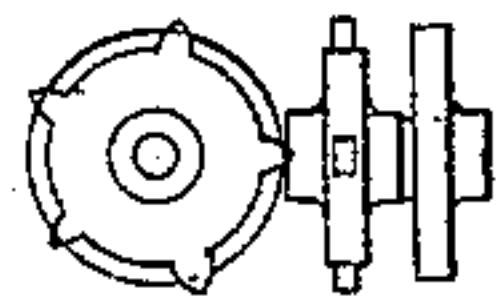
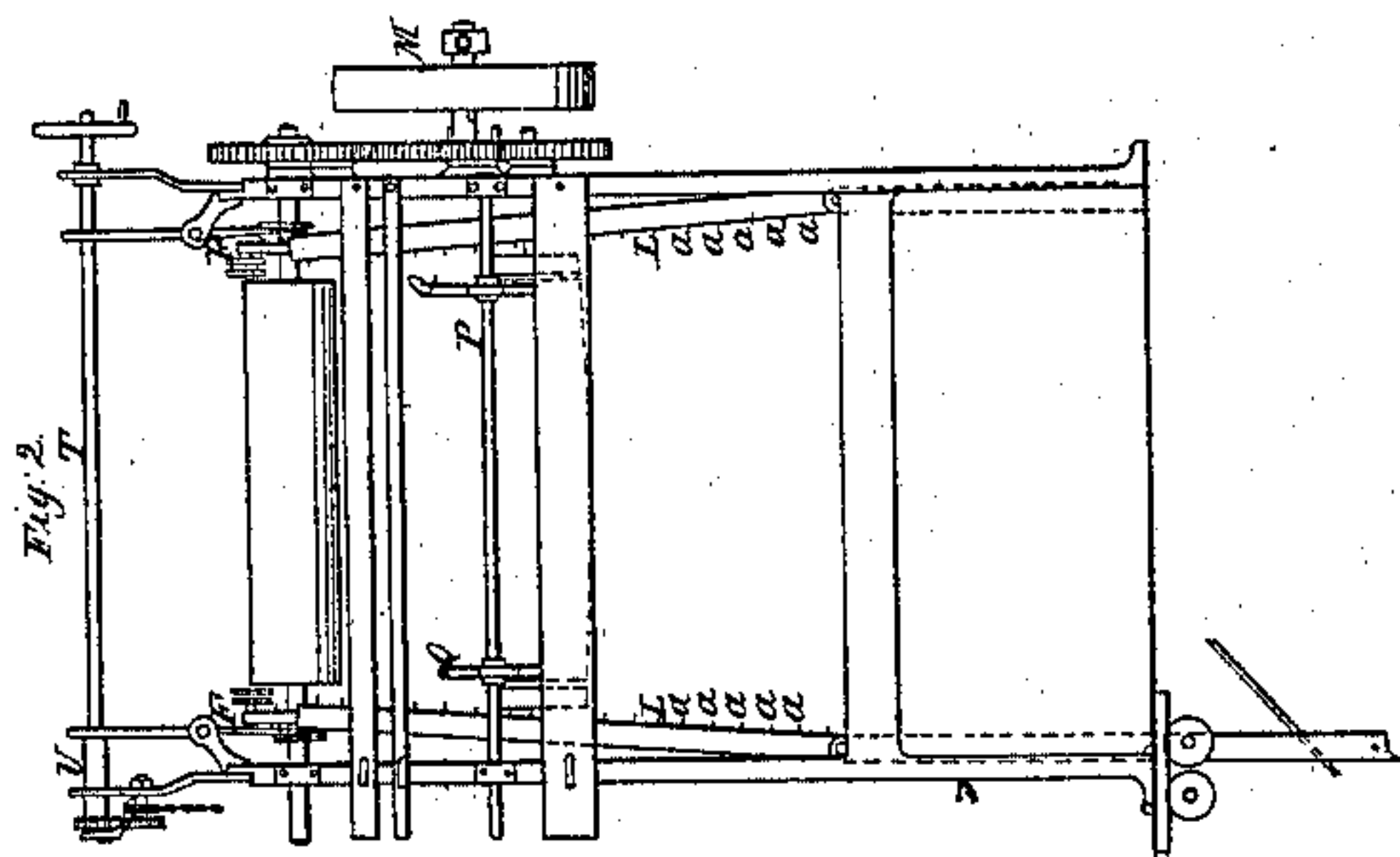
