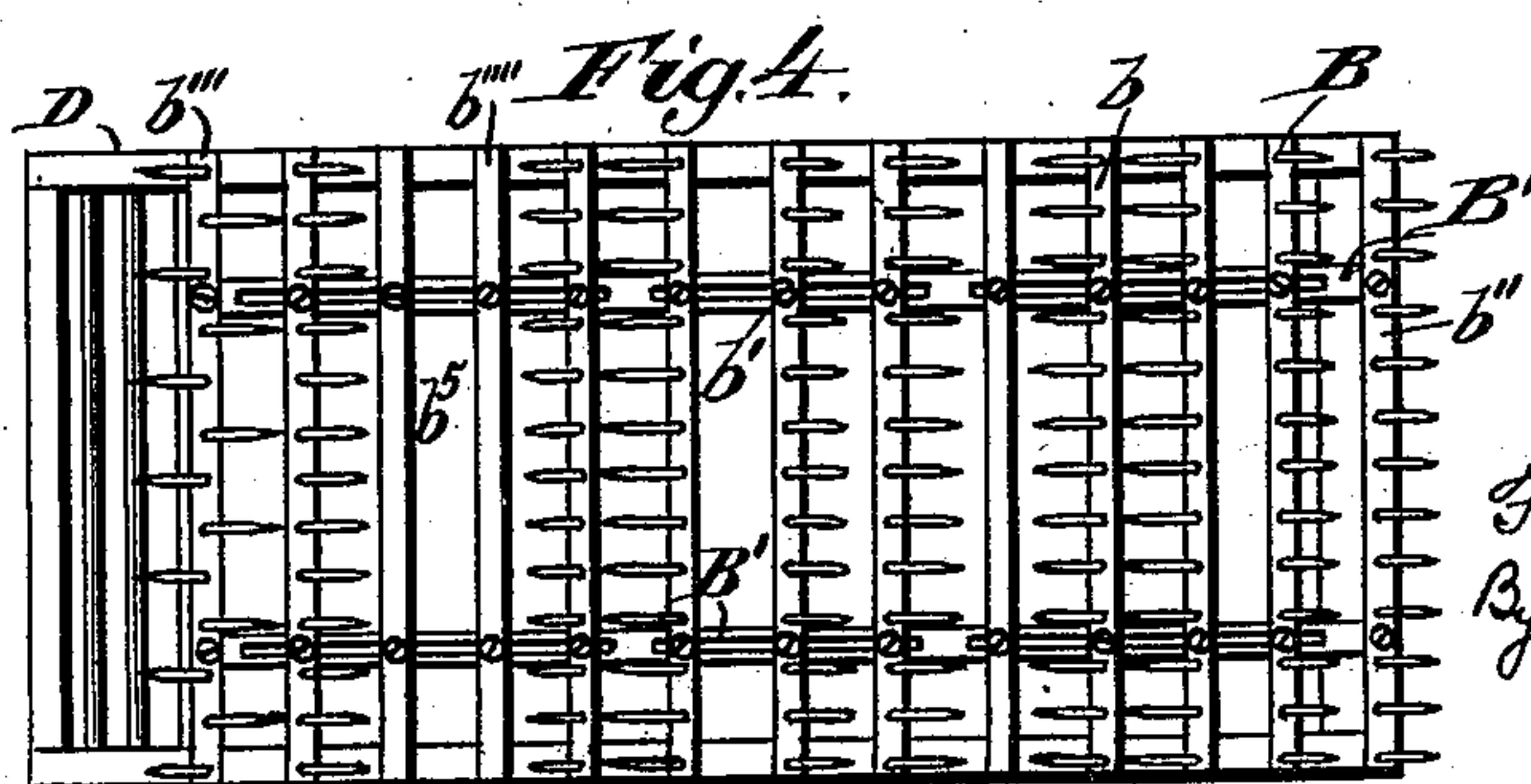
