

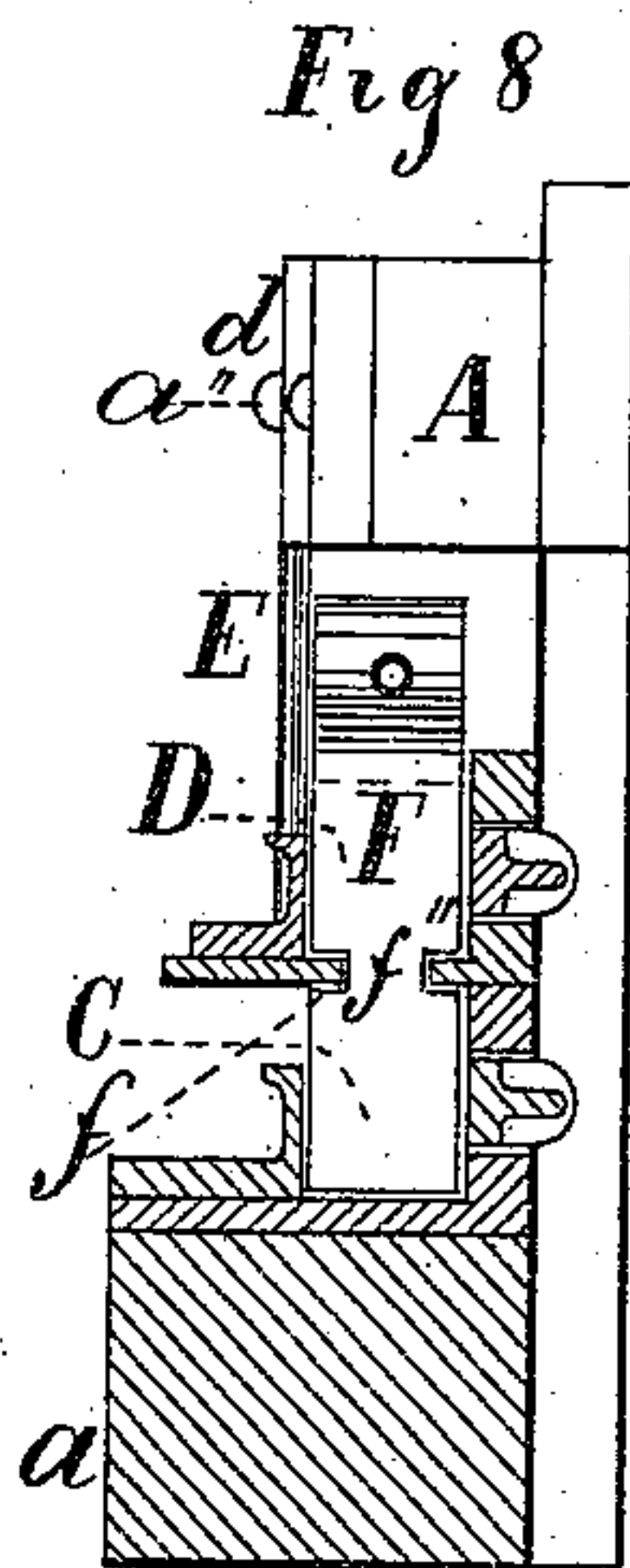
