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Jacob C. Kurtz.

Flax Brake.

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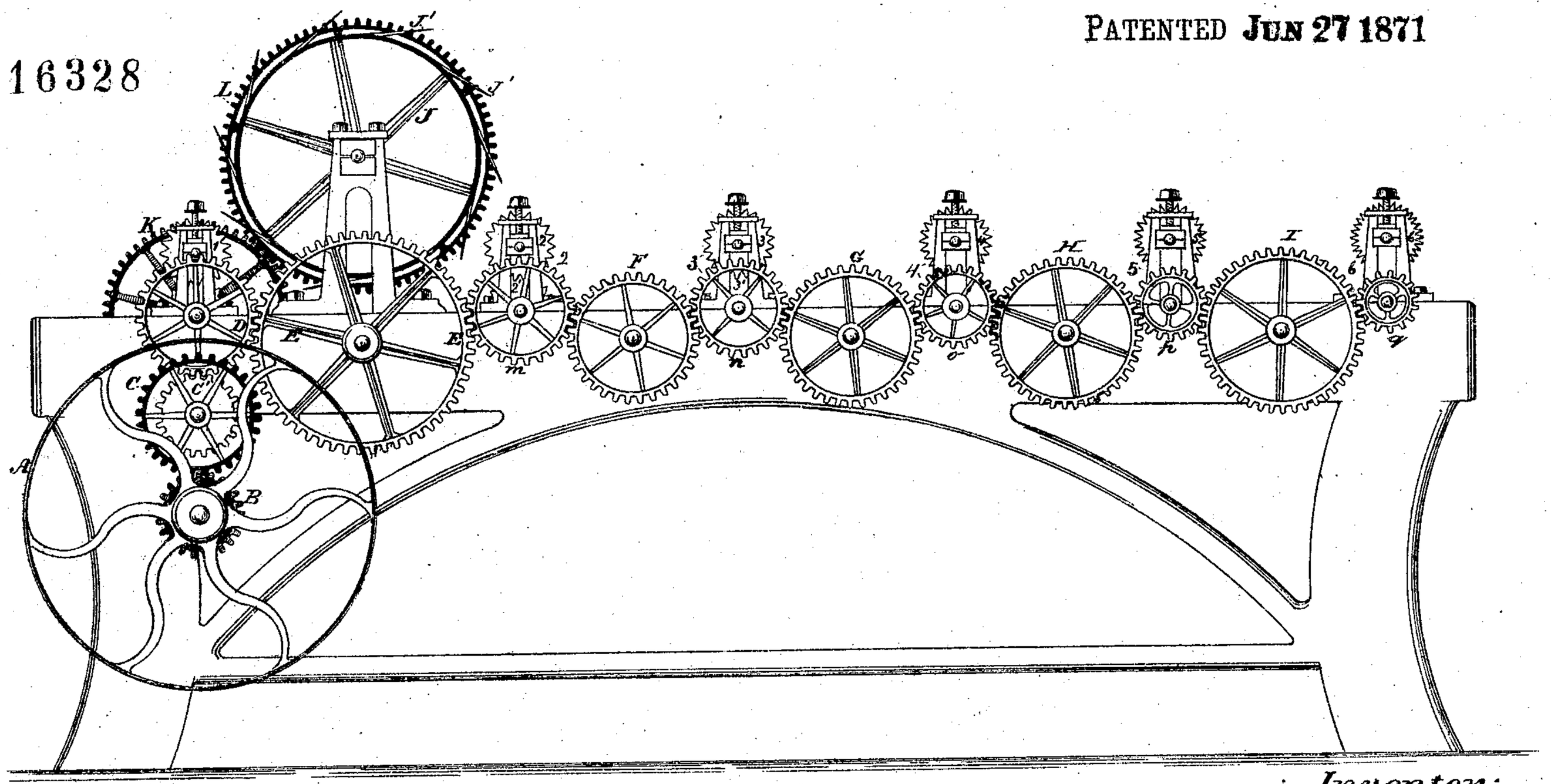
PATENTED JUN 27 1871



