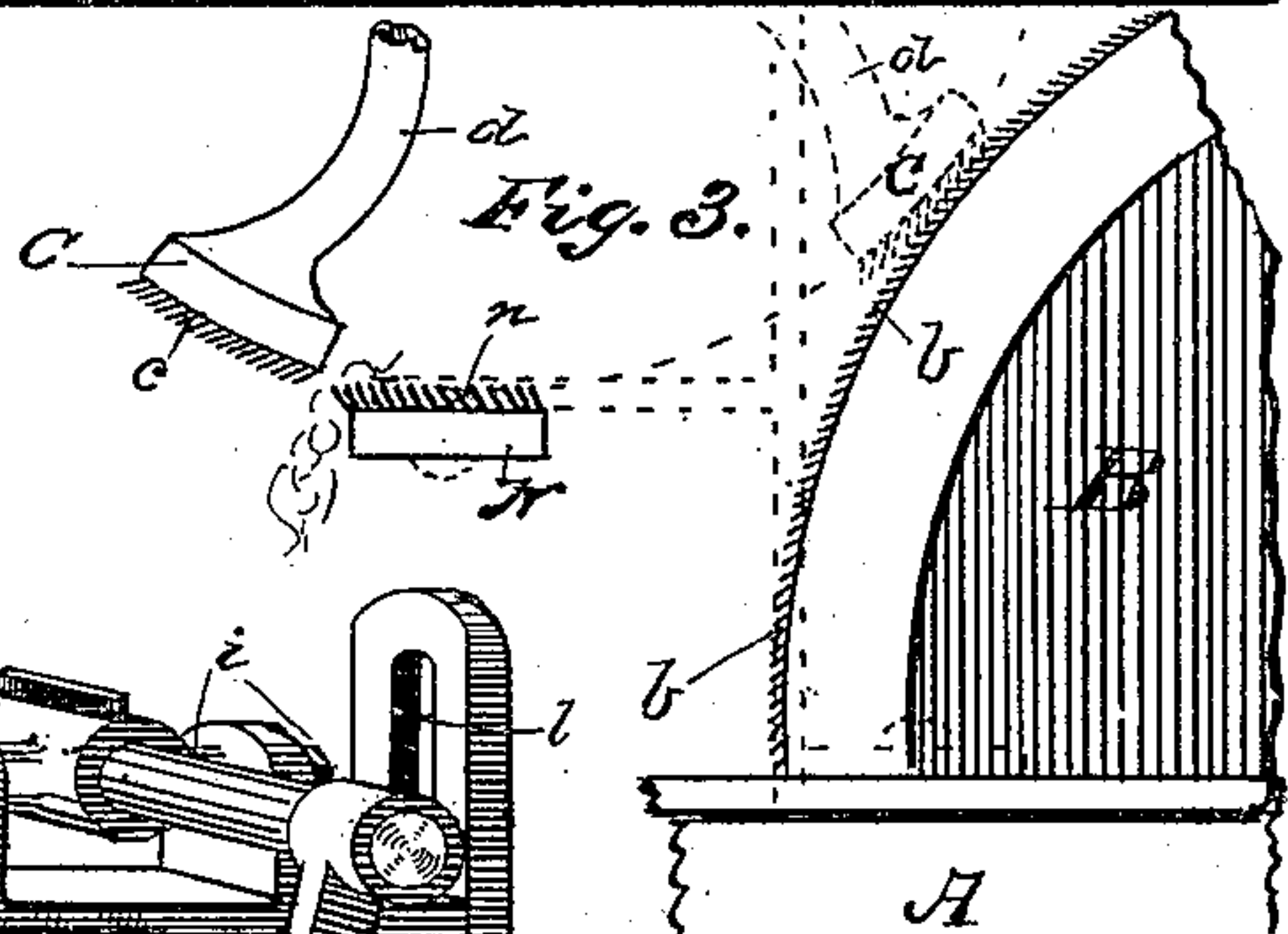