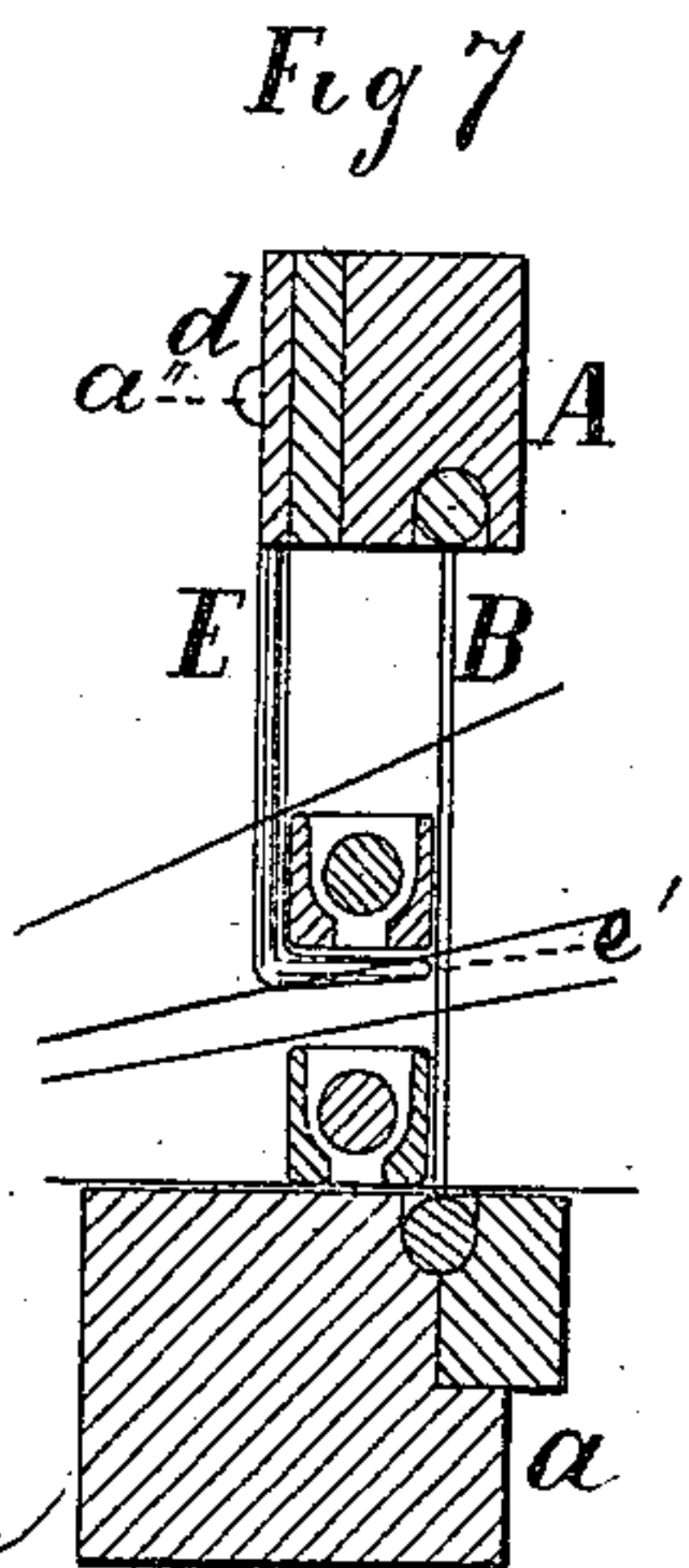
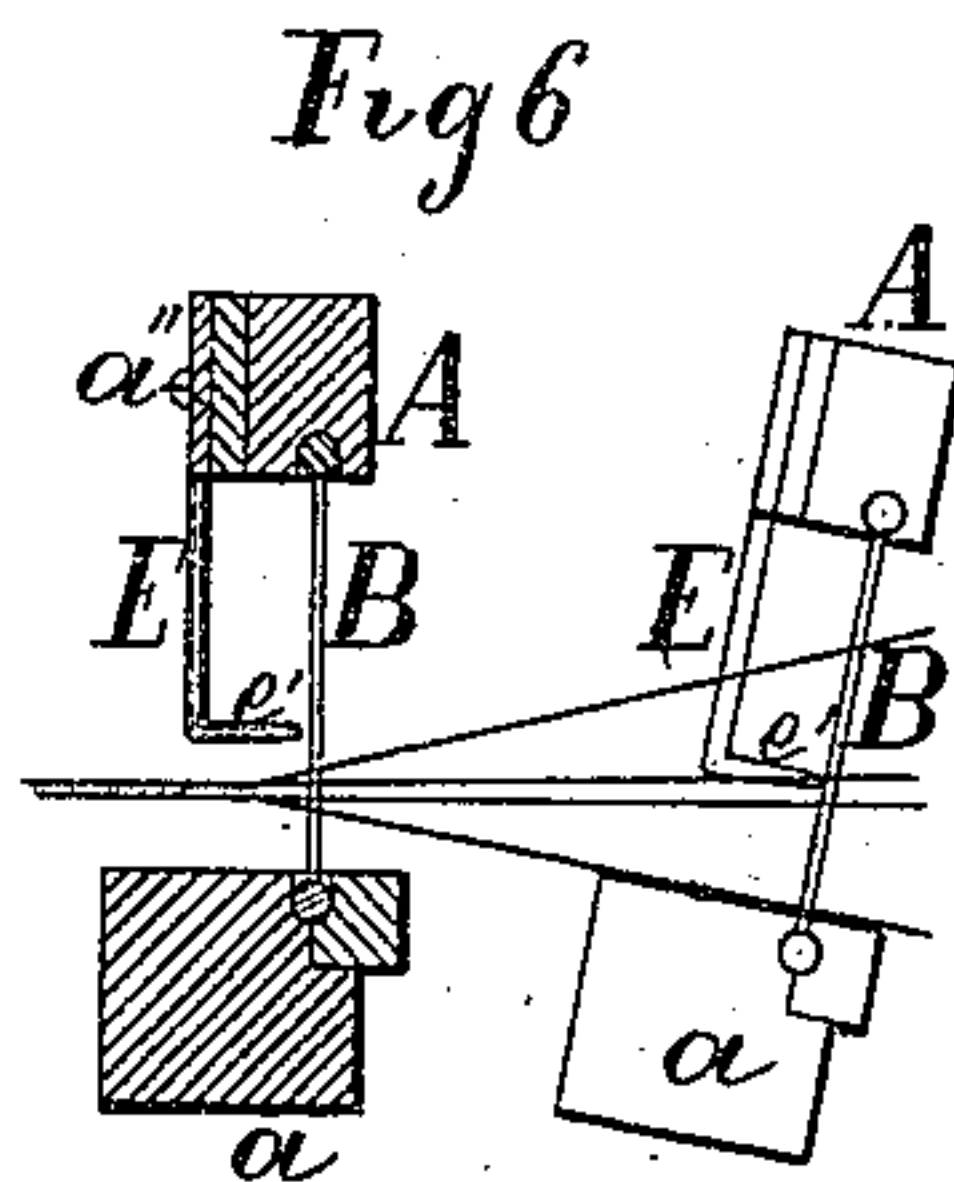
