E. OSGOOD.

Improvement in Cotton-Gins.

No. 130,438. Patented Aug. 13, 1872.

Fig. 1.

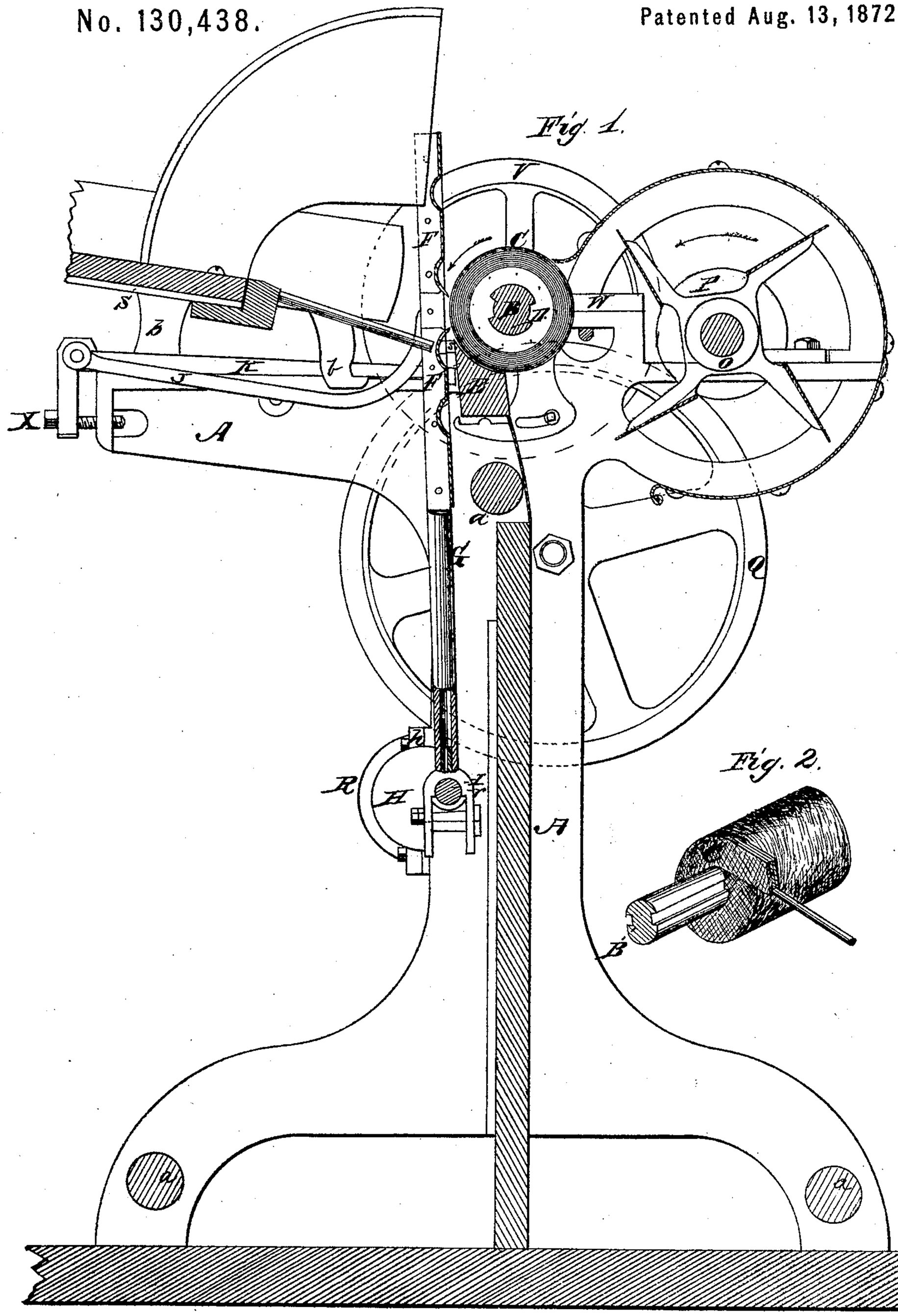

Fig. 2.