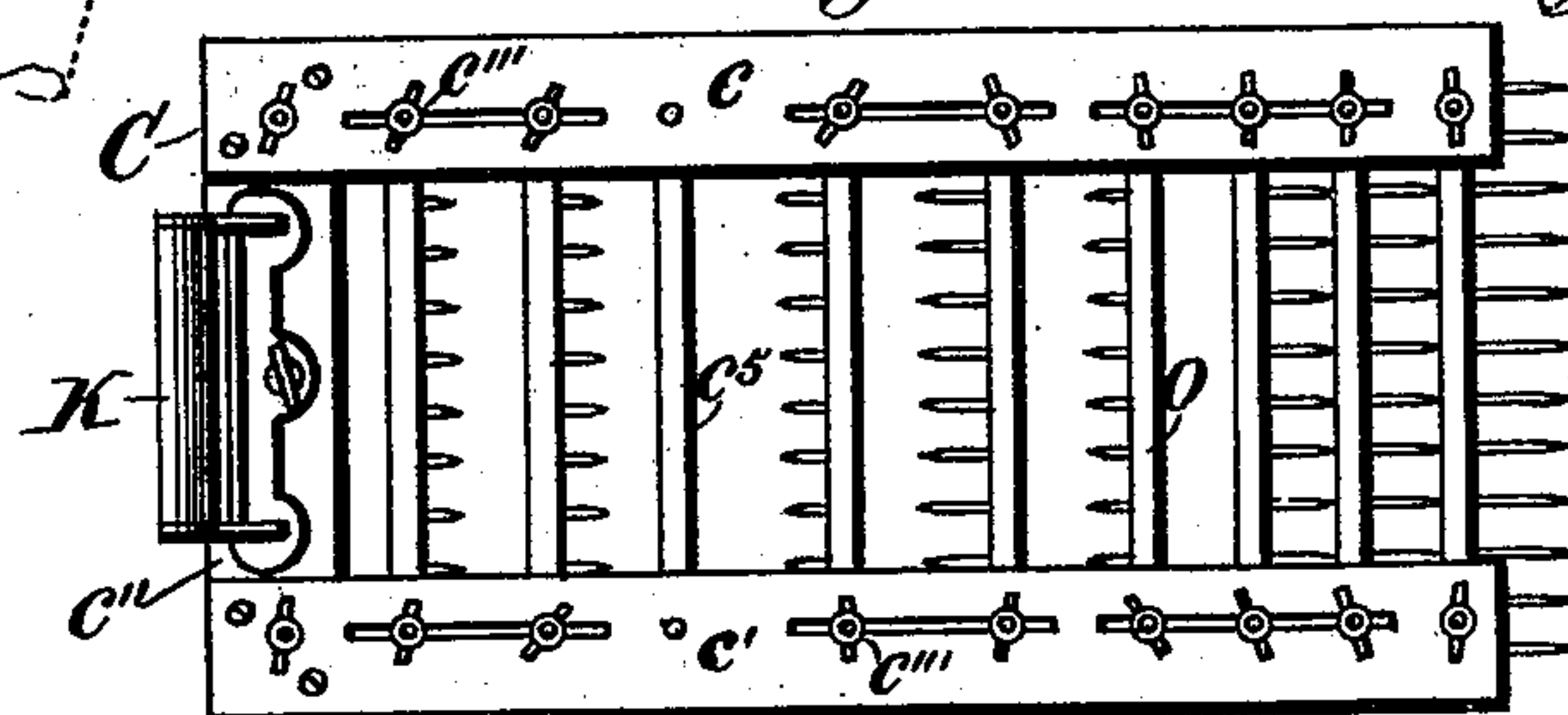
