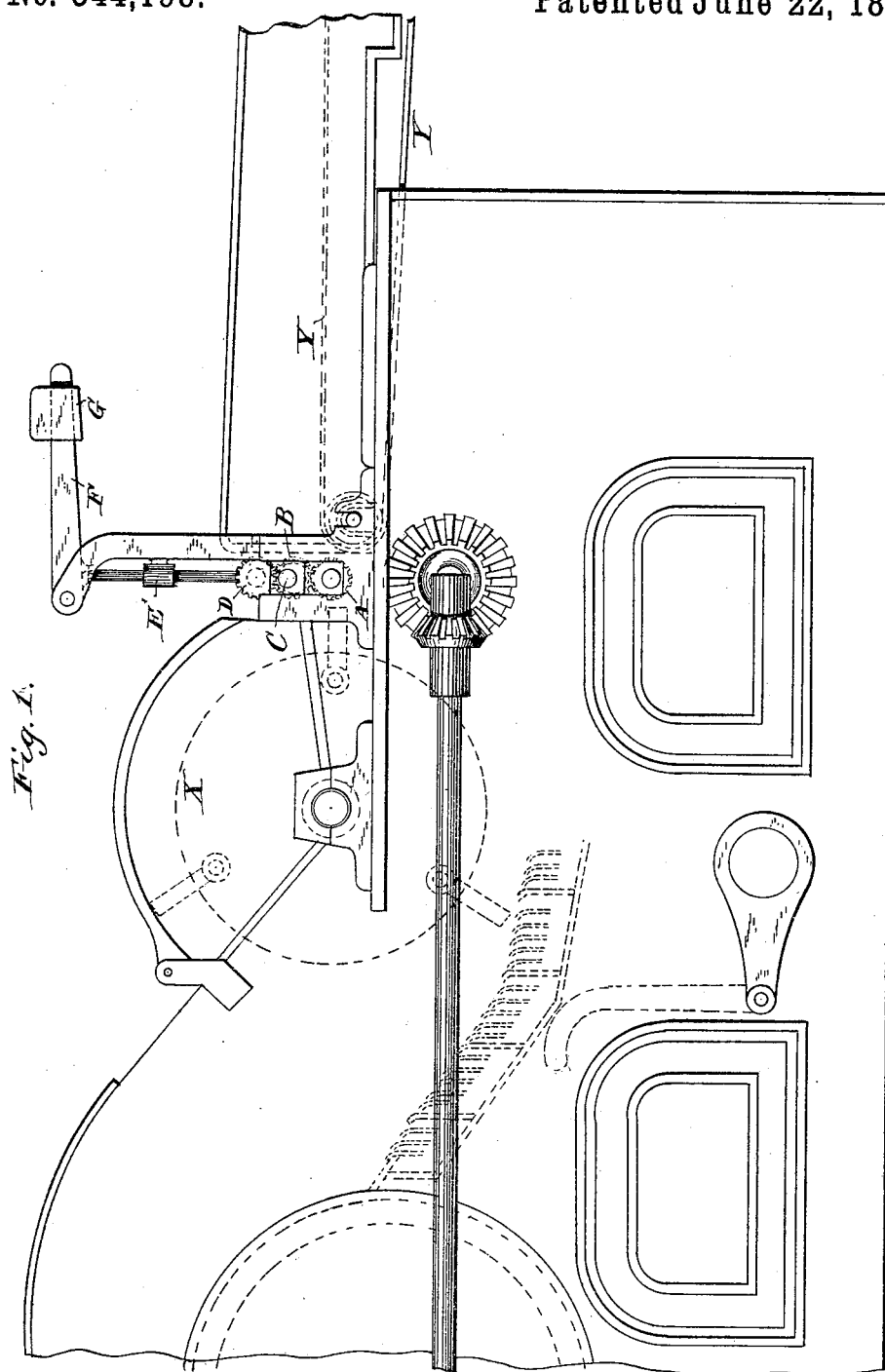


J. C. POTTER.

MACHINERY FOR OPENING, CLEANING, OR PREPARING COTTON, &c.

No. 344,198.

Patented June 22, 1886.



