Smith & Crandall,

Card Grinder.

No. 10,643. Patented Mar. 14, 1854.

Fig. 2

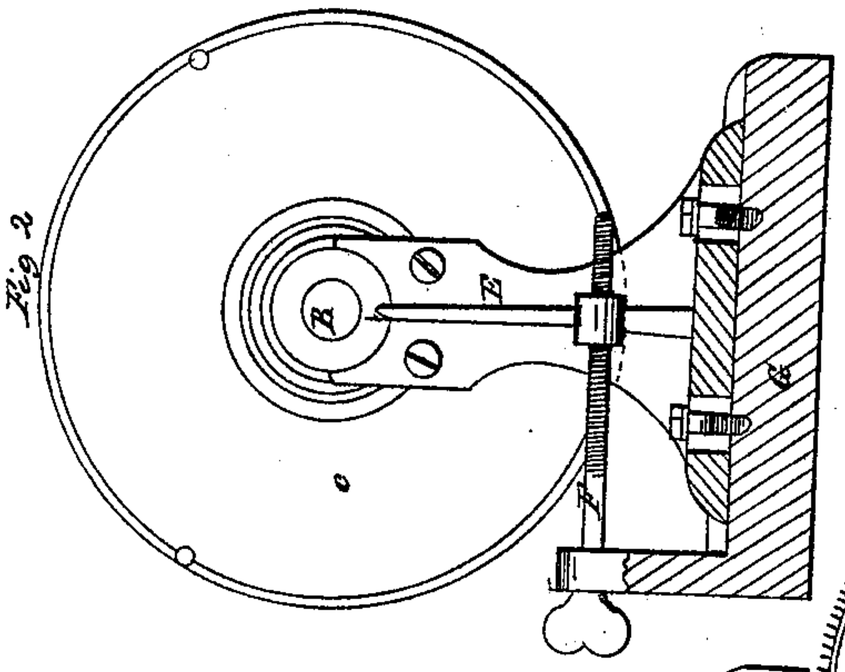


Fig. 4

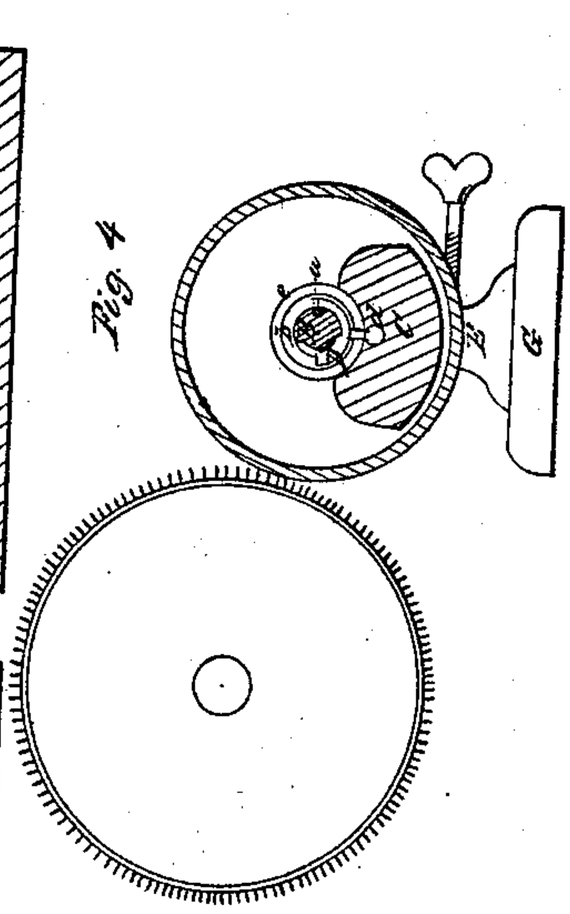


Fig. 1

