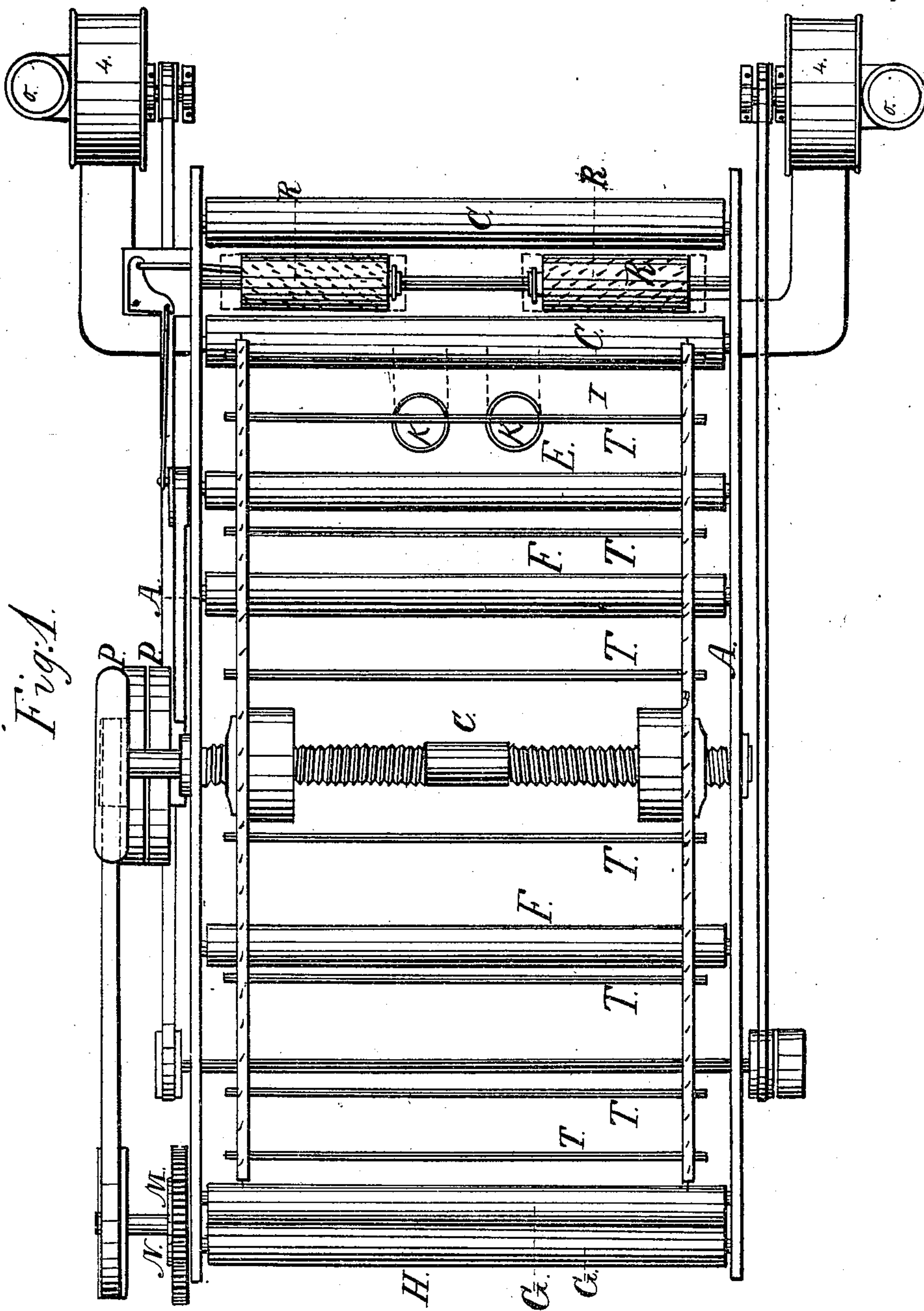


C. F. Bennett Sheet 15 Sheets.

Mach. for Drying Cloth.

No 26141.

Patented Nov. 15. 1859.



Witnesses.

Wm Vine

E. Foster

Inventor.

