

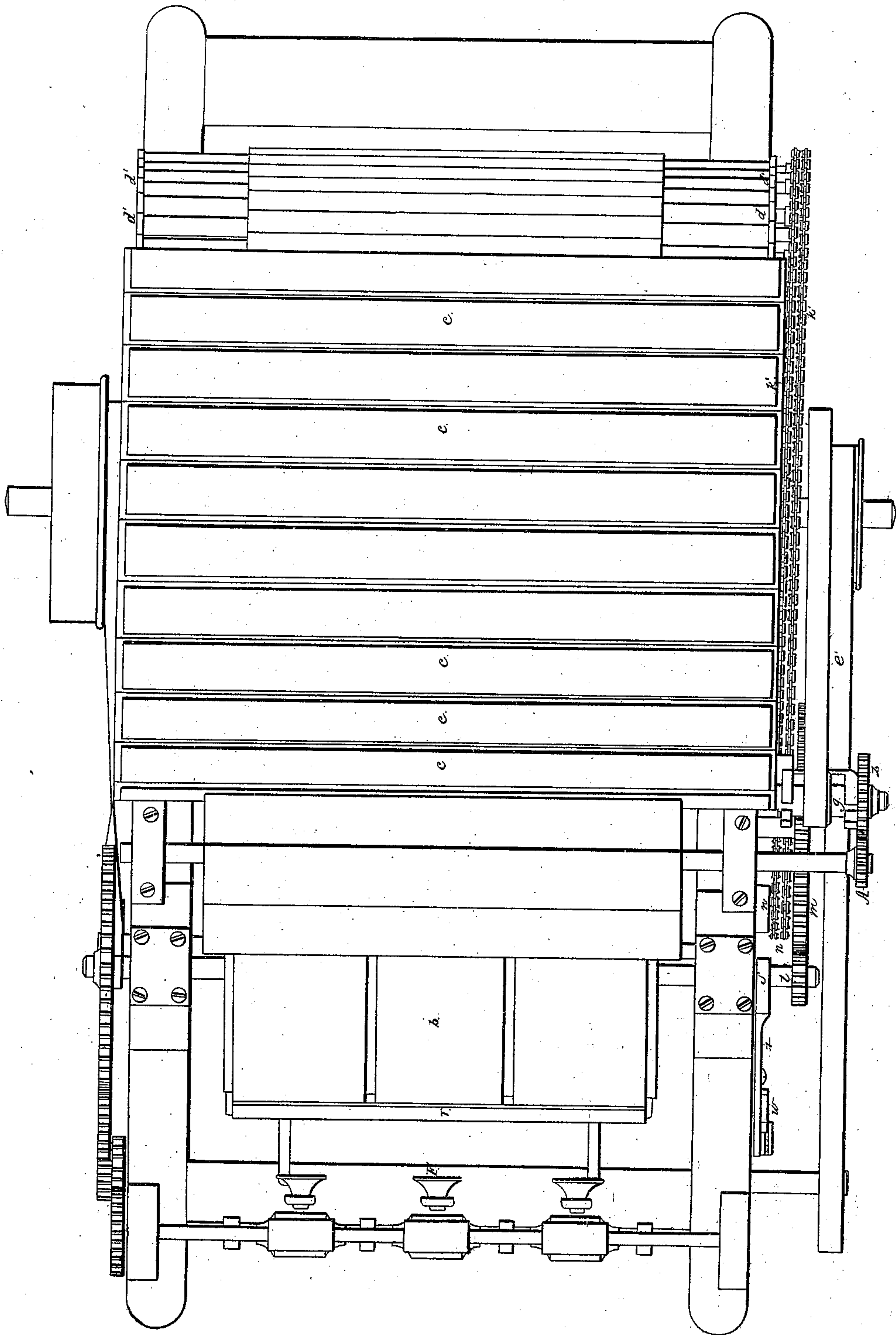
*C. Pooley,
Carding Machine.*

4 Sheets. Sheet 1.

N^o 4,706.

Patented Aug. 22, 1846.