Witnesses:

H. A. Low
E. A. Dick

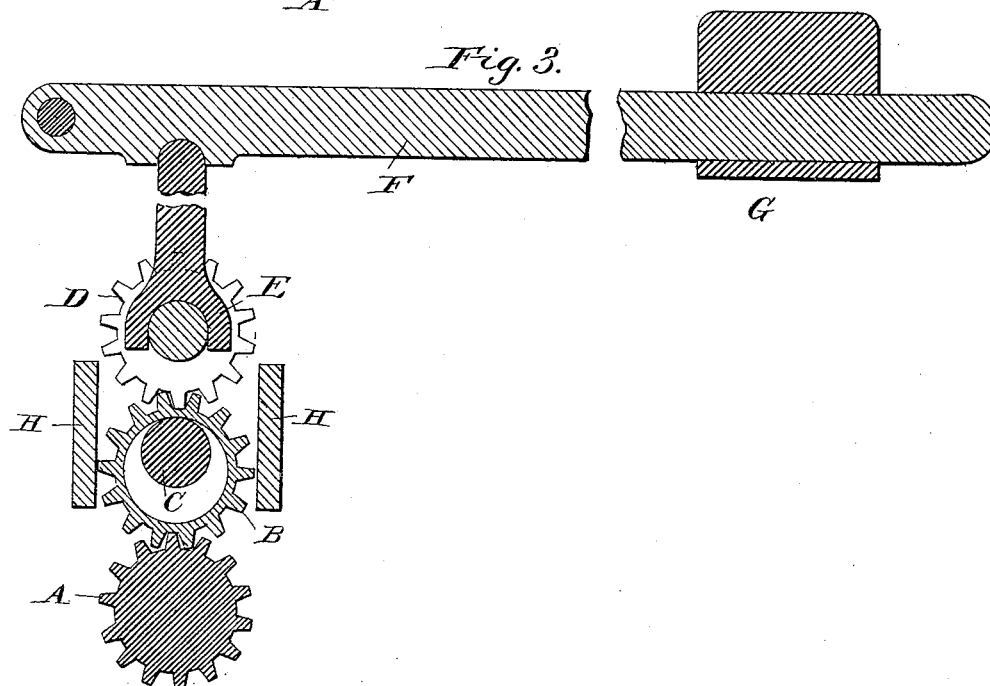
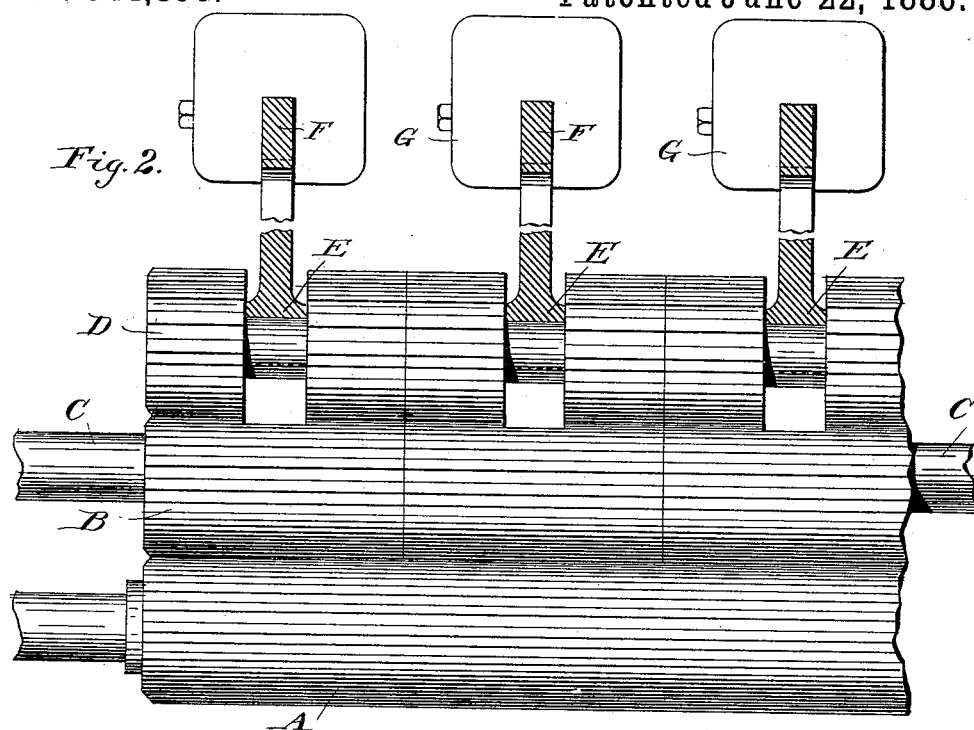
Inventor:

James C. Potter
by Marshall Bailey
his attorney

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Fig. 4.