Charles F. Bennett

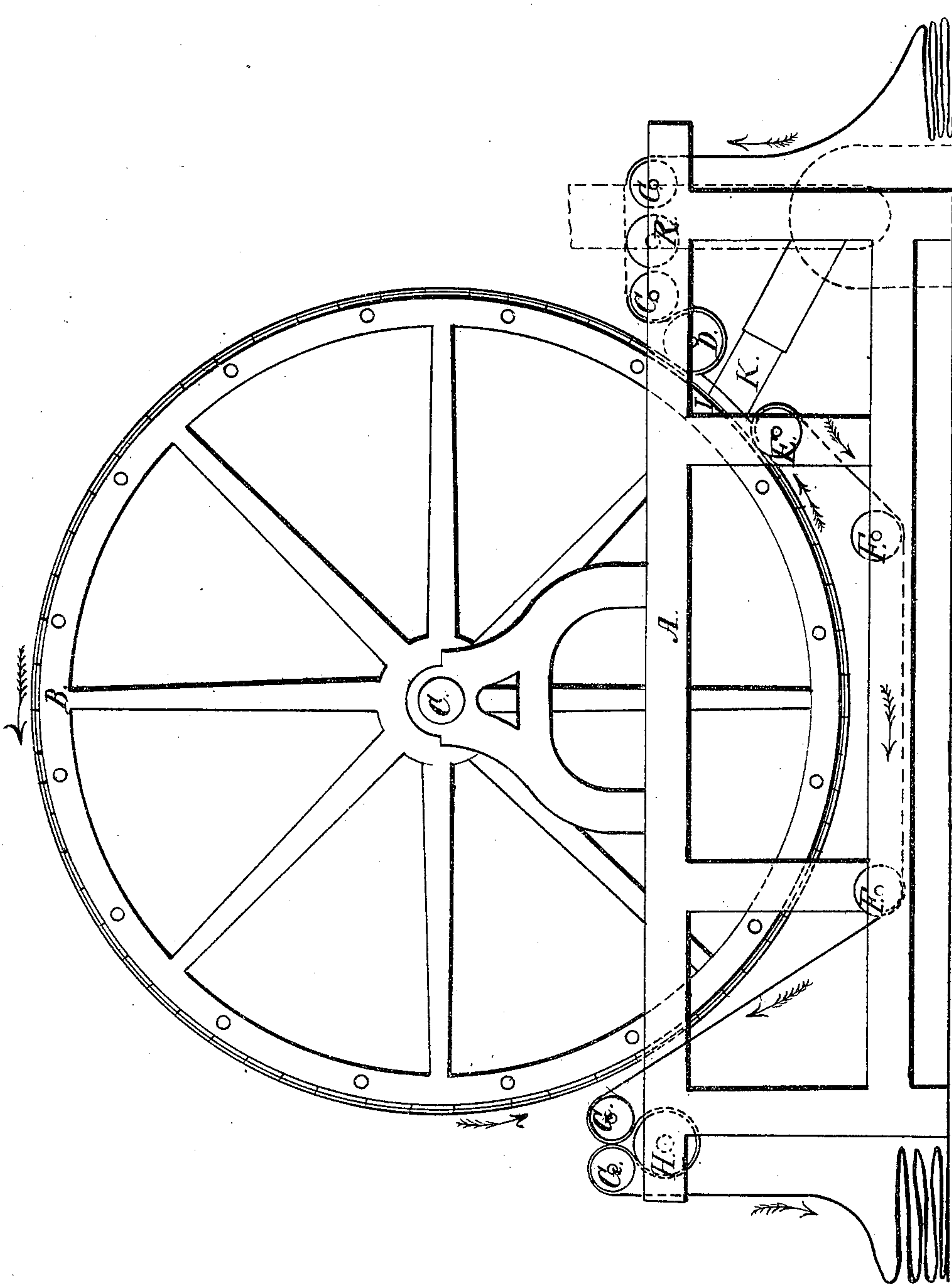
C. F. Bennett. *Sheet 2 of 5 Sheets.*

Mach. for Drying Cloth.

N^o 26141.

Patented Nov. 15. 1859.

Fig. 2.



Witnesses.

Wm. Vine
G. Foster.

Inventor.

