2 Sheets--Sheet 1.

C. F. MORRISON.

Eveners for Wool-Cards.

No. 144,348. Patented Nov. 4, 1873.

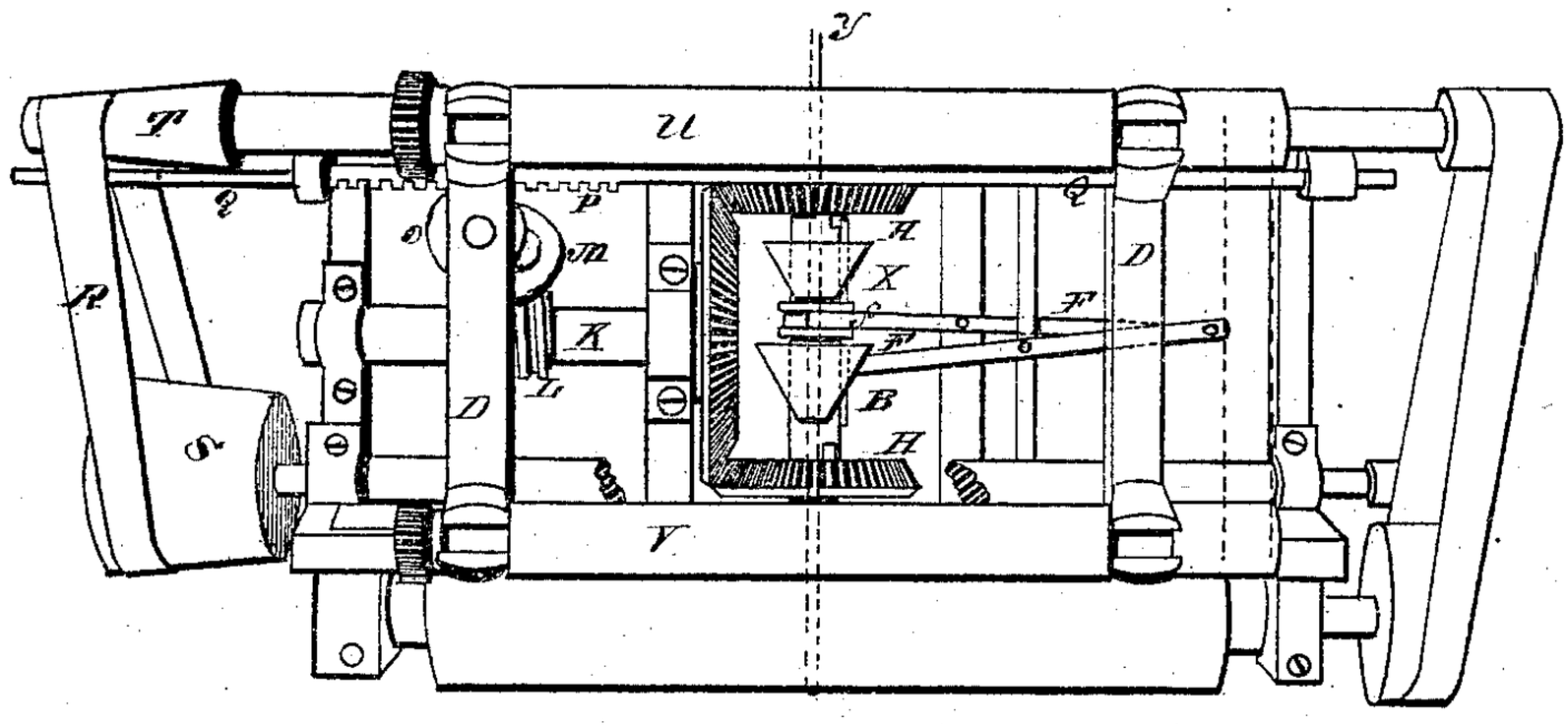

Fig. I.