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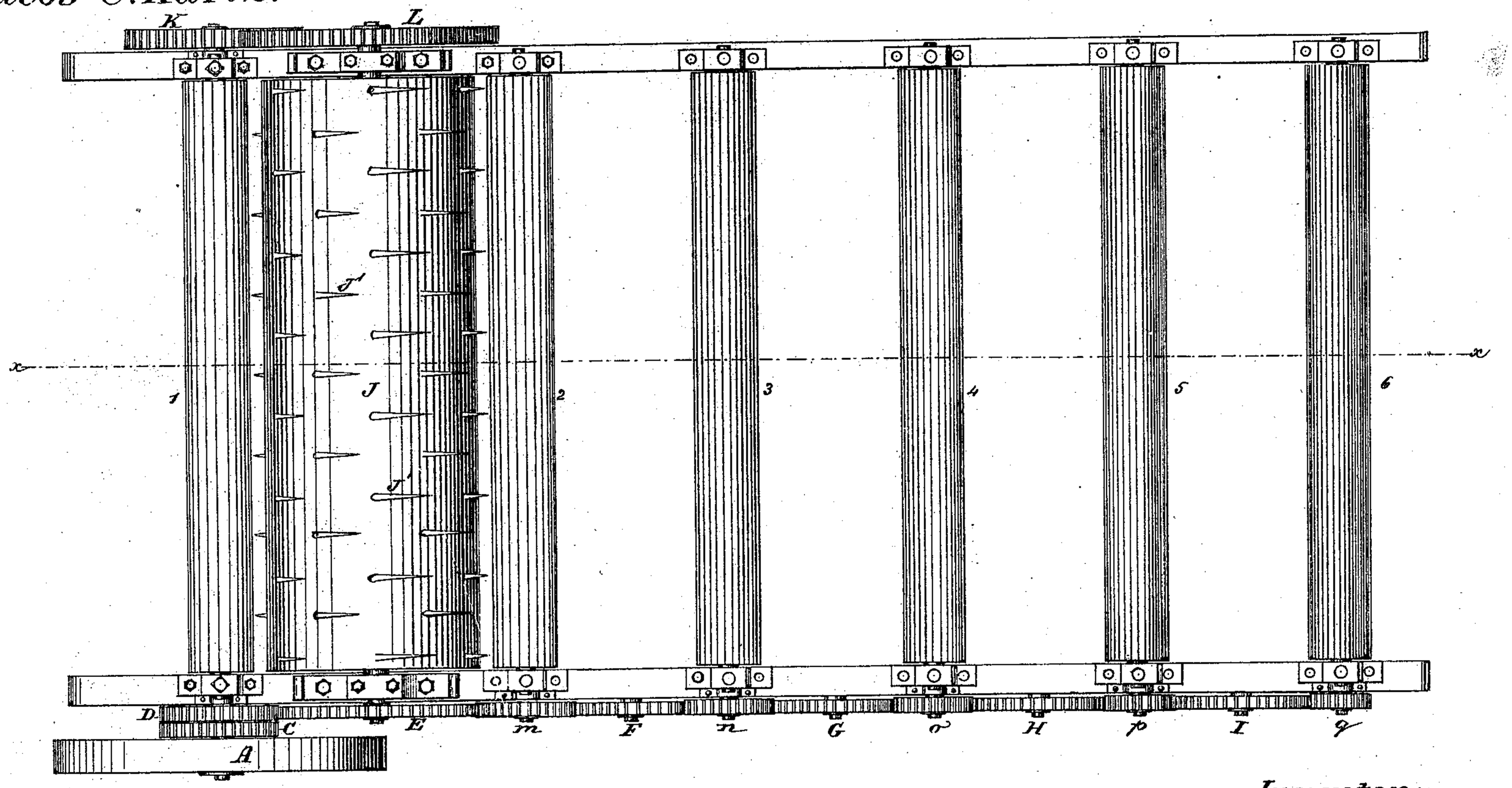
3 Sheets - Sheet 2.

Flax Brake.

Jacob C. Kurtz.



