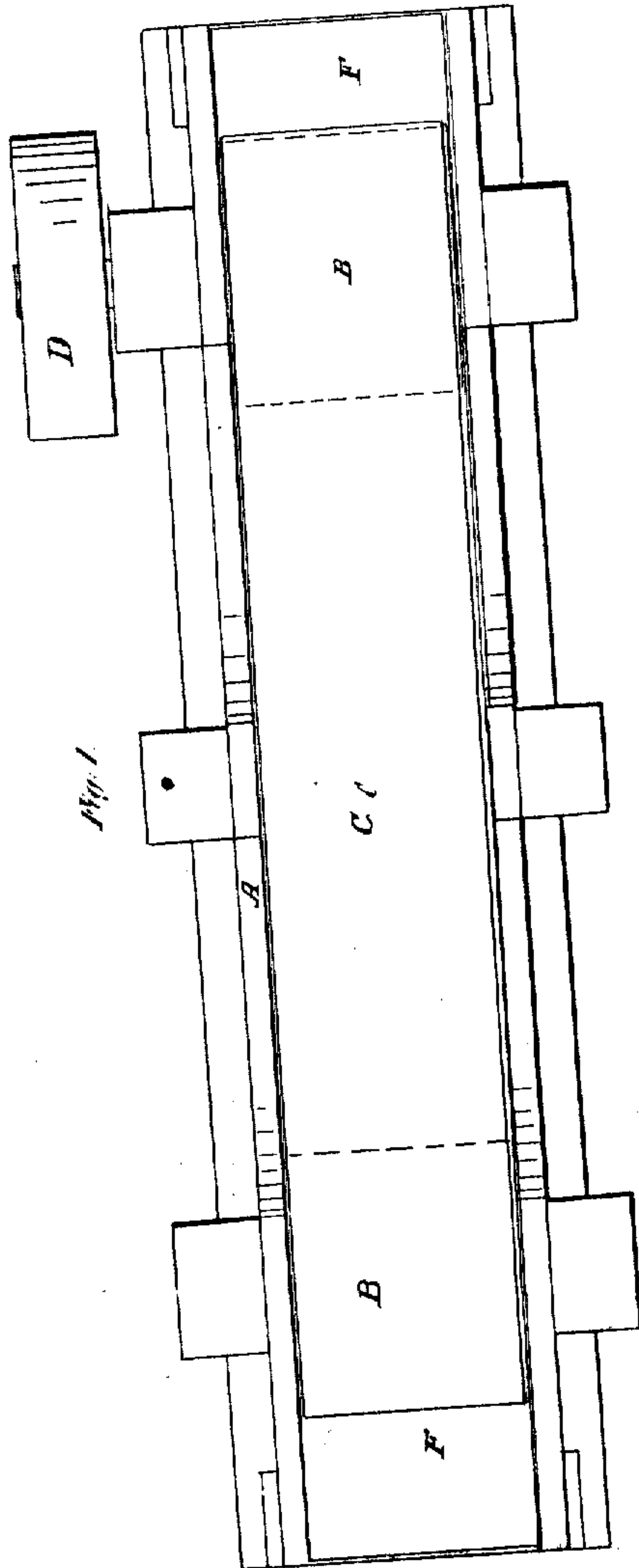
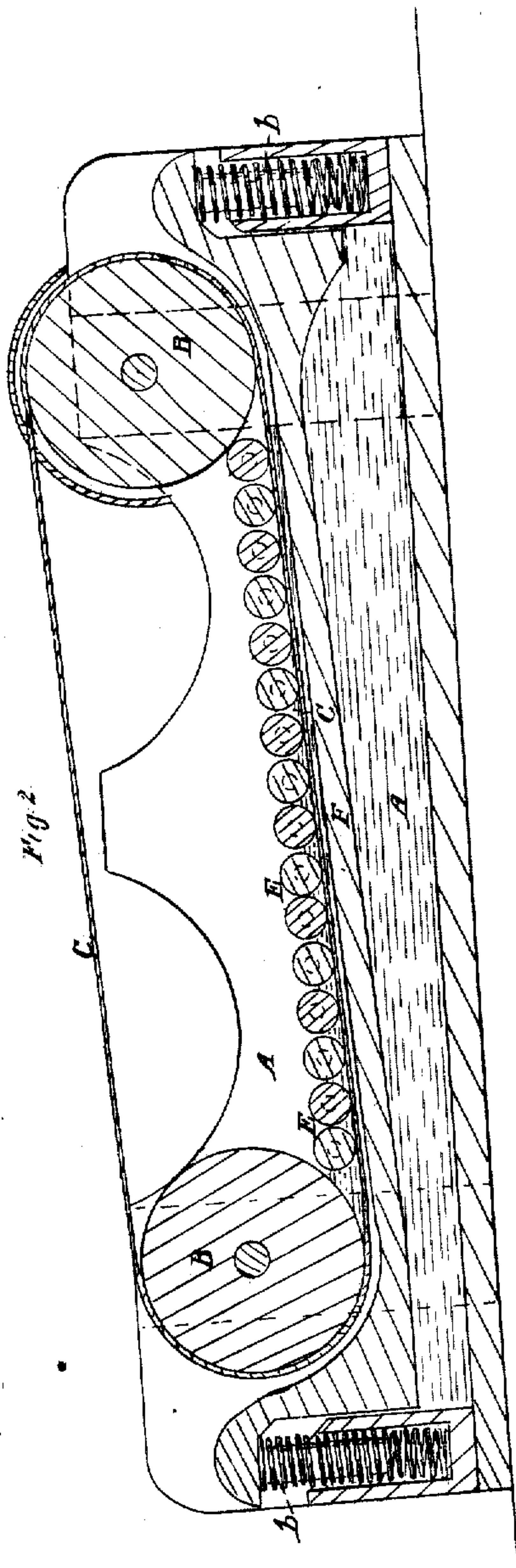


