2 Sheets--Sheet 1.

J. F. FOSS.

Mangle-Rack and Pinions for Card Strippers.

No. 152,988. Patented July 14, 1874.

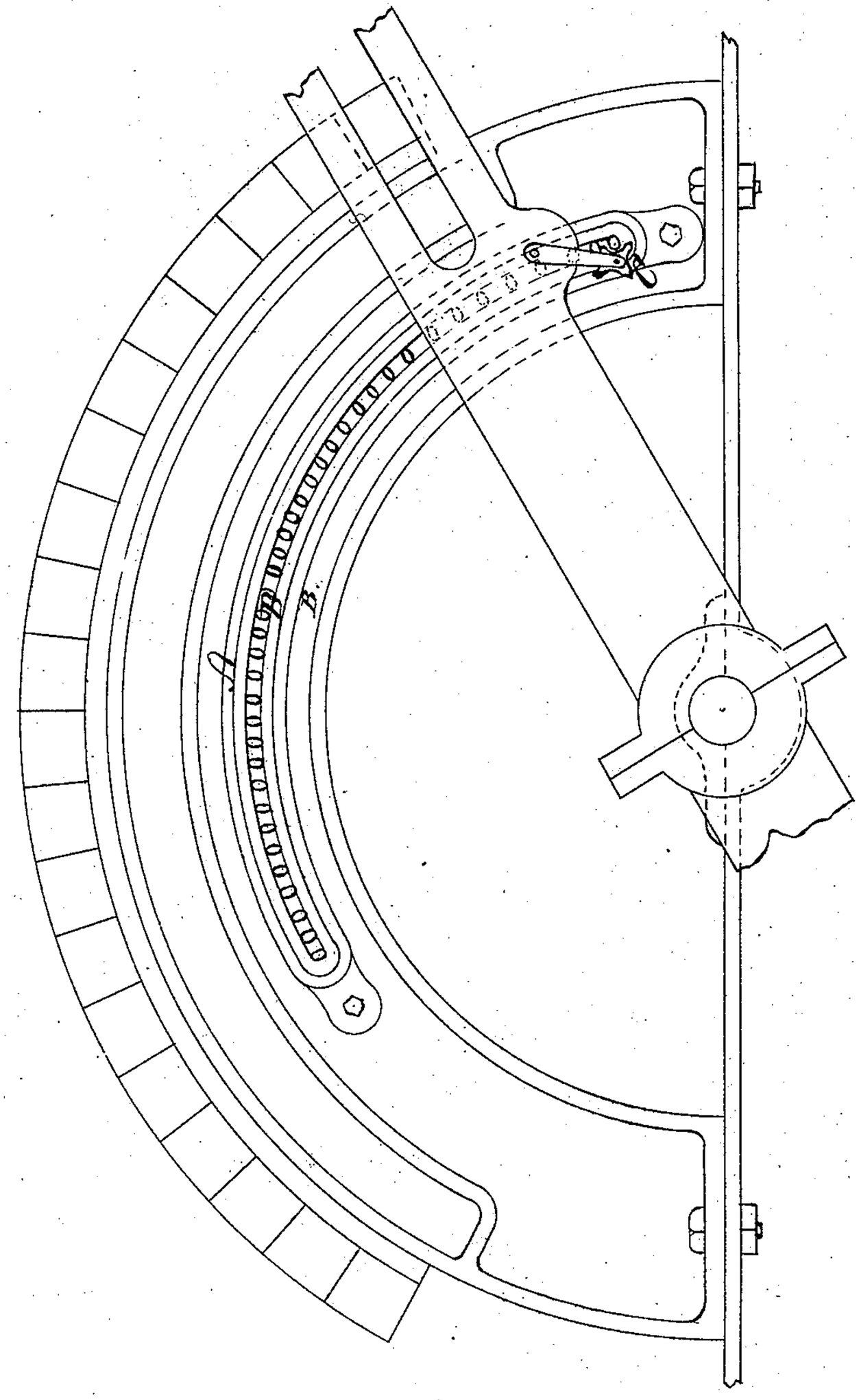


Fig. 1.