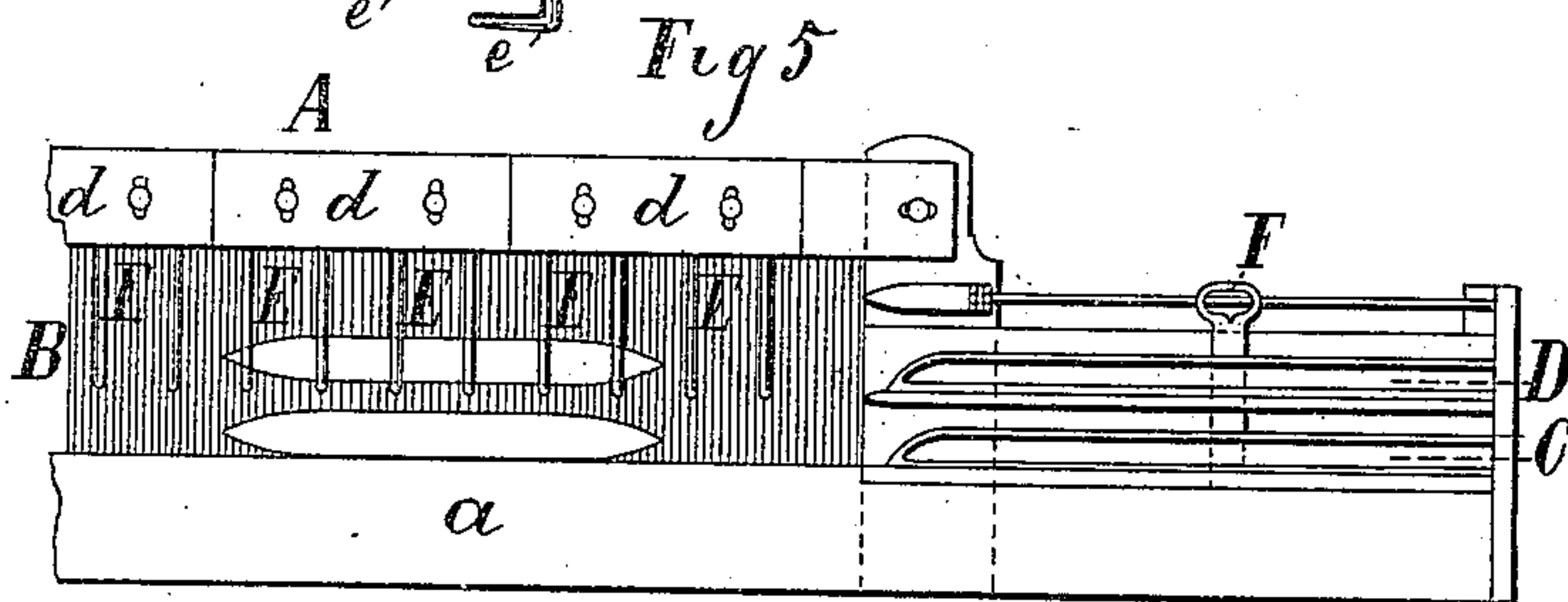