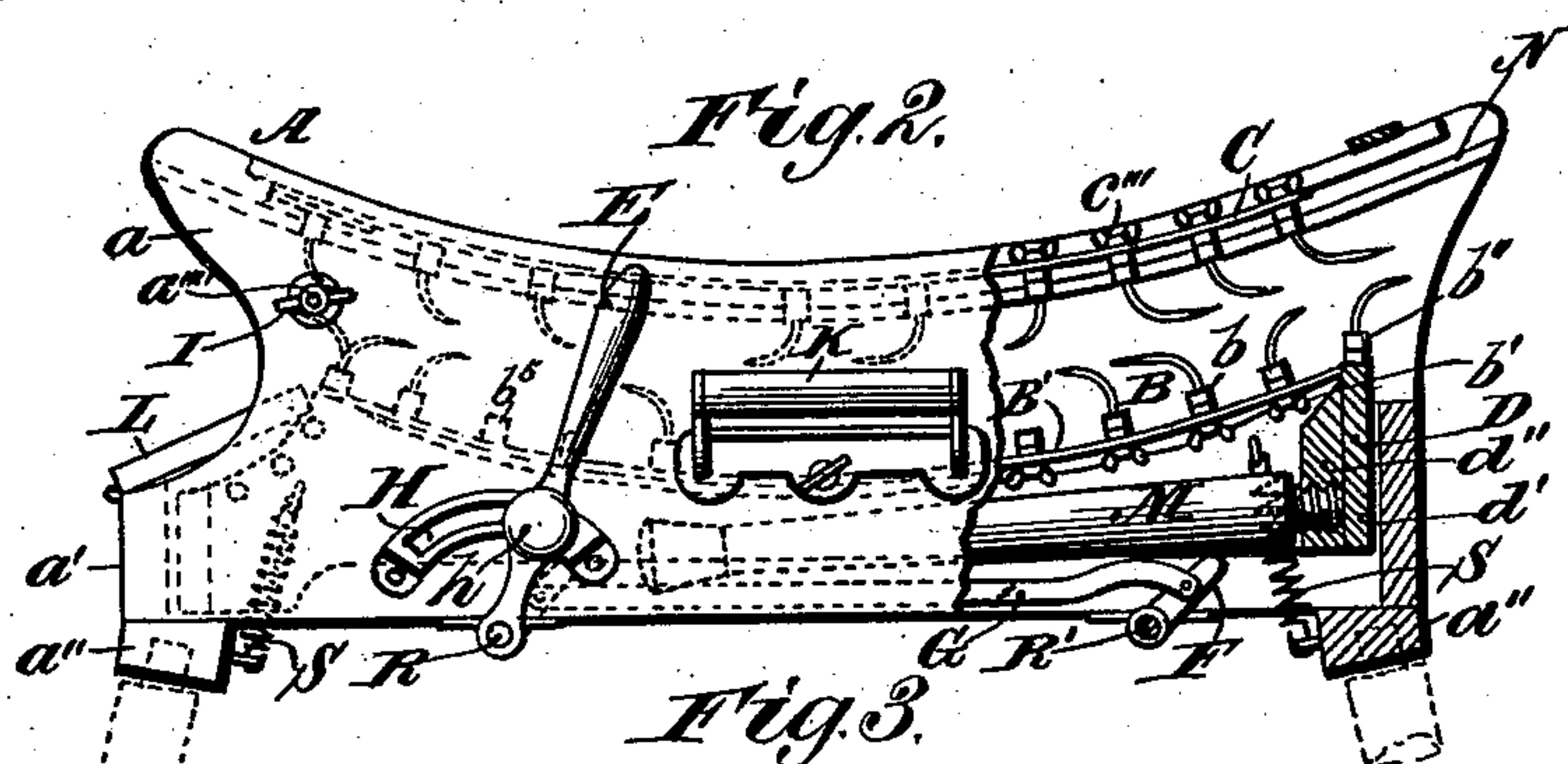