Attest.

Jas. T. Allen

R. F. Parks.

Inventor

Enoch Osgood

UNITED STATES PATENT OFFICE.

ENOCH OSGOOD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. **130,438**, dated August 13, 1872.

To all whom it may concern:

Be it known that I, ENOCH OSGOOD, of Boston, county of Suffolk and State of Massachusetts, have invented certain Improvements in my Elastic-Roller Cotton-Gin, patented January 15, 1867; and that the following is a full and clear description thereof, reference being had to the accompanying drawing with letters of reference marked thereon, in which—

Figure 1 is a sectional view of my machine or gin, embodying my improvements.

In the drawing, A A represent the frame or end pieces, held together by cross-pieces *a a a*. B is the roller-shaft; C, the elastic roller. E is a concave or angular bar with a steel face hardened; F F, corrugated clearers; G, pitman with its steel-strap box *r* with keys and gibs; H, crank-shaft; I I, cranks; J J, connecting-rods to connect the clearers F F to the slide-arms K K.

My present improvement consists in a new mode of connecting the corrugated clearers with the other portions of the machine, to secure precision of adjustment as well as durability. Slide-pieces K K are employed, made adjustable by means of set-screws *x*, which serve to regulate accurately the distance of the clearers from the elastic roll. The corrugated clearers are connected with the slide-pieces by the curved arms *j j* having a pivotal attachment at each end; and the connection of the clearers with the pitman-rods is rigid instead of pivotal, as heretofore. The slide-arms have also projections or horns, which bear against the concave bar, and adjust it in unison with the clearers.

I will first describe the mode of putting together the principal parts of my gin, which have a necessary relation to my present improvements aforesaid. I first take the frame or end pieces A A with their different boxes and bearings cast thereon, and put them together by cross-bars *a a a*. I then take the elastic roller C, and place the bearings of its shaft B into the boxes that are cast on the top of the end pieces A A, and screw their caps down tight. I then put the concave or angular bar E in its bearings, (not shown,) or a stirrup may be used, hung on shaft B, for it to rest in, with its hardened smooth face adjusted against the elastic roller C, in front, in such a position that the upper thin edge of it will come three-sixteenths of an inch, more or less, below its center, and placed in such a manner that a gentle pressure of it against the elastic roller C will draw in a single fiber of cotton between them at any given point in its revolutions. The cranks I I are to be made from two to three-eighths of an inch long, as desired, according to the staple of cotton ginned, whether long or short; for long staple a three-eighth crank may be used. I then put the bearings of the crank-shaft H into their boxes *h h*, that are cast on the edges of the frame A A below the elastic roller C, and screw their caps down tight. The strap-boxes *r r* are then put onto the cranks *i i*, and keyed firm with their check-nuts, screwed up tight. I then put the crank-shaft H into its bearings or boxes *h h*, and screw the caps down tight, and then turn the cranks *i i* just half way up, and make a mark on the pitman G G at the upper edge of the concave bar E, when in its proper place. I then turn the cranks I I clear up, and rivet the lower corrugated clearers F onto the pitman G G, so that the points of the teeth of it will come three-sixteenths of an inch above the thin edge of the bar E. I then turn the cranks clear down, and rivet on the upper clearer F, so that the points of the teeth will pass down three-sixteenths of an inch below the upper edge of the bar E, unless the cotton draws in too fast; if so I lower the upper clearer F and the bar E; if too slow, I raise them. At the marks on the pitman G, in the center, between the teeth of the clearers F F, after they are riveted on, I drill a hole for a stud, to attach the connecting-rods J J that connect the clearers F F to the slide-arms K K that rest on the arms of the frame A A. These slide-arms K K have horns on the inner end and edge of them, that rest against the upper edge of the bar E, to force it against the roller C, as desired, to draw in the fiber of the cotton between them as the roller revolves in the direction of the arrow, and the clearers F F being connected to the same arms K K, at the other end by rods J J, keep the space between the clearers F F and the bar E the same, when the slide-arms K K are forced in and out by screws X X at their outer end, moving all in unison. These connecting-rods J J having a sharp curve up at their inner ends can be very easily bent to adjust the clearers F F to the bar E at any