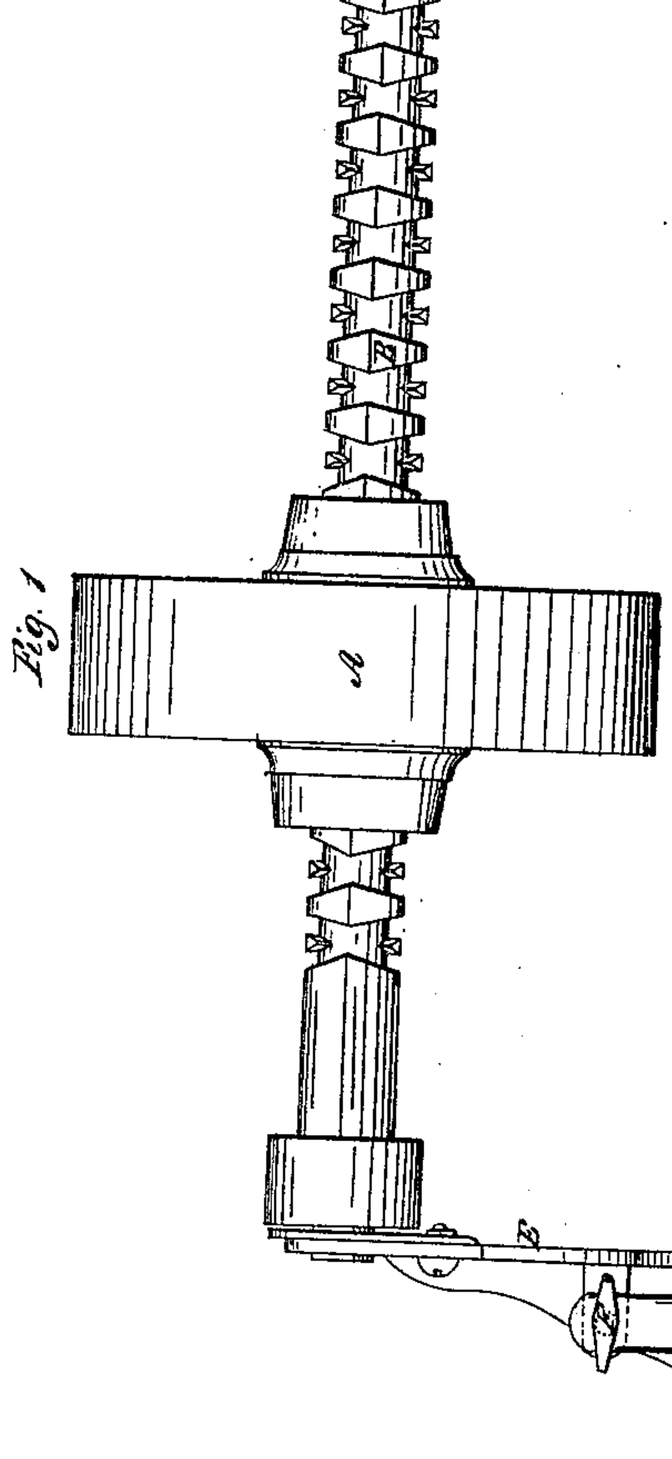
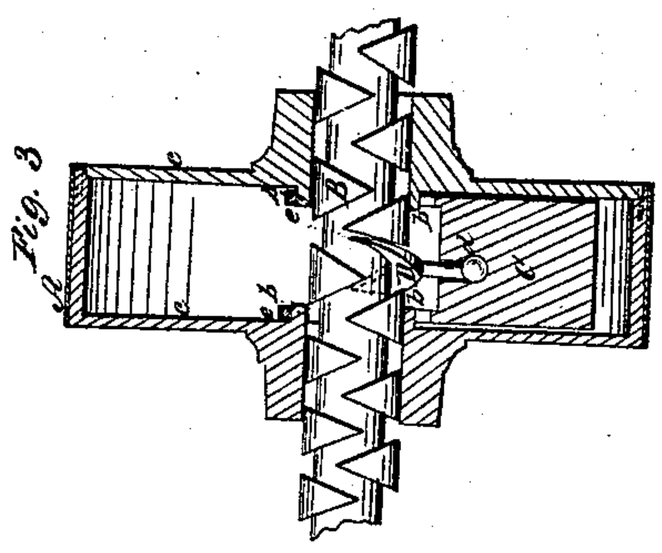


Fig. 3



UNITED STATES PATENT OFFICE.

NATHANIEL SMITH AND ASA CRANDALL, OF NORTH KINGSTON, RHODE ISLAND.