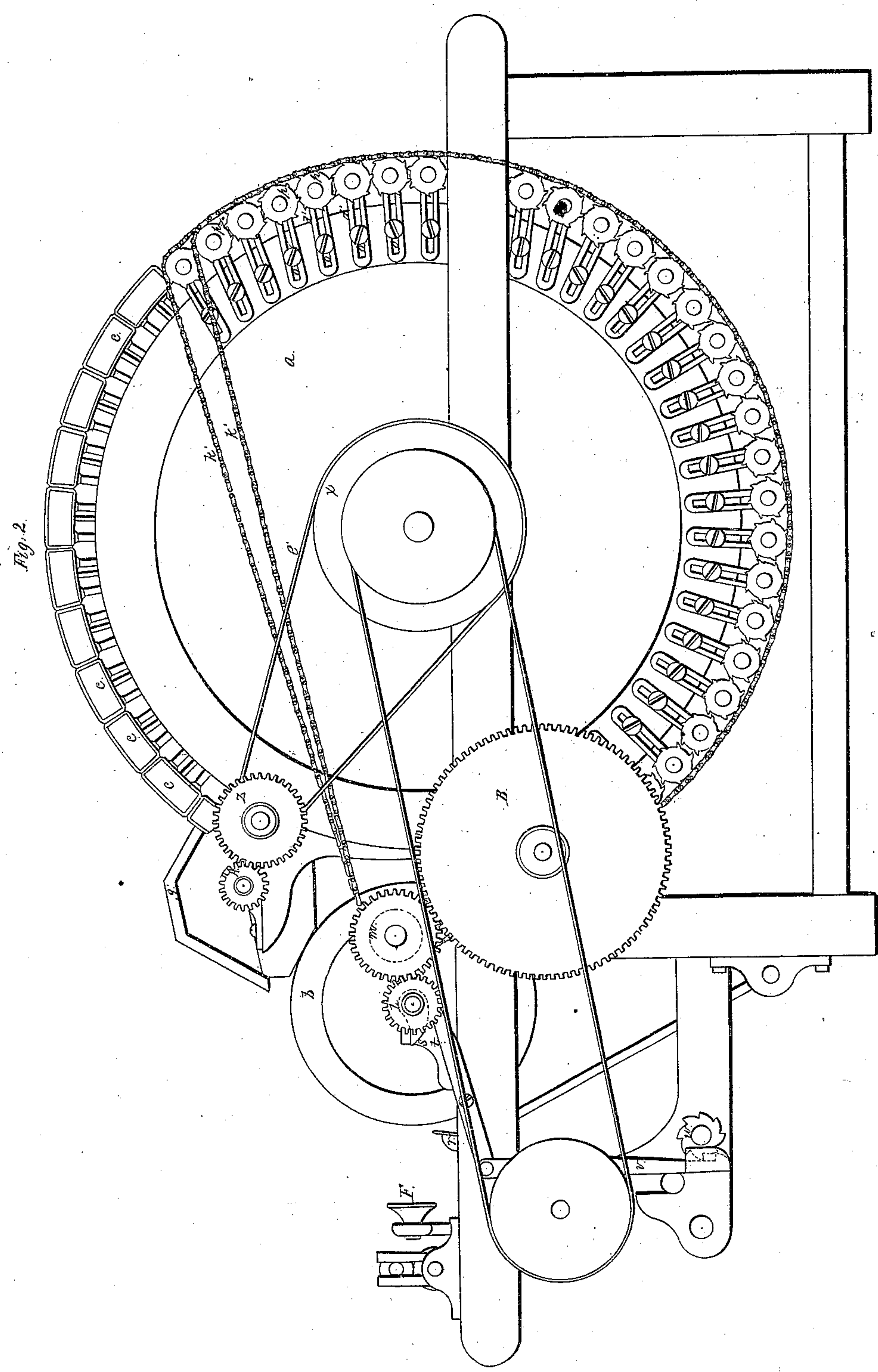
Fig. 1.