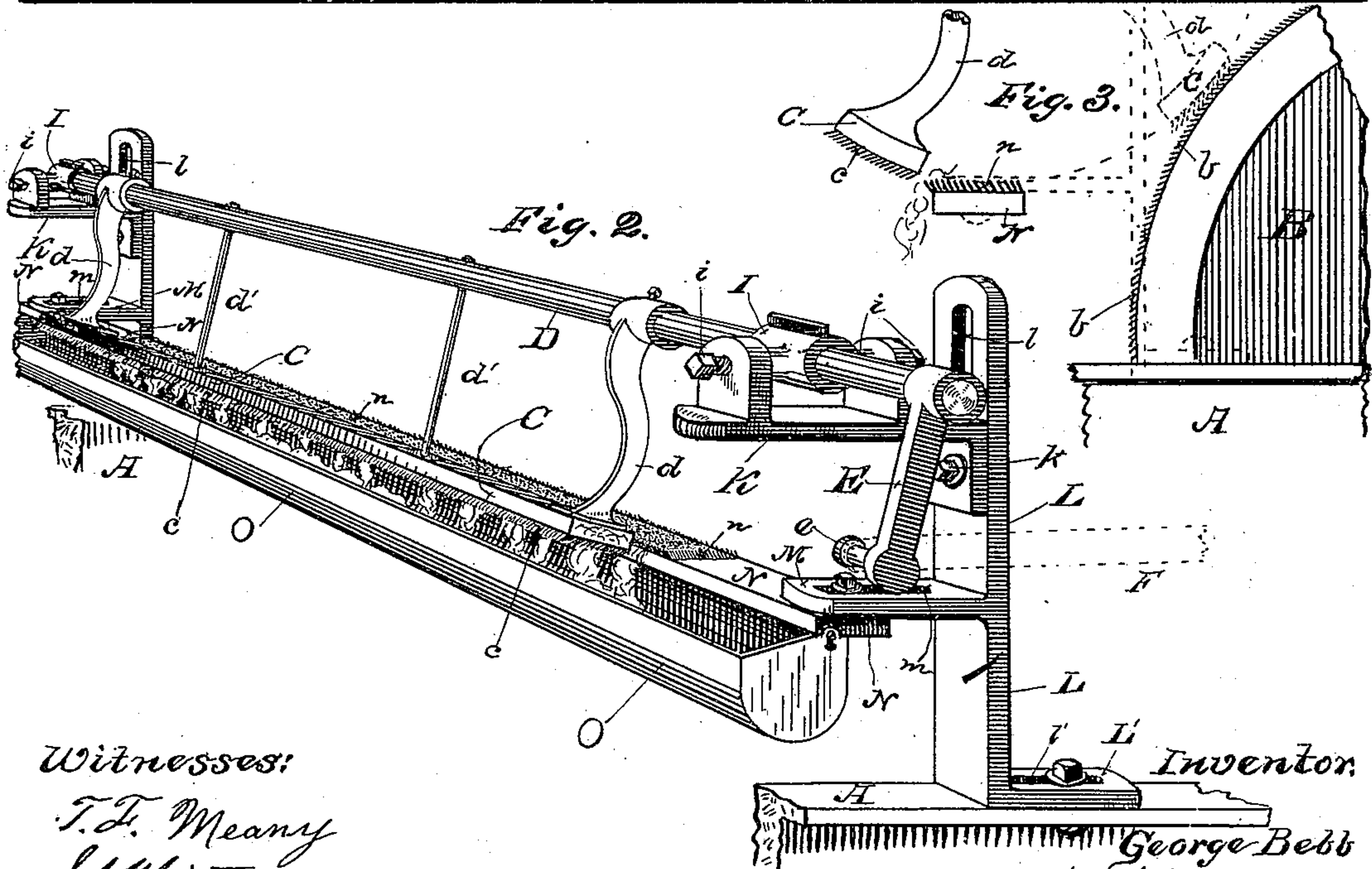
