

Coffin, Merrill & Hall,
Cutting Leather.

No. 113,189,

Patented Mar. 28. 1871.

Fig. 1.

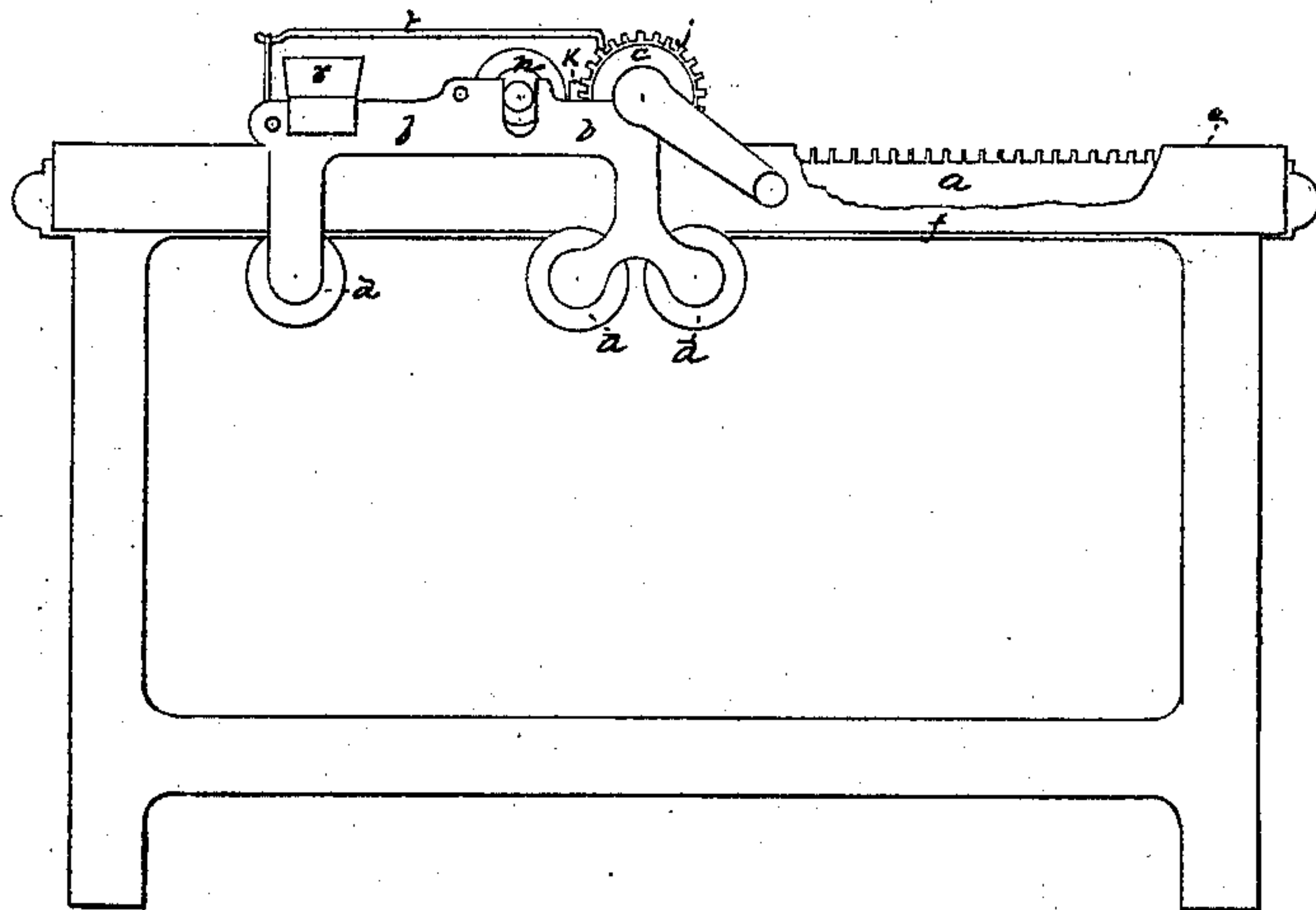


Fig. 2.