Charles F. Bennett

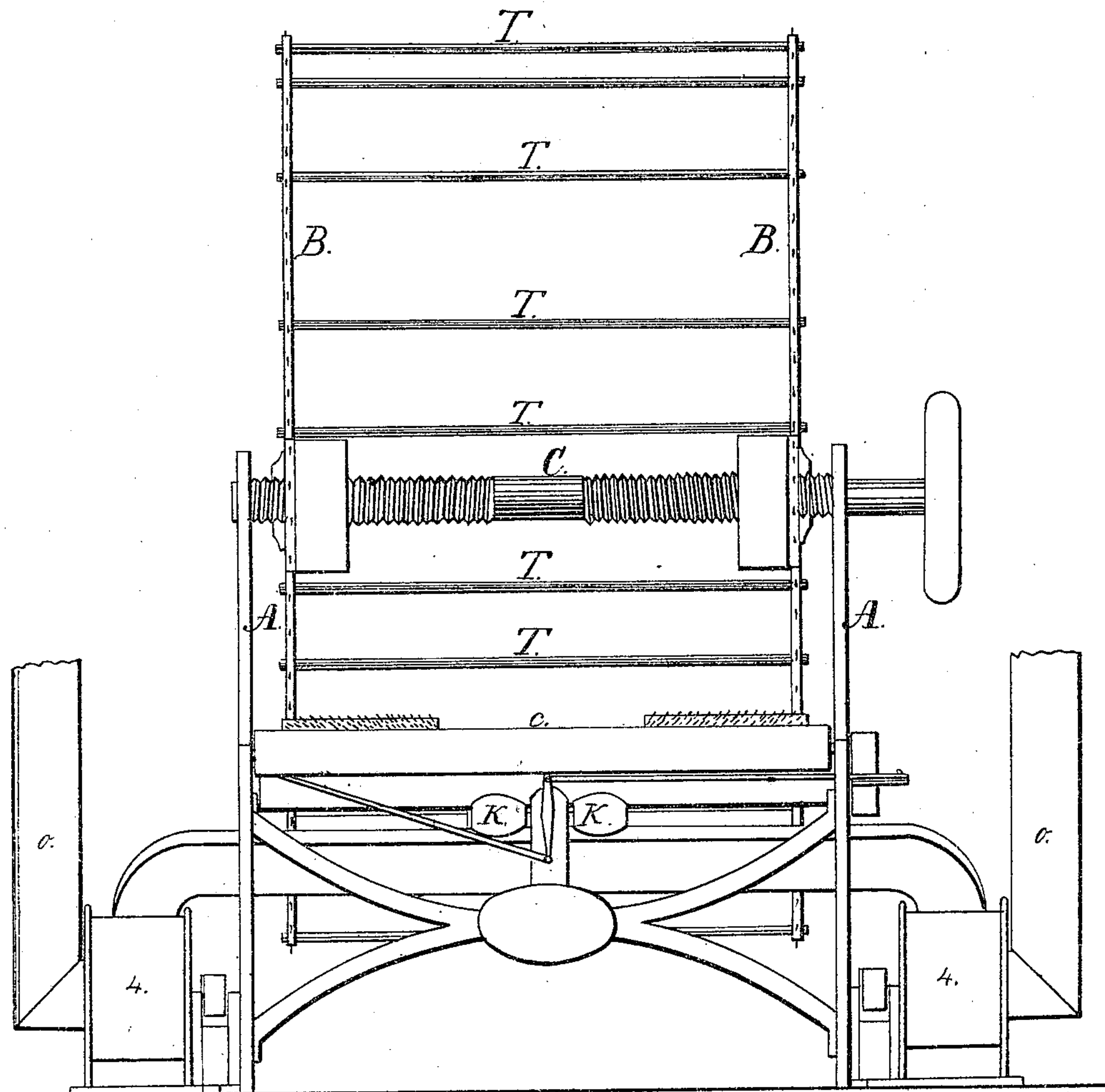
C. F. Bennett Sheet 3.5 Sheets.

Mach. for Drying Cloth.

N^o 26141.

Patented Nov. 15. 1859.

Fig. 3.



Witnesses.

Wm. Viner

E. Foster.

Inventor.

