(No Model.)

C. H. WHITTEN.

TOP FLAT CLEANER FOR CARDING MACHINES.

No. 407,312. Patented July 16, 1889.

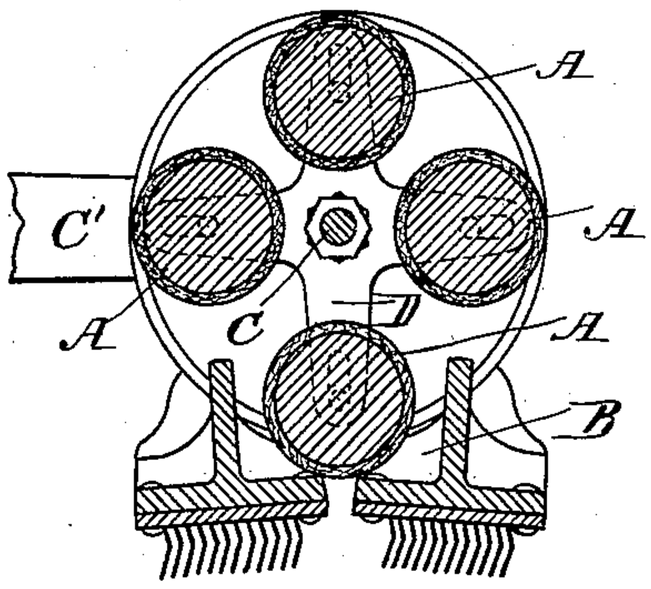

Fig. 1.

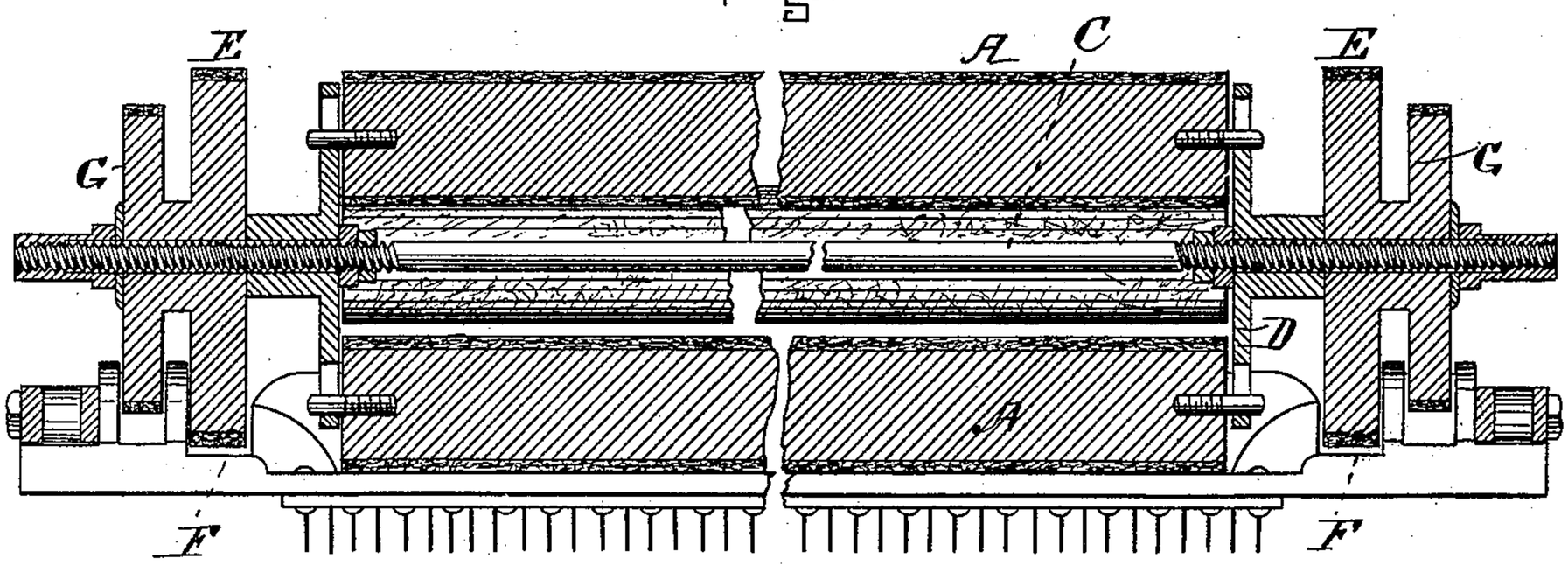

Fig. 2.

