(No Model.) 2 Sheets—Sheet 1.

W. F. PROSSER.

APPARATUS FOR PRODUCING ROPING FOR MAKING VARIEGATED OR CLOUDED YARN.

No. 292,582. Patented Jan. 29, 1884.

Fig 2.

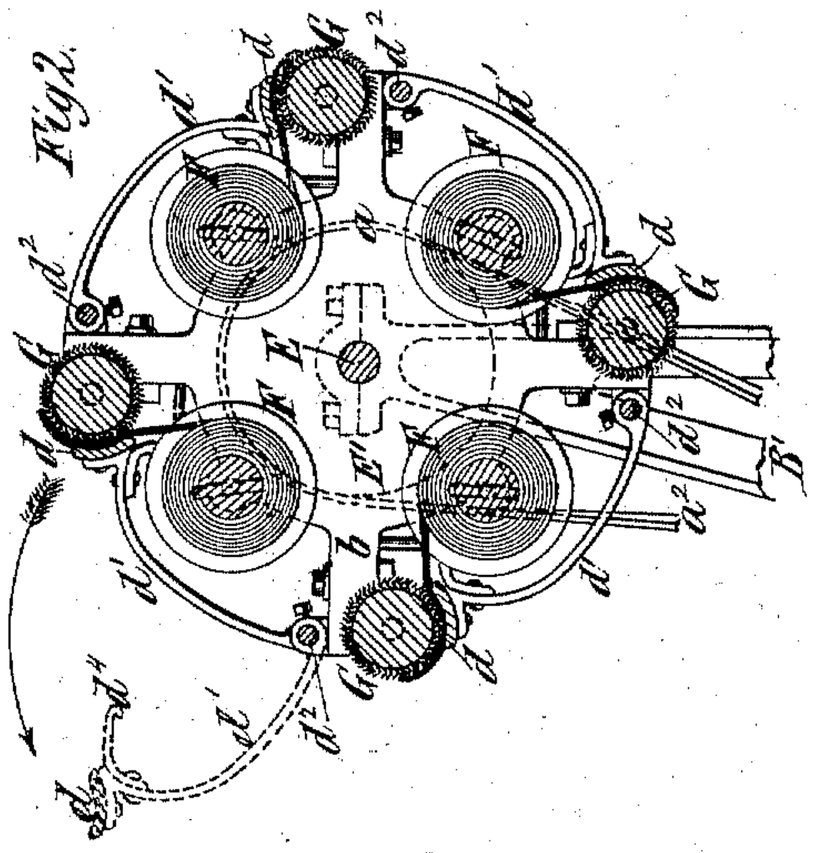
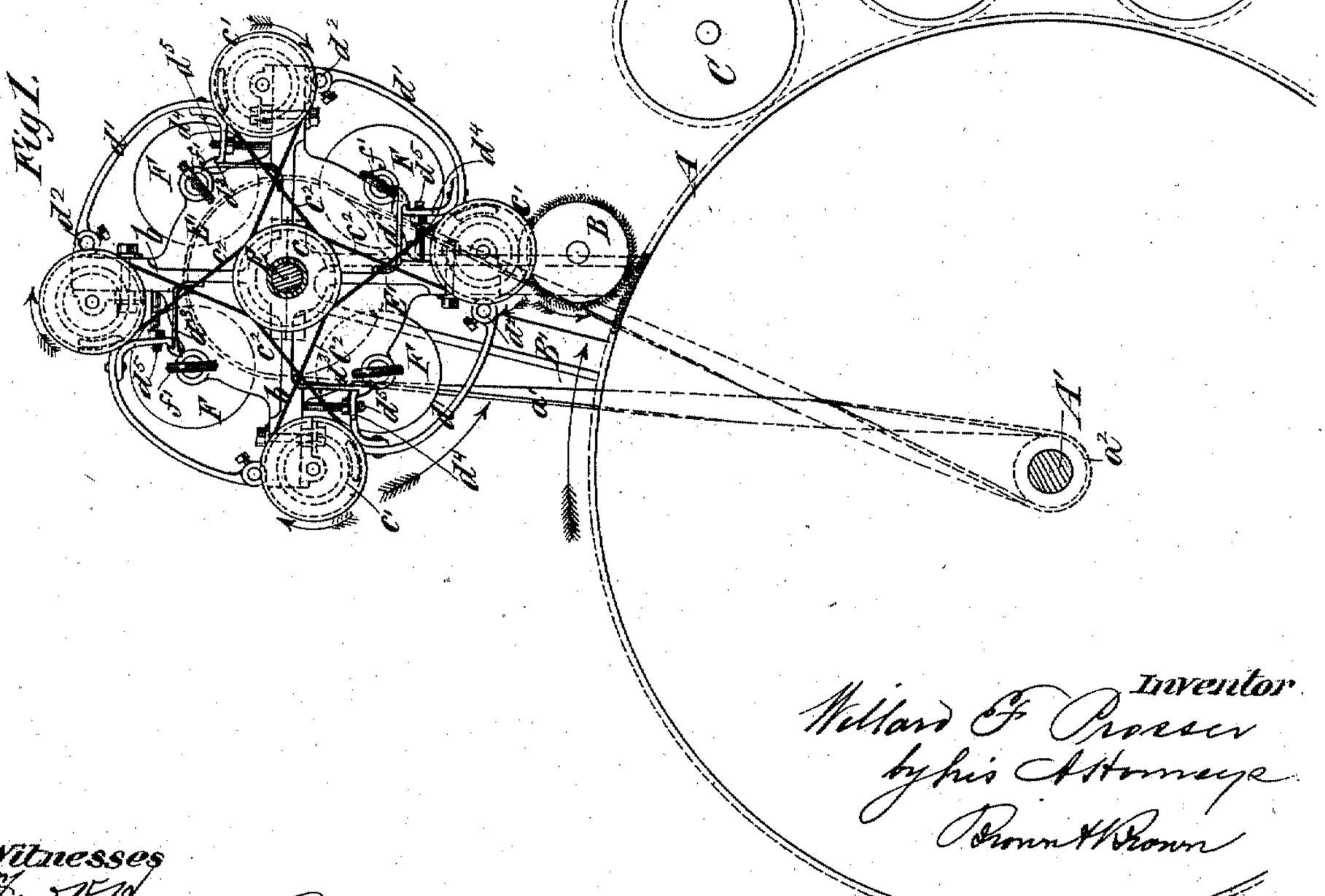


