2 Sheets. Sheet 1.

J. Boynton,
Carding Machine.

No. 3,174. Patented July 12, 1843

Fig. 1.

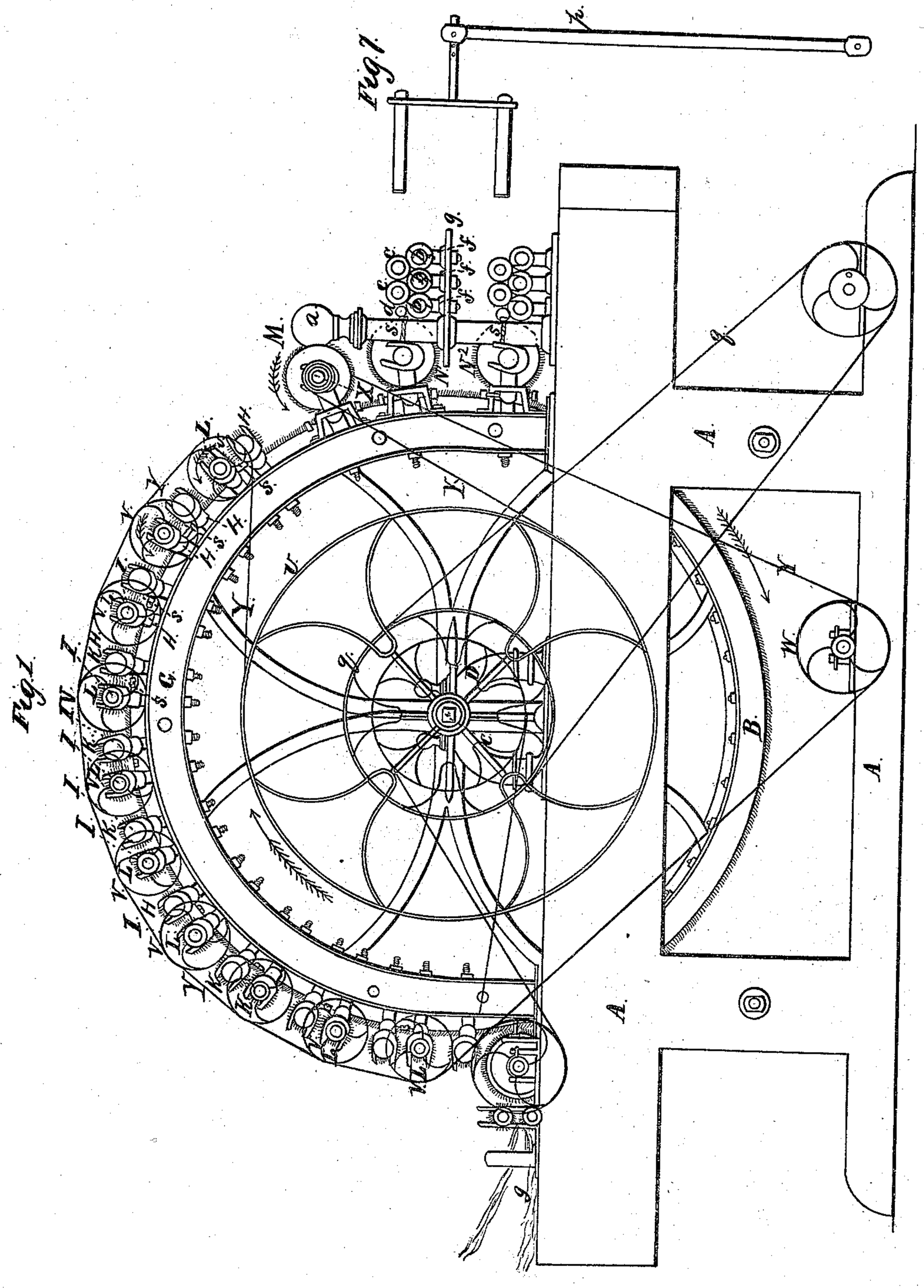

Fig. 1.

