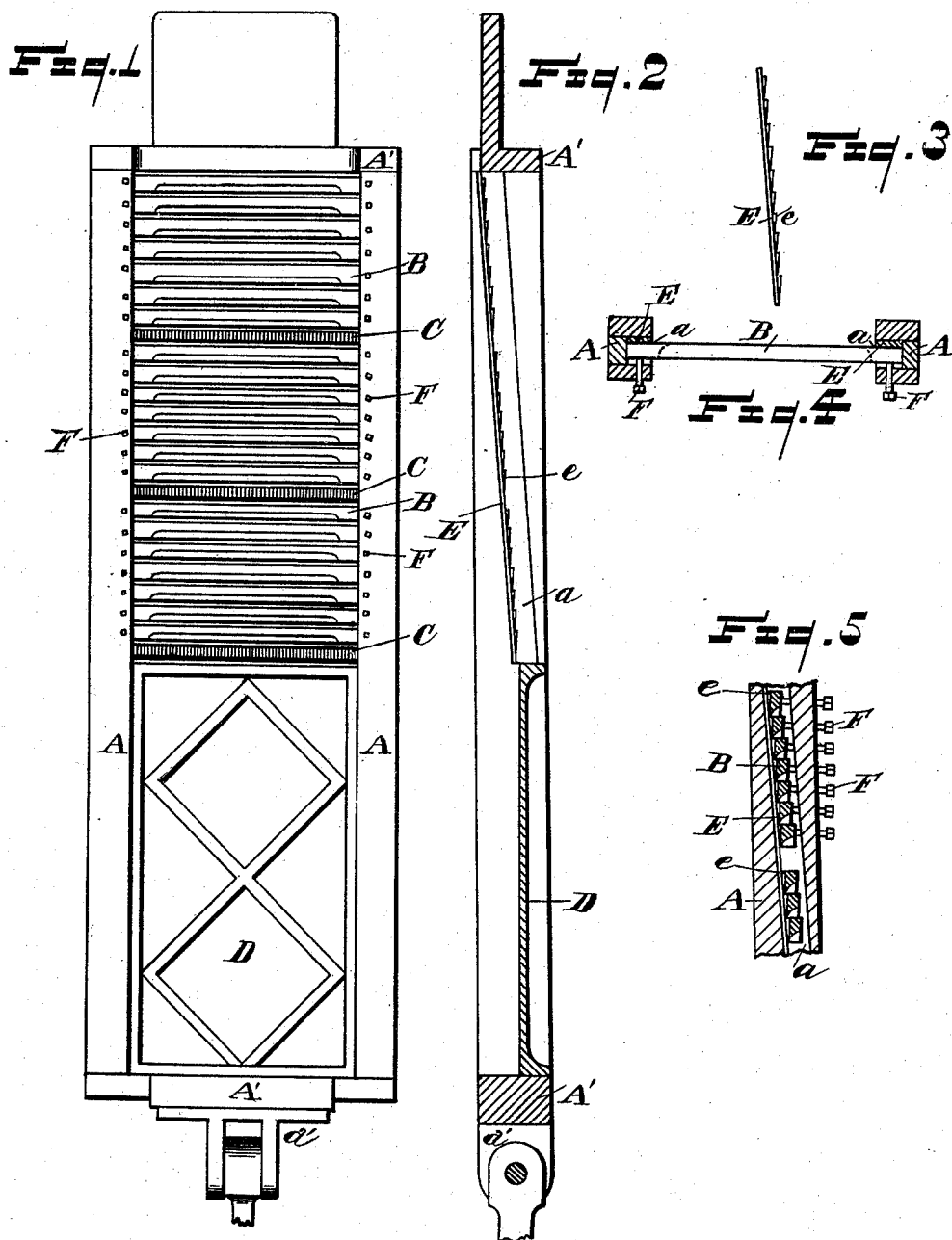


(No Model.)

C. G. SMITH.
EXCELSIOR CUTTING MACHINE.

No. 474,866.

Patented May 17, 1892.