time. The revolving-doffer O, that is on the back side of the elastic roller C, is to keep it free from lint-cotton, and is made with four, more or less, arms, with serrated plates about two inches wide riveted thereto, teeth outward, with each plate bent up or back sufficiently to prevent the lint-cotton from sticking to the teeth as it revolves, and sits in adjustable boxes in such a position that the teeth of each plate will just touch the roller C, or nearly so, and is put in motion by a gear, P, on the end of its arbor that gears into another gear, Q, which is driven by another gear that is on the end of the shaft B of the elastic roller C, which gears into an intermediate or side gear, which drives gear Q and P, and also drives the pinion R that is on the end of crank-shaft H when the machine is driven by hand from the roller-shaft B. When driven by power a pulley, T, is put onto the other end of the crank-shaft H for that purpose in the usual manner. The feed-board S has a long tooth-rack made of wire on the side next to the clearers F F, suitable to let the seeds drop through as fast as they are snapped from the cotton; it also has iron ends with short feet *b b*, which rest on and fasten to the slide-arms K K, and a board bottom is secured to these ends to spread the seed-cotton on before it is ginned, upon which the cotton is manipulated and shoved up to the clearers F F, so that the elastic roller C, revolving in the direction of the arrow, will seize the fiber of the cotton and draw it through between the teeth of the clearers F F and down through between itself and the bar E, and out on the back side, while the rapid motion of the clearers F F snaps out the seeds from the cotton as fast as they are drawn up in the same manner, or might be done with finger of one hand, while the cotton is gently held between the thumb and fingers of the other, without injuring the staple in the least. This action will hustle out all the sand and red mud from the cotton as it passes through instead of interspersing it all through the lint-cotton, as usually occurs with other gins, causing the depreciation of the value of the staple from one to five cents per pound.

I construct my roller, as described in my former patent of January 15, 1867, or in the following manner: I take compound strips of rubber and cloth, cut on a bias, just as wide again as when I use the metallic rings, with one or more thicknesses, as desired, and double them up edge-wise from one end to the other, and place a small strong cord or wire in the fold with another strip half as wide in the fold above and down onto the cord, and wind them close together around the shaft, the cloth edgewise to the shaft, drawing the cord or wire very tight, until full. I then secure it fast, put it into a tube or mold, with or without a jacket of rubber, as desired, and vulcanize as before; and when desired for very elastic purposes, I put a jacket of rubber of any desired thickness over the whole, and it will not peel off as the threads run from the shaft to or toward the outer surface, making it more elastic clear to the shaft, where the rubber and cloth, or their equivalent, extend and all are united together. I then turn it off, and it is ready for use. The manner of securing the cloth and rubber, or their equivalent, to the shaft, edgewise, does not affect the true principle, as above named. I have described it in my former patent, dated January 15, 1867, thus, "to be secured in any way that will prevent it from turning on the shaft." The rubber being interspersed through the cloth, which is set edgewise to the shaft, is also to give it strength and durability; therefore, it matters not whether the shaft or body, on which the compound elastic roller is made, is of wood or iron, as it is the same thing in its operation, or how the elastic covering is fastened to the shaft, if it is only sufficient for the purpose desired, and it may be done in any way, so that it will draw the fibers of the cotton through between the elastic roller C and the bar E in its revolutions by the pressure of the bar against the roller C, as above named.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. The corrugated clearers F F, constructed as described, cranks I I, curved arms J J, connected to the slide-arms K K having horns S S that bear against and adjust the bar E, all combined and operating together substantially as and for the purpose specified.

2. The corrugated clearers F F, rigidly connected to the pitman-rods G G, and attached to the slide-arms K K by the curved arms *j j* having pivotal connections at each end, substantially as specified.

ENOCH OSGOOD.

Witnesses:
N. K. ELLSWORTH,
C. F. BROWN.