E. R. Gardiner.

Felting Machine.

Patented May 21. 1867.

No. 64966.



E. R. Gardiner

Witnesses:

J. M. Coombs
G. W. Reed

United States Patent Office.

E. R. GARDINER, OF BROOKLYN, NEW YORK.

Letters Patent No. 64,966, dated May 21, 1867.

IMPROVEMENT IN MACHINE FOR SIZING AND FELTING HATS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. R. GARDINER, of Brooklyn, in the county of Kings, and State of New York, have invented a certain new and useful Improvement on Machines for Sizing and Felting Hats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a top view or plan of a machine constructed according to my improvement; and

Figure 2, a longitudinal vertical section of the same.

Like letters indicate corresponding parts.

My invention relates to apparatus for sizing and felting hats or other work, in which the hat-bodies or rolls into which they are formed are sized or felted by passing them between an adjustable bed and endless belt or apron, operating in connection with a suitable hot-water bath or battery; and the nature of my invention consists in a novel combination of inclined endless belt and inclined adjustable bed, of vat-form, that, in connection with the belt, is made not only to present the necessary sizing surface, but also at its lower or feed-end to form, by means of an outer case or box, a bath, for a portion of its length, to the hat-bodies or rolls during the early portion of their travel through the machine, and a dry or drying travel for the remainder, and whereby a separate bath or battery may be dispensed with.

Referring to the accompanying drawing, A is an outer box or vessel, the sides of which, or posts connected therewith, serve to support the end drums B that carry the endless belt or apron C, set in motion, say, by a pulley, D, on the shaft of one of the drums. The belt or apron C is inclined by a suitable disposition of its drums. E E are rollers arranged in close contiguity to each other between the end drums, and running across the box or vessel A for the belt, on its interior face, in its lower run or travel, to bear against, so as to secure a comparatively straight and sufficiently rigid sizing surface to the exterior of the belt in its lower run. F is the bed also set inclined for operation in connection with the endless belt or apron C, in the manner hereinbefore referred to. This bed F is turned up at its ends to form feed and delivery inclines, and serving, in conjunction with the box, bath, or vessel A, as a vat or bath for the lower half, or thereabouts, of its inclined length, through which the hat-bodies or rolls are passed, being entered at or over the lower end of the bed F, and worked between the endless belt or apron and bed, along the upper unimmersed half or portion of the space contained between the bed and apron, and over the top or higher end of the bed. The bed F may rest, at its opposite ends, on springs b, to give an elastic pressure or bearing on the hat-bodies or rolls passing between it and the apron, and said bed may be adjusted by screws to regulate the pressure of the springs; it being necessary, on first passing through the hat-bodies or rolls, when the felt is tender, to subject them to a light pressure, and as they become harder to gradually increase the pressure in repassing them, or to regulate the pressure according to the description of goods being worked. The fluid or water contained in the box A and lower inclined half or portion of the bed F may be heated by steam-pipes arranged in the box A below the bed, or by any other suitable means.

From this description it will be seen that the hat-bodies or rolls, in their early or first half or portion of travel through the machine, pass through a bath forming part of the sizing apparatus, and subsequently through a dry, or drying, or unimmersed portion, whereby the operation of first softening the bodies and afterwards working them is or may be accomplished without the aid of a separate bath or battery, and labor and time proportionately economized, while the work is more effectually accomplished, the bodies or rolls leaving the bath in a gradual or easy manner, and the working of the bodies being better secured by rolling them up an incline.

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

The combination with the inclined endless belt or apron C of the inclined adjustable or self-adjusting partly submerged bed F, and box or bath A, substantially as and for the purpose or purposes herein set forth.

E. R. GARDINER.

Witnesses:

J. W. COOMBS,

G. W. REED.