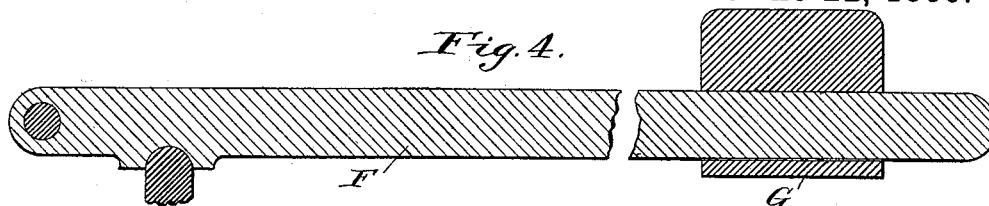


Fig. 6.

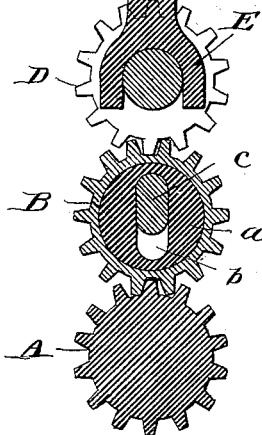
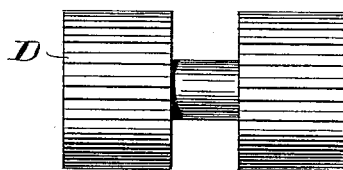
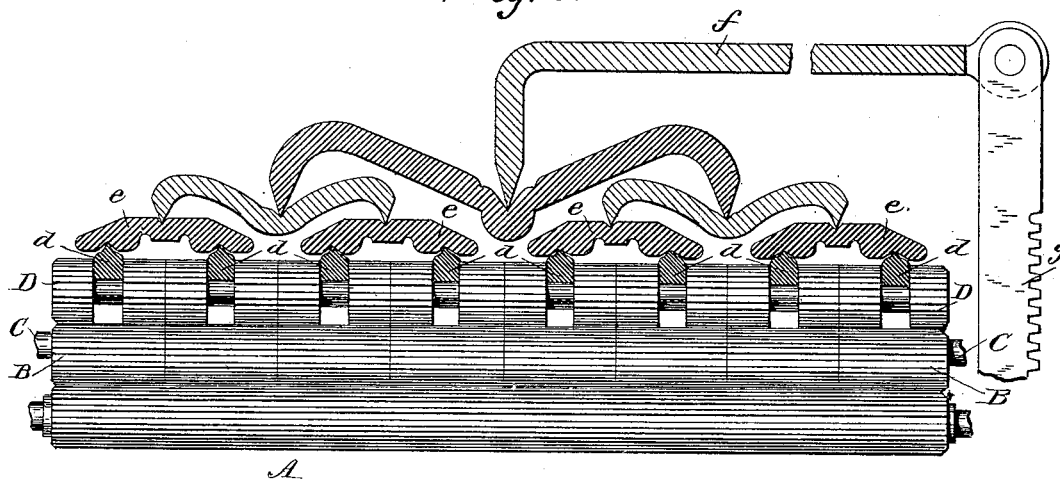


Fig. 5.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

JAMES C. POTTER, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE ATHER-
TON MACHINE COMPANY, OF SAME PLACE:

MACHINERY FOR OPENING, CLEANING, OR PREPARING COTTON, &c.

SPECIFICATION forming part of Letters Patent No. 344,198, dated June 22, 1886.

Application filed April 23, 1886. Serial No. 199,927. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Lowell, Massachusetts, have invented a certain new and useful Improvement in Machinery for Opening, Cleaning, or Preparing Cotton or other Fibrous Substances, of which the following is a specification.