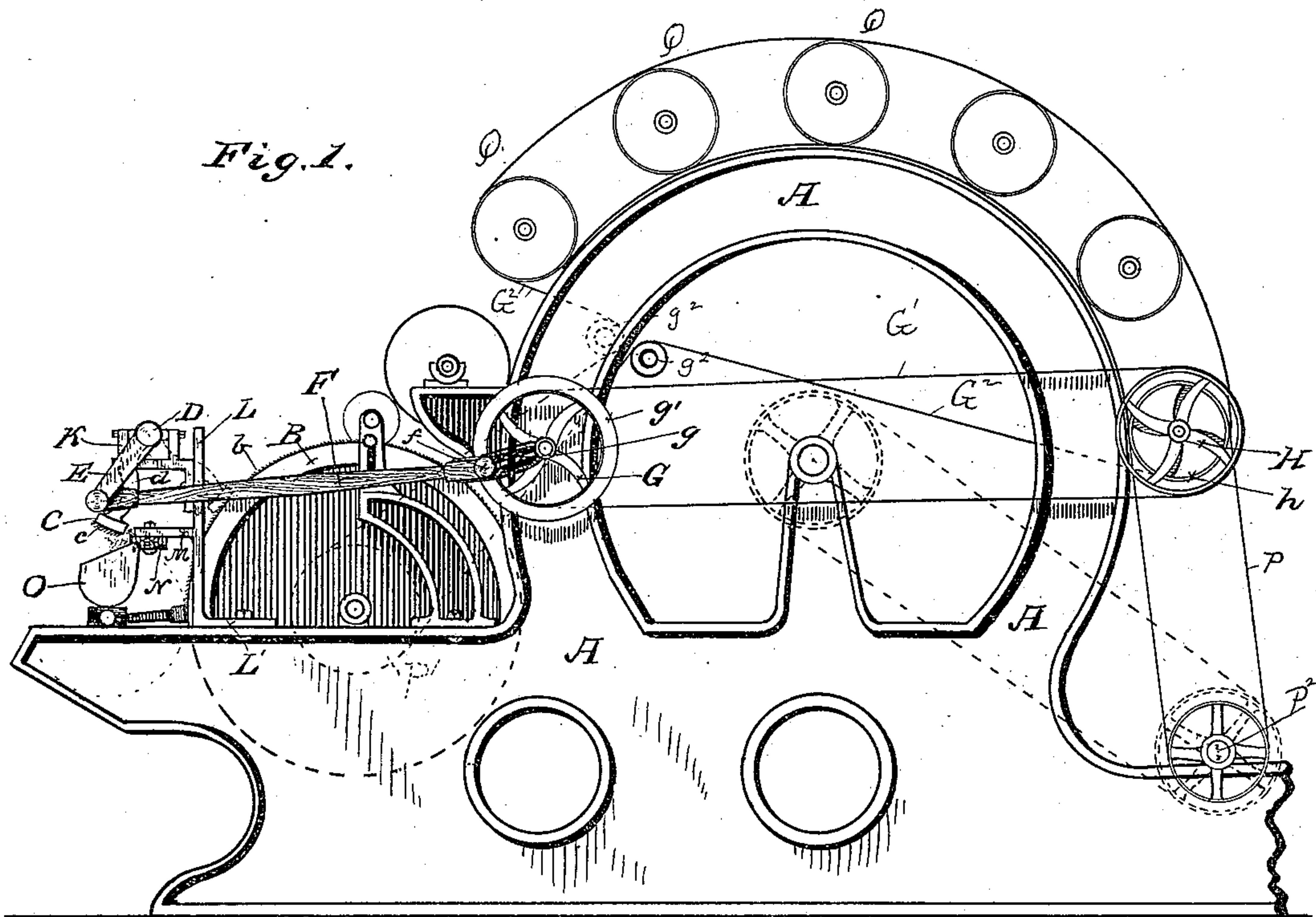