IMPROVEMENT IN MACHINES FOR GRINDING COTTON-CARDS.

Specification forming part of Letters Patent No. **10,643**, dated March 14, 1854.

To all whom it may concern:

Be it known that we, NATHANIEL SMITH and ASA CRANDALL, of North Kingston, in the county of Washington and State of Rhode Island, have invented a new and useful Machine for Grinding Cotton-Cards; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation of the same. Fig. 3 is a broken longitudinal section, and Fig. 4 is a vertical transverse section of the machine as in operation. A card-cylinder is represented as being subjected to the grinding process.

Wherever the same letters of reference occur in the several figures they are intended to indicate corresponding parts.

The nature of our invention consists in the employment of a narrow emery roller made to traverse back and forth on a horizontal right and left or endless screw from one end of the card-cylinder to the other, and simultaneous therewith to describe vertical circles, and thereby caused to operate in a parallel line with the carding-cylinder upon the whole face of the card and gradually and effectually grind the teeth of the same to a perfect uniformity in length and give them the proper finish. By the employment of this narrow emery roller in the manner herein stated we are enabled to dispense with the necessity of employing broad emery grinders of greater length than the carding-cylinders, which grinders are expensive and difficult to make, owing to their great length and the time and pains required to make them true and fit for performing the very particular duty assigned them. We are also enabled, it must be evident, with this narrow traversing grinder to face the cards more truly and give them a more perfect finish than with the broad heavy emery grinders now in use, which are not always so regular in their action (owing to the almost impossibility of at all times getting so long a cylinder perfectly true) as a narrow grinder, which can always be made true with very little trouble and expense and be made to traverse gradually in a horizontal line and rapidly in a vertical direction the whole surface of the cylinder.

To enable others to understand more plainly the construction and operation of our invention, we will proceed to describe it more minutely.

A represents the emery roller, it being hung perfectly true on the endless screw B, which serves as its shaft, as seen in Figs. 1, 3, and 4, and is keyed loosely on the same, it being thus keyed so that it may not turn independent of the screw, and also that it may have freedom to move horizontally over the key *a* and screw B simultaneous with its vertical movement in the path of a circle. The roller or grinder A is made hollow and forms a circular chamber on its inside, in which a weight C is hung loosely, it having its bearing on the shoulders *b* or collars *b*, cast on the inside of the heads *c c* of the grinding-roller A, as seen in Figs. 3 and 4. In this weight a forked lever or shifter D is secured or attached by a universal joint *d*, as seen in Figs. 3 and 4. This forked piece works in the right-hand screw B as it traverses the shaft B in one direction until it reaches the extremity of the screw, when this forked piece turns on its center and shifts its position and occupies a place in the left-hand groove of the screw and commences to traverse in another direction, carrying with it the grinding-cylinder, the screw giving it a vertical revolving movement simultaneous with its horizontal traverse.

The weight C is employed for keeping the shifter always in the position shown in the drawings, this weight always adjusting itself and retaining its position under the screw while the card-grinder revolves freely. The collars *e e* of this weight turn loosely on the shoulders *b b* of the card-grinder. Consequently the weight is caused by gravity to adjust itself and remain in the position shown in Figs. 3 and 4. It is by this weight retaining its position that the action of the pronged lever or shifter is rendered effectual in feeding the grinder forward and capable of shifting the direction of the traverse of the same.

E E are standards or bearings for the screw B to rest and turn in. These standards are made adjustable by the set-screws F F, they

being made adjustable so as to suit the position of the card-cylinder and grind the teeth down to any length desired.

G is the base or platform, which is attached to the girt of the card by clamps or otherwise.

What we claim as our invention, and desire to secure by Letters Patent, is—

A narrow emery card-grinder A, carrying a weighted forked lever or shifter D, and keyed loosely on an endless or right and left screw B, which, in combination with the forked lever or shifter D, gives a continuous back and forward traverse to said grinder, and serves also as a shaft for it to hang and move upon while grinding the cards, the whole being constructed, arranged, and operating essentially as and for the purpose herein described.

NATHANIEL SMITH.
ASA CRANDALL.

Witnesses:
SYLVESTER G. SPENCER,
MARY E. SHEARMAN.