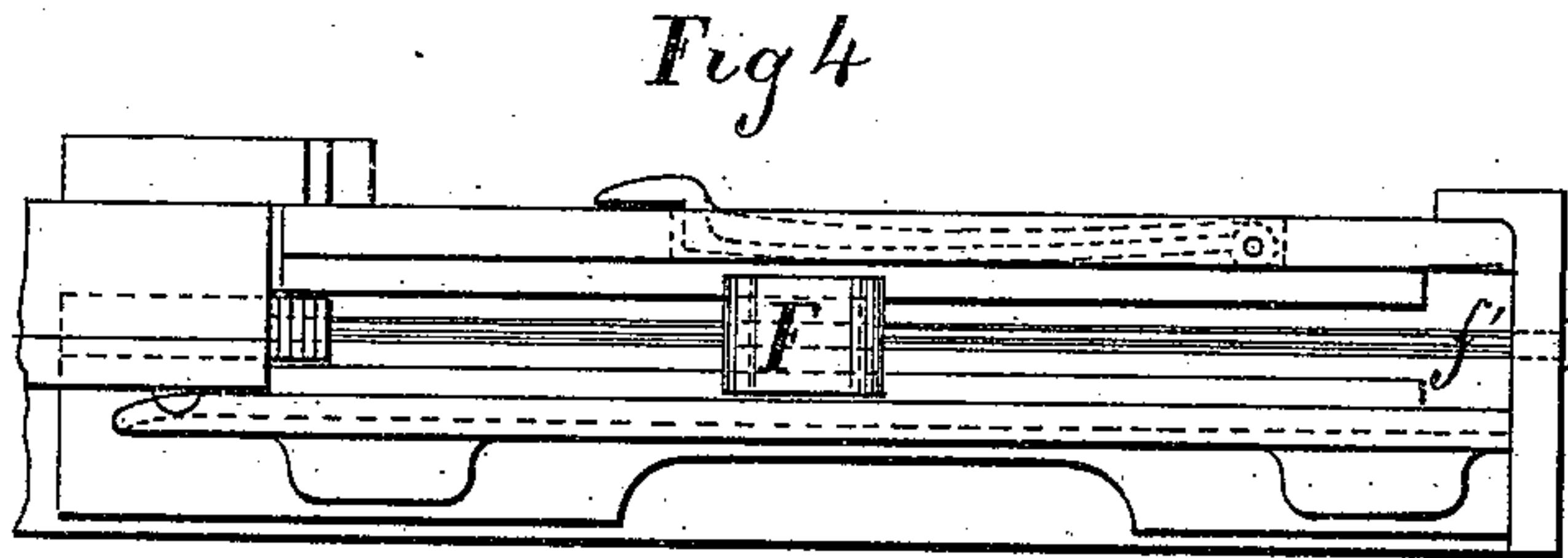
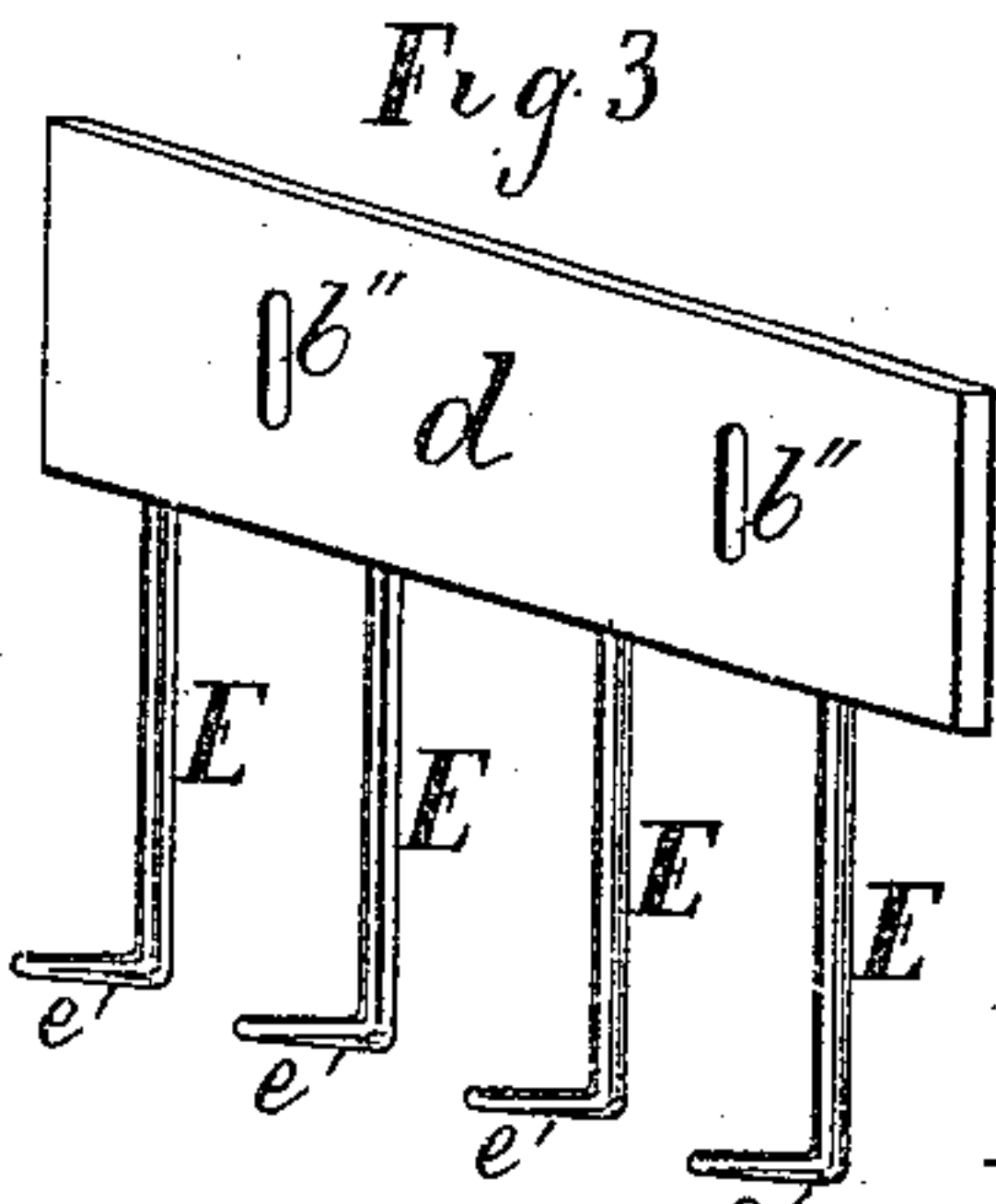