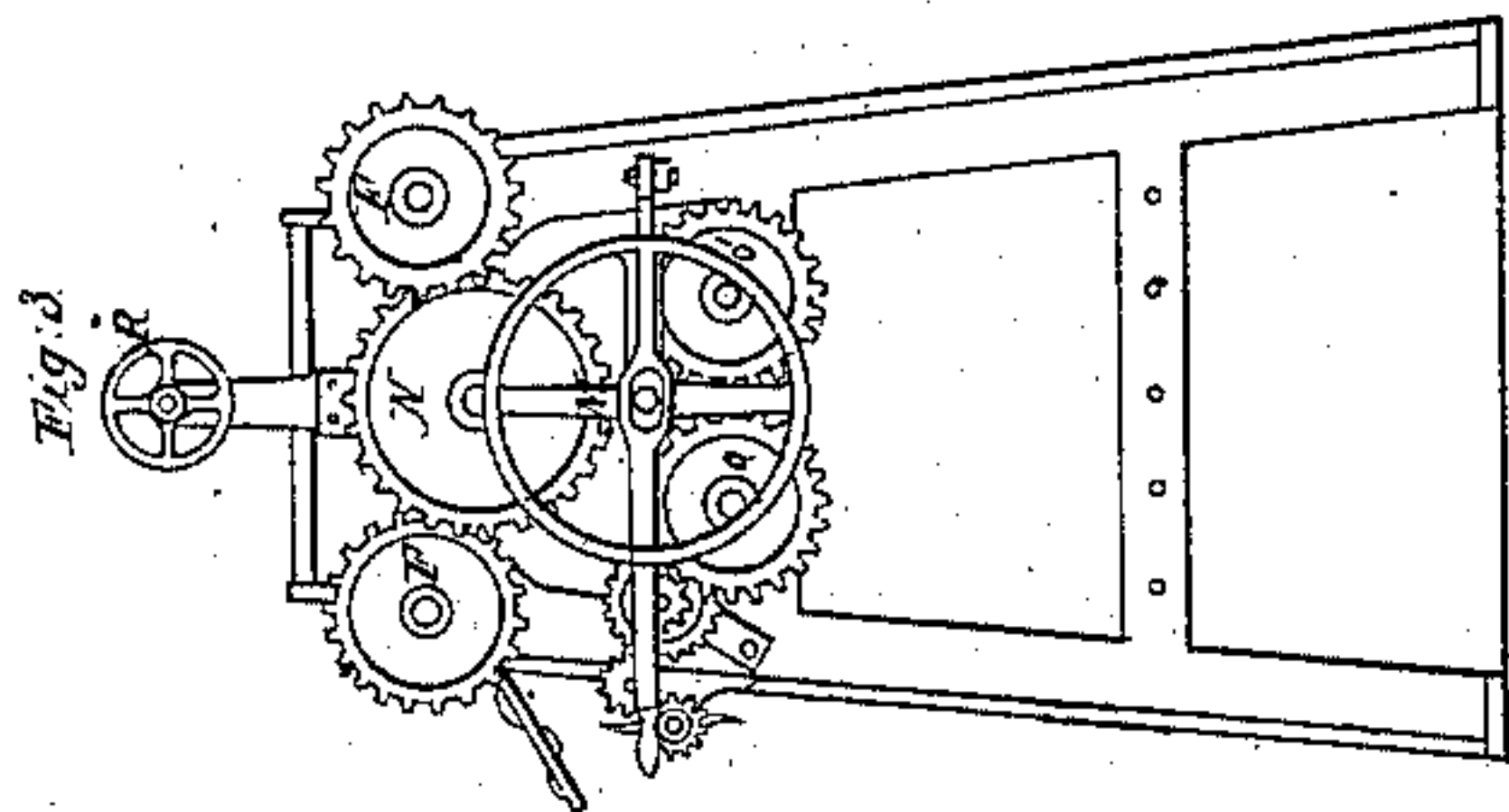