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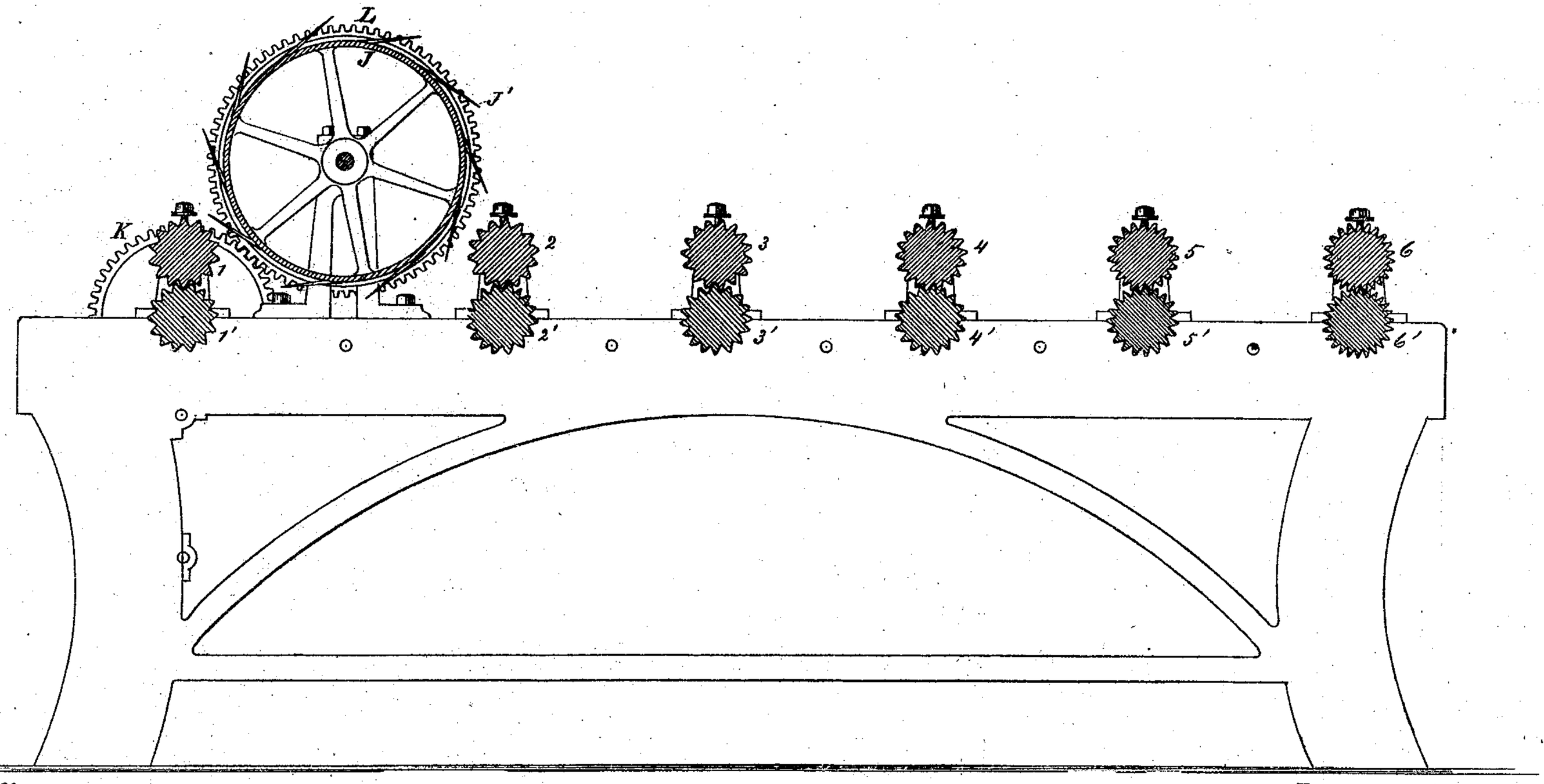
3 Sheets_Sheet 3

Jacob C. Kurtz.

Flax Brake



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UNITED STATES PATENT OFFICE.

JACOB C. KURTZ, OF WOOSTER, OHIO.

IMPROVEMENT IN FLAX-BRAKES.

Specification forming part of Letters Patent No. 116,328, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JACOB C. KURTZ, of Wooster, Wayne county, State of Ohio, have invented new and useful Improvements in Machines for Straightening and Breaking Flax, of which the following is a specification:

The object of my improvements is to provide for a more perfect, even, and uniform breaking and dressing flax-straw by machine power. My invention consists in part in providing two pairs of fluted rollers in connection with a drum having long teeth, one pair of said rollers preceding, the other pair following it, each pair having its own relative surface motion as compared with that of the drum, all as hereinafter specified. Further, my invention consists in arranging, to follow the last pair of rollers above mentioned, a series of breaking-rollers, in pairs, each succeeding pair having a greater surface motion and finer ribs, flutings, or teeth than the preceding pair, all as hereinafter described and set forth.

Figure 1 is a side elevation of my machine, exhibiting the driving-pulley and immediate connections, and the pinions on the lower one of each pair of rollers, and the several connecting gear-wheels. Fig. 2 represents a plan of the brake, in which the manner of distributing the teeth of the cylinder or drum may be observed, and the relative positions of the series of pairs of rollers.