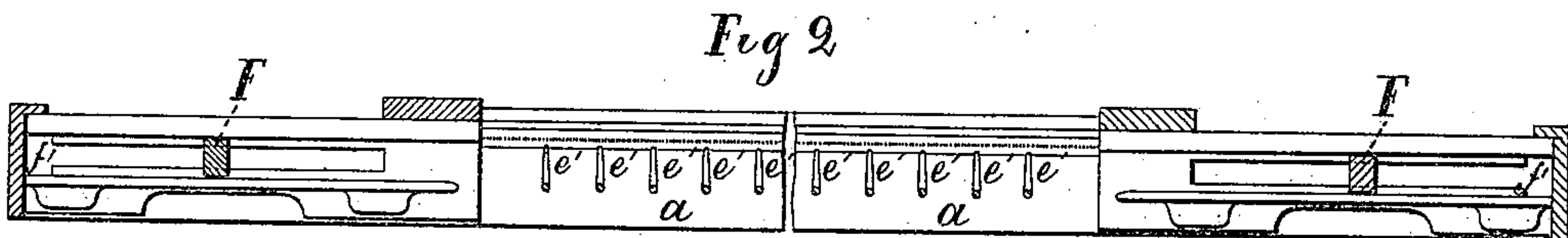
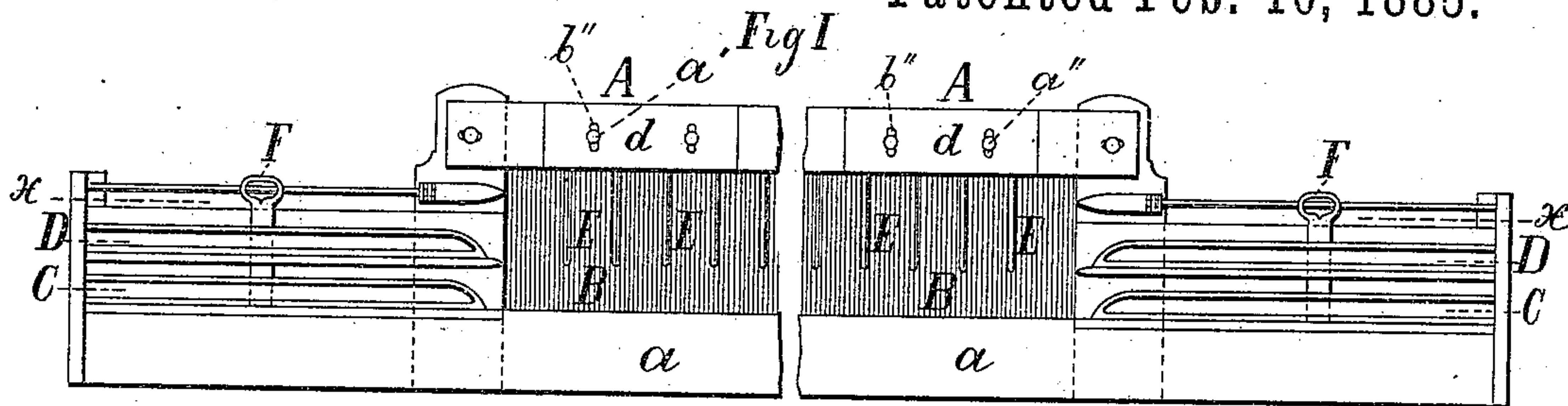
(No Model.)

