

A. WILDER.
DRYING APPARATUS.

No. 170,924.

Patented Dec. 7, 1875.

Fig. 1.

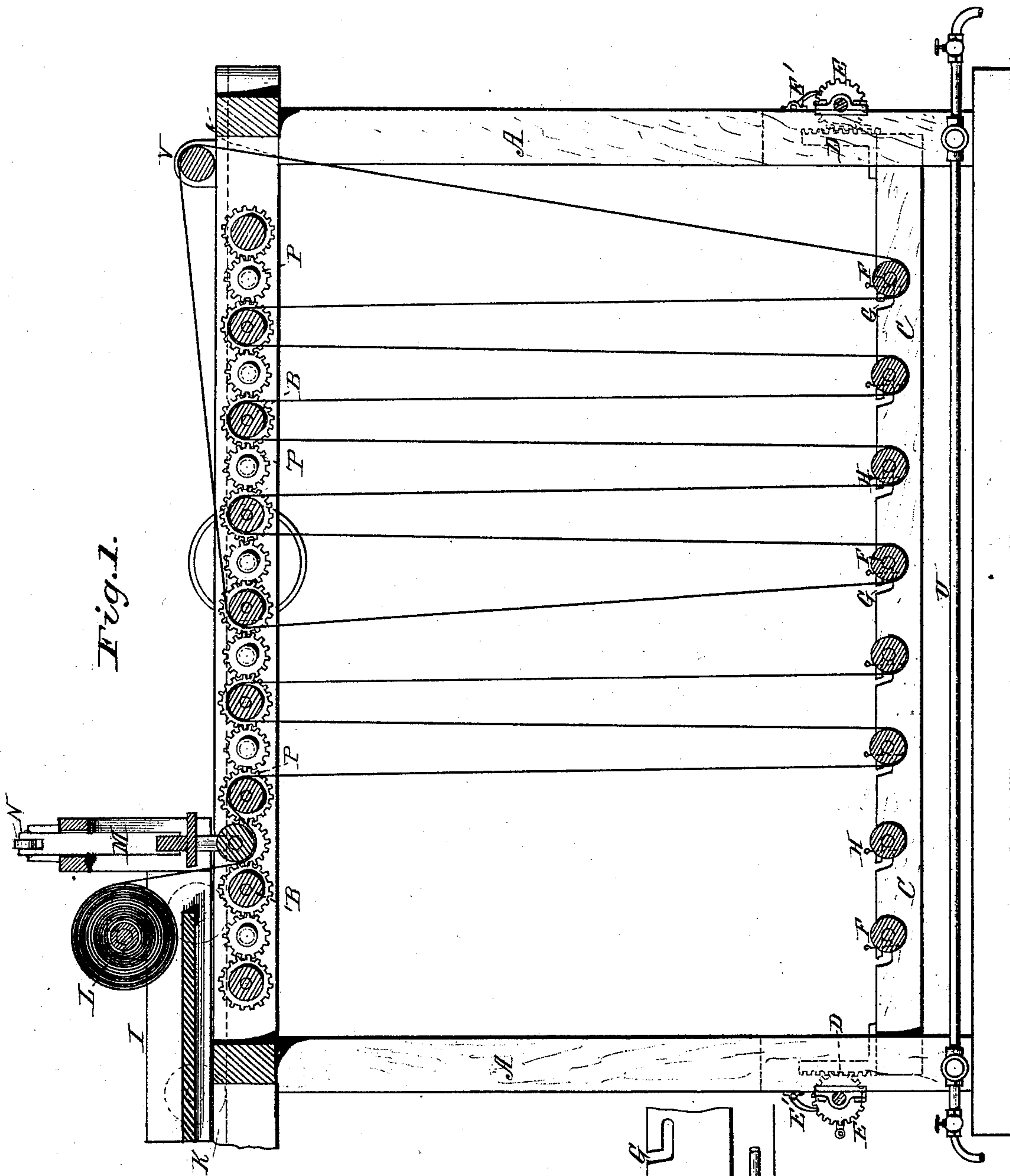
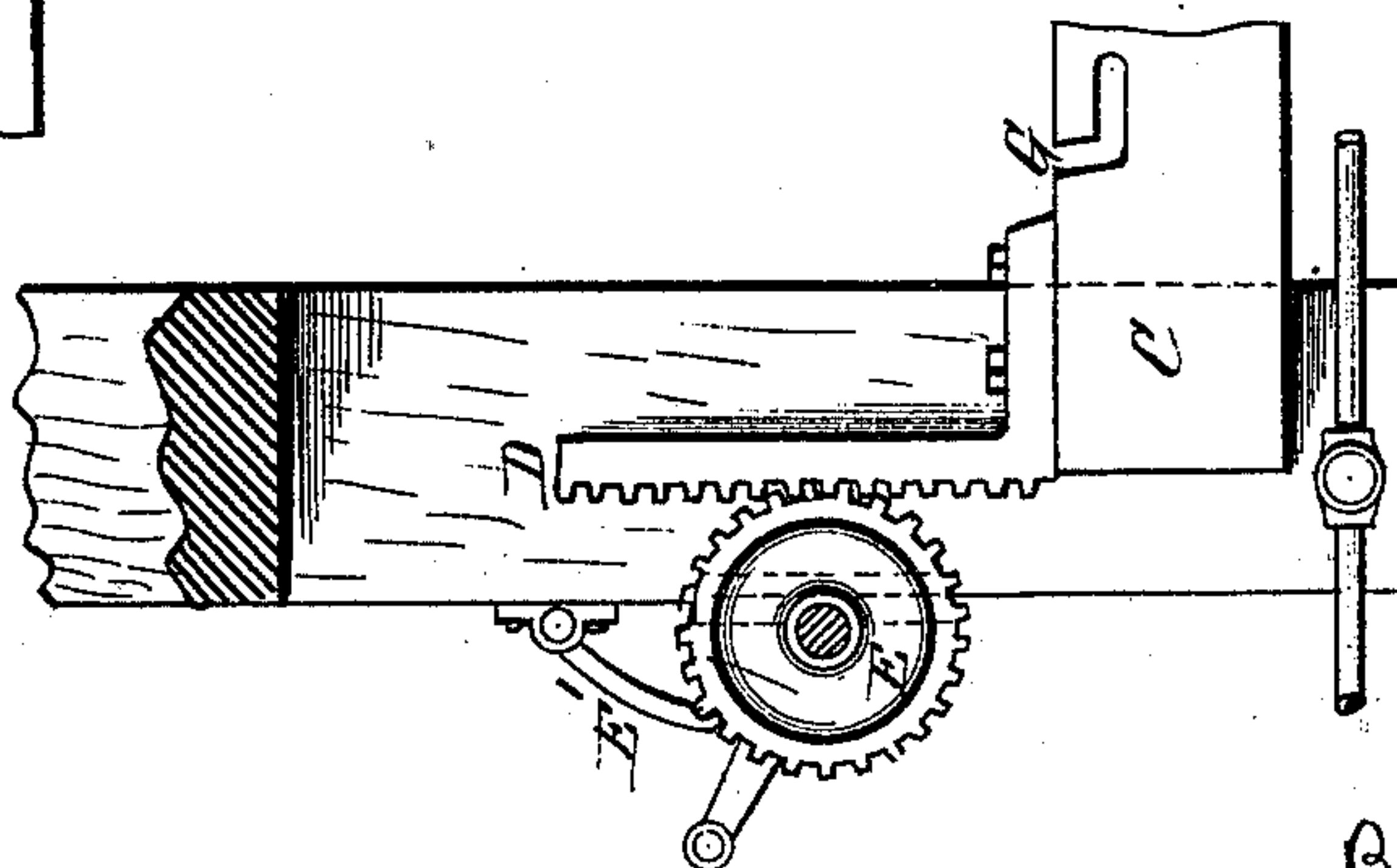