My invention, which relates to machinery for opening, cleaning, or preparing cotton and other fibrous substances, has reference more particularly to the mechanism for feeding or evening, or both feeding and evening, the material to be operated on in the machine, and it contemplates the employment for this purpose of sectional rolls. Sectional rolls for this purpose are not new with me, broadly considered. Their use has been heretofore suggested in the form of both fluted rolls and also unfluted or smooth cylindrical rolls. The latter form, however, is ineffective, particularly for feeding purposes, because the cotton cannot be nipped and held with certainty when being operated on by a beater, and further because the feeding action is not positive, and sections are apt to slip when hard lumps or bunches approach the nip of the rolls. To remedy this trouble it has been proposed to connect the sections by universal joints and then to drive them positively by gearing at one end of their shaft; but this expedient only partly remedies the difficulty.

The foregoing recited objections which attach to smooth cylindrical sections are avoided by fluted sectional rolls; but in any case in which their use has heretofore been proposed no way of weighting them has been devised which is not materially objectionable. Each section of course must be weighted separately, so that each may rise and fall independently of the others; but whenever, as has hitherto been the plan followed, the weights or their equivalents (such as springs) have been applied they have been applied directly to the sections themselves.

Inasmuch as the springs or the saddles of the weighting mechanism cannot take any proper bearing on the flutes of the sections, it becomes necessary to provide each section with a smooth peripheral portion to furnish a bearing-surface, which surface has usually been formed by turning down each section smooth for some

portion of its length. In this way the roll formed by the fluted sections becomes practically discontinuous for feeding or evening purposes, there being grooves or unfluted spaces at intervals throughout its length in which no proper feeding or evening action can take place.

To obtain a sectional roll feeding or evening mechanism which shall obviate the foregoing and other objections incident to the forms of such mechanism, hereinbefore referred to, is the object of my invention; to which end it may in general terms be stated to consist in combining with a sectional fluted roll, its co-operating fluted roll, and mechanism for weighting the independent sections of said sectional fluted roll a sectional shell-roll, preferably fluted, interposed between the sectional feed-roll and the weighting mechanism, the independent sections of said shell-roll meshing with corresponding sections of the fluted feed-roll, and furnishing each a bearing for the weighting mechanism or that portion thereof which is to influence or act upon the fluted feed-roll section appertaining thereto. The fluted feed-roll sections engage and are positively driven by the solid or continuous fluted roll with which they co-operate, and they in turn mesh with and drive the shell-roll sections, while these latter, being interposed between the weights and the fluted feed-roll sections, constitute the intermediary through which the weights act upon the latter. In this way I am able to obtain a mechanism in which is contained a fluted sectional feed-roll, practically continuous throughout its length for feeding or evening purposes, which at the same time is composed of positively-driven and independently-weighted sections.

The nature of my invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a cotton opener and lapper embodying my invention, only so much of the machine being shown as required for purposes of explanation. Fig. 2 is a rear elevation, on much enlarged scale, of a portion of the three rolls constituting the feeding mechanism detached from the machine, with the fork-saddles and weight-le-

vers, the latter in section. Fig. 3 is a cross-section through the three rolls, the plane of section being through one of the fork-saddles and weight-levers. Fig. 4 is a like section of a modification. Fig. 5 is a rear elevation of part of the three rolls, in connection with which is shown an evening mechanism, or so much thereof as needed for the purpose of explanation. The saddles, connecting-bars, and even-er-lever of this mechanism are represented in section. Fig. 6 is an elevation of one of the shell-roll sections.

The beater or whipper is indicated by dotted lines at X, and a portion of the usual feed-apron is shown at Y.

A is the lower fluted feed-roll, which is of the ordinary type, occupies the same position in the machine that the lower fluted feed-roll of the customary feed mechanism usually does, and, like the latter roll, is power driven, being actuated from some suitable moving part of the machine by gearing, which, being well known to those skilled in the art, it is unnecessary to describe or illustrate.

