# M. MARSHALL.

## Machines for Disintegrating Fabrics.

No. 143,290. Patented September 30, 1873.

Fig 1.

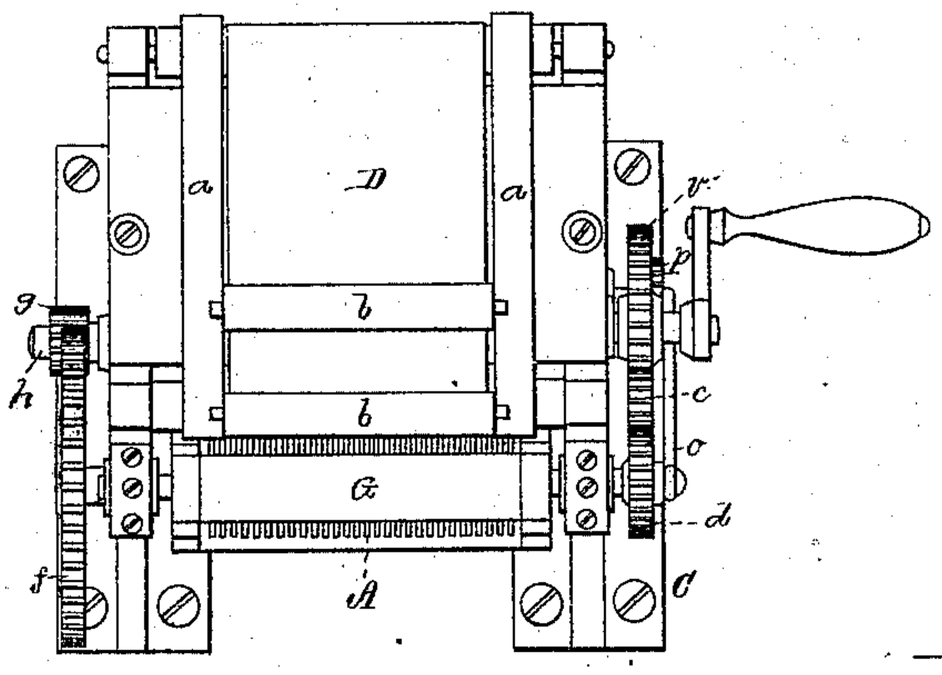



Fig 2.

