M. A. FURBUSH.

Condensing Mechanism for Carding-Machine.

No. 166,601. Patented Aug. 10, 1875.

Fig. 1.

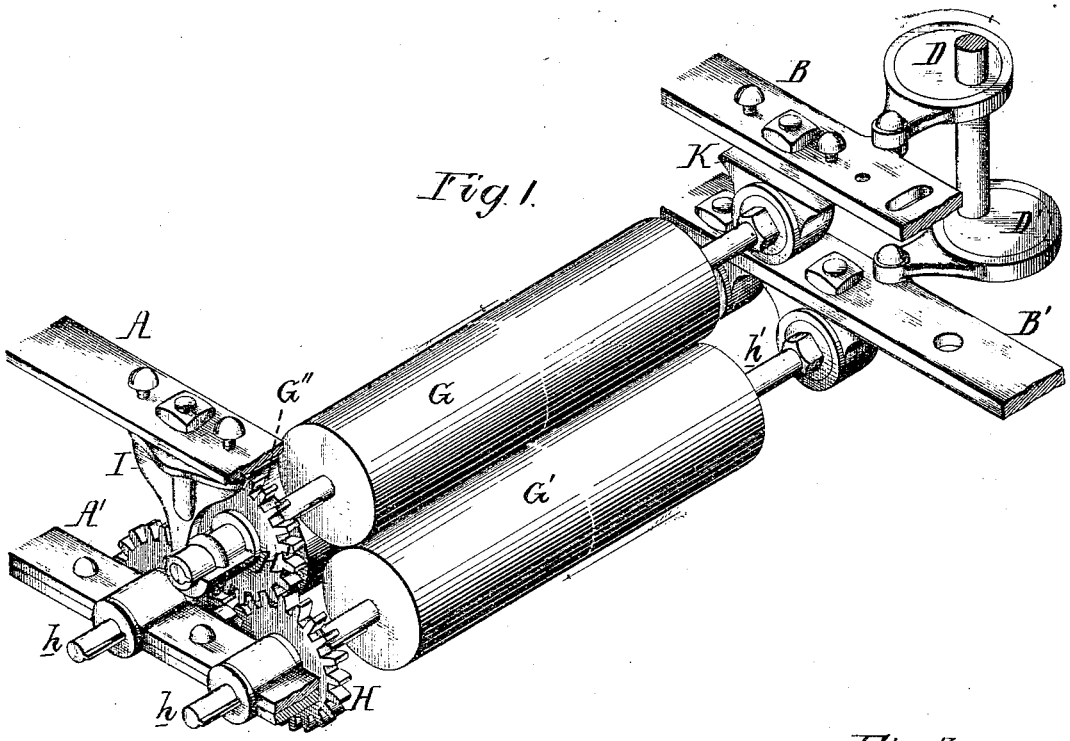



Fig. 2.

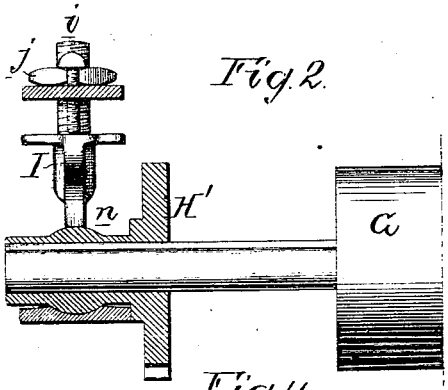



Fig. 3.

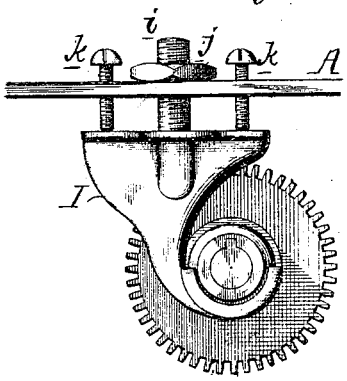



Fig. 4.

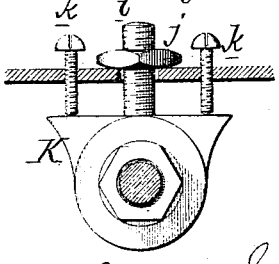
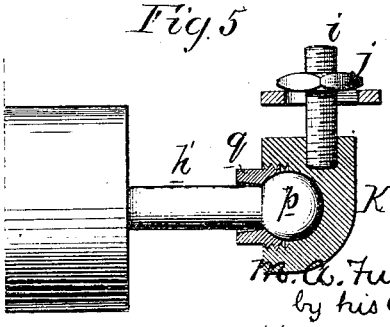



Fig. 5.