B is the sectional fluted feed-roll, which co-operates with the lower roll, A, and occupies the position usually occupied by the ordinary upper fluted feed-roll in this class of machines. It is a tubular roll, divided crosswise into a suitable number of lengths or sections, which, while independent of one another, are placed together so as to form, in effect, a continuous roll, and mesh with and are driven by the lower fluted roll, A. Through the tubular fluted sections extends a stationary bar or rod, C, having a cylindrical or other suitable form in cross-section, and supported at the ends in the frame of the machine. The bar has a diameter sufficiently less than the internal diameter of the sections, to permit the latter to move as far away from the lower roll as may from time to time be necessary. Above the sectional fluted feed-roll is the sectional fluted shell-roll D, divided into sections, in length and number corresponding to those of roll B. The shell-roll sections, which are independent of one another, mesh with and are driven by their corresponding fluted feed-roll sections.

As a convenient way at once of assuring the shell-roll sections in place, and of affording bearings for the fork-saddles of the weight-levers, each shell-roll section, as shown in Fig. 6, is peripherally grooved about midway between its two ends, so as to form an axial cylindrical stem at that point, which can be straddled by the fork-saddle E. Each saddle when applied to its section fits in the groove and upon the stem, and as the stems of the saddles pass up through cylindrical bearing-sleeves E' on the frame of the machine, they assure the fluted shell-sections from displacement in any direction. Upon the upper ends of the stems bear, as usual, pivoted weight-levers F, carrying adjustable weights G.

In the construction shown in Figs. 1 to 3, it becomes necessary to provide some means

of assuring the fluted feed-roll sections B from displacement to the front or rear of the other rolls, and to this end flat plates H, (shown in section in Fig. 3,) secured at their ends to the sides of the machine, may be placed on each side of the sectional roll B in such contiguity thereto as to prevent the roll-sections from getting out of line with the rolls above and below. The plates H, however, may be dispensed with, and in lieu thereof the tubular sections B can be filled internally with loose cylindrical bushings a, having longitudinal slots b, through which passes the stationary transverse bar or rod c, which is secured at its ends to the sides of the machine, and has a rectangular cross-section, the slots being of such size as to permit the bushings to move up and down on the rod, but not to turn thereon.

In Fig. 5 enough is shown to indicate to one skilled in the art the manner in which my improvement can be used in connection with evening mechanism. Upon the axles or stems of the shell-roll sections are saddles d, connected together in pairs by connecting-bars e, which in turn are connected in pairs by other connecting-bars, and so on, the upper or final connecting-bar furnishing a central bearing for one arm of the pivoted even-er-lever f, the other arm of which is jointed to the rack-bar g, (only part of which is shown,) which, through suitable intermediaries, is connected to and adjusts the belt of the cone-drums which form part of the evening mechanism, as illustrated, for example, in Letters Patent No. 335,089, of January 26, 1886. In this arrangement the sectional fluted roll B takes the place of the even-er-plates of the ordinary evening mechanism. They are shown as placed above the fluted solid roller A; but the arrangement may be reversed—that is to say, the sectional fluted roll and the instrumentalities connected therewith and operating thereon, can be placed below instead of above the fluted roller A, just as even-er-plates have before this been placed either above or below the roll, with which they co-operate.

It will be understood that my invention applies either to feed mechanism or to even-er mechanism, or to mechanism for both feeding and evening.

The intermediate sectional roll, D, I have termed a "shell-roll," simply for convenience sake. It may have the construction of a conventional sheel-roll, or may be otherwise made; and with reference to the shell-roll sections I desire to say here that while I much prefer to have them fluted correspondingly with the sections of the fluted feed-roll on which they bear, yet their surfaces may be otherwise formed, so that while fitted to continuously bear upon the feed-roll sections they may be rotated thereby without undue friction. In other respects also it is manifest to those acquainted with the art that the details

hereinbefore described and illustrated in explanation of my improvement can be considerably varied without material departure from my invention. I therefore desire it to be understood that I do not restrict myself to said details; but

What I claim herein as new, and of my own invention, is—

1. The combination of a sectional fluted feed or evenner roll, a fluted roll to co-operate with the sections of said roll, mechanism for weighting said sections, and a sectional shell-roll interposed between said weighting mechanism and fluted sections, substantially as and for the purposes hereinbefore set forth.

2. The combination of a sectional fluted feed or evenner roll, a fluted roll to co-operate with the sections of said roll, mechanism for weighting said sections, and a sectional fluted shell-roll interposed between said weighting mechanism and sections, the combination being and acting substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 22d day of April, 1886.

JAMES C. POTTER.

Witnesses:

A. MOHUN,

A. T. ATHERTON.