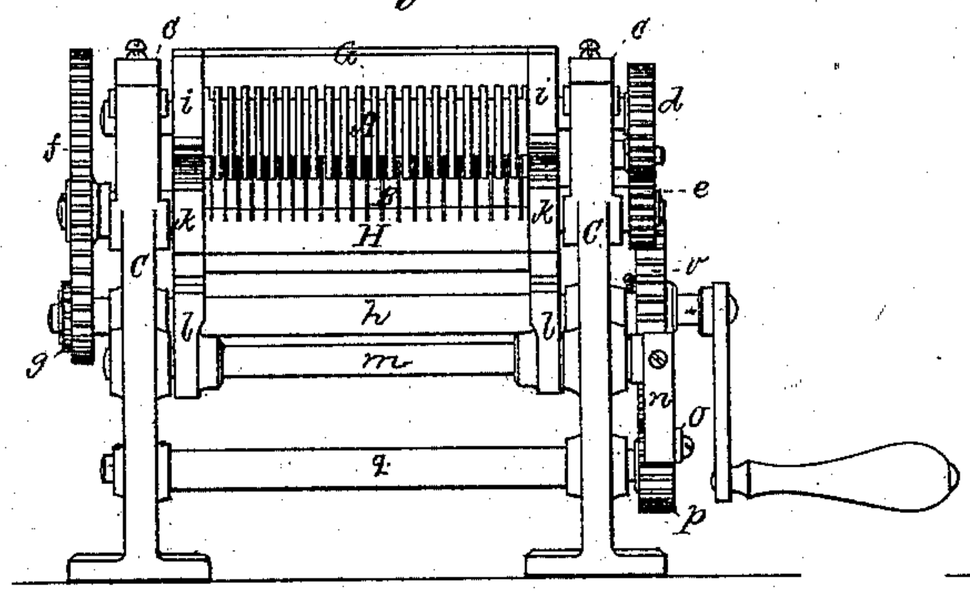



Fig 3

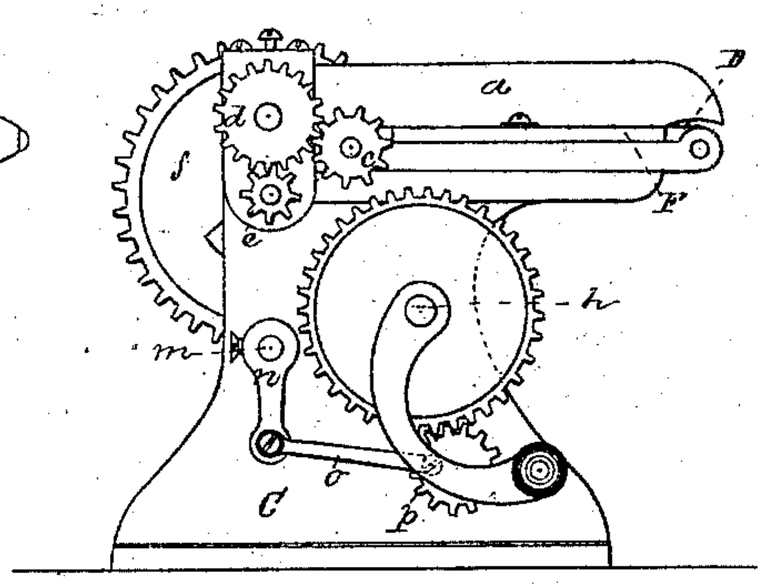



Fig 4.

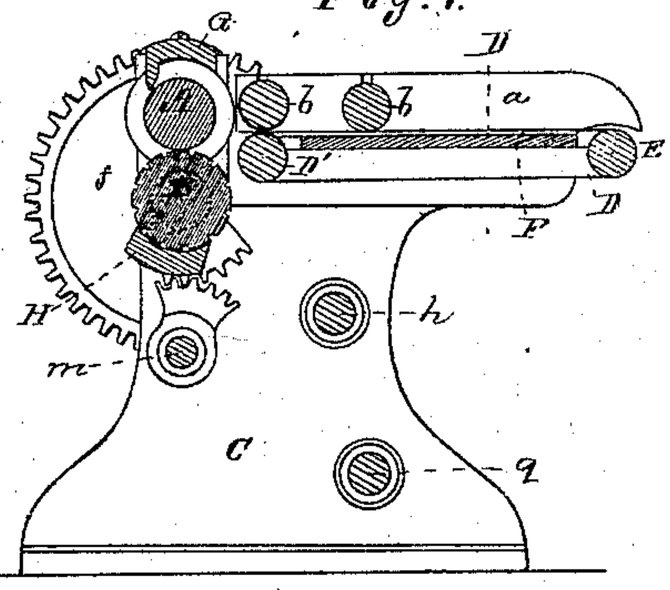



Fig 5.

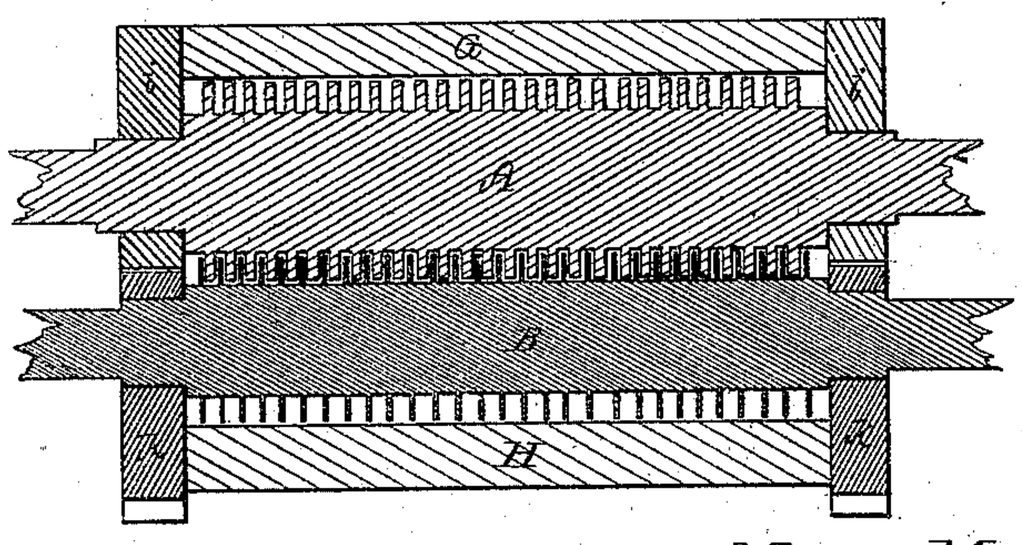
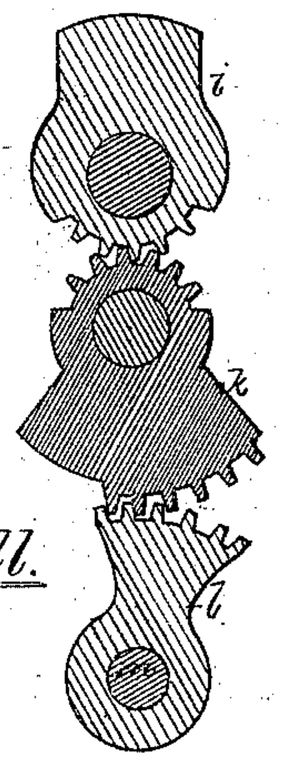



Fig 6.