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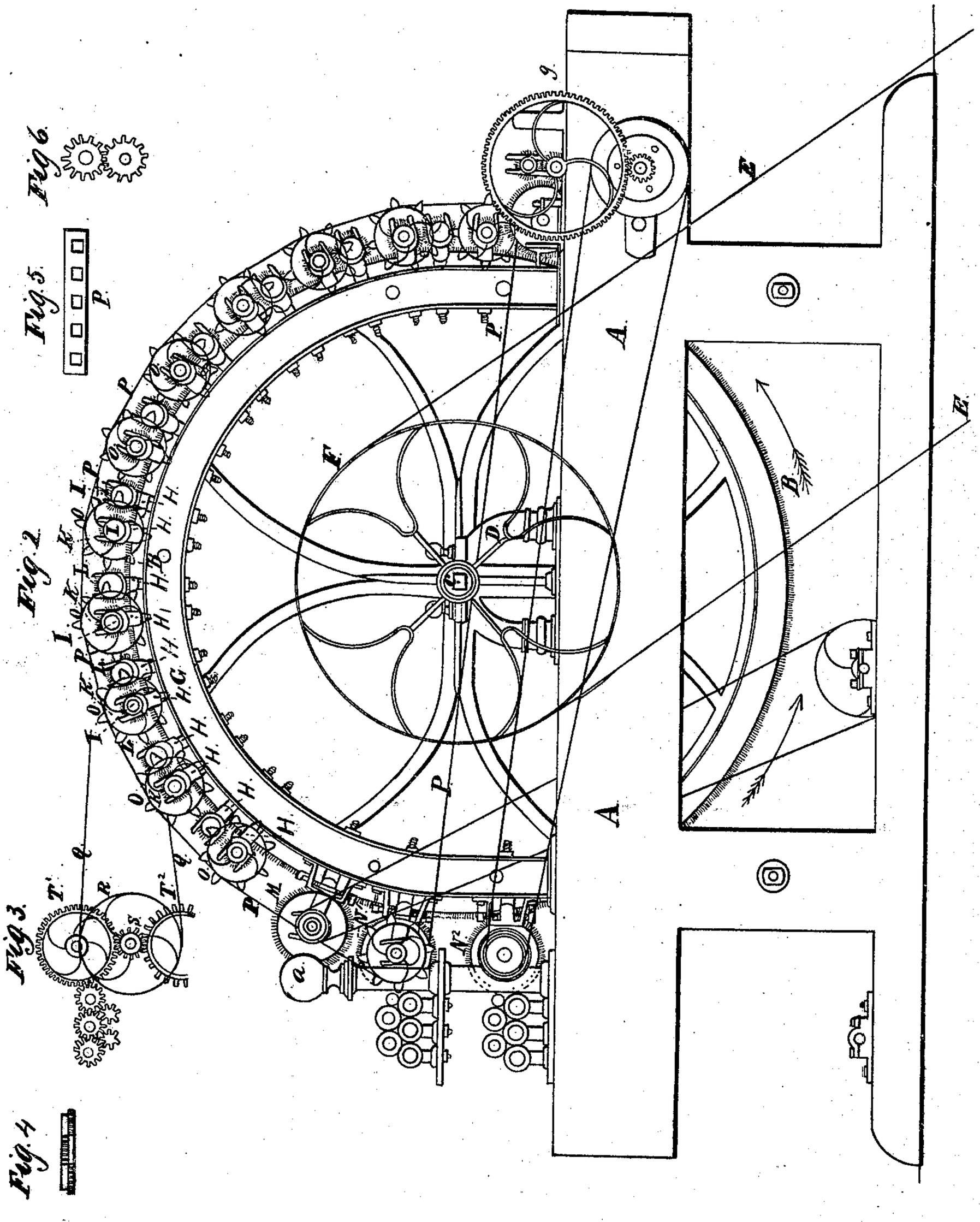

UNITED STATES PATENT OFFICE.

JOHN BOYNTON, OF SOUTH COVENTRY, CONNECTICUT.

IMPROVEMENT IN CARDING-ENGINES.

Specification forming part of Letters Patent No. **3,174**, dated July 12, 1843; antedated January 12, 1843.

To all whom it may concern:

Be it known that I, JOHN BOYNTON, of South Coventry, in the county of Tolland and State of Connecticut, have invented a new and useful Improvement in Machines for Carding and Roping Wool, Cotton, and other Fibrous Matter, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2 is an elevation of the opposite side of the machine. Fig. 3 is a side elevation of the gearing of the condenser. Fig. 4 is a top or bird's-eye view of the same. Fig. 5 is a section of the chain-belt for turning the workers. Fig. 6 is a section of the feed-gear; Fig. 7, the pitman and fingers for vibrating the cylinders.

Similar parts refer to corresponding parts.

The frame of this machine, lettered A, is made of any suitable size, strength, and material for containing and supporting the several parts hereinafter to be described.

The main cylinder B is made in the usual manner, about four feet diameter, five feet in length, and covered with cards of the ordinary description, the proportions and dimensions of said cylinder to be varied to suit the views of the manufacturer. It is supported on the frame by a main shaft C, passing through its center and turning in boxes in a metallic stand D, secured to the top of the frame A, being turned by a band E, leading from the driving-power to the main pulley F on the said main shaft C.

