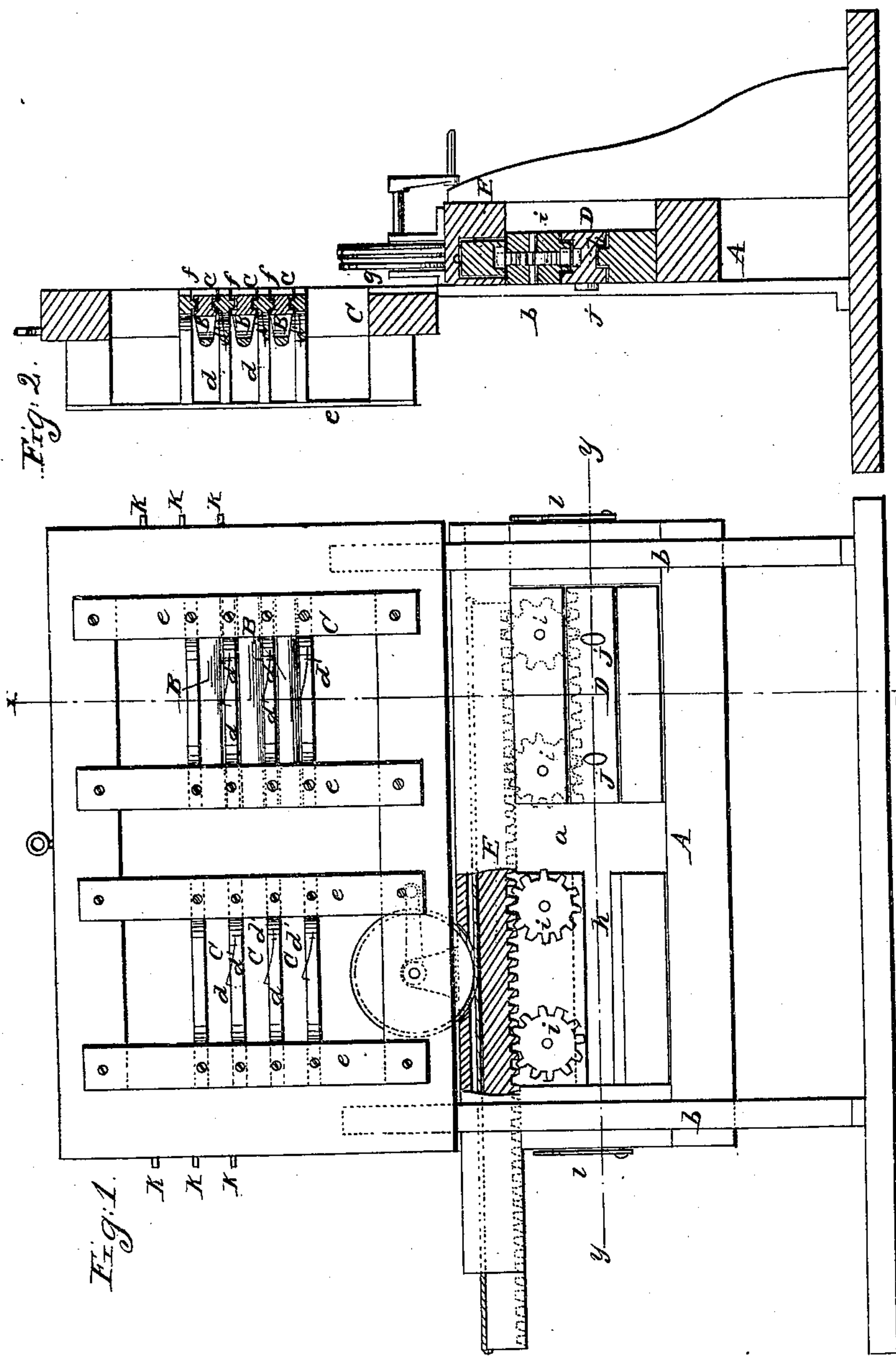


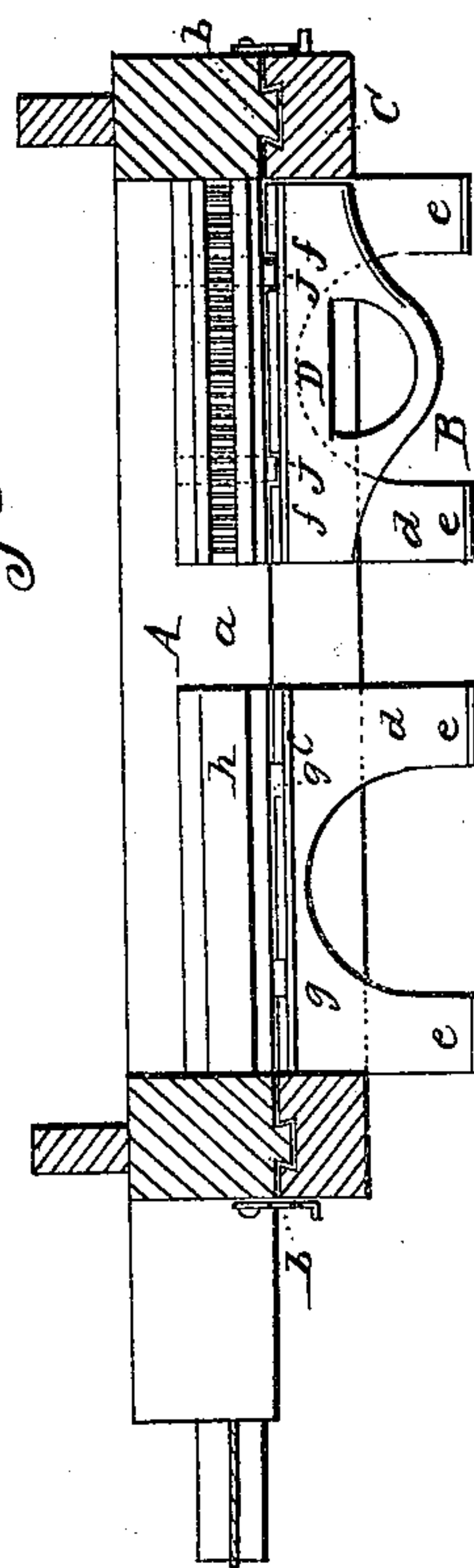
*J. Schottenfels.*  
*Weaving Narrow Ware.*

*N<sup>o</sup> 53,350.*

*Patented Mar. 20, 1866.*



*Fig. 2.*



*Fig. 3.*

WITNESSES:

*Wm. Stearn*  
*Thos. Lusk*

INVENTOR:

*J. Schottenfels*  
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*att'y*



# UNITED STATES PATENT OFFICE.

JULIUS SCHOTTENFELS, OF NEW YORK, N. Y.

## IMPROVEMENT IN THE MANNER OF OPERATING SHUTTLES IN LOOMS.

Specification forming part of Letters Patent No. 53,350, dated March 20, 1866.

*To all whom it may concern:*

Be it known that I, JULIUS SCHOTTENFELS, of the city, county, and State of New York, have invented a new and Improved Shuttle-Motion for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a front elevation when the shuttle-frame is raised and a portion of the batten is cut away to expose the working parts which drive the shuttle. Fig. 2 is a transverse vertical section of the same, taken in the plane indicated by the line *x x*, Fig. 1. Fig. 3 is a horizontal section of the same, the plane of section being indicated by the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to certain improvements in the shuttle-motion of a loom for narrow goods, such as ribbons, suspenders, &c., in which the requisite motion is imparted to the shuttles generally by a reciprocating toothed rack and a series of cog-wheels arranged on opposite sides of the gaps, and in looms with two or more shuttles, one above the other, a vertically-adjustable rack and pinion for each shuttle, or other mechanisms, are employed to impart to the shuttle the desired motion, and the loom is rendered expensive and liable to get out of order.

These difficulties are obviated by this present invention, which consists in the employment or use of a reciprocating carrier, in combination with the toothed rack and cog-wheels, or other equivalent mechanism, and with a series of shuttles mounted one above the other in a vertically-adjustable frame, and provided with guide-grooves to receive suitable dogs, which project from the carrier in such a manner that by raising or lowering the shuttle-frame each of the shuttles in the tier can be thrown in gear with one and the same carrier, and the desired motion is imparted to it without requiring teeth in the shuttle itself, or without requiring a separate carrier and separate racks and pinions for each shuttle, and with a mechanism which is simple, durable, and not liable to get out of order.

