S. H. Gilman.

Cotton Picker.

No. 81,622. Patented Sept. 1, 1868.

Fig. 1

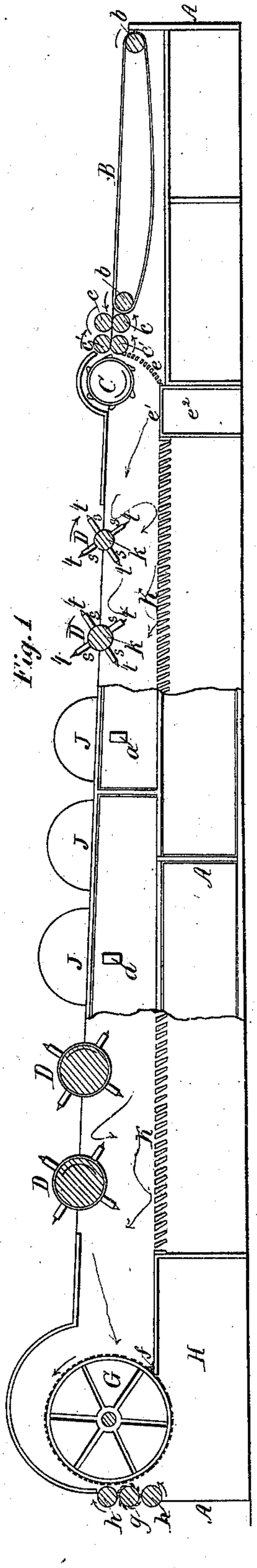


Fig. 2

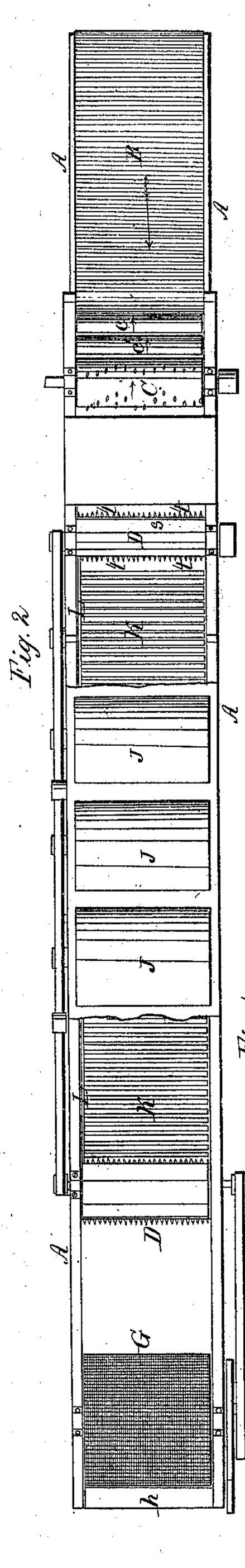


Fig. 5

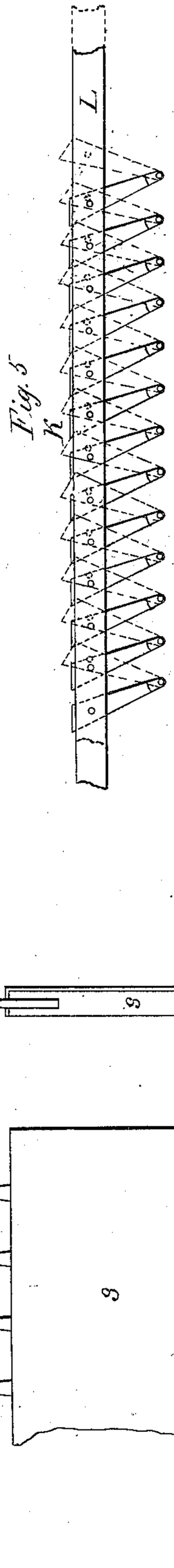


Fig. 4

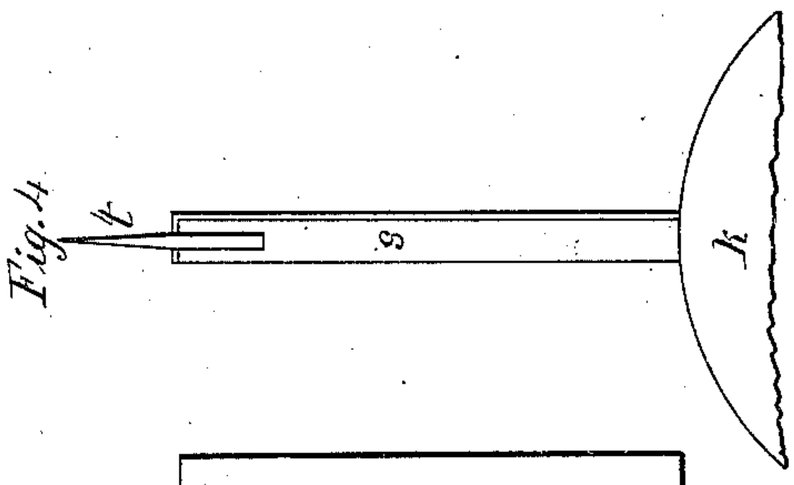
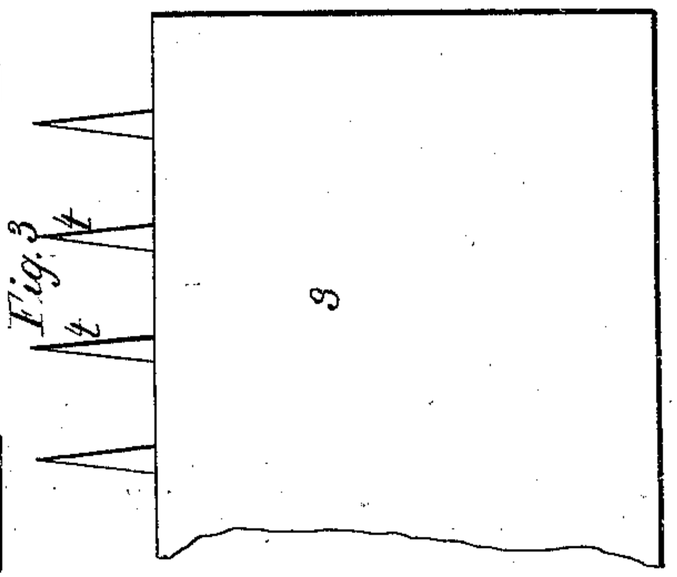


Fig. 3



UNITED STATES PATENT OFFICE.

SAMUEL H. GILMAN, OF GALVESTON, TEXAS.

IMPROVEMENT IN COTTON PICKER AND CLEANER.

Specification forming part of Letters Patent No. **81,622**, dated September 1, 1868.

To all whom it may concern:

Be it known that I, SAMUEL H. GILMAN, of Galveston, in the county of Galveston and State of Texas, have invented a new and Improved Cotton Picker and Cleaner; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section taken in a vertical plane through the center of the improved machine. Fig. 2 is a top view of the machine with portions broken away. Figs. 3 and 4 show the construction of the toothed fan-pickers. Fig. 5 is an end view of a portion of the slatted floor enlarged.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on machinery which is designed for rapidly and thoroughly cleaning and picking the inferior grades of cotton, and the badly picked and ginned cottons, and for effecting this result without cutting or in any manner damaging the cotton fiber.

The nature of my invention consists in effecting the tearing asunder of the locks of cotton, and the separation of the leaf fragments, dust, sand, and other foreign substances from the cotton, by means of radial wings or fans having spurs or teeth upon their outer edges, which wings or fans are applied to revolving drums or shafts, and arranged within a suitable case or box, over a slatted floor of peculiar construction, so that during the operations of cleaning and picking, the cotton will be subjected to strong currents of air, which will not only carry away the dust and trash as fast as they are separated from the locks of cotton, but will also assist in impelling the cotton through the machine, and in bringing it in contact with the several separate beating and picking wings or fans of the machine.

