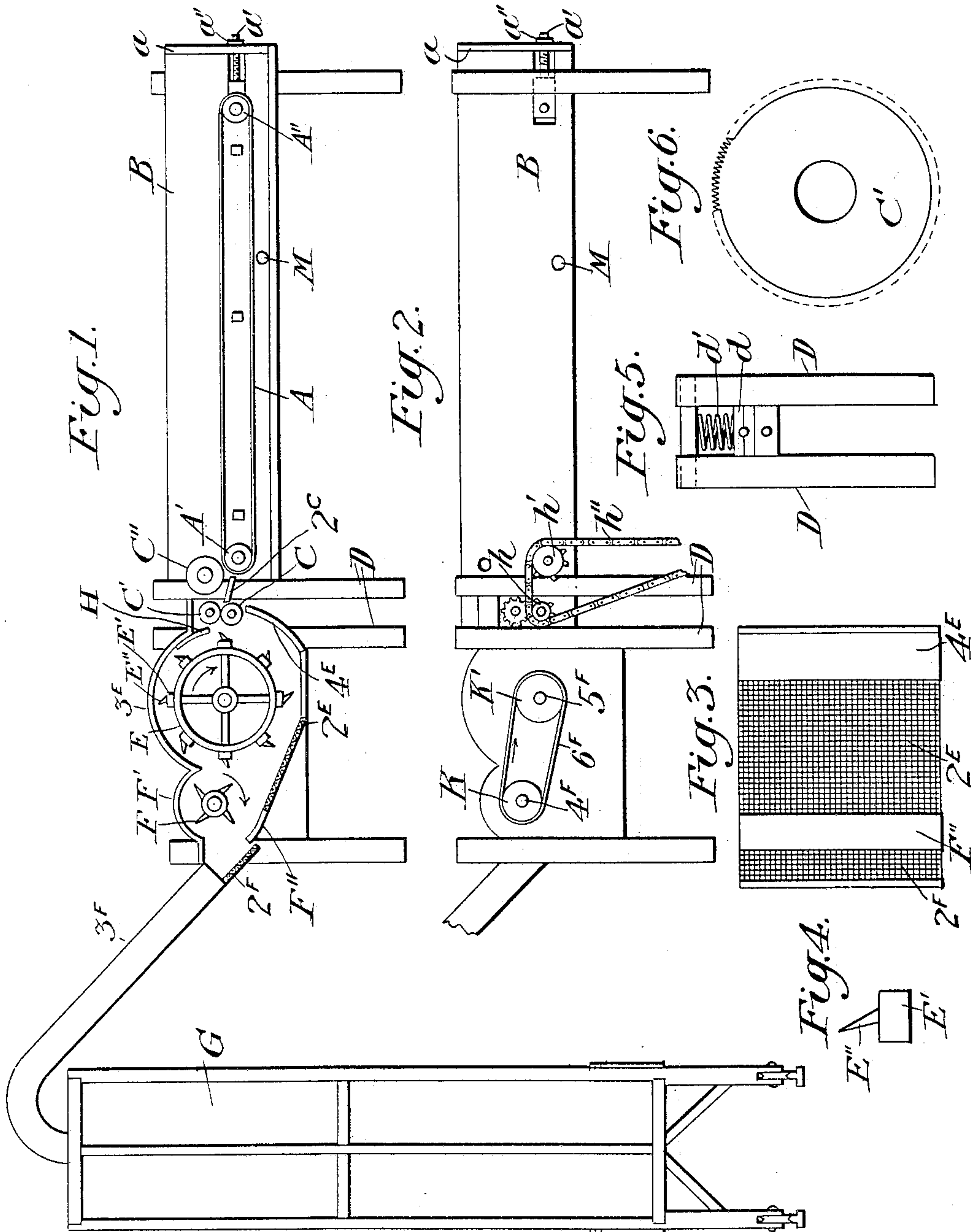


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PATENTED MAY 3, 1904.

I. N. STEWART.
COTTON PICKER AND OPENER.
APPLICATION FILED JUNE 12, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

ISAAC N. STEWART, OF ST. LOUIS, MISSOURI.

COTTON PICKER AND OPENER.

SPECIFICATION forming part of Letters Patent No. 758,793, dated May 3, 1904.

Application filed June 12, 1903. Serial No. 161,226. (No model.)

To all whom it may concern:

Be it known that I, ISAAC N. STEWART, a citizen of the United States, residing at St. Louis, Missouri, have invented certain new and useful Improvements in Cotton Pickers and Openers, of which the following is a specification.

This invention relates to improvements for combing and cleaning material for making mattresses; and the object is to construct machinery by which mattresses of a superior grade can be manufactured. The machinery is particularly adapted to comb all knots or tufts out of the material and cleanse the material thoroughly, so that it will not form wads or knots when put into mattresses. Material thus prepared will be free and remain free of disease-germs, as the mattresses need no tucking, and consequently there are no creases formed by tucking in which dust or filth will accumulate.

Other objects and advantages will be fully understood from the following description when read in connection with the accompanying drawings, which form a part of this specification.

Figure 1 is a side elevation of the press and the chute and the combing and cleaning chambers and the feed-box, the frontside casing being removed from said chambers and feed-box. Fig. 2 is a side elevation of the combing and cleaning chambers and the feed-box. Fig. 3 is a plan view of the screen, which is mounted in the bottom of the combing and cleaning chambers. Fig. 4 illustrates the manner of setting the teeth in the comb-cylinder. Fig. 5 illustrates the spring-pressed bearings of the feed-rollers. Fig. 6 is an enlarged end view of a feed-roller with a part of the surface serrated as is hereinafter described.