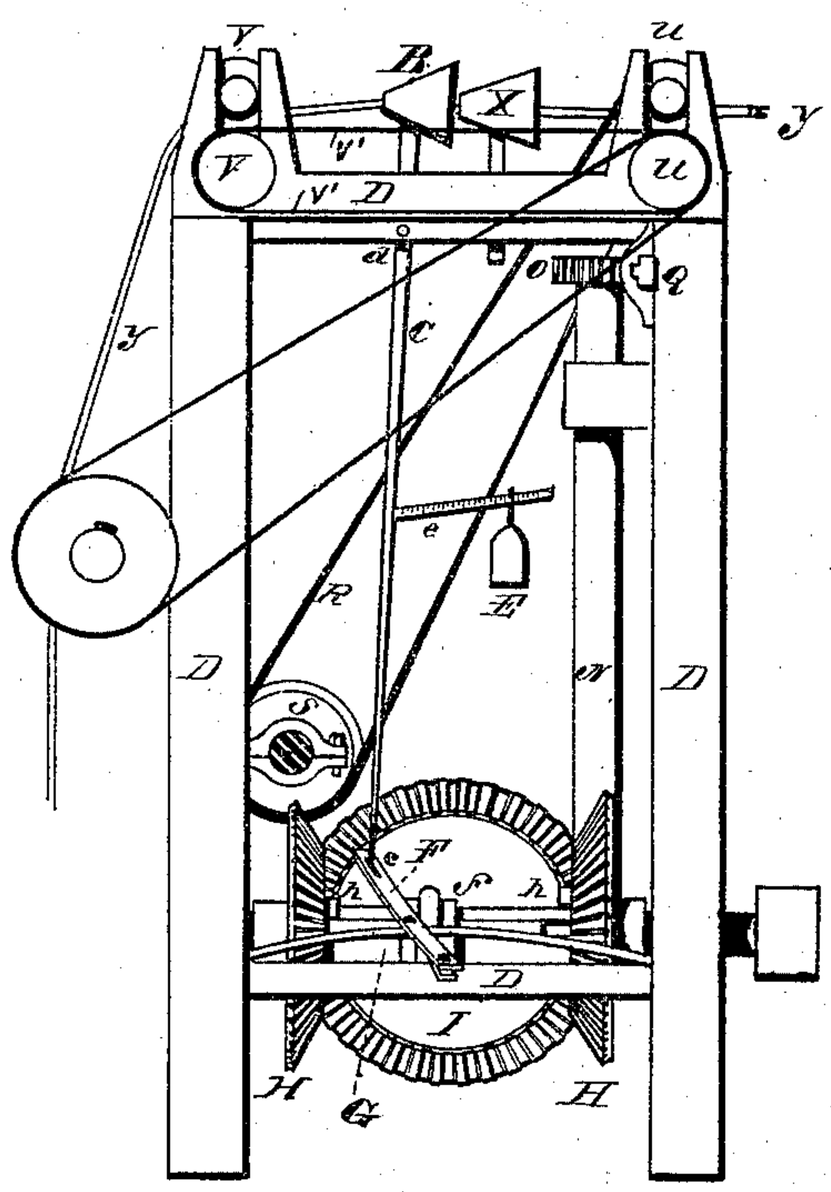

Fig. II.

Witnesses:

Wm B. Parker

F. Thompson

Inventor

Charles F. Morrison

by his Attorneys

Fairbanks & Hyde

2 Sheets--Sheet 2.

C. F. MORRISON.

Eveners for Wool-Cards.

No. 144,348. Patented Nov. 4, 1873.

