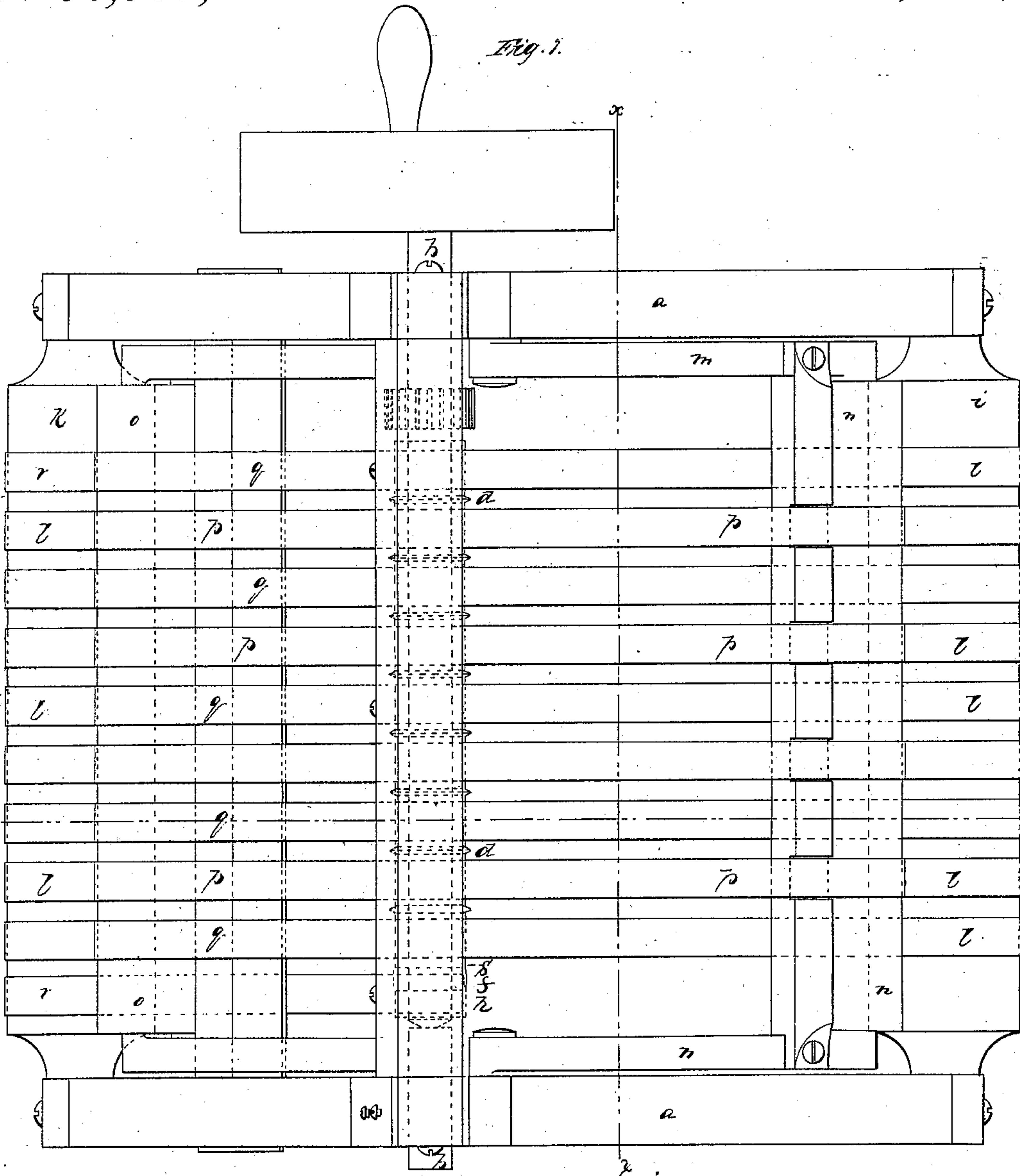


Merriam & Norton,

Cutting Leather,

No 55,336,

Patented June 5, 1866.



Witnesses.

Francis J. ...
J. B. ...