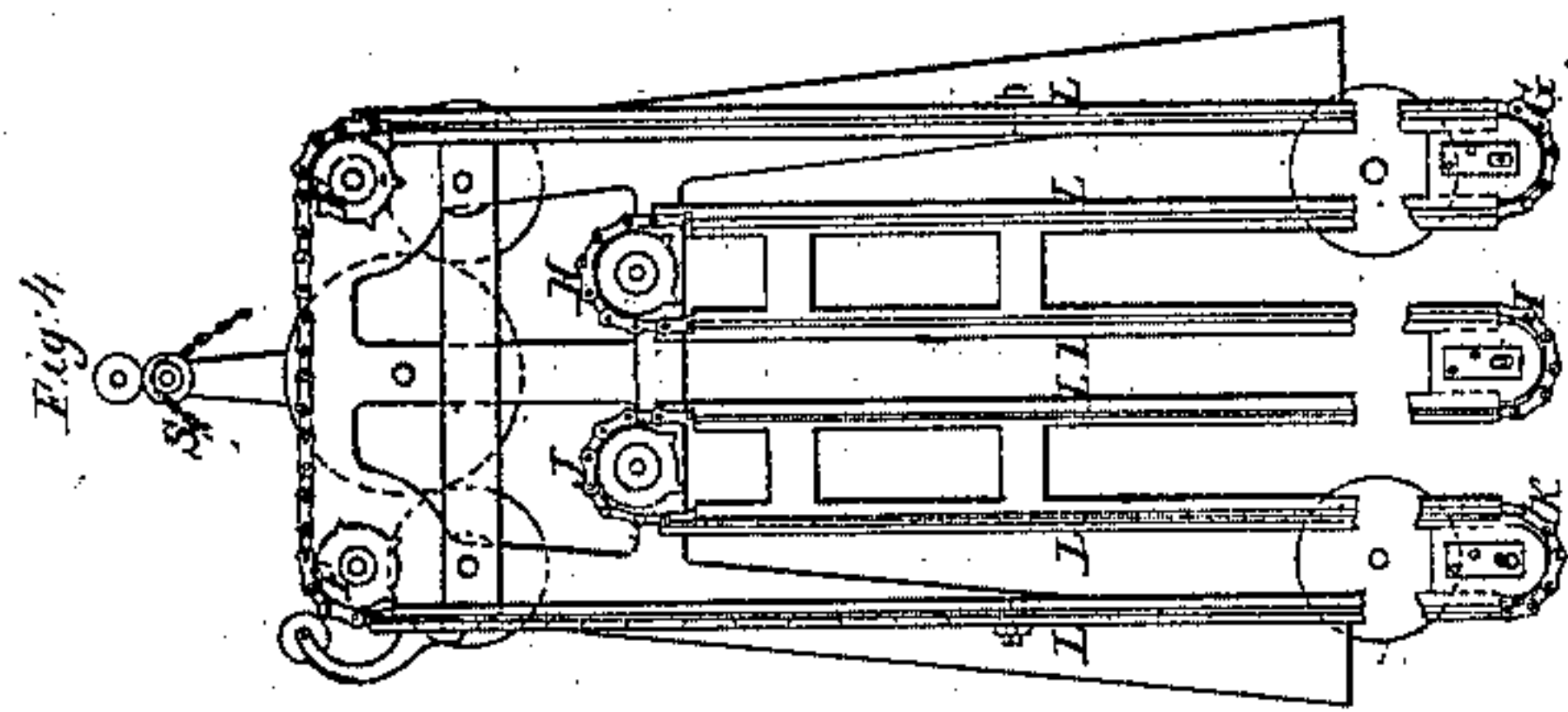
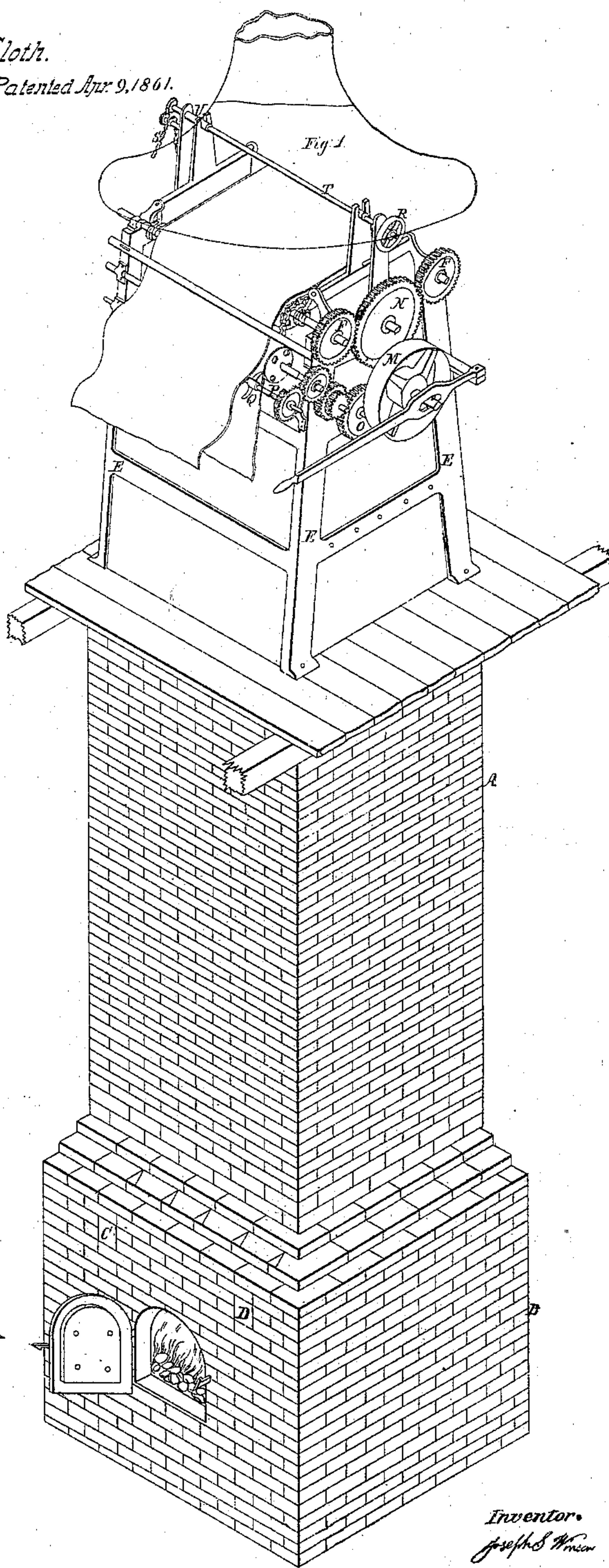