The invention further consists in the employment of an open slatted partition or flooring, constructed as herein described, the slats of which are caused to oscillate during the operations of cleaning and picking cotton, and thus cause all the dust, sand, leaf trash, and other foreign substances separated from the cotton, to fall between the slats and escape from the picking and cleaning chamber, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have represented my improvements applied to machinery, comprising the feed-apron, the drawing-rollers, the willow or picker, the squirrel or revolving screen, and the lap-roller, which latter delivers the cotton in readiness for the press or the cards, all of which parts may be constructed as I will hereinafter describe, or in any other equivalent manner.

A represents the frame of the machine, which may be made of any required length, according to the number of separately-rotating pickers and cleaners which it may be desired to employ. The size of the frame shown in the drawings is adapted for receiving seven of these rotating fan pickers and cleaners, varying in size; but in practice I prefer to employ twelve of them, which will require the frame to be about forty-five feet in length and about three feet wide. The fan-pickers will increase in size from about sixteen inches in diameter (the smallest) to about twenty-eight inches in diameter, which is the largest. This frame A is housed in, and provided with suitable side doors, and also with windows *a a*, for obtaining access to its interior, and also for viewing the operations of picking and cleaning as they progress.

At one end of the frame A, and applied to two horizontal transverse rollers or drums, *b b*, which are arranged at suitable distances apart, is an endless apron, B, upon which the cotton-lint is spread by hand in locks, preparatory to and for the purpose of having it fed into the machine. This apron, revolving in the direction indicated by the arrows in Figs. 1 and 2, delivers the cotton between the two pairs of feed-rollers *c c c′ c′*. These rollers are fluted in a suitable manner, and provided with the well-known expansion-gearing, which latter prevents choking. They seize the cotton and carry it between them, and as the second pair, *c′ c′*, revolve more rapidly than the first pair, the locks of cotton are pulled out and loosened previously to being delivered to the surface of the willow or picking-drum C.