Inventor:

Mr. H. Merriam,
to L. Norton
by their Atty

Sheet 2-3 Sheets

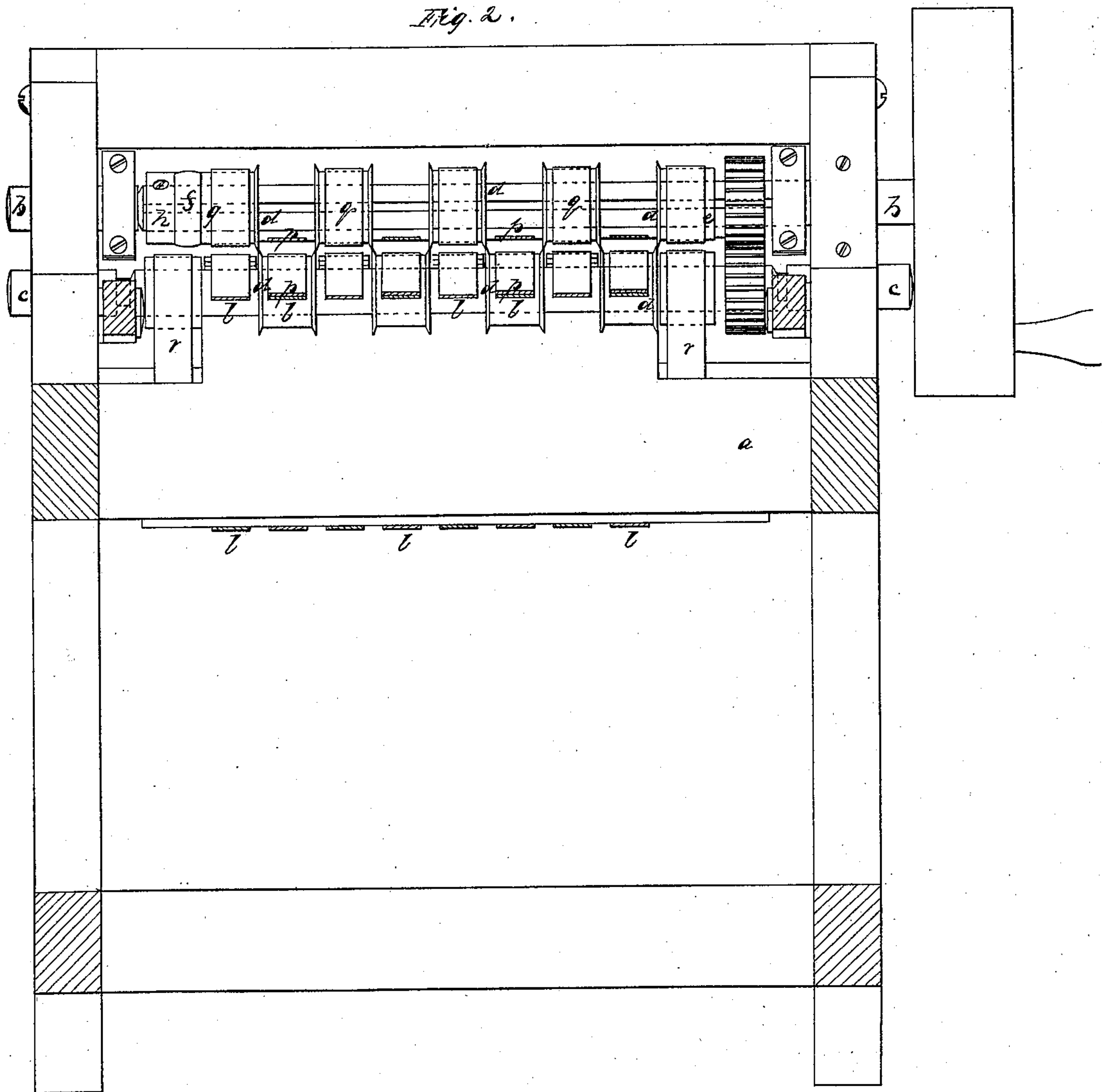
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Fig. 2.