Fig 1.



Witnesses
Fred'k Haynes
Ed. L. Moran

Inventor
Willard F. Prosser
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(No Model.) 2 Sheets—Sheet 2

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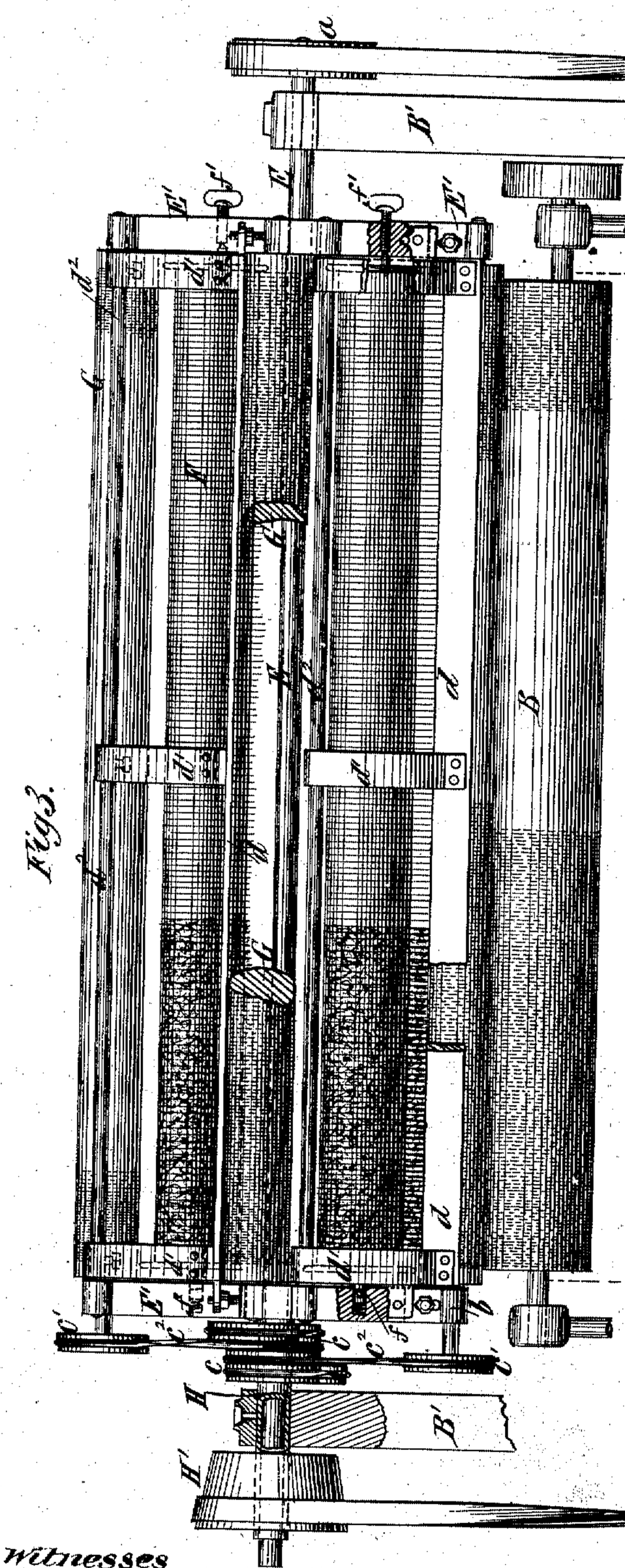

Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLARD F. PROSSER, OF MYSTIC BRIDGE, CONNECTICUT, ASSIGNOR OF ONE-HALF TO WILLIAMS ROGERS WELLS, OF HOPKINTON, RHODE ISLAND.

APPARATUS FOR PRODUCING ROPING FOR MAKING VARIEGATED OR CLOUDED YARN.

SPECIFICATION forming part of Letters Patent No. 292,582, dated January 29, 1884.

Application filed February 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLARD F. PROSSER, of Mystic Bridge, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Apparatus for Producing Roping for Making Variegated or Clouded Yarn, of which the following is a specification.

The object of this invention is to effect the deposit on the lap on a carding-machine of tufts or locks of fibrous material of a color or colors different from that of the lap, for the purpose of producing ropings which are variegated or clouded in color.

The invention consists in the combination, with a card or worker, of a novel attachment for supplying the tufts or locks of different colors to the worker, and in novel means for varying, as desired, the quantity of different-colored material supplied to the worker, so that the variegating or clouding of the lap and ropings produced therefrom will be more or less pronounced or prominent.

In the accompanying drawings, Figure 1 represents an end view of a portion of one of the main carding-cylinders of a card with its worker and doffers and my attachment applied to it. Fig. 2 represents a transverse section of the attachment alone. Fig. 3 represents a side view of the attachment and a worker and a dotted outline of a portion of the carding-cylinder. Fig. 4 represents a detail sectional view, hereinafter described; and Fig. 5 represents a piece of the variegated roping from which yarn is to be spun.

Similar letters of reference designate corresponding parts in all the figures.

A designates the main cylinder of a carding-engine or rotary card, provided with a shaft, A′, and B designates the last worker.

C designates a fancy adapted to operate in connection with the card, and D D′ designate two doffers. I have also represented two sets of rubbing-rolls, D^2 D^3. All these parts are arranged and rotated in the usual manner, and need not be modified when my attachment is applied to the card.