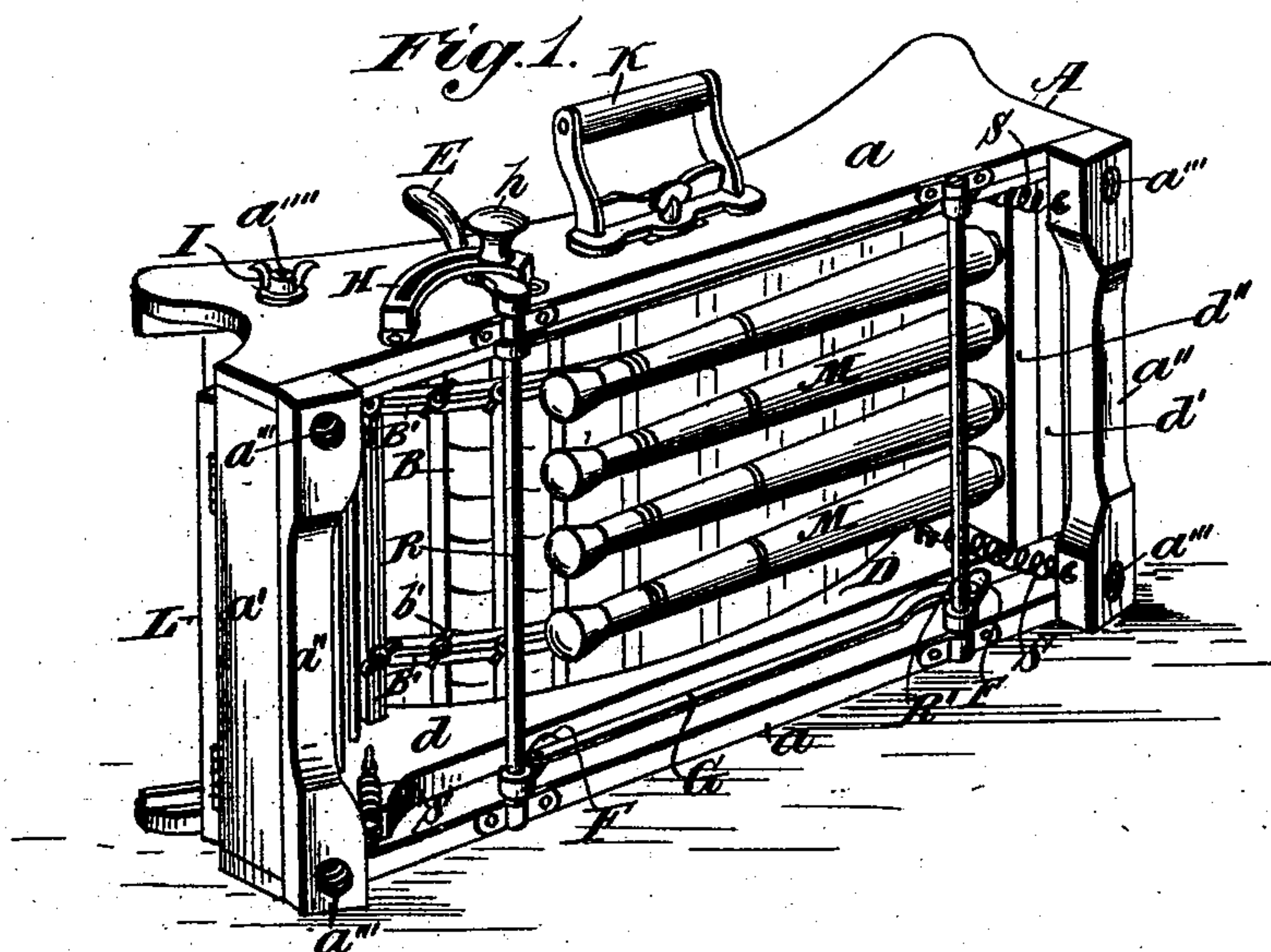