Witnesses

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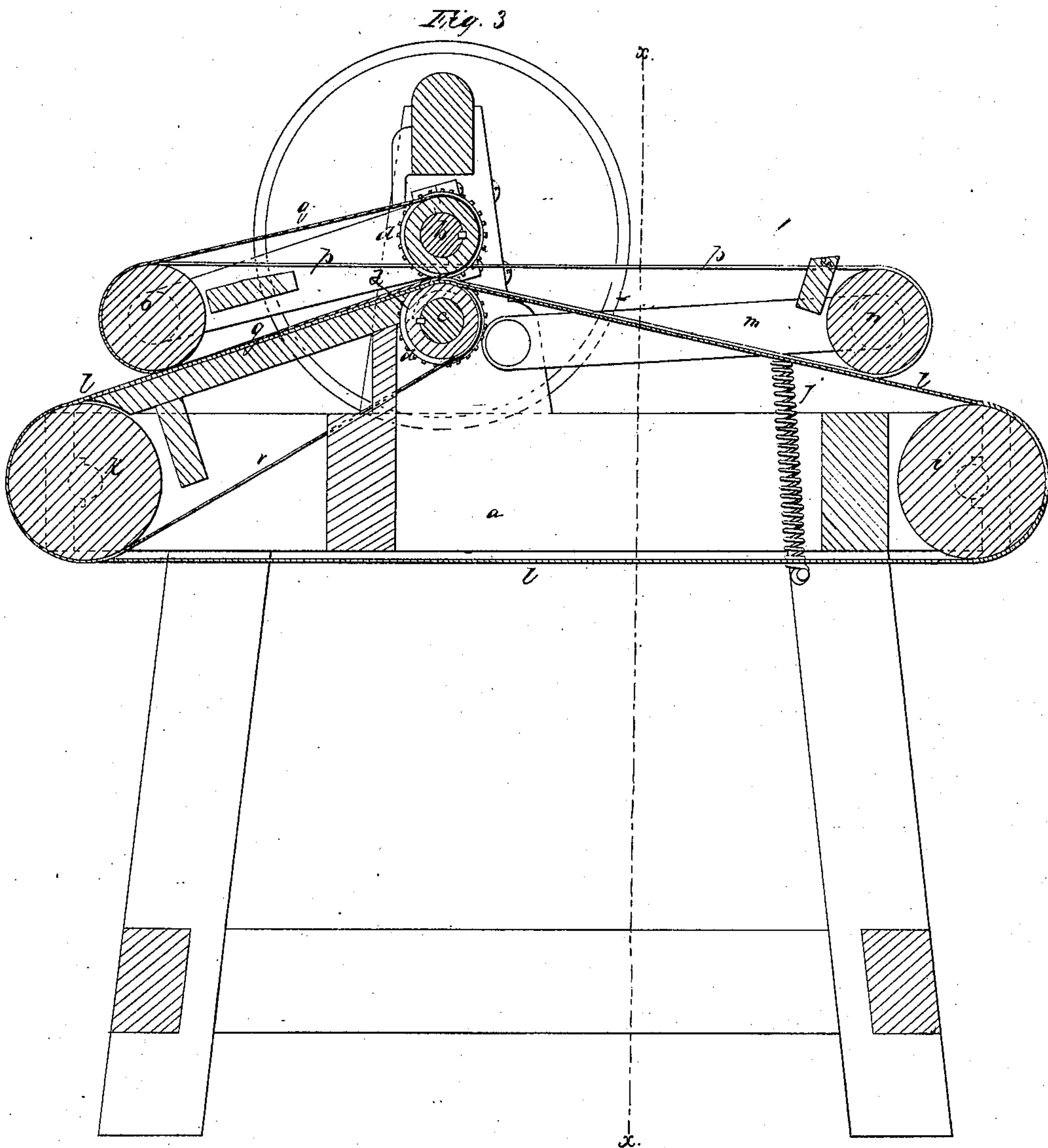
Sheet 3-3 Sheets.

Merriam & Norton,

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UNITED STATES PATENT OFFICE.

M. H. MERRIAM AND E. L. NORTON, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVED CUTTING-MACHINE.

Specification forming part of Letters Patent No. 55,336, dated June 5, 1866.

To all whom it may concern:

Be it known that we, M. H. MERRIAM and E. L. NORTON, both of Charlestown, in the county of Middlesex and State of Massachusetts, have invented an Improved Machine for Cutting Leather into Strips; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

This invention relates, generally, to the manufacture of shoe-binding, and particularly to the method of cutting skins into those strips which, by subsequent processes, are made into long shoe-binding ribbon.

The invention consists in the employment of two series of conducting-aprons or tapes, between which the skins are fed up to the cutters, in combination with an upper and a lower series of rotary disk-cutters; also in arranging the series of tapes or aprons so as to conduct the skins up to and away from the cutters, the material being kept in position between the tapes during the entire action of the cutters upon each skin; also in the employment of auxiliary tapes between the main tapes to conduct the strips from the machine; also in the arrangement of the cutter-blocks loosely on their shafts, with a spring on the outer end of one or both series of blocks, by means of which the whole of both series of cutters are kept in proper relative lateral position; also in the arrangement of the upper tapes or aprons upon swinging frames, by means of which a pressure is maintained upon the skins and strips cut therefrom during their entire passage through the machine.