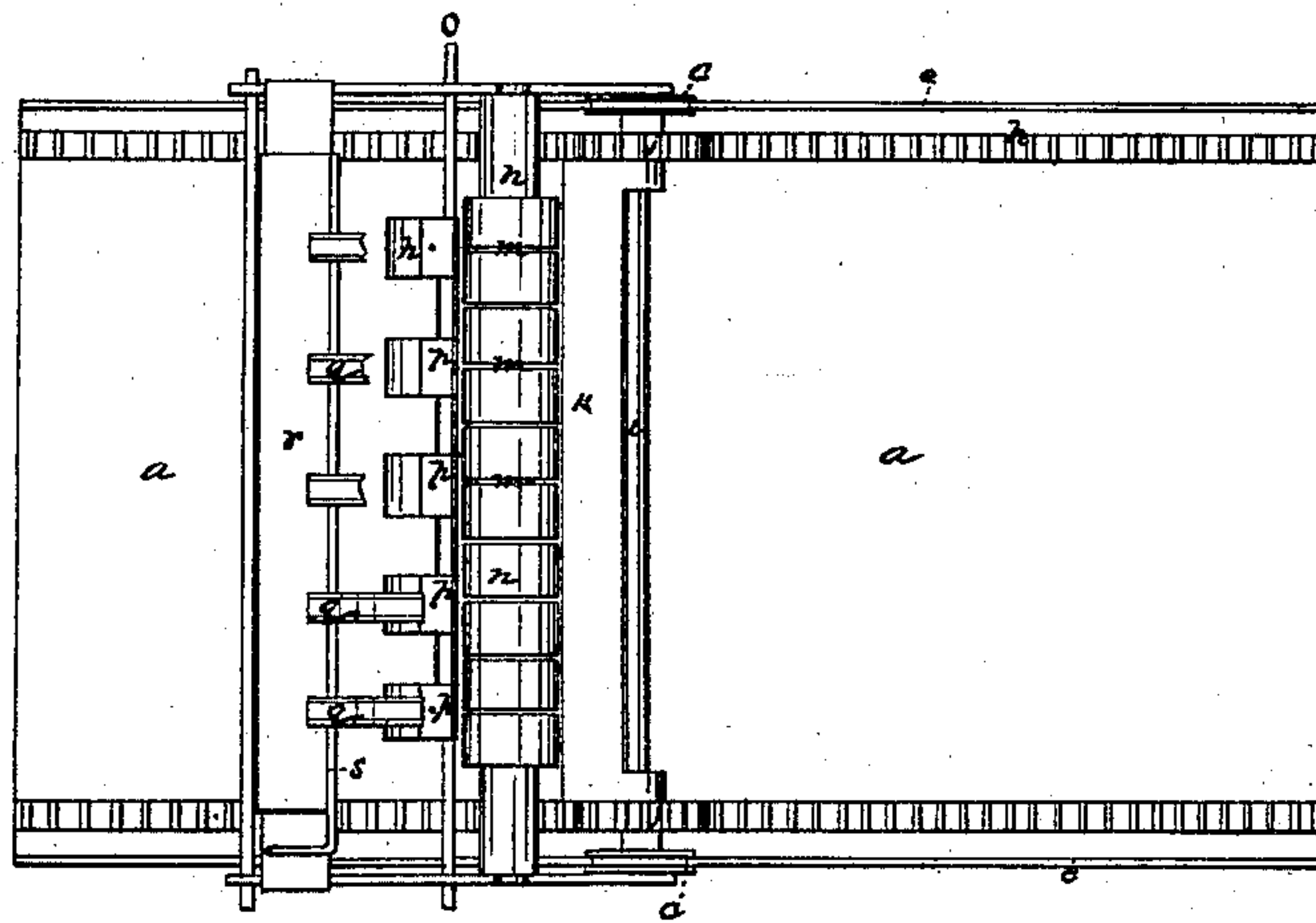
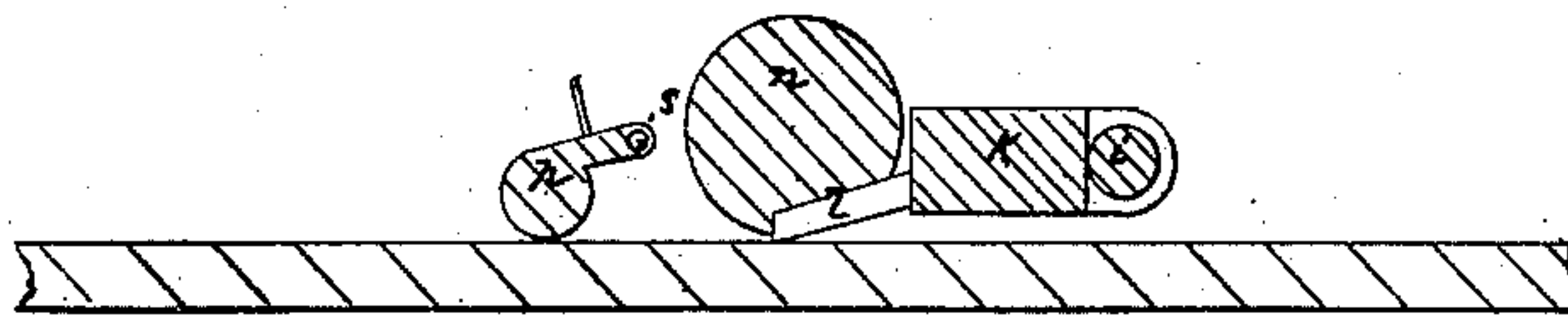