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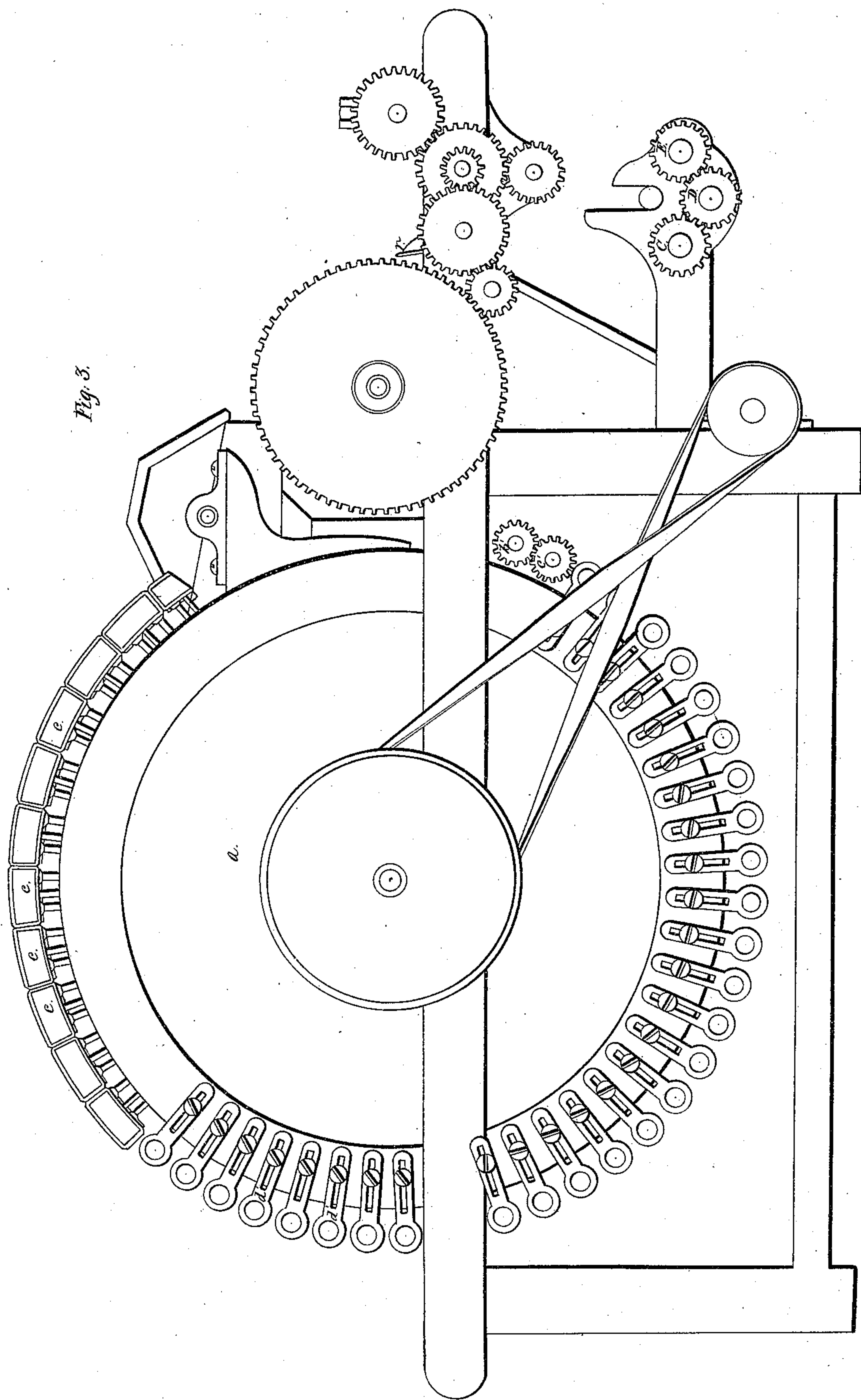


*C. Pooley,
Carding Machine.*

4 Sheets. Sheet 8.

N^o 4,706.