J. S. Winson
Machine for Drying Cloth.

N^o 1,017.
32,021.

Patented Apr 9, 1861.



Witnesses
Ray & Paine
J. M. Howe

Inventor.
Joseph S. Winson

UNITED STATES PATENT OFFICE.

JOSEPH S. WINSOR, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR TENTERING AND DRYING CLOTH.

Specification of Letters Patent No. 32,021, dated April 9, 1861.

To all whom it may concern:

Be it known that I, JOSEPH S. WINSOR, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machines for Drying and Stretching Woolen and other Textile Fabrics; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a perspective view of the whole machine. Fig. 2 is a front view of the same with the hot air shaft removed. Fig. 4 is a side view showing the direction in which the cloth is made to travel during the process. Fig. 3 is a side view showing the arrangement of the gears. The other figures are detailed parts to be referred to hereafter.

The invention which is the subject of this patent has reference to that class of machines which have been introduced for the purpose of superseding the well known tenter bars so long in use for stretching and drying textile fabrics and it consists in a mode of operation which is embodied in a combination of two agencies, one of which is an apparatus by which the cloth is made to travel through a more or less circuitous path by means of tenter hooks attached to an endless chain so arranged that during the first portion of its travel only the cloth shall be subjected to a gradually increasing strain and the other of which consists of a hollow shaft of sufficient size to inclose the cloth in its passage while on the tenter hooks, through which shaft is made to flow a continuous stream of heated air.