Fig. 3.



Witness:

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JOHN E. COFFIN, OF PORTLAND, AND CHARLES E. MORRILL AND GEORGE F. HALL,
OF WESTBROOK, MAINE; COFFIN AND HALL ASSIGN TO CHARLES E. MORRILL.

Letters Patent No. 113,189, dated March 28, 1871.

IMPROVEMENT IN MACHINES FOR STRIPING AND CUTTING LEATHER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, CHARLES E. MORRILL, of Westbrook, in the county of Cumberland and State of Maine, and JOHN E. COFFIN, of Portland, in the county of Cumberland and State of Maine, and GEORGE F. HALL, of said Westbrook, have invented a new and useful Machine for Striping and Cutting Leather and other Skins; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 is a top plan.

Figure 3 is a vertical longitudinal section of the bed and parts thereon.

Same letters show like parts.

The general purpose of our invention is to provide a machine for cutting leather into strips and imparting color to the same, and for doing the same simultaneously and with enhanced speed and facility. The leather thus colored in long strips and cut is intended to be used for shoe-bindings.

Before invention had improved the art of making the bindings they were striped or colored by hand, with the use of a sort of brush having fingers or projections equidistant from each other, and covered with some spongy or porous substance, like felt, to hold the coloring matter and convey it to the leather. This brush, being moved over the leather guided by a straight-edge, would make several parallel lines or stripes at the same movement. The cutting was afterward done, also by hand.

We are aware of certain patented machines, also, for this purpose, but they are different from ours in method of operation, and, moreover, do not perform the various parts of the work simultaneously. The mechanical structure and arrangement is also quite different from ours, as will appear from the ensuing description.

We are also aware of patent No. 42,300, of 1864, where, in a machine quite different from ours in structure and principle of operation, the cutting and striping are done at one operation.

The general operation of the machine may be thus described:

The leather is placed and kept motionless spread out upon a bed or table, and the devices that operate to color and cut the leather into strips are attached to a carriage that moves over the bed and leather placed thereon. The carriage is moved by a rotary shaft carrying two gears matching a rack or racks fixed on the sides or near the edges of the bed or table. The carriage is furthermore guided by tracks set on the upper and lower sides of the bed or table, near the edges or sides of the same. Running on these are grooved trucks, into whose grooves fit the tracks.

Trucks are also suspended from the carriage as it runs on the upper tracks, and these bear up against the tracks on the lower side of the table. Thus the carriage is, so to speak, clamped, or prevented from rising up from the table without removing some of the trucks. Inasmuch as considerable pressure is employed as the carriage moves over the leather to be prepared, this arrangement of trucks secures what is indispensable—regularity and evenness of movement.

a shows the bed.

b, the carriage.

c, the upper trucks, and

d the lower.

e, the upper tracks, and

f the lower.

h, the rack on the table.

i, the motor-shaft.

j, the gears thereon.

The carriage carries the following devices: A cutter-bar, containing the knives to cut the leather; a roller to confine and facilitate the cutting of the same; a striping apparatus; a coloring-vat, with its conductors and wicks.