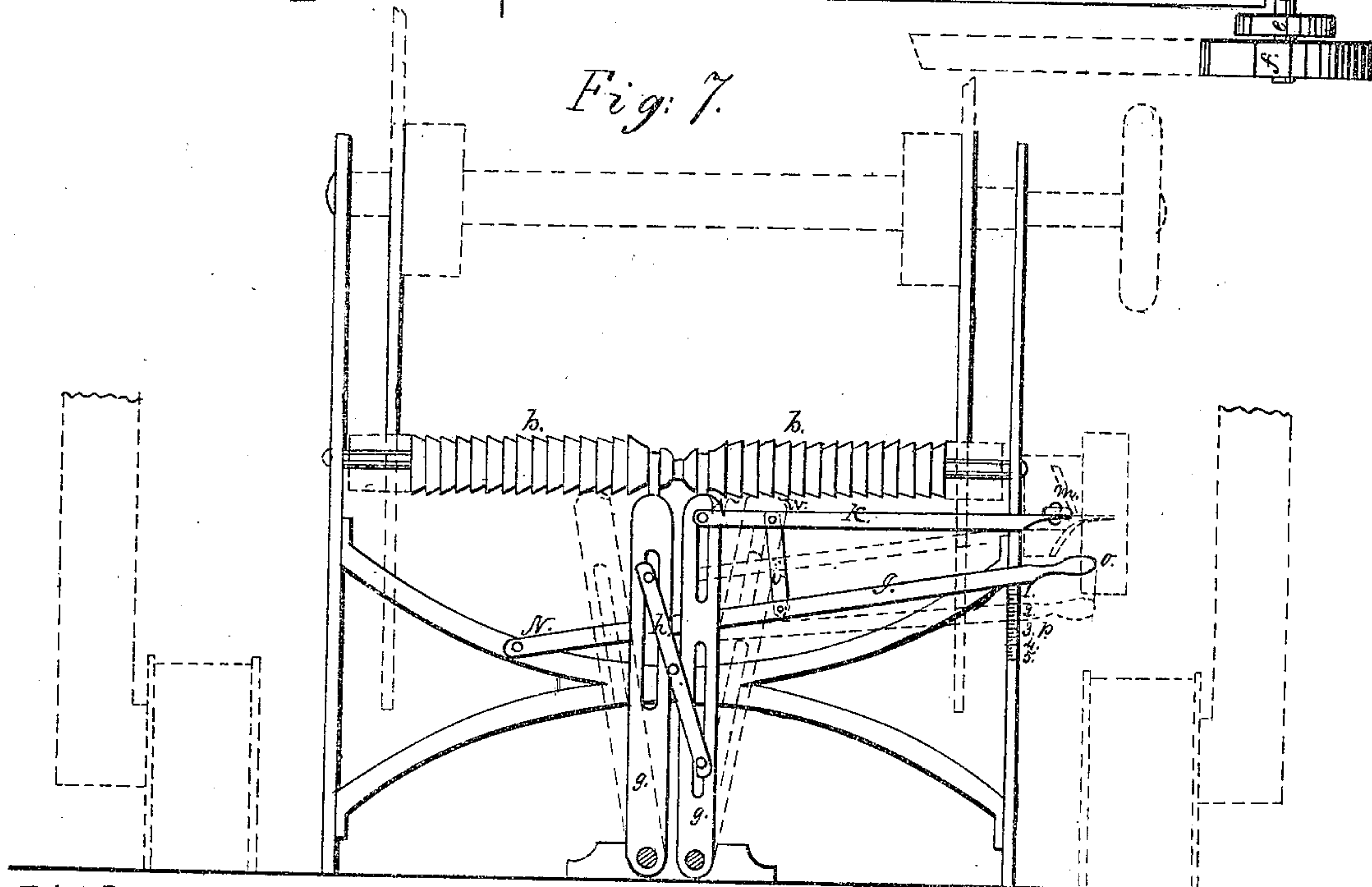
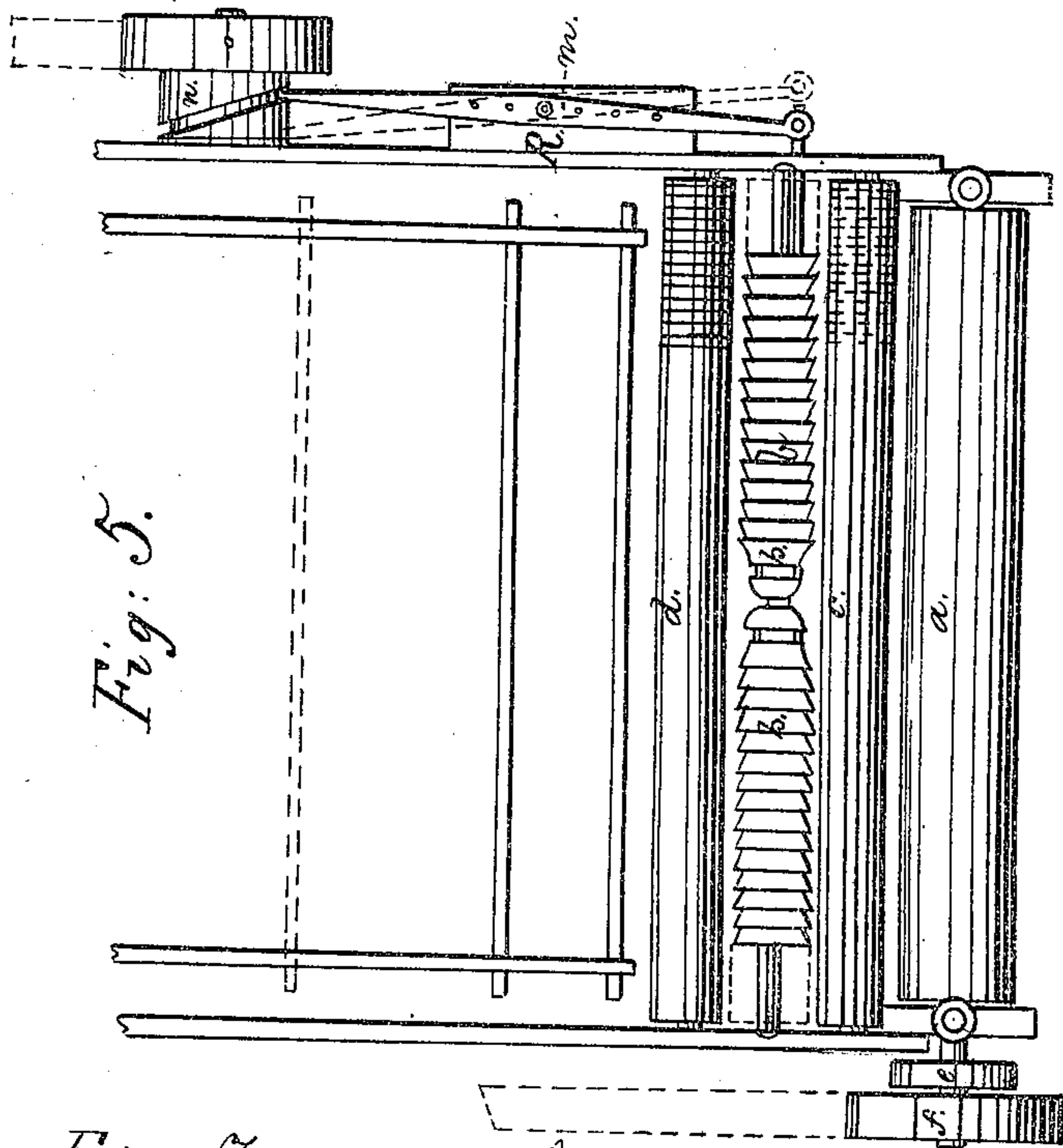