Similar characters of reference are used to indicate the same parts throughout the several views.

The material is first spread on a traveling apron or belt A, mounted on drums or rollers A' and A'', which are mounted in a box B. Drum A'' is mounted in an adjustable bearing, so that the tension of apron A can be regulated. Upright pieces α are attached to the box B on each side, and rods α' , provided with nuts α'' , are attached to the bearings of drum A'.

The tension of the apron A can be regulated by simply turning the nuts α'' . The apron delivers the material to feed-rollers C and C'. A drum C'' slightly compresses the material, and thus prepares it for the feed-rollers. The surfaces of rollers C and C' are serrated, as illustrated in Fig. 6, so that these rollers will take or draw the material between them. The roller C' is mounted in sliding bearings \mathcal{C} , the bearings being pressed down by springs \mathcal{C}' and held in vertical alinement by the frame-pieces D D. The cotton or whatever material is used is guided to the feed-rollers C and C' by a feed-board 2^c, which receives the cotton from the apron A. The feed-rollers hold the cotton with enough pressure to allow the teeth of the comb to remove all tufts or wads. Near the exit side of the rollers C and C' is mounted the comb-cylinder E. This cylinder is not made as other cylinders, but the exterior surface consists of longitudinal bars E', and teeth E'' are mounted in rows in these bars. Attention is called to the manner of setting the teeth. The cylinder revolves to the right or in the direction of the hands of a clock, and the teeth are inclined backward, as clearly shown in Fig. 4. The object in setting the teeth thus is that they will not pull the cotton out in knots or wads or tufts, but comb all the knots or wads or tufts out as they pull the cotton from the rollers. The feed-rollers feed the cotton slowly, and the comb revolves very fast. The cotton is beat against a screen 2^e, mounted under the comb. Each tooth being set inclined back will not pull enough cotton at a bite to form a tuft or knot or wad. The cotton is taken up from the screen 2^e by the fan F. The fan knocks the cotton against a second screen 2^f. The screen 2^f has one edge free, so that it will be elastic and open far enough to allow hard particles of trash or seed to fall out and not be blown up through the chute. The combing-chamber consists of the curved board 4^e, the screen 2^e, the board F'', the curved fan-casing F', and the curved comb-casing 3^e. Most of the dust and dirt will be knocked out through the screen 2^e and some will be knocked through screen 2^f. A board H is attached to the inside of the cleaning-chamber and projects

down even with the center of the yielding roller C' and practically flush with the surface of this roller. This board H will prevent back pressure of the air above the roller C' whether
 5 this roller is in its normal position or shoved to its upper limit. Back pressure seems to be caused by the space above the upper feed-roller in which this roller is allowed to retreat whenever this roller is forced upward and by
 10 the escape of air through the slots in the casing for the movement of the journals of the upper roller. This board was put into the machine as an improvement on the machine as first used, and it is found that the capacity
 15 of the machine is very much increased and the cotton is cleaned much better. The cotton seems to strike the screen in the bottom with greater force.

The fan and comb may be driven by any
 20 suitable motive power. Fig. 1 illustrates gearing which may be used. Pulleys K and K' are mounted, respectively, on the fan-shaft 4^F and the comb-shaft 5^F and a band 6^F mounted on these pulleys. A band leading to the mo-
 25 tive power may be mounted on either one of these pulleys. The apron B and the feed-rollers may be driven by the sprocket-gearing, as shown. Small pinions are mounted on the shafts of said rollers and a sprocket-
 30 wheel h mounted on the shaft of roller C. A sprocket-wheel h' is mounted on the shaft of drum A'. A sprocket-chain h'' drives the apron B and the feed-rollers, the sprocket-chain running to any suitable motive power.

35 The cotton is driven by the fan through the chute 3^F into the felter G, which should be of considerable height and the proper width and length for mattresses.

In Fig. 1 is shown an idler M, which is used
 40 to prevent the sagging of the apron B. Additional idlers are to be used, if necessary,

under the bottom of the apron or between the two parts.

Having fully described my invention, what I claim as new, and desire to secure by Letters 45 Patent, is—

1. The herein-described apparatus for picking and cleaning cotton consisting of a comb-
 ing and cleaning chamber, feed-rollers mount-
 ed at the entrance to said chamber and having 50
 their peripheral surfaces serrated, means for exerting pressure to hold said rollers in close proximity, a revoluble comb mounted in said chamber and having teeth inclined backward
 and adapted to pick material from said rollers, 55
 the bottom of said chamber being partly constructed of screen, and a fan mounted in said chamber and adapted to beat material against the screen as the material passes from the chamber. 60

2. The herein-described apparatus for picking and cleaning cotton consisting of a comb-
 ing and cleaning chamber, feed-rollers mount-
 ed at the entrance to said chamber and having
 their peripheral surfaces serrated, means for 65
 preventing back pressure above the upper one of said rollers, means for holding said feed-rollers yieldingly in close proximity, a revoluble comb mounted in said chamber and adapt-
 ed to pick material from said rollers, the bot- 70
 tom of said chamber being constructed, in parts, of screen, and a fan mounted in said chamber and adapted to beat the material against said screen as the material passes from said chamber. 75

In testimony whereof I set my hand, in the presence of two witnesses, this 5th day of June, 1903.

ISAAC N. STEWART.

Witnesses:

H. G. HAGEY,
 THOS. J. HAGEY.