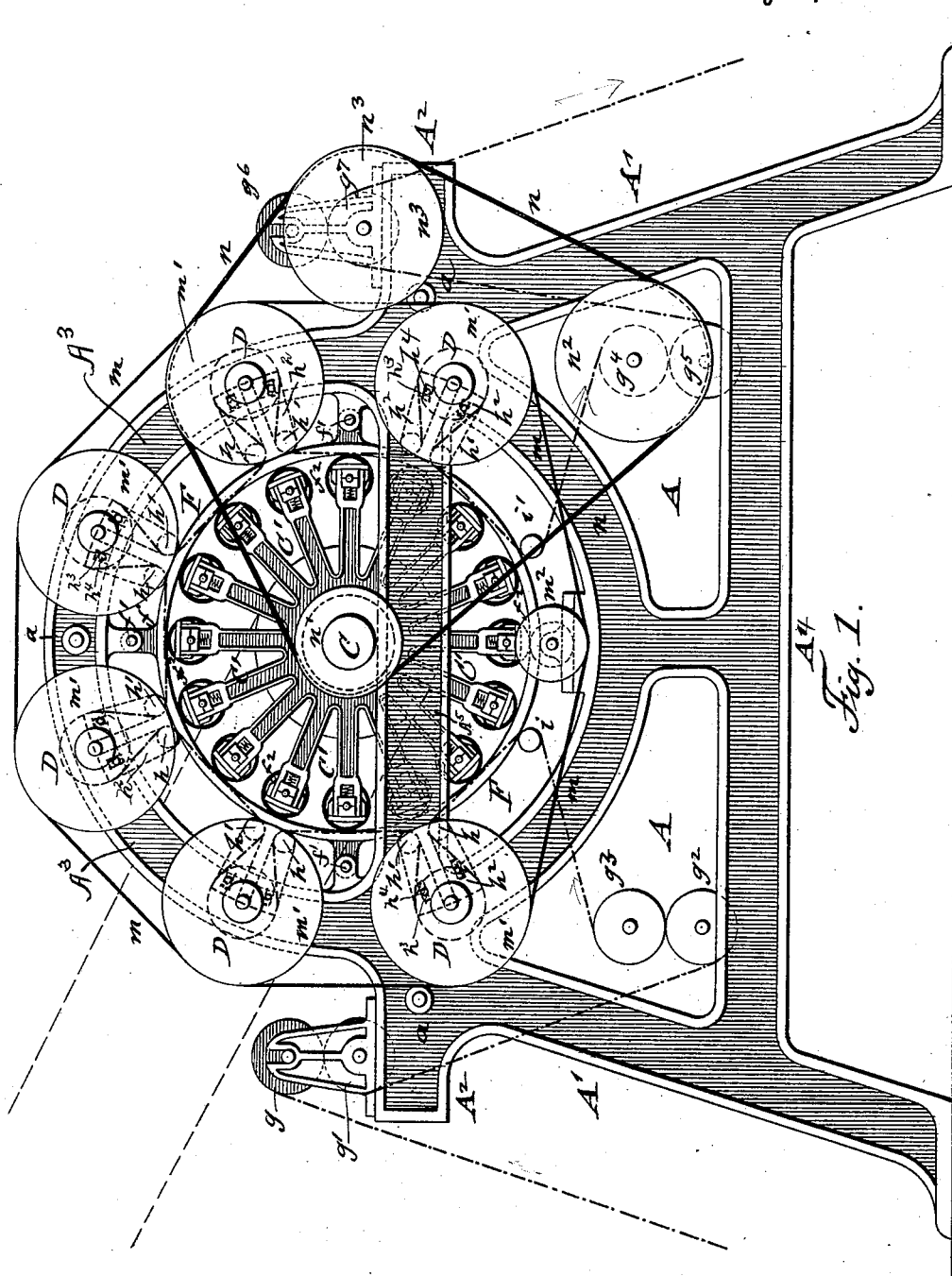


2 Sheets—Sheet 1.

No. 344,981.

Patented July 6, 1886.