In the accompanying drawings A, (Fig. 1) is a hollow shaft of brick work or other non-conducting material—the economy being increased in the proportion that the radiation of the heat is prevented. At the lower extremity of this shaft is a furnace B, of sufficient capacity to supply the amount of heat required—fresh air being admitted to the air chamber by means of the apertures C and D which may be regulated by a register. The length of the shaft A, may be varied according to circumstances so as to be adapted to the height of the different stories of the mill. I have found that from twenty to twenty five feet is a length which perhaps affords more satisfactory results than could be obtained from a shaft materially longer or shorter.

At the upper extremity of the hollow shaft is placed the machine by which the cloth is stretched and is in the particular instance shown in the drawings constructed as follows: A suitable frame work of iron E, E supports and furnishes bearings for the various shafts and pinions hereinafter mentioned. F, F are two shafts having their bearings in the frame A A and provided with chain gears at each side as shown in Figs. 3, 4 and 5, which work into the links of a chain (Fig. 5) and which can be adjusted in their respective shafts at such distances apart as will accommodate the cloth to be stretched. L, L L Fig. 4 are channel ways within which the chain travels. The chain gears F, F, on the upper shaft (Fig. 2) are placed say three inches nearer together than the corresponding rollers on the lower shaft and the channel ways are accommodated to this arrangement by being made for a distance say of five feet from the top of the machine to converge toward each other to the same extent. At convenient distances apart on each chain are arranged hooks or wire points *a a a* for the purpose of piercing the cloth near the selvage and carrying it along with the chain to the point where it is to be taken off the machine.

Suppose now motion to be communicated to the main shaft provided with the driving pulley M. A small toothed gear wheel on the main shaft communicates motion to the intermediate gear N the teeth of which engage with the teeth of the wheels F F. The small gear on the main shaft also gives motion to the two gear wheels O, O' (Fig. 3); the arrangement of the gears being immaterial so long as F, F, and O O' revolve in the same times. The course of the chains will necessarily be as follows (see Fig. 4): first, across the top of the machine—over F, F, descending on each side of the machine to near the bottom of the shaft and passing around the friction rollers G, G; thence up to the top and over the chain-gears H, H; thence down and around the rollers I I; thence up and over the chain gears J J; thence down and around the rollers K, K; thence up and over again the chain gears F F, in an endless path.

The cloth to be stretched and dried is presented as shown in Fig. 1—at the top of the machine and as at this point the sets of channel ways on the front and back sides of the machine are converging together, the tenter

hooks readily pierce the selvages of the cloth—the machine being adjusted with reference to the width of the fabric. The cloth is carried across the top of the machine and
5 commences to descend into the interior of the shaft—being attached to the hooks on the chains it must necessarily be stretched to the extent which the channel ways are separated from each other and with the
10 chains is carried up and down within the shaft as many times as there are sets of chain gears and rollers. In ascending the last pair of channel ways after passing the point where the ways begin to approach each other
15 the cloth will be relieved of the strain and it can then be easily removed from the hooks and delivered to the box arranged to receive it.

20 In order to remove the cloth from the hooks by the action of the machine I have arranged a shaft P, which is driven by a train of intermediate gears connected with the main shaft; on this shaft are two wipers
25 Q Q (Fig. 2) which, revolving with the shaft force the cloth from the hooks. The shaft P is so arranged that it can be thrown

out of gear at pleasure and when the wipers are not in action the cloth will repeat its path of travel through the machine.

The degree of convergence of the descending channel ways of the first frame and of
30 the ascending channel ways of the last frame can be regulated by the screw rod T which has a thread cut upon the end of it and works on the screw socket U while the entire
35 side of each channel way can be brought at the same distance nearer to or farther from its opposite by means of a similar arrangement worked by the chain gear S.

What I claim as my invention and desire
40 to secure by Letters Patent is—

A machine for tentering textile fabrics constructed substantially as described combined with and traveling in a hollow vertical shaft through which a continuous current
45 of heated air is passing substantially as above described.

JOSEPH S. WINSOR.

Witnesses:

BENJ. F. THURSTON,
J. W. MOORE.