Fig. 2.



Attest
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Inventor:

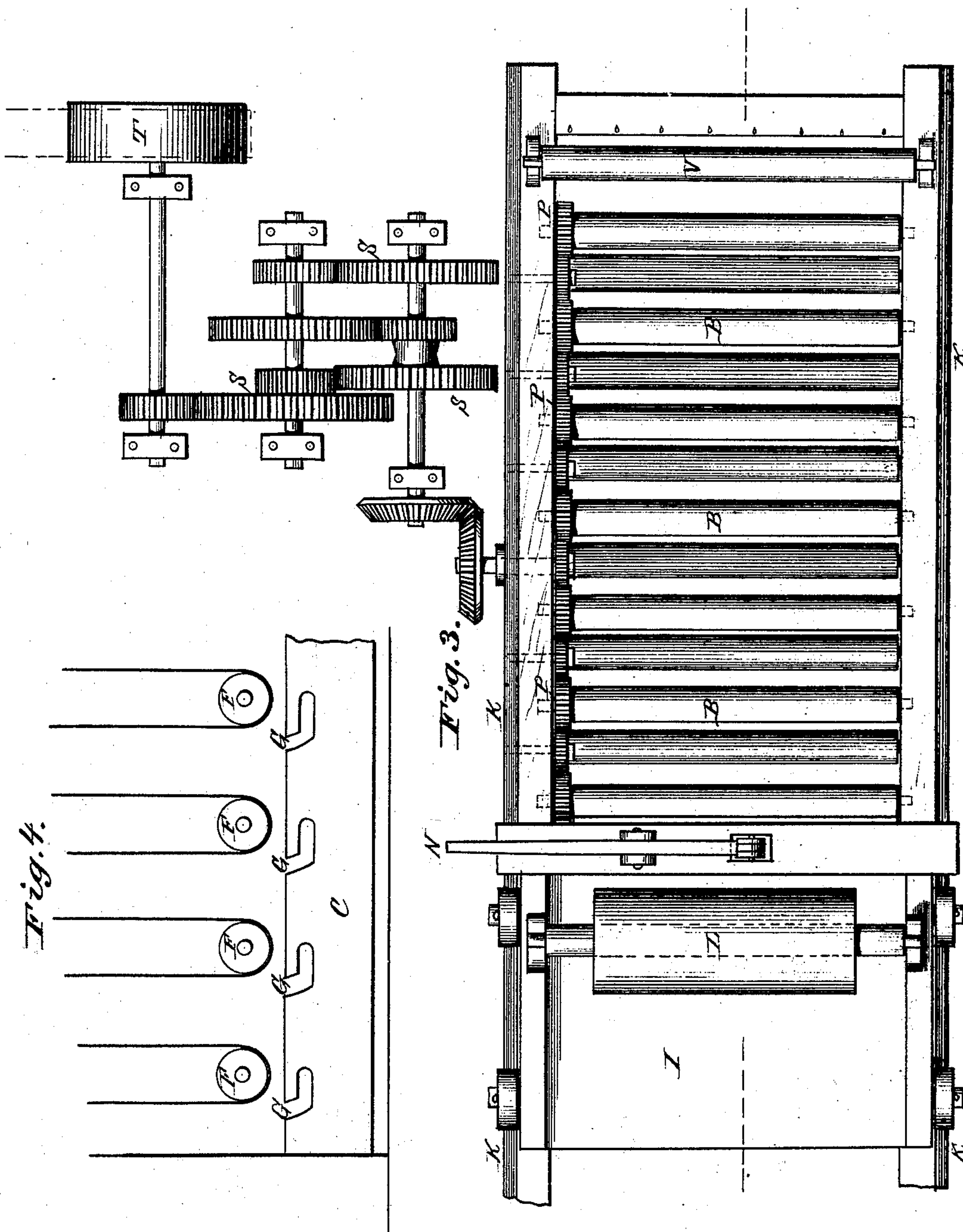
Amos Wilder

By James L. Norris
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UNITED STATES PATENT OFFICE

AMOS WILDER, OF AUGUSTA, MAINE.

IMPROVEMENT IN DRYING APPARATUS.

Specification forming part of Letters Patent No. **170,924**, dated December 7, 1875; application filed December 1, 1875.

To all whom it may concern:

Be it known that I, AMOS WILDER, of Augusta, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Drying Apparatus, of which the following is a specification:

This invention relates to certain new and useful improvements in apparatus for drying sized or coated fabrics, such as burlaps, canvas, and the like, in the manufacture of floor oil-cloths and other coated or enameled fabrics; its object being to effect the drying of the fabric, while stretched or distended in continuous lengths, more expeditiously and economically than has heretofore been done, and to prevent the cockling and wrinkling of the material during the operation of drying.

In the method of drying such fabrics, as heretofore employed, the material is first sized or coated, and then drawn upon racks in given lengths, depending upon the length of such racks, where they are allowed to remain until thoroughly dry. Besides the inconvenience attendant upon drying the fabric in limited lengths, as such process necessitates, it invariably causes the material to shrink or become cockled or wrinkled, causing roughness and imperfections in the cloth, which cannot be successfully removed or filled up in the subsequent operations of the manufacture.

The strips of fabric as thus prepared, after drying, are formed into a roll or rolls, piece after piece being wound as tightly as possible, with the object of removing the cockles or wrinkles, and in this condition allowed to remain for several weeks, which not only entails serious loss of time in the manufacture of such cloths, rendering it necessary to keep a large unfinished stock on hand, but fails to completely and effectually remove the cockles or wrinkles of the material, leaving the surface in a rough and unfinished condition.

My invention is designed to overcome the objections enumerated; and it consists of two series of rollers located one above the other, at any convenient distance apart, the lower rollers being secured in an adjustable frame-work, which may be held in any convenient position by means of ratchets and pawls or other mechanical devices, said rollers being journaled in such manner that they can be readi-

ly removed from and replaced in the frame, for the purpose of securing the fabric around them, while the upper rollers are secured permanently in their bearings, directly beneath a traveling carriage, which carries the roll of cloth, and which may be traversed over the series of rollers in such manner as to drop the fabric successively over said rolls, and allow it to fall in loops, to be secured around the lower rolls, as hereinafter more fully described.