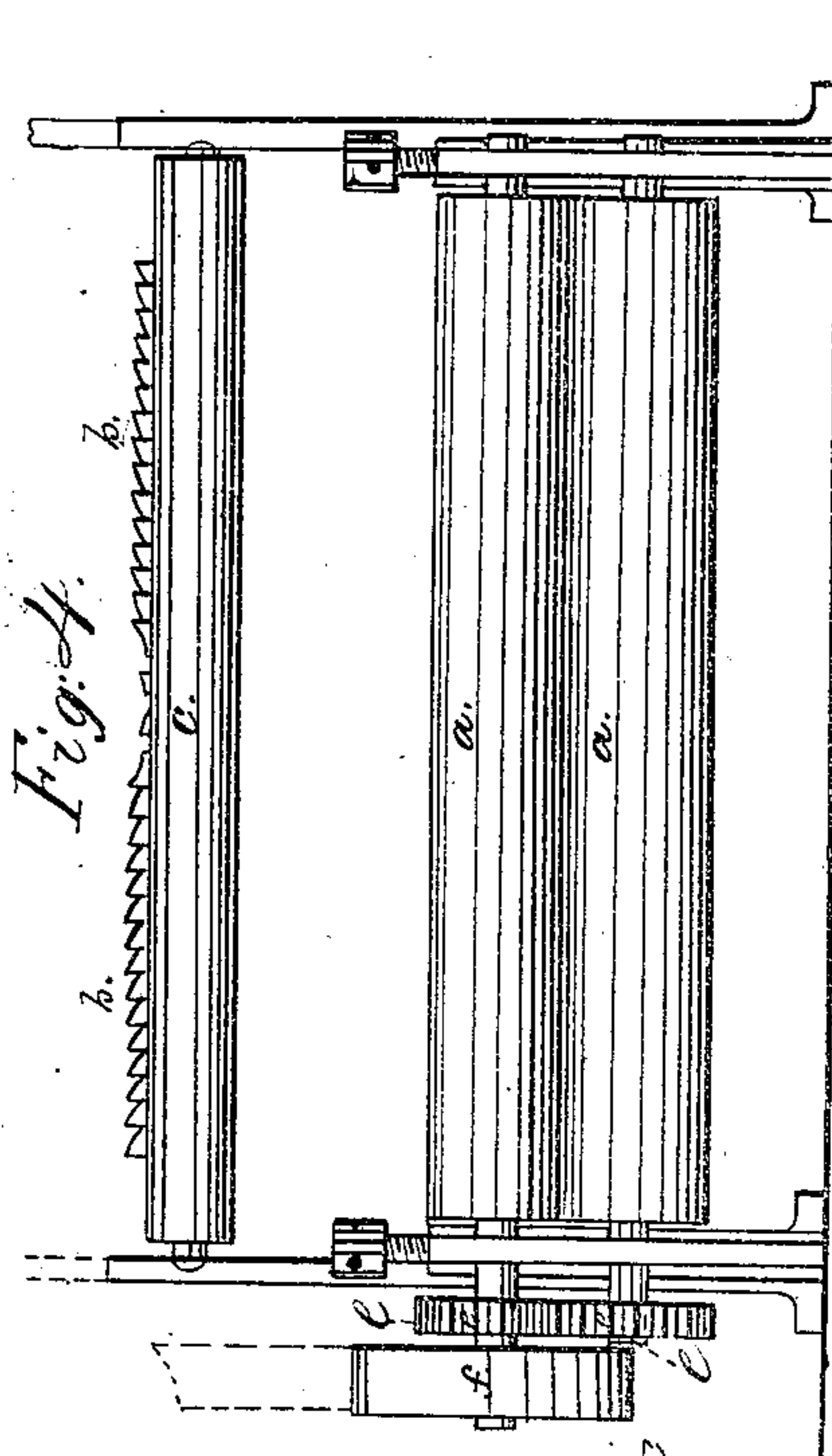
Charles F. Bennett.