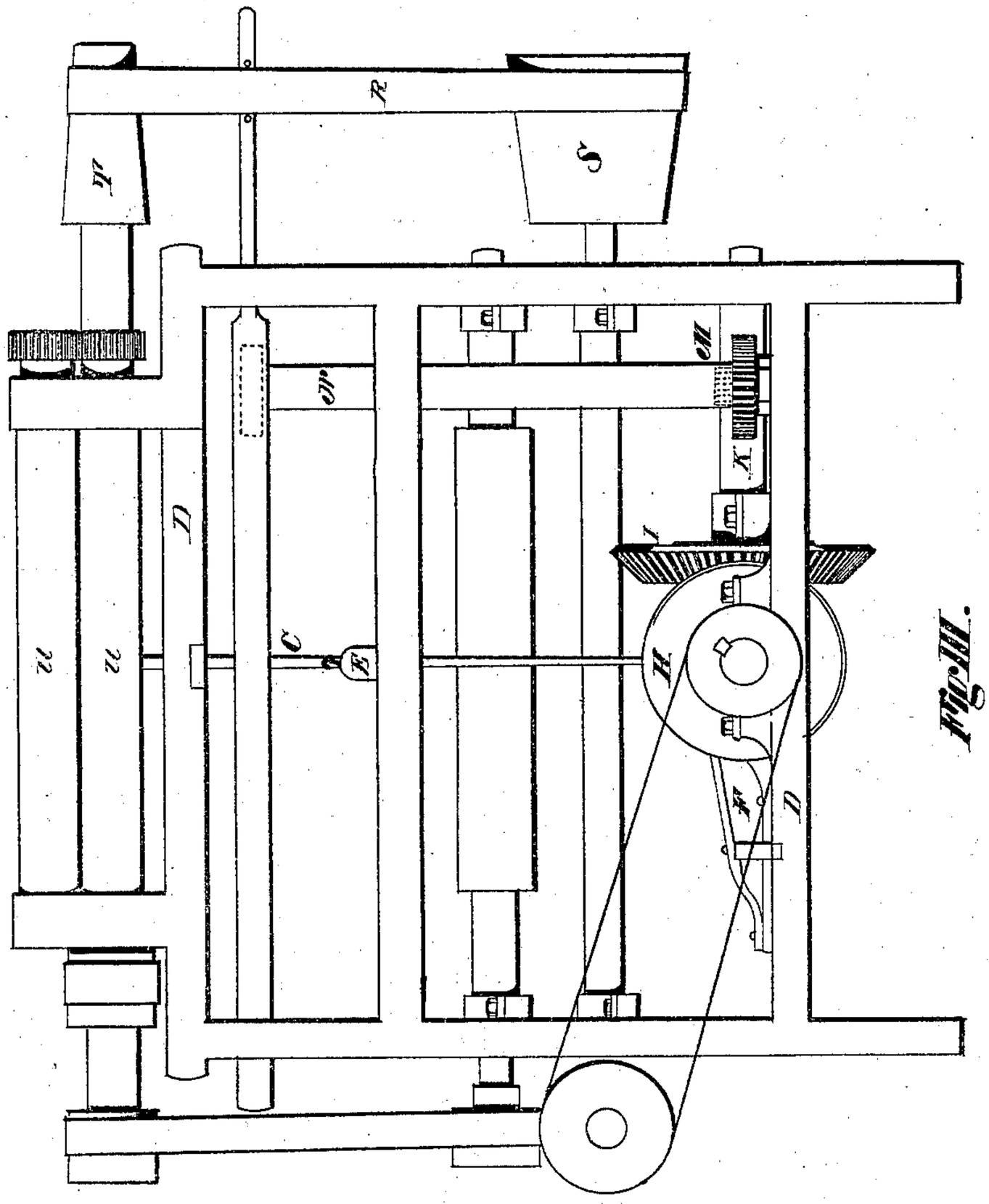

Fig. 1.

Witnesses.

Wm B. Parker

F. Thompson

Inventor.

Charles F. Morrison

by his attorneys

Gardiner & Hyde

UNITED STATES PATENT OFFICE.

CHARLES F. MORRISON, OF THOMPSONVILLE, CONN., ASSIGNOR TO HIMSELF, JAMES MORRISON, GEO. S. HARWOOD, AND GEORGE H. QUINCY.

IMPROVEMENT IN EVENERS FOR WOOL-CARDS.

Specification forming part of Letters Patent No. **141,348**, dated November 4, 1873; application filed April 25, 1873.

To all whom it may concern:

Be it known that I, CHARLES F. MORRISON, of Thompsonville, Hartford county, State of Connecticut, have invented a new and useful Improved Device for Preserving Even the Size of the Roping Delivered from a Carding-Engine, of which the following is a specification:

This invention relates to "side-drawing" or "roping" machines for wool-carding engines; and its object is to deliver from the wool-card a roping of uniform size and weight. To this end I combine, with drawing and delivering rolls revolving at the same rate of speed, an automatic evening mechanism brought into operation by variations in the size of the sliver, to increase or decrease, as the case may be, the speed of both of said sets of rolls simultaneously and in unison. Under my invention, inasmuch as the two sets of rolls under all conditions revolve at the same rate of speed, there is no tension on the sliver; but their variations of speed (which take place simultaneously and in unison) simply affect the length of the sliver, more or less stock, according to circumstances, being taken from the doffer in order to maintain at all times a uniform size or weight of roping. In the machine or mechanism in which my invention is embodied the sliver is not stretched or drawn as in the drawing-frame used in cotton-mills; but the stock (wool) is carried forward by rolls, as above specified, which exercise no stretching action on the sliver.

Side-drawing or roping mechanism operating in accordance with my invention deals invariably with the product of one woolen card, and is designed to be attached to said card.

In the drawings accompanying this specification I have represented what I deem to be, on the whole, the best means of carrying my invention into effect.