WITNESSES

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CHARLES G. SMITH, OF DETROIT, MICHIGAN.

EXCELSIOR-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,866, dated May 17, 1892.

Application filed May 16, 1891. Serial No. 393,043. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. SMITH, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Excelsior-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of excelsior-cutting machines in which several knives or cutters are combined in a single frame in order to cut the same number of layers of excelsior at each stroke of the knife-frame.

The object of my invention is to provide means for easily, certainly, and securely setting the knives in the frame to a uniform grade of cut, so that each in succession shall cut its layer of excelsior and that the excelsior shall be of a uniform size and thickness; and it consists in the means for grading the position of the knives, so that each one is the thickness of the excelsior behind the one below it, so as to cut its layer of excelsior from the block in its turn, in the means connecting the grading-keys together, so that they can all be inserted or removed at once, and in the peculiar arrangement, construction, and combination of the several parts, as hereinafter set forth and claimed.

Figure 1 is a front view of the knife-frame of an excelsior-cutting machine. Fig. 2 is a view of the inner edge of one of the posts of the frame with the key-bar in position, but without the knife-blades or set-screws. Fig. 3 is a view of the key-bar detached from the frame. Fig. 4 is a horizontal section through the frame and knife-blade on a line through the set-screws. Fig. 5 is a view of a portion of the inner edge of one of the posts of the frame, showing the key-bar and the knives in place.

In the drawings, A A represent the posts or side pieces of the knife-frame, which reciprocate in ways on the main frame.

A' A' are the top and the bottom cross pieces or girts by which the posts are connected and held together. The lower girt is provided with the slotted stud a', in which the actuating-pitman is pivoted.

a a are grooves inclining backward or to-

ward the block cut in the inner faces of the posts of the knife-frame for the reception of the ends of the knives B B and of the slitting-bars C C C.

D is a guide-plate in the lower end of the frame, against which the block to be cut rests when the knife-frame is in its upward position and is ready to commence its downward or cutting stroke. The knives B must be so placed that the lower knife is just the thickness of a layer of excelsior toward the block or behind the plate, and each succeeding knife should be the same distance behind its predecessor.

E is a key-bar, as long as the slot a and of uniform thickness its entire length, to be inserted in the slot a behind the knives.

e e are keys or inclined planes attached to the side next to the knives or the front of the key-bar, the highest point of the incline from the key-bar being just the thickness of the desired cut of excelsior. The base of the wedge or inclined plane being upward holds the knife-blade in a perpendicular plane when inserted in the grooves a a behind the knives.

F F are set-screws tapped into the posts A of the knife-frame for the purpose of holding the ends of the knives solidly against the perpendicular faces of the keys e e on the inclined key-bar E, inserted in the inclined grooves a. If it should be desirable to make the grooves a a in the posts A A perpendicular instead of inclined, then the inclined planes or wedges should be replaced by flat keys, each the thickness of the excelsior, thinner than the one below it. When the inclined grooves in the posts A A are used, the keys immediately above and below the slitter-bars G must be graduated to take up the thickness gained by the slitter-bar.

What I claim as my invention is—

1. In a knife-frame of an excelsior-cutting machine, the combination of the posts provided with the grooves for the reception of the ends of the knives, with the key-bar provided with keys to hold the knives in position, the knives inserted in the grooves in the posts, and the means to lock them against the keys of the key-bar, all substantially as described.

2. In a knife-frame of an excelsior-cutting

machine, the combination of the posts A A, provided with the inclined groove *a* for the reception of the ends of the knives, with the key-bar having the inclined keys to support
5 the knives, the knives inserted in the grooves, and the means to retain the knives against the keys, all substantially as described.

3. In the knife-frame of an excelsior-cutting machine, the combination of the posts for
10 supporting the knives, having the inclined

planes for grading the cut of the knives, the locking-key to hold the knife-blade in a perpendicular plane, the knives resting against the locking-key, and the means for locking
15 the knives against the locking-key, all substantially as set forth.

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Witnesses:

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