Arranged above the worker B, and journaled in suitable standards, B′, is a shaft, E, extending parallel with the worker, and having secured upon it, near its ends, flanges or heads E′, and in said flanges or heads are journaled a circular series of spools, F. The shaft and flanges or heads constitute a carrier for the spools. Four of these spools are here shown; but a lesser or greater number may be employed, if desired. As the carrier is rotary, two or more spools will constitute a circular series. The several spools F carry or have wound upon them ropings of different colors. The shaft E has a pulley, *a*, secured at one end, and is rotated by a belt, *a′*, from a pulley, a^2, on the shaft A′ of the cylinder, as best shown in Fig. 3. By the rotation of the shaft E the circular series of spools is revolved about the said shaft as an axis.

The heads or flanges E′ may consist of disks or plates with arms *b* projecting radially from them, as here shown.

In the arms *b*, near their outer ends, are journaled feed-rolls G, and as the shaft E is rotated said feed-rolls are carried in succession past and almost in contact with the worker B. The spools F are rotated only by drawing or feeding the ropings from them. The pivots at one end of the spools F are supported in bearings *f* in the head or flange E′, and said bearings contain springs which tend to press the spools outward. The pivots at the other end of the spools are supported by thumb-screws *f′*; and by adjusting the said screws the friction on the pivots may be graduated, so that it will require the pull of the feed-rolls G on the ropings to turn the spools, and so that they will not turn accidentally. The feed-rolls are rotated positively, as I shall now describe.

Upon the shaft E is a sleeve, H, (shown in Fig. 3, and in the detail view, Fig. 4,) which is capable of rotation independently of the shaft, and upon the outer portion of said sleeve is secured a cone-pulley, H′.

On the adjacent end of the cylinder-shaft A′ is secured a reversely-arranged cone-pulley, H^2, and motion is transmitted from it to the pulley H′ and sleeve H by a belt, H^3.

On the inner end of the sleeve H are pulleys *c*, corresponding in number to the spools

F employed, and on the adjacent ends of the shafts of the feed-rolls G are secured pulleys c', which are connected by belts c^2 with the several pulleys c. The pulleys c may be separated from each other and secured side by side on the sleeve H; or they may be formed by a number of grooves in a solid block or hub, as shown in the detail view, Fig. 4. Gears may be substituted for the pulleys c c' and belts c^2.

The mechanism for rotating the several feed-rolls is best shown in Figs. 1 and 3.

Adjacent to each feed-roll G is arranged a jaw, d, having a concave face the radius of which is slightly greater than the radius of the feed-roll G, and which extends the whole length of the roll. Each jaw d is supported by arms d', which are fulcrumed on a rod, d^2, supported in the heads or flanges E', and the jaw may be swung entirely away from the feed-roll when desired, as indicated by dotted lines in Fig. 2. Each jaw, when swung into its normal position contiguous to its feed-roll, may be secured by a spring catch or hasp, d^3, which engages with a projection, d^4, on the jaw against movement away from the roll, and the distance of its face from the face of the roll may be controlled by an adjustable stop. The stop here shown consists of a screw-threaded stem or rod, d^5, upon which is placed a nut, and the spring catch or hasp d^3 always holds the projection d^4 down upon this nut. By varying the position of the said nut the distance at which the face of the jaw stands from the face of the feed-roll may be varied. The ropings of the several colors are carried from each spool F between the adjacent feed-roll G and its jaw d, and as the feed-roll is covered with card-clothing, or otherwise toothed or roughened, it will, when rotated on its axis, draw the ropings from the spool. Not only does the jaw act in conjunction with the roll to produce the feed of the ropings, but the jaw and roll have such a hold on the roping that only the portion of roping protruding beyond the jaw will be torn off or detached when caught hold of. As the shaft E is rotated, the feed-rollers G are carried past the worker B, and the latter catches and detaches the protruding locks or tufts of roping and delivers them to the lap upon the cylinder. The circular series of spools is constantly rotated about the shaft E, and if the belt H^3 be on the portions of the cone-pulleys H' H^2, which bear the same relation to each other as do the pulleys a a^2, the sleeve H will be rotated at exactly the same speed as the shaft on which it is loosely placed, and will transmit no rotation about their axes to the pulleys c^2. Consequently there will be no feeding or drawing out of the ropings on the spools F.