**WITNESSES:**

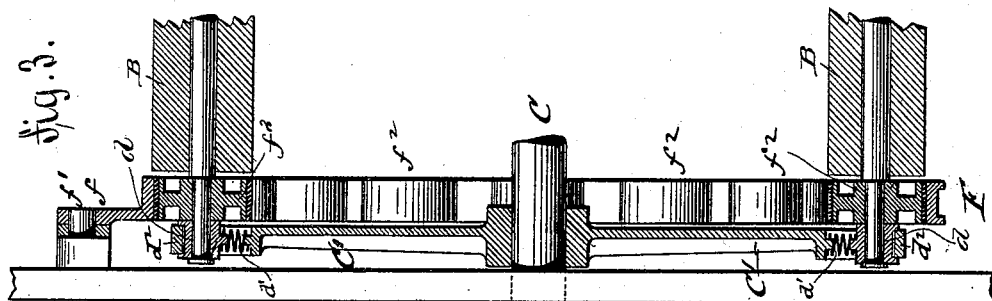
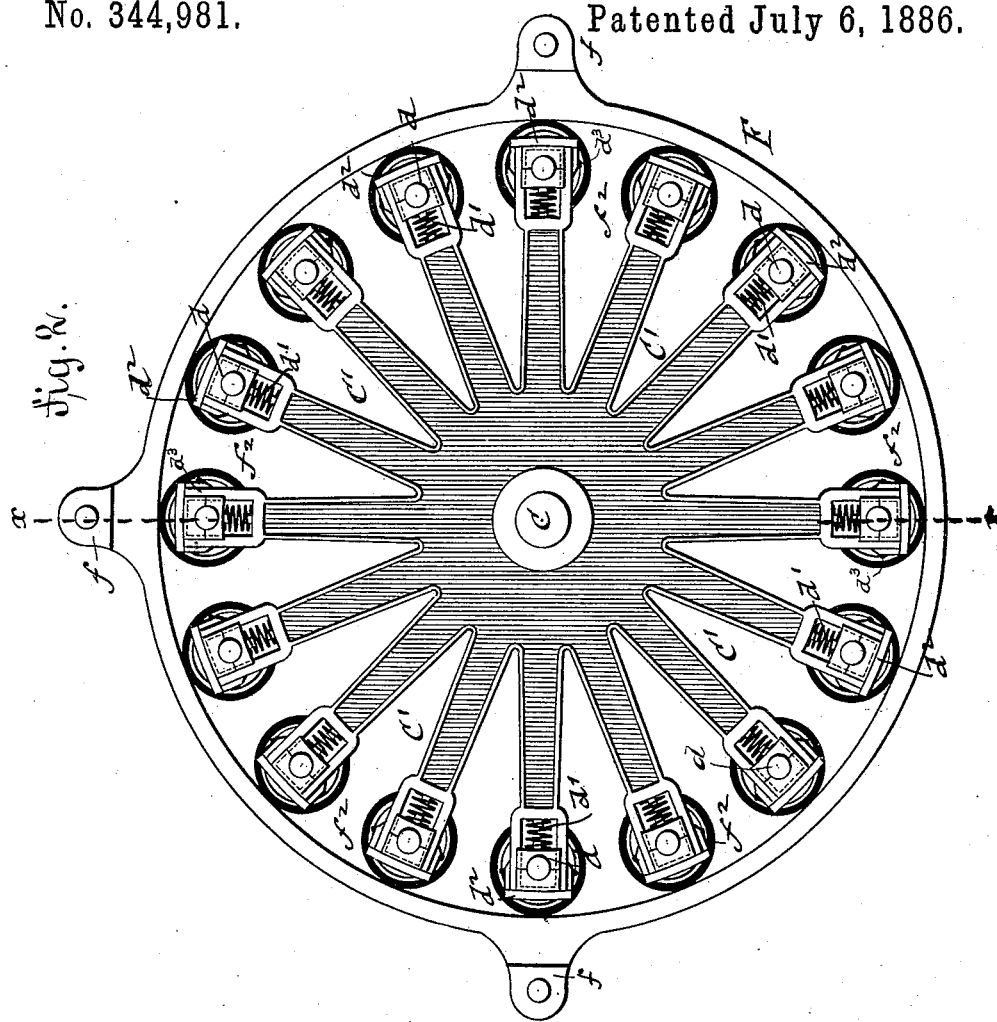
Fol. 2. Rosenbaum.  
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**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

FREDERICK OTT, OF PHILADELPHIA, PENNSYLVANIA.

## GIGGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,981, dated July 6, 1886.

Application filed September 26, 1885. Serial No. 178,272. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK OTT, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Gigging-Machines, of which the following is a specification.

This invention has reference to improvements in that class of machines by which a uniform nap is produced on woolen or cotton fabrics, as will be more fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved gigging-machine with the carding-rolls removed. Fig. 2 is a side view of the driving mechanism of the carding-rolls, drawn on a larger scale, and also with the carding-rolls removed. Fig. 3 is a vertical transverse section on line *x x*, Fig. 2, showing portions of the carding-rolls.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a side frame of this improved gigging-machine, the two similar frames at opposite sides of the machine being connected by bolt-rods *a*. Each of these frames comprises the standards *A'*, which are connected by cross-bars *A<sup>4</sup>* and *A<sup>5</sup>*, and provided with brackets *A<sup>2</sup>*, and a ring, *A<sup>3</sup>*, supported by said standards and cross-bars. A ring-shaped frame, F, is rigidly attached by means of lugs *f* and bolts *f'* to the frames A. Centrally to the ring-shaped frames F F is supported in bearings of the cross-bars *A<sup>5</sup>* and rings *A<sup>3</sup>* a driving-shaft, C, to the ends of which are keyed spider-frames having radial arms C'. The ends of the radial arms C' are forked and provided with journal-bearings *d d*, for the journals of a series of carding-rolls, B B, which are arranged in the form of a cylinder around the center shaft, C. The journal-bearings *d d* are cushioned by spiral springs *d'* *d'* and forced toward U-shaped straps *d<sup>2</sup> d<sup>2</sup>*, attached to the outer ends of the forked arms. To the journals of the carding-rolls B B are keyed, adjoining to the bearings *d d*, friction-pulleys *f<sup>2</sup>*, which are covered with rubber and revolved in contact with the inner surfaces of the ring-frames F F.

The end straps, *d<sup>2</sup> d<sup>2</sup>*, of the arms C' C' are detachable by being held in place by screws *d<sup>3</sup>*,

or in any other manner, so that the journal-bearings *d d* can be removed for repair in case they are worn out by use.

Rotary motion is imparted to the driving-shaft C by a belt and pulleys from a suitable power-shaft, whereby the carding-rolls are revolved by the driving-arms around the shaft and simultaneously rotated on their axes by the frictional contact of their pulleys *f<sup>2</sup> f<sup>2</sup>* with the ring-frames F. When heavy goods have to be napped, pinions have to be used in place of the friction-pulleys, which pinions mesh with an interior gearing of the ring-frames F. The carding-rolls B are covered with the usual cards or teasels employed in gigging-machines.

The standards *A'* are provided at opposite ends with horizontal brackets *A<sup>2</sup>*, on which are supported journal-bearings for a set of guide-rolls, *g g'*, and a set of feed-rolls, *g<sup>2</sup> g<sup>2</sup>*. At the lower part of the frame A are arranged symmetrically to the axis of the frame, at one side, a pair of guide-rolls, *g<sup>2</sup> g<sup>2</sup>*, and at the other side a set of feed-rolls, *g<sup>2</sup> g<sup>2</sup>*. A number of feed-rolls, D D, are supported in bearings of the rings *A<sup>3</sup>* outside of the carding-rolls. Between each feed-roll and the carding-rolls and close to the latter is arranged a pair of stretching-rods, *h h'*, which are supported in radial arms *h<sup>2</sup> h<sup>2</sup>* of the standards *A' A'* and adjusted thereon by slots *h<sup>3</sup>* and clamping-screws *h<sup>4</sup>*, as shown in dotted lines in Fig. 1, so that the cloth to be napped can be adjusted accurately to the carding-rolls.