WITNESSES

E. McGallaher.

C. Clarence Poole.

By

John F. Foss, INVENTOR

J. S. Brown, Attorney

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

J. F. FOSS.

Mangle-Rack and Pinions for Card Strippers.

No. 152,988. Patented July 14, 1874.

Fig. 2.

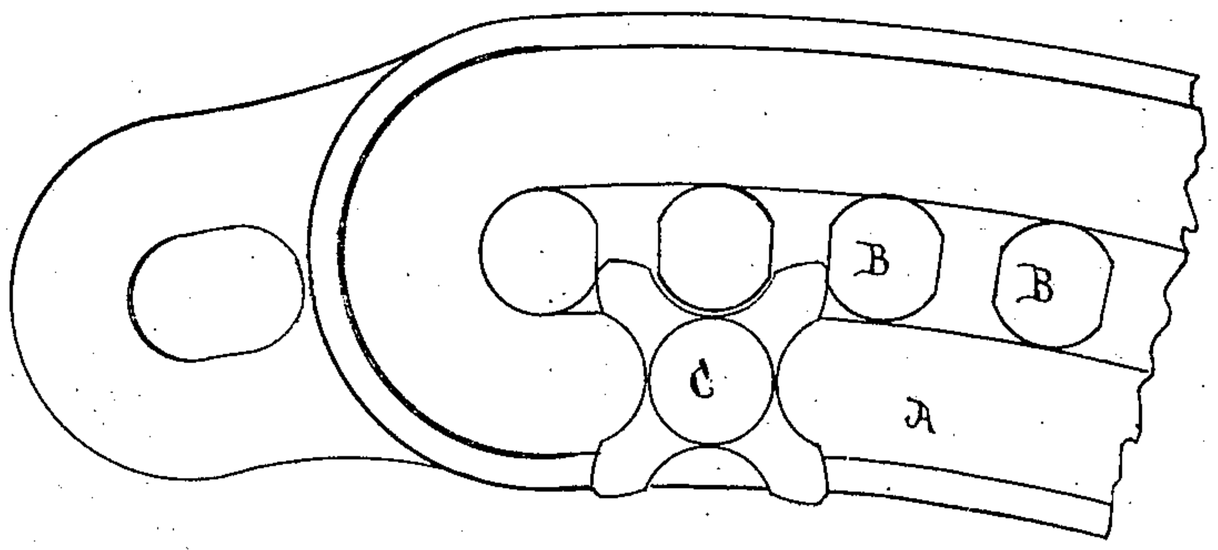
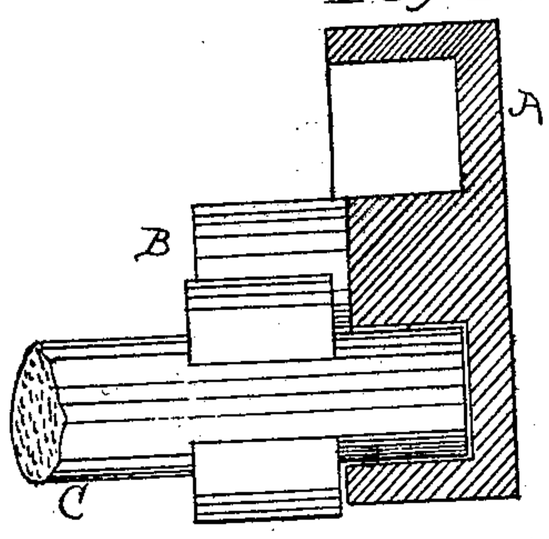


Fig. 3.



Witnesses.

Abel. T. Atherton

M. A. Atherton

Inventor.

John F. Foss

UNITED STATES PATENT OFFICE.