These we will now describe in the above order.

k is the cutter-bar, and has on the under side thereof the slanting knives *l* projecting backward from the bar as it moves. These knives pass into the grooves *m* in the roller *n*, which presses the leather down onto the table with considerable force, leaving, however, the spaces embraced in the grooves flexible and comparatively soft for the operation of the knives, while the rest of the skin is held rigidly under the solid parts of the roller. Thus, as the cutter-bar *k* and roller *m* pass along, the leather is cut into strips, whose width is represented by the distance between the grooves of the roller.

o is the striping apparatus, immediately following the roller *m*. This apparatus is attached to a rod extending from one to the other side of the carriage *b*, and has movable fingers or projections *p*, each having thereon a porous envelope to retain the coloring matter for the leather or skin. These fingers can be applied and arranged so as to make the stripes at such distances or by any arrangement and variation desirable. They are manipulated by upright arms or rods attached to them, so that they can be raised or depressed as desired.

Communicating with these fingers are the conductors *q*, leading from the vat *r*, containing the coloring mixture. These conductors are all set on a vibratable rod, *s*, moved by a crank on the end, so that they can be lifted off from contact with the fingers when necessary. In these conductors are intended to be placed wicks, to lead, by capillary attraction, and with uniformity, the coloring substance onto the fingers *p*.

The vat is attached to the side pieces of the carriage

b like the other devices, and is or may be removable. Thus, it will be seen, the whole is moved by the shaft *i*, which may be turned by a crank, or in any convenient way by hand or power.

t is a pressure-bar, to regulate the force of the pressure of the knives on the skin, it being observed that the cutter-bar *k* is so attached or suspended as to be susceptible of a slight movement up or down, the purpose of which is not only thus to be able to regulate the pressure of the knives, but also, if desired, to lift the knives from the skin entirely.

The bed *a* is made of any material, but covered with a sheet or sheets of rubber, the elastic property of which is very essential to the practical working of the roller *n* and the knives.

The carriage moves over the bed with the skin on the same, and when the transit is complete the skin is both cut and colored as hereinbefore described. It is then moved back, and is ready for a repetition of the operation.

Experience shows that, when the carriage first moves up onto the skin, it is liable to fold or wrinkle over, and as the carriage further progresses, these wrinkles continuing, the evenness of the cutting and of the edges of the strips is quite uncertain. To remedy this we have invented the following method. The danger of folding up and wrinkling is much increased, also, when the fingers *p* come onto the edge of the skin, as it is then cut into strips, and less likely even than the whole skin to remain flat and even, as each strip is likely to fold up by itself, and thus destroy the uniform impression of the striping or coloring apparatus:

A sheet of tin, or of any thin, firm, flexible substance, and of some weight, is first laid down on the bed *a*, and to this the skin is slightly attached by any adhesive material proper for the purpose, in this way, viz., a sheet of paper is pasted to the tin sheet, and then the skin pasted to the paper. Thus the wrinkling of the skin is prevented, and when the skin is cut and removed from the table, by removing with it

a section of the paper to which it is thus connected, the loose ends of the leather strips are confined and held together, which much increases the ease of managing the skin afterward.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The vibratable cutter-bar *k* in the carriage *b*, and the roller *n*, in combination with a striping mechanism, as herein set forth.

2. The grooved roller *n*, in combination with the carriage *b*, to operate as herein set forth.

3. The combination of the coloring apparatus with its movable fingers *p*, with the conductors *q* and coloring-vat *r*, with the roller *m* and carriage *b*, as herein set forth.

4. The combination of the cutter-bar *k*, roller *n*, and pressure-bar *t*, as herein set forth.

5. The combination of the carriage *b*, with its cutter-bar, roller, and coloring apparatus, with the elastic bed *a*, as herein set forth.

6. The reciprocating carriage *b*, in combination with the trucks *c d*, tracks *e f*, and racks *h*, as herein set forth.

7. The coloring-vat, with the adjustable conductors *q* on the rod *s*, in combination with the rollers *n* and carriage *b*, as herein set forth.

8. The method of striping and cutting skins herein set forth, that is, by means of the reciprocating carriage *b* with its devices, an elastic bed, *a*, and a tin or other supplemental sheet, as and for the purposes herein set forth.

9. The combination of the carriage *b*, with its devices, with the bed *a*, table, tracks, racks, and trucks, as herein set forth.

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Witnesses:

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