A machine embodying the invention is represented in the drawings, Figure 1 showing a plan of the same; Fig. 2, a vertical transverse section on the line *x x* of Fig. 1; Fig. 3, a vertical longitudinal section.

a denotes the frame; *b* and *c*, the cutter-shafts, geared together, and each carrying a series of cutter-blocks, so mounted upon the shaft as to rotate with it, and so as to be capable of sliding endwise upon it. The inner faces of the outer blocks on each shaft and both faces of each of the other blocks has fixed to or forming part of it a circular or disk cutter, *d*, every two adjacent cutters on the opposite shafts forming rotary shears.

The end block, *e*, of the upper shaft is made stationary with respect to the shaft, and the adjacent cutter on the lower shaft overlaps the inner face of the corresponding cutter of the upper shaft to form the shears, and each two cutters of each block on the upper and lower shafts, respectively, work between the two cutters of adjacent blocks on the opposite shaft, so that the distance apart of the cutters on each block being equal, the two series of cutters form a series of rotary shears at equal distance apart.

To keep the cutting-faces of the whole series of shears in contact a spring, *f*, preferably of rubber, is inserted between the outer cutter-block, *g*, and a block, *h*, the pressure of the spring having a tendency to force the whole series of blocks endwise, and, of course, keeping the cutters in contact, one spring serving to preserve the contact of every set of cutters working together.

In card-cutting machinery disk-cutters arranged upon two shafts have been kept in relative position by springs placed within blocks and pressing the cutters up to their proper bearings; but it will be obvious that the accurate adjustment of the cutters cannot be so readily maintained by such construction as by the employment of a single spring crowding the whole series of cutters in the same direction and maintaining them accurately in position, and the necessity of the employment of blocks between the cutter-blocks is obviated.

At the front end of the frame *a* a drum, *i*, is mounted in stationary bearings, and at the opposite end of the frame is a similar drum, *k*. Around these two drums, and over the lower set of cutter-blocks, a series of aprons or tapes, *l*, extends, as seen in Fig. 3.

To the standards which support the cutter-shafts a swinging frame, *m*, is hung, the outer end of this frame carrying a drum, *n*, around which and a similar drum, *o*, on a swinging frame at the opposite end of the machine, and over each alternate cutter-block of the lower shaft, a tape or apron, *p*, passes, as seen in Fig. 3. Each tape *p* travels in contact with the tape *l* below it, or with the skins passing over such tapes *l*. The drum *i* sets out beyond the drum *n*, so that the skin can be brought properly into position for the upper tapes to bite upon it as it is presented between them, the two sets of tapes acting as carriers to take

the skins up to the cutters, and, by their pressure upon or contact with the skin, keeping it properly distended or from being drawn away as it passes between them and is acted upon by the cutters. Pressure of the upper tapes upon the skin supported on the lower tapes is produced by the weight of the swinging drum *n*, or by suitable springs *j*, and pressure of the upper tapes upon the strips cut from the skin, to keep them firmly in position and feed them from the machine, is produced by the weight of the drum *o*, or suitable springs which hold the same down.

In conjunction with another or third series of tapes, these tapes also act to keep the strips properly in place after the action of the cutters and as they are fed from said cutters, they being maintained in the same relative position they occupied in the skin until the cutters have acted upon the whole skin. These auxiliary tapes *q* pass round the upper cutter-blocks and the drum *o*, so that each strip cut by the knives is held between the tapes *l* and *p*, or between the tapes *l* and *q*, excepting the two outer strips, which are fed between the tapes *q* and bands *r*, passing around the end blocks on the lower cutter-shaft and the drum *k*.

From this description the operation of the tapes which feed the skin into the machine and keep it in position with respect to the cutters, the action of the cutters in dividing the skins into strips of equal width, and the action of the tapes which keep in position all of

the strips and feed them from the machine, will be readily understood.

We claim—

1. The arrangement of the cutter-blocks to slide upon their shafts when they are kept in relative position by a spring or springs upon the end of one or both of the cutter-shafts, substantially as described.

2. The combination of two series of tapes holding the skins in position and feeding them to the action of the cutters with two series of disk-cutters which divide the skins into strips, substantially as set forth.

3. The combination, with cutters which divide the skins, of a series of tapes conducting the material to and carrying it in strips from the action of the cutters.

4. The employment of the auxiliary tapes which, in connection with the main tapes, keep all the strips in position until the skin is cut entirely through.

5. Hanging the drums around which the upper tapes pass upon swinging frames, so that pressure of the upper tapes upon the skin is maintained, substantially as set forth.

In witness whereof we have hereunto set our hands this 24th day of November, A. D. 1865.

M. H. MERRIAM.
E. L. NORTON.

Witnesses:

J. B. CROSBY,
F. GOULD.