C. F. Bennett Sheet 4.5 Sheets.

Mach. for Drying Cloth.

N^o 26141.

Patented Nov. 15. 1859.



Witnesses.

Wm. Vine
Leirs White

Inventor.

Charles F. Bennett.

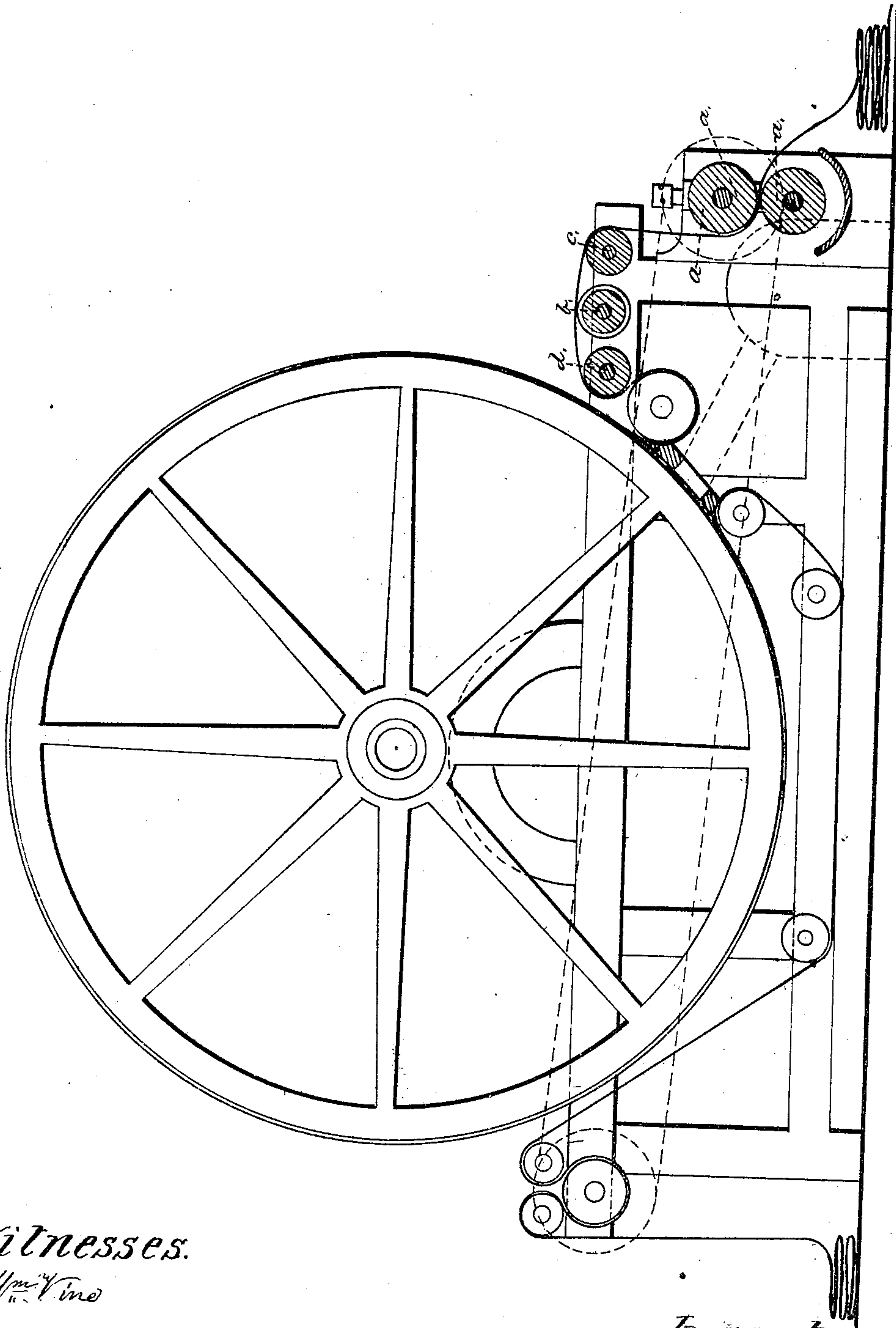
C. F. Bennett. Sheet 5.5 Sheets

Mach for Drying Cloth.

N^o 26141.

Patented Nov. 15. 1859.

Fig. 6.



Witnesses.

Wm. Vine

Levis White

Inventor.

Charles F. Bennett

UNITED STATES PATENT OFFICE.

CHARLES F. BENNETT, OF WAREHOUSE POINT, CONNECTICUT, ASSIGNOR TO JULIUS H. BAKER, OF EAST WINDSOR, CONNECTICUT.

MACHINERY FOR DRYING CLOTH.

Specification of Letters Patent No. 26,141, dated November 15, 1859.

To all whom it may concern:

Be it known that I, CHARLES F. BENNETT, of Warehouse Point, county of Hartford, and State of Connecticut, have invented a new and useful Improvement in the Mode of Constructing Machines for Drying Woolen and other Cloths; and I do hereby declare that the following is a correct description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of a machine with two adjustable revolving reels, with transverse rollers, suction blowers and pipes to force or drive dry or hot air through the cloth, while it encircles the reels and revolves with them.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

In the drawing Figure 1 is a plan view; Fig. 2, a side view; Fig. 3, an end view.

I construct an iron frame A of sufficient capacity and strength to contain the series of mechanical movements necessary to perfect the machine. The two main reels B, B, I make from 6 to 10 feet in diameter according to the quantity of cloth required to be daily dried. These two reels B, B, are attached and connected to the main shaft C, by means of a right and left hand screw cut on the solid shaft, so that by revolving the reels, the shaft being held stationary they will come in closer proximity or recede farther apart, as the case may require, to accommodate the various widths of the cloth to be dried say from $\frac{3}{4}$ of a yard to about 2 yards. The reels are of a light construction with hub and arms of metal and the rim of wood, so that a strip of wire carding or its equivalent can be fastened on the periphery with the points of the wire inclining outward to retain the cloth to its proper width and evenness as it passes progressively over the reels B, B.