Witnesses, Harry Smith
Thomas Milburn

M. A. Furbush,
by his Attorneys,
Newman and Son

# UNITED STATES PATENT OFFICE.

MERRILL A. FURBUSH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND CHARLES A. FURBUSH, OF SAME PLACE.

## IMPROVEMENT IN CONDENSING MECHANISMS FOR CARDING-MACHINES.

Specification forming part of Letters Patent No. **166,601**, dated August 10, 1875; application filed May 21, 1875.

*To all whom it may concern:*

Be it known that I, MERRILL A. FURBUSH, of Philadelphia, Pennsylvania, have invented a Condensing Mechanism for Carding-Engines, of which the following is a specification:

My invention relates to improvements in the condensing mechanism of carding-engines; and the objects of my invention are to facilitate the removal and replacing of the condensing-cylinders, to afford the means of readily and accurately adjusting the upper condensing-cylinders in respect to the lower cylinders, and to render the bearings of the upper cylinders self-accommodating to this adjustment. These objects I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view, illustrating my improvements in the condensing mechanism of carding-engines; and Figs. 2, 3, 4, and 5, detached views of part of the mechanism.

A and A′, Fig. 1, represent portions of the fixed frame of the carding-engine; and B and B′, portions of bars, to which a horizontal reciprocating motion in contrary directions is imparted by the eccentrics D D′, or any other mechanism, such as has been heretofore used for reciprocating the condensing-cylinders of carding-engines. One end, *h*, of the spindle of each of the lower cylinders G′ and G″ is arranged to slide in a cog-wheel, H, and is provided with a feather adapted to a groove in the hub of the wheel, so that the latter cannot turn independently of the spindle. The hubs of the wheels H H of the two lower rollers are arranged to turn in fixed bearings on the bar A′, which forms a part of the permanent frame of the carding-engine, the hub of the wheel H′ on the spindle of the upper roller, however, being adapted to a hanger, I, in the manner best observed in Figs. 2 and 3. A screw, *i*, attached to the hanger passes through the bar A, above which the screw is furnished with a nut, *j*, and two screws, *k k*, pass through the bar A and bear on the top of the hanger. It will be evident that, by means of these screws and the nut of the screws *i*, the hanger can be readily and truly adjusted, and secured after adjustment—an important feature, for the delicate and accurate adjustment of the upper condensing-cylinders in respect to the lower cylinders is a desideratum.

It will be observed, on referring to Fig. 2, that the hub of the wheel H′ has a spherical enlargement, adapted to a recess of corresponding form in the hanger I, so that the hub of the wheel, while free to revolve, is at liberty to rock to a limited extent in the hanger, and accommodate itself to the different inclinations of the spindle due to the adjustment of the said hanger.

The manner of connecting the ends *h′* of the spindles of the cylinders to the reciprocating bars B and B′ will be best understood by referring to Figs. 4 and 5. A sphere, *p*, is formed at the end of each spindle, and is adapted to a socket in a hanger, K. If this hanger appertains to the upper cylinders it is secured to the slide B precisely in the same manner and for the same purpose as the hanger I is secured to the bar A; but if the hanger appertains to any of the lower cylinders it is secured directly to the sliding bar B without means of adjustment.

The sphere *p* is maintained in its place in the socket of the hanger K by a screw, *q*, in a manner which will be readily understood by reference to Fig. 5 without further explanation. On withdrawing this screw from the hanger K the sphere *p* will be at liberty, and the cylinder can be readily removed from its bearings, first by sliding it endwise from and clear of the hanger K, then by tilting it upward, and, finally, sliding it outward from its bearing in the wheel.

It will be understood that although I have shown but three cylinders there are the usual number employed in the condensing apparatus of carding-engines, the cylinders being driven and geared together in the usual manner, so that they can revolve simultaneously in the proper direction, while the usual reciprocating movement is imparted to them.

I claim as my invention—

1. In a carding-engine, a series of upper condensing-cylinders, each of which is supported and adapted to slide at one end in the self-adjusting hub of a driving-wheel, and is

confined at the opposite end, by a ball-and-socket joint, to a reciprocating bearing, all substantially as set forth.

2. The combination of the hanger I and the spindle and driving-wheel of a condensing-cylinder with the bar or frame A, screw *i*, nut *j*, and set-screws *k k*, all substantially as set forth.

3. The combination of the reciprocating and adjustable hanger K, its socket, and screw *q* with the spindle of a condensing-cylinder having spherical ends.

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

M. A. FURBUSH.

Witnesses:
HARRY SMITH,
HUBERT HOWSON.