By the old method any inequality in the feed does not affect the length of the sliver discharged from the carding-engine, but it affects only the size or weight of sliver, always preserving the same length. By my method the size or weight of the sliver is always the same, but any inequalities in feeding affects the length only.

In the drawings, Figure I is a top view of my device; Fig. II, an end view, and Fig. III a side view.

The trumpet B, of such a size as is needful in each particular case, is attached to the balanced lever C, which is hinged in the frame D, at *d*, and balanced in the desired position by the adjustable weight E upon the arm *e*. The end *c* of lever C is attached to one end of lever F, hinged also to frame D, the other end of lever F catching in the collar of clutch *f*, splined upon shaft G, which shaft is constantly in revolution, and has loose upon it the pinions H H, provided with the stops *h h*, with either of which, at the proper time, the splined clutch *f* locks. The pinions H H engage with the right-angle gear-wheel I upon the end of shaft K, in bearings in frame D, and the shaft K has upon it the worm-thread L, engaging with wheel M upon the end of upright shaft N. The shaft N has also the pinion O, which operates the rack P upon the shipper-bar Q, which slides in frame D. Any movement of the shipper-bar Q is communicated to the belt R, extending from the cone speeding-pulley S to cone-pulley T, which gives motion to the drawing and delivery rolls U U V V. The cone-pulley T directly drives the drawing-rolls U, as shown plainly in Figs. 1 and 3. The delivery-rolls V are actuated from the drawing-rolls U, a driving-belt, V′, passing from a pulley on the shaft of the under drawing-roll to a pulley of corresponding size on the shaft of the under delivery-roll, as indicated in Fig. 1. The two sets of rolls will therefore invariably revolve at the same rate of speed, the variations in speed, caused by the action of the automatic evening mechanism, affecting the delivery-rolls equally with the drawing-rolls, so that both sets of rolls will, under all circumstances, revolve in unison.

The operation is as follows: The roping *y*, being taken from the doffer by the rolls U U, is taken, after passing through the trumpet B, by the rolls V V and delivered. The trumpet is balanced upon its lever C by the weight E, to permit the passage through it of the proper size of roping without the clutch *f* upon shaft G catching with either pinion H H. Should,

however, from an inequality in the sizes of the ends passing into the engine, or from the parting of some of them, or from improper feeding to the first breaker, or from other causes, an alteration be produced in the size of the roping to cause an increased or diminished pressure against the trumpet, the clutch *f* is at once moved to lock with one of the pinions H H, and, through gear I, worm L, and rack and pinion P O, ship the belt, by means of the rod Q, to a position upon the cone-pulleys S T that will at once cause the uniformity of the roping to be restored by causing the rolls U U V V to take from the doffer slower or faster, as the case may be, and in so doing take a larger or smaller roping; and so rapidly are any changes in the size of the roping met by the increased or reduced speed of the rollers U U V V that the roping is practically kept perfectly even in size and weight, and the necessity of weighing from time to time during the day fixed lengths of roping to detect variation is entirely obviated. In order to prevent bunches and inequalities from catching in the trumpet B and causing the speed of rolls U U V V to be unnecessarily changed, I place before the trumpet B the auxiliary trumpet X, which is attached rigidly to the frame D, and which acts as a clearer to remove any local obstructions in the roping.

In construction, lever F is formed in two parts, making, in effect, a compound lever, one part being hinged to the frame and grasping the clutch, so as to ship it upon being itself moved. The other part of the lever is connected at one end to the lever C, at *c*, and, being hinged to the frame, has its other end connected to the otherwise free end of the shipper-lever, so that while a leverage is obtained to ship the clutch *f*, there is no possibility of any part of the compound lever F binding at any place from change of position, as would be the case with a lever formed of one piece, and made to occupy no more space than is required by mine.

In conclusion, I wish to be understood that I do not claim, broadly, an automatic evening mechanism operated by variations in the size of the sliver, for I am aware that the same has been used in connection with the drawing-frames of cotton-cards to operate the rolls which draw and stretch the sliver before it passes to the calender-rolls.

What I do claim, and desire to secure by Letters Patent, is—

In side-drawing or roping machines for wool-carding engines, the combination, with drawing and delivery rolls revolving at the same rate of speed, of automatic evening mechanism brought into operation by variations in the size of the sliver, to increase or decrease, as the case may be, the speed of both sets of rolls simultaneously and in unison, substantially as and for the purposes shown and set forth.

CHARLES F. MORRISON.

Witnesses:
B. F. HYDE,
WM. T. SHURTLEFF.