The cloth in the process of drying is represented in the drawing by the red line passing under and over and around the rollers c, c, D, following from the underside of the roller D on to the periphery of the reels, be-

ing there supported in the middle by the rods T, which pass loosely through each of the rims of the reels for that purpose. The cloth encircles the whole periphery of the reels, forming a complete hollow drum for the time being, passing progressively off around the roller E, following on to the underside of the rollers F, F, and then follows to the three rollers G, H, G, encircling them and then falls down in folds properly dried and smoothly finished.

The metal plate I, is attached to the frame A at each end and is curved to fit the reels and is placed nearly close to the edge of the same allowing a free movement for the revolving. In this plate I, are openings to receive the ends of the hot air pipes, K, K, to convey the air from the suction fan blowers L, L, into the interior of the drum and through the cloth. These fan blowers L, L, are placed near the frame, and suck in the hot air through the pipes, O, O, which can be lengthened and branched off to convey the hot air from whatever source may be most convenient.

The large roller H is the draft roller, on the end of which I attach a toothed gear wheel M, to be actuated by the corresponding pinion N. This roller H, and attachments with the cloth encircling the same, form the principal forward movement of the reels and rollers. The operating power I take from the engine by means of the belt passing on to the, fast and loose, pulleys P, P, from which belts run to other pulleys, to give motion to the reels rollers, stretchers, &c.

The stretching rollers R, R, are made to revolve and slide on a rod and are covered with proper wire carding (or its equivalent) with the points of the wires inclining outward. These rollers, R, R, have a sliding vibratory horizontal motion caused by the action of the angular lever C or some equivalent, so that the cloth in passing over is stretched out to its proper width uniformly by the points of the wires of the card puncturing the same when they make the outward vibrating and rolling movement and are relieved by the nature of the position of the wire points when the rollers make

the inward horizontal movement. The nature of this revolving and vibratory movement is that it evenly expands the cloth as it passes over the rollers preparatory to passing on to the drying reels B B.