The arches G for supporting the puppet-heads H, in which revolve the axles I of the workers K, strippers L, fancy M, and doffers N′ N², are made in the usual or most approved manner and firmly secured to the top of the frame A. On the axles of the workers K are cog-wheels O, over which is passed an endless chain belt P, made of leather or other suitable material, having round or square apertures in the same corresponding with the cogs of the cog-wheels, and also extended around a cog-wheel on the axle of the upper doffer N′, from which it receives its motion, and which is simultaneously communicated to all the workers K, a band Q, Fig. 3, passing around the main shaft C and around a pulley R on the axle of a pinion S, working into the cog-wheels T′ T² on the axles of the upper and lower doffers N′ N².

The strippers L and fancy M are revolved simultaneously in a contrary direction to the main cylinder B and the workers K by a belt Y, about three inches wide, passed around the open pulley U on the main shaft C, outside of the frame A, and around the ten or more pulleys V on the axles of the ten or more strippers L, thence around a pulley W on a shaft turning in boxes on the sill of the frame A, and thence around the pulley X of the fancy M, thus forming an endless belt Y. The puppet-heads of the workers and strippers are arranged in pairs and are connected by right-and-left-hand screws for the purpose of setting them to or from each other.

The condenser is made as follows: The stand *a*, for containing and supporting the condenser cylinder or cylinders *b*, vibrating cylinders C *c*, and rollers *d*, is made of cast-iron or other suitable material, and is secured to the top of the frame A in front of the condenser-doffers N′ N². The condensing-cylinders *b* are composed of solid cylindrical bars of iron about two inches in diameter, more or less, turning on gudgeons in puppet heads or boxes *f*, supported on a horizontal arm *g*, projecting from the stand *a*, which cylinders are all to be covered with leather and turned off straight and true, revolving with their surfaces nearly touching each other. The vibrating cylinders C *c* are placed upon these condensing-cylinders, and each having a bearing on two condensing-cylinders, by which arrangement four bearing-points on the roping are obtained by three condensing-cylinders and two vibrating cylinders instead of only two bearing-points, as heretofore, with three cylinders, said vibrating cylinders C *c* being made of wood covered with leather, and of the same diameter as the condensing-cylinders, having suitable iron axles on which the said cylinders are formed, being revolved and vibrated in the usual manner, the vibration of the cylinders being effected by means of a pitman *p*, Fig. 7, attached to a crank-shaft of the usual kind situated on the sill of the frame, turned by a belt *q*. The first condensing-cylinder *b* next to the doffer-card N′ is placed within about one-eighth of

an inch of the surface of the card, the top of it being about on a horizontal line with the center of said doffer-card, the surface having the same motion or speed, or more, than the card, for the purpose of giving a slight draft on the roping, which draft may also be increased, if required, by gradually increasing the diameters of the second and third cylinders *b*, or by arranging the gearing to effect the same object, any suitable number of said condensing-cylinders being added, if found advantageous in practice, which may also be graduated in the manner before mentioned, and for a similar purpose.

The wool, cotton, or other fibrous substance is taken from the doffer-card N′ by the small roller *d*, in connection with the first condensing-cylinder *b* below the cylinder *d*, from which it receives its motion by being placed thereon or in contact therewith, or by means of suitable gear and the friction arising therefrom, or by small gear or a belt, said roller *d* being covered with cloth, leather, emery, or any other suitable material, or it may be left uncovered; but the leather is preferred, because it brushes the card and keeps the teeth forward and up and polished smooth and in perfect order to receive and deliver the wool which is received between it and the first condensing-cylinder and passed off to the other condenser-cylinders and vibrating cylinders placed upon them, where the wool is condensed into roping. The movements may, however, be effected in various ways.

The axle of the small roller *d* is provided at each end with a small set-screw *s* for adjusting its position in relation to the surface of the doffing-card N′, and said roller *d* should be of such diameter as to fill the space between the doffer-card N′ and the first vibrating cylinder C.

The machine is fed at *g* in the usual manner.

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

1. Taking of the wool or roping from the doffers between two revolving cylinders to each doffer, the upper cylinder resting on the under one, for the purpose and in the manner described.

2. The arrangement of the vibrating cylinder or cylinders C *c*, each resting on two condensing-cylinders *b* in such manner as to obtain two bearing-points on the roping instead of one for each vibrating cylinder, as described.

JOHN BOYNTON.

Witnesses:
WM. P. ELLIOT,
E. E. JOHNSON.