C. COUPLAND.

LOOM FOR WEAVING DOUBLE PILE FABRICS.

No. 312,190.

Patented Feb. 10, 1885.



Witnesses

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CHARLES COUPLAND, OF SEYMOUR, CONNECTICUT.

LOOM FOR WEAVING DOUBLE PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 312,190, dated February 10, 1885.

Application filed November 7, 1882. (No model.) Patented in England February 15, 1881, No. 650; in France February 18, 1881, No. 141,236, and in Germany February 22, 1881, No. 16,408.

To all whom it may concern:

Be it known that I, CHARLES COUPLAND, of Seymour, in the county of New Haven and State of Connecticut, have invented certain
5 Improvements in Looms for Weaving Double Pile Fabrics, of which the following is a specification.

This invention relates to looms for the manufacture of double woven fabrics composed of
10 duplicate webs united by intersecting or intermediate threads passing from one web to the other, said webs being designed to be subsequently divided to form two plush or velvet fabrics by cutting the intersecting threads
15 midway between the duplicate webs, so as to separate said webs and leave the cut ends of the intermediate threads projecting as pile from the inner side of each.

Heretofore in looms for weaving double
20 faced fabrics, and for weaving bags in which the two opposite sides of the bags are composed of duplicate fabrics united continuously at their edges, skeleton races have been combined with vertically-movable shuttle-boxes,
25 for throwing the shuttles alternately into and from one to the other of the upper and lower races. These constructions, however, while effective to a certain extent in the weaving of the particular fabrics mentioned, have been
30 found in practice unsuitable for the production of the double fabrics for the manufacture of piled goods, inasmuch as the double faced fabric is but a single fabric with double faces, and inasmuch as the bag fabric would require
35 to be divided at its edges, and this would leave the goods without selvage, and consequently would render them unsalable in the market and inferior for use.

The object of my invention is to provide a
40 loom of superior efficiency for the production of the double fabrics for the manufacture of piled goods, as aforesaid; and it comprises certain novel combinations of parts whereby this object is secured, the difficulties inherent in
45 the previous mechanisms being wholly obviated by my said invention, the said combinations being pointed out in the claims at the end of this specification.

Figure 1 is a front view of the upper portion of a loom-lay, showing my said invention.
50 Fig. 2 is a horizontal sectional view taken on line xx of Fig. 1. Fig. 3 is a detail view of one of the sections of the skeleton race, which

is connected with the lay. Fig. 4 is a plan view of one end of the lay. Fig. 5 is a front
55 view of one-half of the upper portion of the lay, illustrating the simultaneous flight of the two shuttles in forming the two connected fabrics. Figs. 6, 7, and 8 are sectional detail
60 views.

Inasmuch as the *modus operandi* of weaving the double pile material hereinbefore mentioned is well known, and inasmuch as those parts of the loom not embraced in my novel combinations, hereinafter specified, are of the
65 ordinary or any suitable construction, no specific description of such parts is here required.

Examples of double-pile-fabric looms may be found in English Patents Nos. 9,329 and 12,948 prior to A. D. 1852, and an example
70 of a loom weaving two fabrics simultaneously is to be found in United States Letters Patent No. 12,293, dated January 23, A. D. 1855.

A is the top rail of a loom-lay, surmounting the reed B, and a is the lay-beam, which may
75 be of any usual or suitable construction. The upper surface of the lay-beam a forms, as usual, a shuttle-race, which is designed for the passage of the lowermost of the two shuttles, hereinafter more specifically referred to. 80

On the face of the upper rail, A, is attached a series of flat plates, d , from which project downwardly prongs or fingers E, which are stiff and rigid, and the lower ends of which are bent inward or backward, as represented
85 at e' in Figs. 3, 6, and 7. These horizontally or backwardly bent lower ends, e' , of the prongs or fingers E are all arranged in substantially the same horizontal plane, and constitute a skeleton race over which the uppermost of
90 the two shuttles aforesaid is thrown, substantially in the same manner as the lowermost of said shuttles is projected along the upper surface of the lay-beam a , the prongs or fingers E being at such distance apart that the
95 said upper shuttle will at all times rest upon two or more of the horizontal backwardly-projected portions e' as the said shuttle is projected along the said skeleton raceway. The horizontal portions e' of the prongs or fingers
100 E aforesaid taper from their forward to their rearmost ends and terminate a short distance in front of the dents of the reed. The object of thus tapering the said parts e' of the said prongs or fingers is to enable them to readily
105 pass between the warps, and the object of af-

fording a space between their rearmost ends and the reed, as just specified, is to allow the filling to draw down for the purpose of being beat up, as will be readily understood by those

5 conversant with the previous state of the art.