The supporting cross bars T, are made the extreme width of the cloth to which the reels can be extended, and they pass loosely through each of the rims of the reels to allow the same to slide when they are adjusted to the various widths of the cloth.

The fan blowers *u, u*, are operated by distinct belts from the pulleys, *s, s*, and from them to the engine power.

I attach a small wheel or crank to the end of the main shaft to be used in adjusting the reels, and screw washers or set screws to fasten the reels firmly to the shaft, when in operation, till they are required to be adjusted. The inside face of the reels is completely covered with sheet iron to form the drum sides. The speed of the reels can be regulated by having adjustable gears in the place of M and N. This will be necessary in some cases when the cloth is thick and thin, firm or porous.

The utility of this method of drying cloth is in its convenience, economy, and expedition and the softness, smoothness and superiority of finish. The cloth is smoothly arranged by the feeding rollers before passing on to the reels, then slowly passing over the same gently folds itself down at the finishing end. The hot air being forced through the cloth as it progresses slowly over the reels, in the manner stated causes the light fiber or nap of the cloth to stand erect and loose, whereby the shearing and finishing operation is more easily and perfectly performed. Another advantage is that the cloth by this operation comes out softer and the delicate colors made more visible and with an improved blending, whereas in the old process the light colors often get faded and the whole dries harsh and rough and often injured.

In the front or feed end of the machine I construct and attach two or more compressing rollers, as shown in Plate 2, Figs. 4, 5, 6, letters, *a, a*, with proper adjusting apparatus. These rollers are to receive and pass the cloth between after leaving the teazels and wet gig mill, to press out and expel the water from it preparatory to being passed over the rollers and drying reels B, in the manner as herein before described. This operation of taking the cloth in its first stage from the wet gig mill, while it is saturated with water, avoids and saves the use of all the draining-rails and frames and is a saving of time and valuable space in a factory. I also in some cases add an extra hollow roller to be heated with steam, to warm the cloth to give it elasticity before

passing on to and over the spreading rollers on the same end as the compressing rollers are placed. I construct and attach the actuating apparatus for stretching, spreading and straightening the edges of the cloth as it passes over the rollers on to the drying reels B. See Plate 2, Fig. 7. The two vertical vibrating arms, *g, g*, work on a pin at the bottom, and the upper ends have collars to work in the neck of the stretchers, *b, b*, to slide them laterally. A middle inclined extending arm, *h*, working on a center pin in the frame, and with a pin at each end to slide up and down in the slots of the vertical arms, *g, g*, gives each of the arms an equal and uniform spread when actuated by the arm or rod K. Here the difficulty occurs which my improvement is intended to obviate, for the stretching movement being always uniform the cloth gets extended in all places alike, be it narrow at some points and wide at others, which is often the case when it comes from the loom and the selvage sometimes is very crooked. Now to remedy this difficulty I construct and attach the movements as shown in Plate 2, Fig. 7—viz., the rod K connects with the vibrating adjustable lever *m*, at one end and at the other end to a traveling pin, *w*, in the slot of the right hand vertical arm, *g*. About the middle of the rod K is a rod to connect this rod to the horizontal lever I, which will allow both to vibrate. This lever, I, at the inner end works on a pin in the frame at N, and extends outward to project beyond the frame to form a handle O, to operate the same. This lever being connected with the upper rod K, when the handle O is pressed down, the same, in consequence of the pin W sliding downward in the slot, causes by that means the upper ends of the vertical arms, *g, g*, to spread farther apart without the least alteration to the movement of the lever M, consequently the narrow or crooked part of the cloth can be instantly spread to the wide part by the proper movement of the lever, I, while passing over the spreading rollers.

On the roller *c* I make an index of inches and parts to show the width of the cloth as it passes over, and a corresponding index on the vertical end of the frame. The attendant must watch the cloth as it slowly passes over the rollers, and when he sees the edge of the cloth is narrower or crooked he must lower the lever, I, by the handle, O, more or less as the case may require to the corresponding marks on the two indexes, which will cause the extra and proper extension of the stretching rollers to bring the narrow or crooked part out to the proper width. When the part is passed over the lever, I, it can be instantly brought up again to its place and the spreading goes on as usual

till required again. By this simple operation cloth can be straightened on the edge to a great nicety.

I do not claim as new the reels or rollers
5 or the use of hot or cold air, as herein specified.

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

The extra adjusting vibratory arrange-

ments Plate 2, Fig. 7, whereby the cloth can 10 be spread and straightened on the selvage while passing over the rollers, in the manner substantially as herein set forth and described.

CHARLES F. BENNETT.

Witnesses:

WM. VINE,

JAMES W. HOLCOMB.