The cloth to be napped is passed over and between the left-hand set of guide-rolls, *g g'*, conducted over and between the left-hand set of rolls, *g<sup>2</sup> g<sup>2</sup>*, at the lower part of the frame A, then over a fixed guide-rod, *i*, to the stretching-rod *h* of the first feed-roll D, then over the latter and the second rod, *h'*, to the stretching-rod *h* of the next feed-roll, and so on over all the feed-rolls and their stretching-rods to a rod, *i'*, arranged symmetrically to the rod *i*, then over and between the lower right-hand pair of feed-rolls, *g<sup>2</sup> g<sup>2</sup>*, and the pair of feed-rolls *g<sup>2</sup> g<sup>2</sup>* to the winding-up roll, as indicated by arrows in Fig. 1.

The cloth to be napped is slowly fed forward through the machine and over the carding-rolls by the feed-rolls D D, to which axially-rotating motion is imparted by an endless belt, *m*, that passes over pulleys *m'* at one

end of the shafts of the feed-rolls D, and a tension-pulley,  $m^2$ , and by a second belt,  $n$ , which passes over a pulley,  $n'$ , on the driving-shaft C, and over a pulley,  $m'$ , of one of the feed-rolls, and over pulleys  $n^2$   $n^2$  on the shafts of the right-hand rolls,  $g^1$  and  $g^i$ , respectively, as shown in Fig. 1.

The belts  $m$  and  $n$  impart rotary motion to the feed-rolls D and to the rolls  $g^1$   $g^5$  and  $g^6$   $g^i$  at the right-hand end of the machine. The cloth is held by the stretching-rods  $h$   $h'$  tangentially to the carding-rolls, so that by its gradual forward motion and the revolving and axially-rotating motion of the carding-rolls the face of the same is napped throughout in a reliable, uniform, and effective manner. Every part thereof is attached by the teasels of the carding-rolls, as they act over and over again on the surface of the cloth.

The advantages of my improved gigning-machine are, first, simplicity of construction and comparatively small cost of the same; second, by accomplishing the carding operation by a series of individual rolls a uniform nap is imparted to the fabric, which is gradually raised by the action of the carding-rolls, so that light cotton and woolen fabrics can be successfully and uniformly napped; third, that owing to the frictional contact of the rubber-covered pulleys a smooth and regular motion is imparted to the carding-rolls, so that no injurious influence is exerted on the fabric.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. Ring-shaped frames, a shaft supported centrally therein, spider-frames on said shaft, carding-rolls journaled in the arms of said spider-frames and arranged in the form of a ring concentric with said ring-shaped frames, and means for imparting axial rotation to said rolls, in combination with rotary feed-rolls ar-

ranged around the outside of the ring of carding-rolls, means for actuating said feed-rolls, and stretching-rods between the feed-rolls and carding-rolls, substantially as described.

2. Ring-shaped frames, a shaft supported centrally therein, spider-frames on said shaft, carding-rolls supported in the arms of said spider-frames and arranged in the form of a ring concentric with said ring-shaped frames, and means for imparting axial rotation to said rolls, in combination with rotary feed-rolls arranged around the outside of the ring of carding-rolls, means for actuating said feed-rolls, stretching-rods between the feed-rolls and the carding-rolls, and mechanism for adjusting said stretching-rods toward or from the centers of said feed-rolls, substantially as described.

3. Ring-shaped frames, a shaft supported centrally therein, spider-frames on said shaft, carding-rolls journaled in the arms of said spider-frames and arranged in the form of a ring concentric with said ring-shaped frames, and means for imparting axial rotation to said rolls, in combination with rotary feed-rolls arranged around the outside of the ring of carding-rolls, mechanism for actuating said feed-rolls, stretching-rods between the feed-rolls and the carding-rolls, slotted arms, in the inner ends of which said stretching-rods are journaled, and screws passing through the slots therein and into said ring-frames, whereby said frames are rendered longitudinally adjustable, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRED. OTT.

Witnesses:

SIDNEY MANN,  
MARTIN PETRY.