This willow or picking-drum C is a cast-iron cylinder mounted upon the frame A, so as to rotate freely in the direction indicated by the arrow in Fig. 1. It is studded with teeth of such form as to pull to pieces and knock about the cotton, causing it to part with the heavier sand, dust, and trash, which foreign substances are forced backward through the concave grating at *e* into an apartment, from whence they can be removed from the machine.

The rapid rotation of this willow or picker C creates strong currents of air, which will carry off portions of the foreign substances through the grating *e*, as above stated, and also down through a perforated floor, e^1, into a chamber, e^2, beneath. These currents of air and the picker also throw the picked cotton forward and upward until it is received by the wings of the first and smallest fan beater and cleaner D. The cotton is thence carried forward from one beater to another until it is received upon the circumference of the squirrel or revolving screen G. This screen is applied upon a horizontal transverse shaft, which has its bearings upon the frame A, and it is provided with a leathern pad at *f*, which lies against its surface, and prevents any of the cotton from being carried through in this direction. The ends of this screen may be furnished with rubber buffers, placed around its rims, so as to make the joints tight at such points. The currents of air, drifting onward by force of the fans of the pickers and cleaners D, are driven through the screen or sieve of the squirrel G, thereby carrying all the remaining dust and trash inside of this squirrel, whence it escapes, at both ends thereof, into the chamber H, and out into the open air outside of the building. The cotton is carried around in fleece by the squirrel G to the lap-roller *g*, which, being furnished with leather laps, confined also by the rollers *h h*, takes off the fleece perfectly clean, and delivers it in readiness for the cotton-press or the cards.

The mechanism forward of the first pair of blades, and also the mechanism in rear of the last pair of blades, form no part of my present invention, as the same is of the ordinary construction, and I have merely illustrated these parts to show the class of machines to which my invention is to be applied; and I will now proceed to describe these improvements.

The revolving fan-pickers are all made substantially alike, the only difference between them being that they gradually increase in size, so that the blows given to the cotton as it proceeds through the machine will increase in violence as the cotton is more or less completely separated, fiber from fiber.

Each fan-picker D consists of a hub or cylinder, *k*, having four or more radial wings or fans, *s*, secured to it at regular distances apart, so as to extend from one end to the other of the said shaft or drum. The beating-surfaces and outer edges of these wings *s* may be covered with sheet metal, so as to present durable and smooth surfaces. The outer edges of the wings *s* are studded with tapering and rounded spurs or teeth *t*, which operate to tear and pick to pieces the cotton subjected to them. The fan blades or beaters of the several rotary cleaners D are of the same size; but the hubs or cylinders *k* of these cleaners gradually increase in diameter as they approach the outlet of the machine, thus increasing the radii of said cleaners. Each fan-cleaner is covered by a semi-cylindrical cap, J, which is secured to the top of frame A, so as to be removable, and also so as to prevent the escape of currents of air generated by the rotary fans within these caps.

Beneath the fan-cleaners D is arranged a slatted flooring, K, which extends nearly from end to end of the machine. This flooring is made up of transverse slats of a tapering form in cross-section, and set inclined, as shown in Figs. 1 and 5, and the slats are pivoted to the sides of the frame A, in lines parallel to each other, so that by means of the bar L, to which these slats are also pivoted, they can all be caused to rock about their respective pivots. This bar L should be connected to some one of the shafts of the fan-beaters, or other driving-shaft, in a suitable manner, so that during the operations of picking, blowing, and separating the cotton the slats will all be caused to rock back and forth. The flooring K will not only allow sand, dust, leaf trash, and other foreign substances to pass through it, but it will, by its motion and the inclination of the slats, prevent any of such substances from finding a lodgment upon it. The tapering of the slats composing this flooring will also greatly facilitate the passage of foreign substances through it into the trash-chambers beneath, from which latter the trash can be removed at pleasure by means of suitable openings closed by doors.

It will be seen from the above description that I employ a number of rotary fan-blades carrying upon their outer edges combs or teeth, which will be made round and smooth, which fans will create currents of air of sufficient force to float and impel the locks of cotton from one point to another through the machine, and carry off the dust, &c. At the same time the blades will rapidly beat the cotton, while the teeth will pick and break up the leaves entangled with it, without injury to the cotton fibers, the extremities of said fan-blades revolving with differential speeds in a tapering trunk formed by the housing placed around the frame A.

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

1. The combination of the tapering trunk, having a flat slatted bottom and segmental caps J J, and the combing fan-blades, the extremities of which run at differential speeds, substantially as and for the purpose described.

2. The pivoted, oscillating, tapering, and obliquely-set slats, constructed, as described, of bottom *k*, applied so as to present a flat-

surfaced grated bottom and inclined chutes when the slats are in one position, and to present an irregular bottom when the slats are in another position, as shown in Fig. 5, the said slats being connected to reciprocating bars, all substantially as and for the purpose described.

3. The combing fan-blades *s s*, the extremities of which run with differential speeds, in combination with a trunk or tunnel, which is tapering in form, and has its bottom formed of vibrating slats, constructed substantially as and for the purpose described.

S. H. GILMAN.

Witnesses:
N. LIDSTONE,
A. C. MCCARTY.