken from the cone in their "green" state until the second sizing is completed, which latter process has almost invariably been accomplished by hand, owing to the extreme difficulty hitherto experienced in adapting the ordinary sizing-rolls to perform this operation with the degree of nicety and uniformity required. If desired, the upper apron may be speeded faster than the lower and the hat will be thereby sized with equal facility.

I do not wish to be confined to the exact means shown and described for carrying the aprons or for varying the distance between the same, as these results may be effected in any ordinary manner.

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

1. The toggle-jointed levers secured at their extremities to the frame and bed, in combination with the rod pivoted to the toggle-joint, said rod being threaded and extended through the bed and operated by the action of a screw-nut bearing against said bed, substantially as set forth.

2. In combination with the toggle-jointed levers secured to the frame and bed, and operated as described, the screw-bolts passed through the frame at the corners thereof, and adapted to bear against the bed, thereby relieving the said levers from excessive strain, substantially as set forth.

3. The supports J X, secured to the bed and frame, respectively, and adapted to sustain the operating-surfaces of the lower and upper aprons, substantially as described.

4. The flexible apron F, having secured thereto slabs G, provided with ribs H I, and carried by drums D, mounted on shafts journaled within the bed A, in combination with the flexible apron Q, having secured thereto slabs R, provided with ribs S T, and carried by drums P, mounted on shafts journaled within the vertically-adjustable frame K, substantially as hereinbefore shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

THEODORE SANDERS.

Witnesses:

GEORGE W. WILKES,
DAVID B. BOOTH.