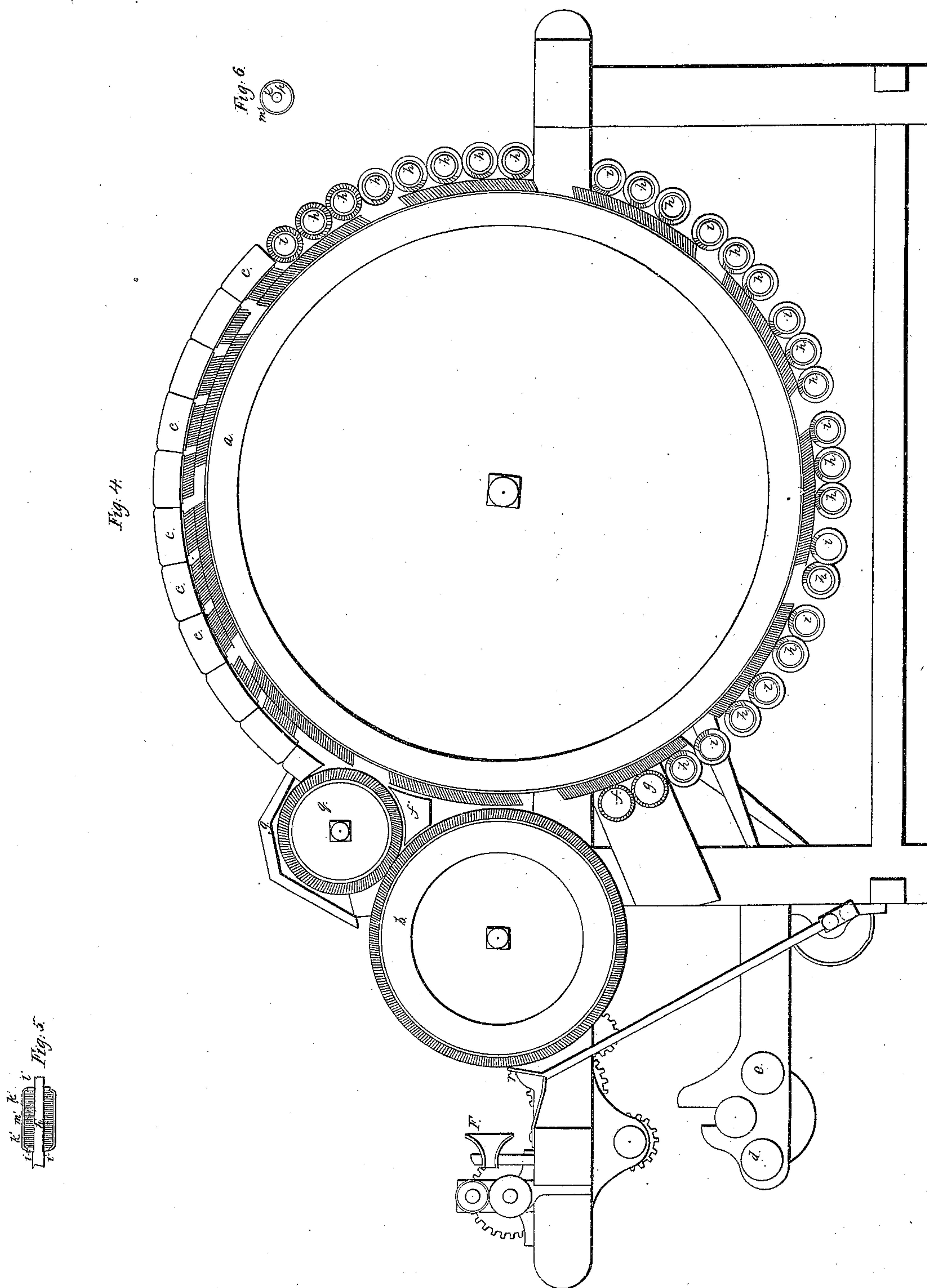
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UNITED STATES PATENT OFFICE.

CHARLES POOLEY, OF CHARLTON-UPON-MEDLOCK, COUNTY OF LANCASTER,
ENGLAND.

IMPROVEMENT IN CARDING-ENGINES.

Specification forming part of Letters Patent No. 4,706, dated August 22, 1846.

To all whom it may concern:

Be it known that I, CHARLES POOLEY, cotton-spinner, a subject of the Queen of Great Britain, and now residing at Charlton-upon-Medlock, in the county of Lancaster, England, have invented or discovered new and useful improvements in certain machines, termed "carding-engines," for preparing to be spun cotton, wool, and other fibrous substances; and I, the said CHARLES POOLEY, do hereby declare that the nature of my said invention consists, first, in improvements in machines of the description called "carding-engines," whereby the cotton or other fibrous substance subjected to the operation of carding is more expeditiously effected and with less waste of the substance than by the machines of a similar description now usually constructed, and, secondly, in an improved construction of rollers employed in the drawing-head of such and other machines used in preparing to be spun and in spinning wool and other fibrous substances, and commonly called "top rollers," so that they shall have such greater degree of elasticity than the top rollers in ordinary use as shall prevent their covers from becoming grooved or hollowed out on the surface.

The manner in which my said invention is to be performed and carried into effect is set forth and ascertained by the description thereof hereinafter contained, having reference to the drawings, which are hereinafter described.

Figure 1 of the said drawings represents a top view of my improved carding-engine. Fig. 2 is an elevation of one side of it. Fig. 3 is an elevation of the other side, and Fig. 4 is a central longitudinal and vertical section of it.

a in the figures represents the main drum, *b* the doffer, and *c c c*, &c., a row of top cards placed in the usual manner above the main drum.

The lap of cotton *a'* for feeding the carding-engine is arranged at the same end of it as is the doffer, and it is supported by the two rollers *d* and *e*, which are made to revolve and unwind it as follows: Upon the shaft of the doffer-cylinder *b* is fixed a cam *s*, (seen in Fig. 1 and partially in dotted lines in Fig. 2,) which acts upon a lever *t*, so as to raise the

rod *v*, the weight of the rod causing it to descend when liberated. On the end of the shaft of the roller *d* is fixed a ratchet-wheel *w*, and the end of the rod *v* is provided with a catch suitable to act upon the teeth of the ratchet-wheel *w*, so that each time the doffer revolves and the rod is lifted upward the roller *d* will be turned part of a revolution and communicate the same motion to the roller *e* by means of the pinions *C*, *D*, and *E*, applied to said rollers as seen in the drawings, Fig. 3. By means of the above the lap of cotton will be unwound and delivered to the feed-rollers *f* and *g*, by which it is presented to the main drum *a*. The feed-rollers *f* and *g* are situated as seen in the drawings and worked by means of the pinion *l*, (on the doffer-shaft,) which drives the gear-wheel *m*, which takes into and drives the gear-wheel *B*, fixed on the shaft of the feed-roller *f*. The feed-roller *g* is driven by pinions *b' c'*, fixed on the ends of the shafts of the rollers *f* and *g*, respectively, as seen in Fig. 3.