(No Model.)

G. BEBB.  
CARDING MACHINE.

No. 356,089.

Patented Jan. 18, 1887.



Witnesses:

T. F. Meany  
S. A. McInture.

Inventor.

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# UNITED STATES PATENT OFFICE.

GEORGE BEBB, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO GEORGE MERRITT  
AND WORTH MERRITT, BOTH OF SAME PLACE.

## CARDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 356,089, dated January 18, 1887.

Application filed December 12, 1885. Serial No. 185,435. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE BEBB, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Carding-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 machines for carding woolen and cotton fiber; and the object of my invention is to keep the doffer of the carding-machine free from dirt and short fibers, which unavoidably accumulate in the wire card-clothing with which the circumference of the doffer is covered.

Heretofore it has been necessary to remove the accumulation by hand, as otherwise the dirt and short material wedge down into the wires until they become so filled up that the doffer is not able to receive the stock properly from the main cylinder. The result is that much of the stock falls to the floor and is wasted.

My invention is designed to work automatically and keep the doffer constantly clear, without interfering in any respect with the regular operations of the machine to which it is attached. The mechanism by which this is accomplished is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a portion of a carding-machine, showing my invention attached. Fig. 2 is a perspective view of my attachment without the carding-machine. Fig. 3 is an end view of a part of the doffer and of my cleaning device, showing the direction in which the wires in the card-clothing are inclined while in use on the doffer and on the stationary and vibrating bars of my cleaner. This figure shows the vibrating bar in dotted lines at the beginning of the vibration or stroke and in the act of cleaning the doffer, and the full lines show the bar at or near the end of stroke.

Similar letters refer to similar parts throughout the several views.

A is the card-frame, to which my mechanism is attached.

B is the doffer, and *b* the wire card-clothing to be cleaned by my attachment.

C is a horizontal bar carrying a strip of wire card-clothing or similar material, *c*, on its under side, which acts as a comb. The bar is fixed rigidly to the shaft D by the arms *d* and braces *d'*, and turns with the shaft.

E is a crank-arm keyed or otherwise fastened to the end of the shaft D, and carrying the crank-pin *e* at the outside end of the arm.

F is the crank shaft or bar connecting the crank-pin *e* with a corresponding crank-pin, *f*, on the side of the pulley G.

The pulley G is provided with a radial slot, *g*, by which the pin *f* can be adjusted to regulate the length of the stroke of the crank-bar. I fasten the pulley G in place by drilling holes in the frame at the proper height and bolting on a bracket having suitable bearings.

I get my power by fixing an extra pulley, H, to the shaft of the first worker, *h*, and running a belt from there to the pulley G; and to keep the belt from slipping off or interfering in any way with the crank-shaft F, I make a flange, *g'*, around the outside of the rim.

By the arrangement above described the horizontal bar C is given a uniform vibratory motion.

The shaft D, to which the bar C is attached, is either straight with collars or journaled at each end in the boxes I, having adjustable bearings *i* in the vertically-adjustable brackets K. The brackets K are each provided with two uprights made continuous with the bracket. The boxes I are placed between these uprights, and are held in place by the bearing-screws *i*, which pass from the outside through threaded holes in the uprights and press against the boxes I, thereby holding the boxes in place. The bearing-screws are long enough to allow of a horizontal adjustment of the boxes by tightening one screw and loosening the other. The brackets K are supported by the standards L, and are adjusted by means of the bolts *k* in the vertical slots *l*. The standards L have a horizontal adjustment by means of the slots *l'* in the feet *L'*.

M are arms or brackets made continuous with the standards L, and projecting at right angles from the standard. Their purpose is to give support to the horizontal bar N.

*m* are slots for adjusting the position of the bar N. The upper face of the horizontal bar N



is covered with a strip of wire card-clothing, *n*, or similar material, acting as a comb whose teeth or wires slope out or away from the carding-machine, as shown in Fig. 3. The  
 5 bar N is stationary while the machine is in operation, and its position with relation to the vibrating bar C and of both with relation to the doffer B is such that during each vibration of the bar C the wires in the comb  
 10 on the under side of the bar will pass through the wires *b* on the doffer at the beginning of the vibration or stroke, and through the wires *n* on the bar N at the end of the same vibration. The wires *c* on the under side of the  
 15 bar C slope outwardly, as shown in Fig. 3.

O is a trough or receptacle under the bar N to catch and save the short stock combed from the doffer.

In practical operation the wire combs or  
 20 brushes on the under side of the vibrating bar C come in contact with the wire cover on the doffer, and on the downstroke of the bar, as shown in dotted lines in Fig. 3, the comb *c* passes between the wires on the doffer and  
 25 combs out all of the dirt and adhering fibers, and carries them with it past the brushes or comb on the stationary bar N to the end of the stroke. On the return-stroke, however, the position of the wires on the two bars causes  
 30 the wires *n* on the bar N to comb and brush out all of the dirt and adhering fibers, allowing them to drop into the receptacle O. This constant brushing and combing operation keeps the wires on the doffer perfectly clean,  
 35 and enables the doffer to do its allotted work systematically and perfectly, receiving the stock in regular quantities from the main cylinder, thereby preventing an over-accumulation of stock on the cylinder, and the conse-  
 40 quent filling up of the main cylinder and waste of stock, and also obviates the necessity of cleaning the whole card so frequently as heretofore.