(No Model.)

F. J. MAUBORGNE.
CARDING MACHINE.

No. 534,402.

Patented Feb. 19, 1895.



Witnesses:
J. T. Brown
M. G. Ridley.

Inventor:
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UNITED STATES PATENT OFFICE.

FRANCIS J. MAUBORGNE, OF NEW YORK, N. Y.

CARDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,402, dated February 19, 1895.

Application filed March 14, 1894. Serial No. 503,595. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. MAUBORGNE, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Carding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to carding machines and its novelty consists in the construction and adaptation of the parts as will be more specifically hereinafter pointed out.

The object of my invention is to produce a carding machine of relatively small size, readily portable, compact in shape, which may be taken to private houses, where mattresses are to be made over, for instance, and which, at the same time, is adjustable to suit the requirements of different classes of material.

In the drawings, Figure 1 is a perspective view of my machine packed ready for transportation and showing the disposition of the legs. Fig. 2 is a vertical plan view and partial section of the same. Fig. 3 is a top plan view of the oscillating frame, and Fig. 4 is a similar view of the lower hook frame.

In the drawings, A is the supporting frame of my device consisting of a rectangular frame with curved side walls *a* and straight end pieces *a'*. To the front end piece, is hinged a leaf, or guard, L, adapted to increase the distance between the operator and the first row of hooks and providing a support for the material to be carded as it is fed into the machine. At the bottom of the supporting frame, I place two additional strips, *a''*, which are provided with suitable apertures *a'''* adapted to receive the threaded ends of the legs M when the machine is set up. These strips may, of course, be made integral with the end pieces *a'*. I also insert the legs at an angle so as to secure a more stable support; but it is obvious that other adjustable means of securing the legs in place may be readily devised by a skilled workman.

Inside of the supporting frame A, and resting upon the levers F, is a bed frame D, consisting of slats, or pieces, *d*, to which the lower hook frame is secured. The rear end piece of this bed frame *d'* is reinforced by a thicker

strip *d''* which is provided with suitable threaded apertures adapted to receive the upper ends of the legs M when the machine is packed for transportation. The supporting frame A is also provided with a locking rod *a''''* secured at one end by a nut and at the other end by a thumb screw I. This draws the two side pieces tightly together and prevents the oscillating frame from moving when the machine is to be carried.

The bed frame D and the supporting frame A are also connected at the four corners of the apparatus by means of the spiral springs S which, when the bed frame is raised, keeps it stiff and rigid and prevents annoying vibrations.

Supported by suitable bearings on the bottom of the supporting frame A, are two rock shafts R R' to which are rigidly secured four short levers F upon which the bed frame rests. These are connected by stiffening links G. One of the rock shafts R, has a handle E attached to its outer extremity by which it may be turned and the bed frame thus raised or lowered. Means for securing this handle firmly at any desired point are provided in the slotted arc H and thumb nut *h*.

The bed frame supports the lower hook frame B. This consists primarily of two concavely curved bars B', slotted at suitable intervals, and of the transverse hook bars *b*, which are adjustably secured to these bars B' by means of thumb screws *b'*. This hook frame is secured to the bed frame D by two end hook bars *b''* and *b'''* which are removable and are put into place by screws. The hook bars are readily adjustable along the slotted bars B'. In the illustration, I show, commencing at the front end of the machine, a hook bar *b''''* which has long hooks curved forward and short hooks curved backward and alternately long and short along the length of the bar. This hook bar is reversible and the long hooks may be turned backward and the short hooks forward for different classes of work. The next row of hooks are short. Then come two slats *b⁵* and *b''''* retained in place like the hook bars, and which prevent the hair, or other material carded, from falling to the ground in the space between the hook bars. Then comes two pair of hook bars, the first in each pair short, the

second long, the hooks in the first pair turned backward and in the second forward. Then comes a plain slat, then a pair of hook bars short and long with the hooks turned backward, and a final pair short and long with the hooks turned forward. All of these hook bars are reversible and the hooks may be turned the other way, arranged closer together, or farther apart, and the frame itself may be raised or lowered by means of the rock shaft R and levers F, thus securing great ease and adaptability of adjustment.