h h, &c., and *i i*, &c., are a series of small rollers commencing at a short distance under the feed-roller *g*, thence passing under the main drum, and terminating on the opposite side near to the first of the top cards, as shown in Fig. 4. Part of the rollers forming the series are what are commonly called "workers," and part of them are what are commonly called "clearers."

The workers are all marked *h h*, &c., and the clearers are all marked *i i*, &c. It will be seen on examining the drawings that the workers and clearers at the first part of the series are placed alternately, and in the next portion of the series two workers are placed for one clearer, and at the concluding part seven workers are placed to one clearer.

I have shown the rollers and clearers in such number, size, and arrangement as I consider to be the best; but the same may be variously modified without materially affecting the nature of my invention, each clearer being placed immediately after the worker with which it is connected in the direction in which the main drum revolves.

The workers and clearers *h h*, &c., and *i i*, &c., are made to revolve slowly by means of two endless chains *k k*, (shown in Figs. 1 and

2.) These workers and clearers revolve in small bearing-plates $d' d'$, &c., which are bolted or screwed to segments $o o$, fixed to the side frames of the engine in the position as shown in Figs. 2 and 3. Upon the axis of the wheel m is fixed the double chain-wheel n , (seen in dotted lines,) which gives motion to the two endless chains, and thereby drives the workers $h h$, &c., and clearers $i i$, &c., by means of small spoke-wheels $p p$, &c., one of which is fixed on the shaft of each of the workers and clearers, as shown in Fig. 2 of the drawings. The links of the chain k act on these spoke-wheels, so that when the double-chain pulley n is revolved all the workers and clearers will be put in motion by it, each alternate roller being driven by one of the chains and the remainder by the other of the said chains.

The workers $h h$, &c., and clearers $i i$, &c., are covered with card-fillet to the same length or lengths as the main drum of the carding-engine. After the cotton has passed under the top cards C it is taken off the main drum a by a carrying-roller q , (which should be covered with card-fillet,) and by it conveyed to and delivered on the doffer-cylinder b . From thence it is taken off or doffed by the top edge of the comb r , disposed as seen in the drawings. The cotton then passes through a drawing-head, (shown at F ,) and falls into a can or cans $G G$, in the usual manner.

The carrying-roller q is driven by a strap e , which passes from around a large pulley x , fixed on the shaft on the main drum a , to and around a small pulley y on the same axis with a gear-wheel z , which takes into the pinion A , fixed on the shaft of the carrying-roller q , the said roller being thereby driven at a quick speed in order to strip the cotton from the main drum more completely than when it is delivered immediately from the drum to the doffer, as is ordinarily practiced. The cotton is prevented from flying off from

the carrying-roller q in its rapid revolutions by means of a trough-shaped piece of wood f' , placed under a wooden cover g' , arranged upon the roller.

I have shown my improved top roller in Figs. 1, 5, and 6 of the drawings, Fig. 5 being a vertical and longitudinal section and Fig. 6 being a transverse section of it. I place side by side on a spindle h' , having a fixed flange i' at one end, a number of washers $k' k'$, &c., made of woolen cloth or other material or materials substantially similar, and after a sufficient number to give the required elasticity has been so placed I force and keep them in their positions by another flange l' , which is screwed or otherwise fastened upon the spindle. Upon a roller so formed I put an ordinary leather cover m' , in the usual manner. By an elastic roller being so covered the leather on its surface does not wear into ridges or grooves.

Having now described the nature of the invention and in what manner the same is to be performed, I declare that I claim as my invention—

1. The afore-described arrangement of the clearers and workers above and below the main cylinder, in combination with the arrangement for feeding and doffing at one and the same side of the cylinder or end of the machine, the whole being substantially as above specified.

2. The construction of the top roller by the combination of a cover of a leather or other substantially-similar material, with the body made of washers of cloth or other substance having like properties effecting a like purpose, as described.

CHAS. POOLEY.

Witnesses:

SAML. PEARCE,
Vice-Consul of the United States for Liverpool.

JOSEPH HADWEN,
Clerk to Merchants.