When the belt H^3 is adjusted into the position above described, the attachment will be inoperative, and the card may be used in the ordinary way. If the attachment is to be used, the belt H^3 must be shifted so as to drive the sleeve H faster than the shaft E, and the feed-rolls G will then each have a rotation on its axis and will draw forward the ropings from the spools. This rotation of the feed-rolls may be varied as desired, and by such variation in speed I enable the degree of variation in color to be regulated. The circular series of spools is rotated continuously, and the rotation of the several spools on their axes is also continuous. The worker B takes or licks the tufts or locks of different colors from the spools at intervals and in succession, and works or incorporates them into the lap on the card A. The incorporation of these tufts or locks is also facilitated by the fancy C and by the doffers D D', by which the variegated ropings are taken from the card. Fig. 5 represents a portion of one of these ropings as well as it can be shown in black and white. In the yarns spun from these ropings the changes from one color to another will be very gradual, and not abrupt, and the tints or colors in the clouded or variegated cloth woven from the yarn will be so blended and shaded into each other as to produce a very beautiful soft effect.

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

1. The combination, with the main cylinder and the worker of a carding-engine, of a rotary carrier, mechanism for rotating it, and a circular series of spools carried by it, and devices for drawing or feeding roping from said spools and presenting it to the action of the worker, substantially as and for the purpose herein described.

2. The combination, with a main cylinder and a worker of a carding-engine, of a rotary carrier, mechanism for operating it, a circular series of spools carried by said carrier, feed-rolls for drawing ropings from said spools, also carried by said carrier, and mechanism for rotating said feed-rolls and causing them to present the ropings to the action of the worker, substantially as and for the purpose herein described.

3. The combination, with a main cylinder and a worker of a carding-engine, of a rotary carrier, mechanism for operating it, a circular series of spools, and feed-rolls for drawing or feeding ropings therefrom, all carried by said carrier, and variable operating mechanism for imparting rotary motion to said feed-rollers on their own axes, substantially as and for the purpose herein described.

4. The attachment for a card, comprising a carrier and a circular series of spools carried thereby, feed-rollers for drawing or feeding ropings, also carried by said carrier and provided with pulleys, a sleeve on the shaft of the carrier, provided with pulleys, and belts extending from the sleeve-pulleys to the roll-pulleys, all combined and adapted to operate substantially as herein described.

5. The combination of the shaft E, heads or flanges E', spools F, feed-rollers G, jaws d,

and devices for supporting them, sleeve H, pulleys *c* and *c'*, and belts c^2, all substantially as described.

6. The combination of the shaft E, heads or flanges E', spools F, feed-rolls G, jaws *d*, and adjustable devices for supporting them at different distances from the faces of the rolls, the sleeve H, the pulleys *c c'*, and belts c^2, all substantially as described.

W. F. PROSSER.

Witnesses:
FREDK. HAYNES,
ED. L. MORAN.

Correction in Letters Patent No. 292,582.

It is hereby certified that Letters Patent No. 292,582, granted January 29, 1884, upon the application of Willard F. Prosser, of Mystic Bridge, Connecticut, for an improvement in "Apparatus for Producing Roping for Making Variegated or Clouded Yarn," was erroneously issued to "Williams Rogers Wells," as assignee of the entire interest in said invention; that said Letters Patent should have been issued to *Willard F. Prosser* and *Williams Rogers Wells*, as joint owners; and that the patent should be read with this correction therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 5th day of February, A. D. 1884.

[SEAL.]

M. L. JOSLYN,
Acting Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.