The oscillating frame C consists of two slotted side pieces *c* and *c'* and an end piece *c''*, adapted to receive the handle K, and hook bars being provided with thumb screws and nuts *c'''* by which they may be adjustably secured in any desired location along the frame. In the frame as shown in the illustration, the first hook bar secured under the end piece *c''* has long hooks; although, the hooks on this bar may be omitted and other means provided to hold the three pieces together; the next one short and the third long, all three with the prongs turned forward. Then comes a slat *c⁵* to prevent the material carded from crowding out of the machine. Then comes a pair of hook bars with the prongs turned backward the first one short, the second long, then a short pronged reversible hook bar, O, shown with the prongs turned backward, then three hook bars with the prongs turned forward, the middle one short the other two long. The side pieces *c* and *c'* rest on concavely curved rails N secured to the side of the supporting frame.

The handle K is detachable and may be secured to the end piece of the oscillating frame when the machine is to be operated, or to the side of the supporting frame, when the machine is to be carried.

The hook bar O has an important function to perform. When its prongs are turned backward the result upon the work is almost the same as though another pair of hook bars had been used, the material is retarded in its progress through the machine and the carding is very fine. If, on the other hand, the prongs are turned the other way, the work of carding is facilitated and the material is assisted in its progress through the machine.

The arrangement of the hooks on the frame is important. By increasing their number, as I have done, and alternating the direction in which their prongs are turned, I secure within a short space about double the action which has heretofore been secured by the use of any machine of similar size.

The operation of my machine is easily understood. The legs being removed from underneath the bed frame, and secured to the supporting frame, and the locking rod *a''''* being loosened and removed, the hinged leaf or guard is let down. The hair, or other material to be carded, is then fed into the front of the machine by the operator with one hand while with the other he draws back the oscil-

lating frame its full length and then moves it forward. The hair is thus carried into the machine and the continual reciprocating motion carries it through.

By making the lower hook frame without a solid bottom, I secure lightness; by making the hook bars adjustable, I secure the power of accurately adapting their arrangement to the work in hand; by making the handle as I do to fit both the oscillating frame and the outside supporting frame, I secure ease in transportation; and by making the legs removable, I secure compactness.

Having described my invention, what I claim as new is—

1. In a machine of the class described, a frame provided with adjustable hook bars arranged in pairs alternately pointing forward and backward, each pair consisting of a short and long member and the short member of the next to the last pair being reversible, substantially as described.

2. In a machine of the class described, a frame provided with hook bars, the first one with long prongs pointing one way and short ones the other, the second with short hooks pointing forward followed by a plurality of pairs of hooks alternately pointing backward and forward, the first member of each pair being short and the second long, substantially as described.

3. In a machine of the class described, the combination of two hook frames provided with supporting pieces and adjustable hook bars, the latter arranged in pairs alternately pointing forward and backward and each pair consisting of a short and long member, and each frame having one reversible hook bar, one being the short member of the next to the last pair and the other the first member of the series, the short hooks being replaced by long ones on said last mentioned hook bar when reversed, substantially as described.

4. In a machine of the class described, the combination of two hook frames each provided with supporting pieces and adjustable hook bars, the one having the hook bars arranged in pairs alternately pointing forward and backward, each pair consisting of a short and long member and the short member of the next to the last pair being reversible, and the other having the first hook bar reversible and provided with short and long hooks pointing in opposite directions, the second hook bar having long hooks pointing forward and succeeded by a plurality of pairs of hooks alternately pointing backward and forward, the first member of each pair being short and the second long, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANCIS J. MAUBORGNE.

Witnesses:

WM. RAIMOND BAIRD,
MAY G. RIDLEY.