A is the driving-wheel, from which all the parts are moved; B, a pinion on the same shaft as pulley A; C, a small gear-wheel meshing into pinion B; C′, a pinion concentric with C, and lying just inside of it, as illustrated in elevation, Fig. 1, of the drawing; D, a gear-wheel, located directly above C′, by which it is worked, and upon the front end of the shaft of the lower of the first pair of rollers, which will be hereafter described; E, connecting gear-wheel, conveying motions from D to pinion *m*, which, being upon the shaft of lower one of pair 2 of rollers, rotates them; F, connecting-wheel, transferring motion to rollers 3 through pinion *n;* G, another connecting-wheel, reaching and giving motion to pinion O and pair 4 of rollers; H, gear-wheel, through which motion is secured to rollers 5 from pinion O; I, another wheel performing the same office between pinions *p* and *q*, thus giving rotation to rollers 6. *m n o p q* are pinions on the lower of the pairs 2, 3, 4, 5, and 6 of fluted or breaking-rollers; K, a gear-wheel on the end of the shaft of the bottom roller of pair 1, opposite to pinion or gear-wheel D; L, a gear-wheel on the shaft of drum J, meshing into K, from which said drum is rotated. (For K and L see Fig. 2.)

The rollers 2, 3, 4, 5, and 6 are in pairs, each pair arranged one above the other. Those in view in the drawing are the top ones, each lower one being the same as its mate above. A peculiarity of this series of rollers is that, while they are all fluted so as to present sharp ribs or teeth, extending longitudinally throughout their length, each succeeding pair has more of these upon its surface, and of course are nearer together and finer. This provision, I have found, secures a perfection of the work to be done that I could never reach with a uniformity of flutings throughout the series of breaking-rollers. The rollers 2 have a surface motion greater than that of the drum J so as to draw the straw through from the teeth J′, disentangling it, delivering it to rollers 3, which move or have surface motion greater than the preceding pair. So does each succeeding pair have surface motion from one-sixth to one-third greater than the pair preceding. This, also, I have found of the greatest utility.

In operation my device is as follows: A suitable feed-table being provided in front of the pair 1 of rollers on which the straw is placed, and the machine in motion in all its parts through power applied to pulley A, the flax will be drawn between rollers 1, and, passing within reach of the teeth of feed-roller J, is seized by said teeth, which, moving a very little faster than the surface of rollers 1, as before explained, will draw the flax-straw, seeking to carry it forward faster than the rollers 1 would of themselves deliver it, and would thus straighten the crumpled and entangled straws so as to deliver the whole in an even and continuous sheet to the action of the rollers 2. Rollers 2, crimping the straw in the flutings thereof, break the woody portions of the stalks very fine, rollers 3 continuing the process commenced by rollers 2, the greater surface motion of rollers 3 over that of rollers 2 serving to keep the fibrous sheet straight that the shives may be more freely thrown off as the teeth of these rollers will slip or scrape along the fibers of the stalks on account of the increased speed of the successive pairs. In the same way do rollers 4, 5, and 6 continue and complete the work.

The continued influence of the feed-roller J and the following pairs of rollers 2, 3, &c.—more or less pairs, as may be advisable—is to straighten the tangled straw, and, by a continuous drawing force, to keep tight or straight the entire fibrous sheet throughout its whole course through the machine, and proves to be of great practical advantage, securing two very desirable qualities in the material as delivered from the machine, viz., the complete parallel arrangement of the fibers, and a degree of freedom from the shives not before attained by other machines, the flax, indeed, being almost entirely dressed.

I have described my apparatus as a series of breaking-rollers preceded by a long toothed feed-roller or drum, J; but I do not make this feed-roller indispensable to my device, nor regard the application of such a roller in a flax-brake as my invention, as the same has been used by others. The combination and arrangement of this toothed drum J with a pair of grasping rollers preceding it with a slower surface motion than it (drum J) has, and with a pair of breaking rollers following whose surface motion is greater than that of itself, (drum J,) I consider important features of my invention, the operation and result of which have been already described. The slipping of the nibs or teeth of the rollers 3, 4, 5, and 6 upon the fiber as it is drawn from one series to another, as hereinbefore explained, frees the whole from shives in a surprising manner; and herein lies another great advantage of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with toothed drum J the pair 1 of fluted rollers having surface motion slightly less than that of J, and pair 2 of fluted rollers having surface motion greater than that of J, as and for the purposes specified.

2. In combination with the aforesaid rollers I, drum J, and rollers 2, the series of rollers 3, 4, 5, and 6, as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB C. KURTZ.

Witnesses:

C. C. PARSONS, Jr.,

J. W. BAUGHMAN.