JOHN F. FOSS, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN MANGLE RACKS AND PINIONS FOR CARD-STRIPPERS.

Specification forming part of Letters Patent No. **152,988**, dated July 14, 1874; application filed March 21, 1873.

To all whom it may concern:

Be it known that I, JOHN F. FOSS, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in the Mangle Rack and Pinion used on the Card-Stripping Device patented by George Wellman, of which the following is a specification:

The nature of my invention consists in the construction of a mangle rack and pinion device for operating the strippers of carding-machines, the pinion containing only four teeth, and being combined with a rack having one fewer teeth or pins than twice the number of top flats on the machine, whereby the strength and durability of the rack and pinion are greatly increased, the simplicity and cheapness of construction are enhanced, and the trouble and expense of frequent repairs are obviated.

The accompanying drawings represent my invention, Figure 1 being a side view of my improved rack and pinion complete; Fig. 2, a view, on a larger scale, of one end of the rack with the pinion in place; Fig. 3, a cross-section of the rack, also showing the pinion in place.

Like letters designate corresponding parts in all of the figures.

A is the rack-plate. B B are the teeth in the rack. C is the pinion. The mangle gear or rack is a device well known in mechanics for converting a continuous rotary motion into an alternating one. In the ordinary mechanism for stripping cotton cards this alternating motion is obtained by a mangle-rack or pin-segment with a pinion of eight teeth, the size and strength of the pins or teeth in the rack depending on the number of teeth in the pinion and the number of top flats, an eight-tooth pinion necessitating the use of about one-eighth of an inch pivot-tooth in the ends of the rack. It requires a rack with seventy-seven teeth, working with a pinion of eight to strip twenty-card flats, making a tooth about one-eighth of an inch in thickness, which has been found in practice to be entirely unfit for the amount of work that it is required to do, it being necessary, after once stripping all of the top flats, for the pinion to stand precisely in the same position in the rack as at the commencement of the stripping.

I have found by a practical trial that a four-tooth pinion running in a thirty-nine tooth rack gives the same results as an eight-tooth pinion running with a seventy-seven tooth rack.

This rack and pinion is designed to take the place of a rack and pinion on the "Wellman card," and is especially valuable on these accounts—viz., when once applied to a card there is no danger of its breaking or getting out of order, and when we consider the short distance between the cards when placed for operation in a room we at once perceive the great inconvenience and loss of time which must occur when a rack and pinion is in need of repairs on account of the great trouble in detaching it from the card. Another advantage produced is the absence of small wrought-iron pins, made in the castings as heretofore, it being impossible to make said pins large, as they have to work in a fine-tooth pinion-gear. The result of this is the loosening and breaking of these pins, and the consequent disarranging of the entire apparatus, as these pins are necessary in order for the pinion to travel from one side of the rack to the other.

The rack-teeth are flattened on their adjacent sides, as shown, thereby allowing great width and consequent strength, while occupying no more space lengthwise of the rack. This form also serves to give firmness and stability to the pinion in any position. The pinion in my invention is so constructed in connection with the flattened teeth that it has a firm bearing on three teeth of the rack at a time, so that the stripping-frame is rigid while the top flat is being stripped. Another advantage derived from the use of my pinion is that I dispense with the loose collar on the pivot end, and can chill it, which greatly increases its durability, besides being much easier to lubricate.

There is but one part each to my rack and pinion, consequently the cost of making

is but slight compared to that of the wrought-iron fine-tooth gear heretofore found necessary to be used.

I disclaim the invention of what is known as the traversing device of "Wellman's self-stripper;" but

What I do claim is—

The combination of a four-toothed stripper-pinion with a mangle-rack, having one fewer than twice as many teeth as there are top flats on the carding-machine, as and for the purpose herein specified.

JOHN F. FOSS.

Witnesses:

ABEL T. ATHERTON,

M. A. ATHERTON.