A represents a portion of a batten or lay provided with a series of gaps, *a*, through which the warp-threads pass and in which the shed is made to let the shuttles pass.

The shuttles B are arranged in a frame, C, which is vertically adjustable on dovetailed strips *b* secured to the breast of the batten, and the several shuttles are arranged in different shuttle-races *c*—that is to say, where three shuttles are used one above the other. The frame C is provided with three shuttle-races, and it is obvious that the number of shuttles and shuttle-races can be increased to any desired extent.

The shuttle-races are separated from each other by the partitions *d*, which are held in place by vertical bars *e*, and in practice the body of these bars and of the partitions will be reduced as much as possible in order to obtain the largest possible amount of light in weaving.

Each of the shuttles is provided in its rear surface with one or more vertical grooves, *f*, and if the shuttles are driven clear to either end of the shuttle-races the groove or grooves in one shuttle will register with those in the other shuttles and also with grooves *g* in the bottom rail of the frame C.

D is a carrier which travels in a suitable guideway, *h*, in the batten or lay, and which is provided with cogs in its upper edge to gear in cog-wheels *i*, that have their bearings or pins secured in the batten, and to which a revolving motion is imparted, first in one and then in the opposite direction, by the toothed rack E. This rack slides in the top edge of the batten, and it is operated by cords extending from its ends in opposite direction around a suitable pulley and secured to pickers, which are constructed in the usual manner.

The carrier D is provided on its inner side with two (more or less) studs or dogs, *j*, which fit into the grooves *f* of the shuttles B and frame C, and by raising or lowering said frame either of the shuttles can be thrown in gear with the dogs *j* and made to pass through the shed. It is obvious that instead of securing the dogs to the carrier said carrier might be provided with grooves and the dogs attached to the shuttles, and in this case suitable grooves would have to be made in the body of the batten to admit the dogs. The effect of



this arrangement would be precisely the same as that above described, and I consider it a mechanical equivalent of my invention.

In order to arrest the rising-and-falling shuttle-frame in the correct position, it is provided with studs *k*, projecting from its ends and catching into spring-dogs *l* secured to the edge of the batten. Instead of these spring-dogs and studs, however, any other suitable device might be employed to arrest the movable frame at the requisite spot; and I do not wish to confine myself to the precise arrangement shown in the drawings.

Suitable friction spring-stops, *d'*, secured under the shuttle-races in the outer surface of the rising-and-falling frame C, bear upward and serve to retain the shuttles and to prevent them from dropping at such times when they are not required. By this arrangement one toothed rack and one set of gear-wheels are sufficient to impart motion to all the shuttles, and the difficult operation of adjusting the picker-cords of the several shuttles is greatly simplified, since only one pair of cords have to be kept in order, and if these cords are of the proper length all the shuttles will work correctly, whereas in looms of the ordinary construction a separate pair of cords is required for each shuttle, and it is exceedingly difficult to adjust all those cords and keep them at the proper length.

It must be remarked that with my arrangement other means for propelling the shuttles might be substituted for the racks and pinions.

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

1. The carrier D, which travels in suitable guideways in the batten of a loom, when the same is used in combination with a rising-and-falling shuttle-frame, C, carrying two or more shuttles, one above the other, and arranged to move up and down independently of the batten and carrier, substantially as and for the purpose set forth.

2. In a loom having a rising-and-falling frame carrying a plurality of shuttle-boxes and their shuttles, driving each of the shuttles, as desired, by means of a single reciprocating rack which actuates a single reciprocating driver for all the shuttles, as described.

3. The notched spring-dogs *l*, or their equivalents, in combination with the rising-and-falling frame C, carrying two or more shuttles, one above the other, and with a carrier, D, constructed and operating substantially as and for the purpose set forth.

4. The friction-stops *d'*, in combination with the rising-and-falling frame C, carrying two or more shuttles, one above the other, and with the carrier D and batten A, constructed and operating substantially as and for the purpose described.

JULIUS SCHOTTENFELS.

Witnesses:

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C. L. TOPLIFF.