The object in taking my power from the  
 45 shaft of the first worker, *h*, is because more of that pulley is exposed to the belt than with the others, and it is therefore less liable to slip.

It is obvious that I can connect my belt at  
 50 any other point, or that I could get the motion by means of a system of gears instead of a belt.

As doffers vary in size with the different styles of carding-machines, the slots and ad-  
 55 justing-bolts previously mentioned are necessary in adjusting the cleaning mechanism to the diameter of the doffer.

It will be seen that the bar C at one end of its stroke comes in contact with the doffing-cylinder and at the opposite end of its stroke  
 60 with the clearing-bar N. The doffing-cylinder being continuously revolved by the driving mechanism, the different portions of its circumference are successively acted on by  
 65 the bar C, so that the said cylinder will be kept in the desired clean condition.

In operation the doffing-roller is revolved slightly faster than the swinging motion of the stripper by means of suitable disposition of the driving mechanism. By thus causing the  
 70 stripper to move slower than the surface of the doffer the former operates to partially clean the doffer during both its upward and downward stroke. Also, by reason of the relative speed described, the clothing of the stripper  
 75 will enter gradually that of the roller until such stripper has reached the end of its upward stroke, thus easing the operation of the machine, and so avoiding any damage to the clothing of said parts, such as might occur if  
 80 they were brought abruptly into contact. In the construction shown this relative speed is obtained by the belt gearing and size of parts, to which I will now refer in detail. The bar  
 85 C, it will be noticed, is supported a distance from its center of motion but slightly in excess of the semi-diameter of the pulley G, from which it receives its motion, and said pulley G is of equal size with the pulley H,  
 90 from which it receives its motion through the medium of belt G', so that the bar C moves but slightly faster than the pulley H. On the shaft of the doffer I secure a pulley, P', as indicated in dotted lines, Fig. 1, and such pulley, and through it the doffer, is revolved by  
 95 a belt, G<sup>2</sup>, guided by pulleys *g*<sup>2</sup>, and passing over the pulleys on the workers Q. This belt G<sup>2</sup> is driven by a pulley, *h*, on the shaft of pulley H, the said shaft of pulley H being the first one of the workers. The pulley *h* is  
 100 geared by belt P with the drive-shaft P<sup>2</sup>, and such pulley *h* is usually made slightly smaller than the pulley H, as shown. The pulley P' being less than half the size of the doffer-cylinder B, and running on the same shaft, it  
 105 will readily be seen that the surface of the doffer moves faster than the bar C. This gearing is simple, and will be readily understood from Fig. 1 of the accompanying drawings.

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

1. The improved doffer-cleaning attachment for carding-machines, consisting of the stand-  
 115 ards L, having slots *l*, and provided with brackets M, having slots *m*, the brackets K, having bearings for the boxes I, bolts *k*, connecting brackets K with standards, and passed through slots *l*, whereby said brackets K may be held at different points of standards L, the  
 120 boxes I, the shaft D, journaled in said boxes and having arms *d*, the bar C, supported on arms *d*, the bar N, and bolts connecting said bar with brackets M, and passed through the slots *m* thereof, substantially as set forth. 125

2. The combination of the standards L, the brackets K, supported thereby, the boxes I, the shaft journaled in said boxes and carrying the bar C, the set-screws connecting the boxes  
 130 I adjustably with the brackets K, the bar N, and means for adjustably supporting said bar, substantially as described.



3. The combination of the standards having brackets M, provided with slots *m*, the brackets K, supported by said standards and having bearings for the shaft, the shaft jour-  
5 naled in said bearings, the bar C, supported and carried by said shaft, the bar N, bolts connecting the bar N with the brackets M, and passed through slots *m*, whereby said bar may

be adjusted, and means whereby the bar C may be vibrated, substantially as set forth. 10

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

GEORGE BEBB.

Witnesses:

GEORGE W. BEBB,

L. A. MINTURN.