Witnesses.

S. N. Piper.

L. N. Keller.

Moses Marshall.

by his attorney

R. H. Eaton

# UNITED STATES PATENT OFFICE.

MOSES MARSHALL, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND DAVID LANE, OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR DISINTEGRATING FABRICS.

Specification forming part of Letters Patent No. **143,290,** dated September 30, 1373; application filed July 23, 1873.

CASE B.

*To all whom it may concern:*

Be it known that I, MOSES MARSHALL, of Lowell, of the county of Middlesex and State of Massachusetts, have invented a new and useful Machine for Breaking up either the Warp or the Weft Threads of Cloth; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, Fig. 3 a side view, and Fig. 4 a longitudinal section of it.

In such drawings, A and B represent two cylinders, each of which is grooved transversely with numerous grooves parallel to each other, and extended entirely around the cylinder. One of these cylinders is arranged over the other, the projections formed by the grooves of each cylinder being extended into the grooves of the other, as shown more particularly in Fig. 5, which is a longitudinal section of the two cylinders and their sectoral clearers. These grooved cylinders are arranged within a supporting-frame, C, in manner as shown, and in advance of an endless feeding-apron, D, extending about rollers D′ E. The upper part of the apron passes over and upon a platform, F, and between two parallel guides, *a a*, erected thereon. There are pivoted in such guides two rollers, *b b*, having their journals arranged in vertical slots in the guides. On the shaft of the driving-roller of the endless apron is a spur-gear, *c*, that engages with a gear, *d*, fixed upon the shaft of the upper of the two grooved cylinders A B. The said gear *d* also engages with another but smaller gear, *e*, fixed on the shaft of the lower of the two cylinders A B, such shaft having upon its other end a larger gear, *f*, that engages with a pinion, *g*, carried by a driving-shaft, *h*, all being arranged as shown. Furthermore, there is applied to the breaking-cylinders A B two vibratory clearers, G H, one being arranged over the upper of said cylinders and the other below the lower of them. Each of the clearers is formed or provided with ribs to enter the grooves of its cylinder, in manner as shown. Each clearer is supported by two sectoral arms, *i i* or *k k*, which turn freely on the shaft of the grooved cylinder of such clearer. These arms are geared together and to other arms, *l l*, in manner as represented in Fig. 2, and more particularly in Fig. 6, which is a vertical section of the arms on one side of the machine. The arms *l l* project from a rock-shaft, *m*, arranged and provided with a crank, *n*, in manner as shown. From the wrist of the said crank a connecting-rod, *o*, extends to the wrist of a pinion, *p*, fixed upon a shaft, *q*, and engaging with a spur-gear, *r*, fixed upon the driving-shaft.

I would remark that the lower of the two grooved cylinders, while the machine is in use, should be revolved faster than the upper roller, in order for it to operate to the best advantage. On turning the driving-shaft, not only will the two grooved cylinders be simultaneously revolved, but the endless apron will also be put in movement, and each of the clearers will be moved transversely forward and backward upon or against its cylinder.

If, while the machine is in movement, a piece of cloth having its warp of wool and its weft of cotton threads or yarns be laid upon the endless apron so that the warps may be parallel, or about so, to either edge of such apron, such piece will be introduced into the "bite" of the two grooved cylinders, the piece, during its passage to the said cylinders, being smoothed out by the rollers directly over the apron. On passing between the two cylinders, each of the weft-threads will be so strained as to be cut or broken up into very short pieces, and will be loosened in the warps, which will remain uncut or unbroken, the whole being so as to enable the said warps, by other and proper machinery, to be readily separated from the broken wefts and untwisted and prepared for being again used for any of the purposes for which wool is generally employed in the arts.

The clearers operate to clear the grooves of the cylinders of the warps and broken wefts, and cause them to be properly delivered from the machine. The clearers may be stationary;

but it is preferable to have them movable, as described, while the cylinders are in revolution. So the grooves of the cylinders may be formed so as to cause the cylinders, while operating together, to cut each of the weft-threads, rather than break it into numerous short pieces; but it is preferable to have such cylinders break the thread, as in such case they are not liable to cut or break the warps.

This machine may be used to cut or break the warp-threads and leave the weft-threads entire, provided the cloth be properly presented to the rollers, viz., so that the wefts may be at right angles therewith.

I claim—

For the purpose set forth, the machine substantially as described, consisting of the two grooved cylinders A B, the vibratory clearers G H, and the feeding-apron D, combined and operating substantially as specified.

MOSES MARSHALL.

Witnesses:
R. H. EDDY,
J. R. SNOW.