Directly below the lower series of rollers is located a series of steam-pipes, in close proximity to said rolls, for the purpose of artificially drying the cloth as it is carried over the same, when it is desired to quicken the operation.

In the drawings, Figure 1 represents a longitudinal sectional view of my improved apparatus; Fig. 2, a detached sectional view of the rack and pinion for adjusting the frame carrying the lower series of rollers; Fig. 3, a top view of the apparatus; Fig. 4, a detached view of a portion of the lower frame and rollers, showing a method of drying the cloth without journaling the rollers, the tension on the cloth being produced by the weight of the rollers.

The letter A represents a frame or framework, constructed of any suitable material, and designed to be located in a high building or room, which should be of sufficient height to give the fabric a sufficiently-extended surface in passing over the rollers. In the upper part of said frame-work are journaled, in suitable bearings, a series of rollers, B, and in the lower part of said frame-work is arranged a horizontal stretching-frame, C, which is adjustably secured therein, and provided at each end with racks D, gearing in the pinions E, by which said frame may be adjusted vertically at will, the pinion being provided with a pawl, E', working in a suitable ratchet attached to or formed on said pinion, to confine the frame in any desired position. In said frame C the lower rollers F are journaled, the shafts of the same having their bearings in angular open slots G, being confined therein by the pins H, which allow of their removal when necessary, to set the loops of the fabric around them when desired, as hereinafter explained.

The letter I represents a traveling carriage, mounted upon wheels, which set and travel upon the ways K on the top of the frame, allowing the carriage to be traversed successively over the upper series of rollers. Said carriage is provided with a reel, L, suitably journaled in the sides of the same, upon which the roll of cloth, after being sized or coated, is wound, and from which it is successively delivered over the upper rollers, as hereinafter more fully set forth. Said carriage is also provided with a sliding brake or depressing bar, M, operated by a lever, N, by means of which the cloth or fabric, after being dropped over one of the upper rolls, may be held in position thereon until a succeeding portion is dropped over the next roller, by depressing said brake or bar, so as to bind the fabric between its lower edge and the roller cover which it was last passed.

The upper rollers are preferably provided with a train of gearing, P, by means of which all of said rollers may be driven in the same direction through the medium of a driving gear-wheel, delivering its motion from any suitable motive power. In the present instance I have shown said wheel as connected with a train of gearing, S, from which it derives its motion, said gearing, in its turn, delivering its motion through the medium of a pulley, T, connected by a band with the driving-wheel of an engine or other motor. Said train of gearing may, however, be dispensed with, and the cloth allowed to remain stationary upon the rollers during the drying process or operation, in which case the ends of the fabric are not united.

The letter U represents a steam-pipe, extending directly under the lower series of rollers, by means of which artificial heat may be applied to facilitate the drying of the fabric.

The operation of my apparatus is as follows: Having sized or coated a roll of cloth in the usual way, it is placed upon the car, and the free end of the fabric is made fast to a clamp or beam, after which the cloth is delivered over one of the upper rollers by unwinding it from the reel, which descends until it reaches the roller immediately below, when said roller is detached from the stretching-frame and set in the loop, after which it

is again secured in the frame. The car is then moved forward in such position as to drop the cloth over the next succeeding upper roller, and another loop allowed to descend, which is secured to the next succeeding lower roller, as before. This operation is repeated until the series of rollers is filled, after which the ends of the material are brought together over a roll, V, and united by a pin or clamp, A. Slow continuous motion is then given to the cloth by rotating the upper rolls through the medium of the train of gearing connected to the same, or by any other mechanical means that will accomplish the result, the cloth serving as an endless belt and traveling around the lower rolls, which it is not necessary to operate by special machinery. All driving machinery may, however, be dispensed with, and the cloth allowed to remain stationary during the drying operation, which may be accomplished naturally by contact with the atmosphere, or by means of artificial heat supplied through the medium of the steam-coil below the lower series of rolls; or a fan-blower or other mechanism may be employed to project upon the fabric hot air.

It is evident that the rollers may be so arranged that the cloth or fabric may be extended longitudinally across the frame, or diagonally, or at any angle to the sides thereof, without departing from my invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, in an apparatus for drying sized or coated fabrics in continuous lengths, of an upper series of geared rolls with a car for carrying the roll of material, a lower series of rolls, and an adjustable stretching-frame, substantially as described.

2. In combination with the car for carrying the roll of cloth, the brake or depressing bar for confining the said cloth in position after it is delivered to the rolls, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

AMOS WILDER.

Witnesses:

JAMES L. NORRIS,
JOS. L. COOMBS.