At each end of the lay-beam *a* is a shuttle-box, C, and above the boxes C, at each end of the skeleton race, formed by the prongs or fingers E, is another and separate shuttle-box, 10 D, so that when the shuttles are projected from the said boxes C and D the lower will pass along the lay-beam *a*, while the upper will pass along the skeleton race formed by the prongs or fingers E. In order that the 15 two shuttles may be thus operated, the horizontal partition *f*, which forms the bottom of the upper shuttle-box and the top of the lower shuttle-box at each end of the lay, is longitudinally slotted, as shown, in order that a 20 double picker, F, of suitable cross-section, may work longitudinally of the two boxes, to simultaneously project the two shuttles. This picker F is inserted in its place by being thrust downward through a suitable opening, 25 *f'*, at the rearmost end of the slotted horizontal partition, *f*, as represented in Fig. 4. The manner in which the said picker has its upper and lower parts placed in the corresponding upper and lower shuttle-boxes and 30 connected by a neck, *f''*, is represented in Fig. 8. Each picker F is actuated from a single picker-staff in the usual manner.

In the operation of the mechanism when the three sets of warps usually required for 35 weaving a double pile fabric—that is to say, the upper ground-warp, the lower ground-warp, and the intermediate pile-threads are employed—the upper shuttle passes through the sheds, which are formed in the upper 40 ground-warps upon the skeleton raceway formed by the prongs or fingers E simultaneously with the passage of the lower shuttle over the race formed by the upper side of the lay-beam through the sheds in the lower 45 ground-warps, and the two threads of filling are simultaneously beat up at the forward movement of the lay. The lay at its forward movement carries the upper or skeleton shuttle-race out from the shed and above the level 50 of the woven cloth, and the shed being at the same time changed, the filling is carried by the movement of the warps off from the ends of the parts *e'* of the prongs or fingers E, and is beat up by the reed. This is illustrated in heavy lines in Fig. 6, where the lay 55 in its backward position is also shown in outline. The plates *d* are attached to the top rail, A, by broad-headed screws or bolts *a''*, which pass through vertical slots *b''* in the 60 said plates, so that the latter may separately be so adjusted to the lay that the skeleton raceway can be raised and lowered, if required.

The shuttles may be of the ordinary character and construction.

By omitting the third or intermediate set of warps employed in making the double pile

fabric, and which third set of warps constitute the pile connecting the two ground fabrics, the loom may be used for simultaneously 70 weaving two fabrics devoid of pile. In such case, of course, the loom is to be provided simply with mechanism for carrying the two sets of warps and opening the separate sheds therein, and the mechanism for carrying and 75 operating the intermediate sets of warps will be dispensed with.

It will be observed that by the construction hereinbefore described the skeleton race permits the lifting of the upper warp through 80 the said race, thereby insuring the flight of the shuttle in connection with the upper shed without interfering in any wise with the normal operation of other portions of the weaving mechanism. 85

For the purposes of this application I do not claim the herein-described double picker, for the reason that the same is set forth and claimed in a separate and distinct application for Letters Patent filed by me on or about 90 the 7th day of November, A. D. 1882.

What I claim as my invention is—

1. The combination, with the reed B, the lay having the lay-beam *a* and top rail, and the stationary upper skeleton race pendent 95 from the top rail, and composed of vertical prongs or fingers E, formed with horizontal rearwardly-projecting lower ends, *e'*, terminating in front of and adjacent to the reed of the stationary upper and lower shuttle-boxes, 100 placed at each end of the lay and with their bottoms coincident, respectively, with the plane of the ends *e'* of the prongs or fingers E and that of the lay-beam *a*, upper and lower shuttles, and means for impelling the 105 shuttles, all substantially as and for the purpose herein set forth.

2. The combination of the stationary pendent skeleton raceway, formed of the prongs or fingers E, having tapered horizontal rear- 110 wardly-projecting lower ends, *e'*, with the reed B, the lay having the lay-beam and top rail, the stationary upper and lower shuttle-boxes placed at each end of the lay, the upper and lower shuttles, and means for impel- 115 ling the shuttles, the whole arranged substantially as and for the purpose herein set forth.

3. The combination, with the reed B, the lay having the lay-beam *a* and top rail, the stationary upper and lower shuttle-boxes 120 placed at each end of the lay, the upper and lower shuttles, and means for impelling the shuttles, of the pendent prongs or fingers E, having tapered horizontal rearwardly-projecting lower ends, *e*, the plates *d*, and means, 125 substantially as described, for giving separate vertical adjustment to the said plates, all substantially as and for the purpose herein set forth.

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Witnesses:

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