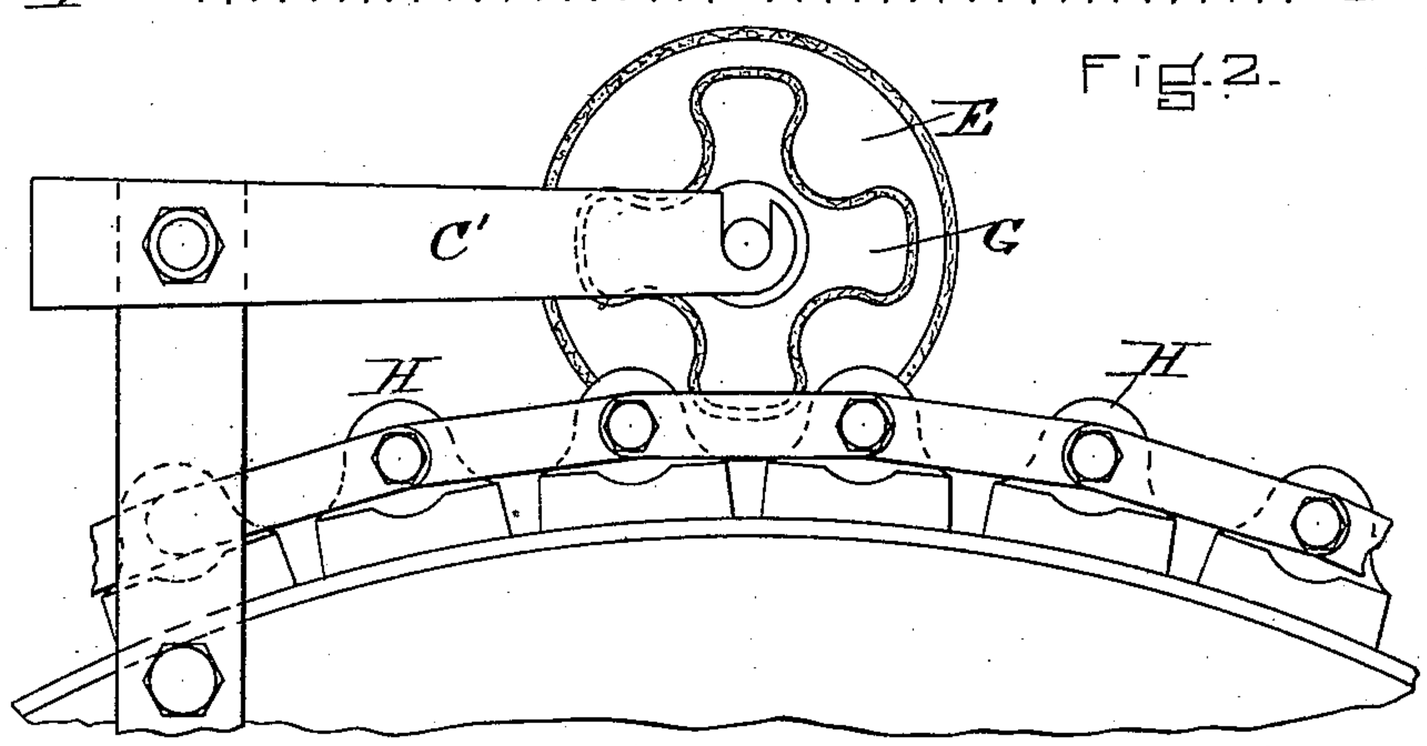

Fig. 3.

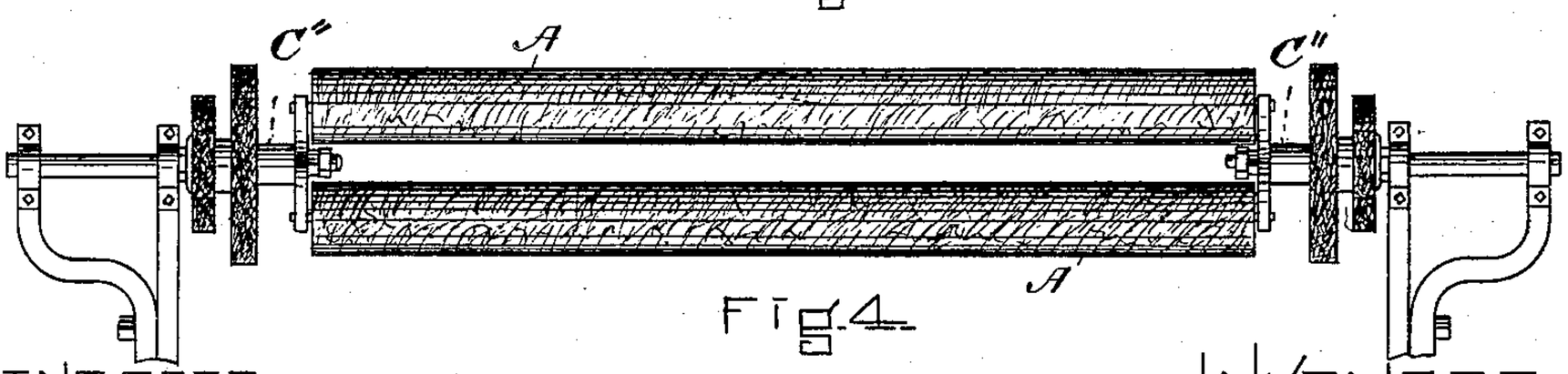

Fig. 4.

WITNESSES.

J. Henry Taylor.

E. B. Tomlinson.

INVENTOR.

Chas. H. Whitten

by Alex. P. Browne

attorney.

UNITED STATES PATENT OFFICE.

CHARLES H. WHITTEN, OF LAWRENCE, ASSIGNOR TO THE PETTEE MACHINE WORKS, OF NEWTON, MASSACHUSETTS.

TOP-FLAT CLEANER FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 407,312, dated July 16, 1889.

Application filed September 26, 1888. Serial No. 286,453. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. WHITTEN, of Lawrence, in the county of Essex and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Top-Flat Cleaners for Carding-Machines, of which the following is a specification.

My invention is intended for use in connection with that class of machinery known as "top-flat carding-engines," now in extensive use in this and other countries. In these engines the operation of carding is performed between a large carding-cylinder covered with clothing and a series of what are called "top-flat cards," also clothed and connected in the form of an endless chain, arranged by means of suitable mechanism to pass slowly over the clothed surface of the rapidly-revolving carding-cylinder. The endless chain of flats is supported upon suitable driving and supporting rollers at the upper part of the machine. Each flat upon its inner side is provided with a central longitudinal stiffening frame or rib, so that the series of flats making up the endless chain, when viewed upon its inner side, presents a series of troughs, each formed by one-half of two adjacent flats and extending entirely across the machine. The joint or interval between the adjacent flats required to permit the bend called for in passing over the carrying-rollers of the endless chain allows the loose cotton, dust, &c., arising from the operation of carding to pass into the interior of this endless chain. It there collects and gradually increases until it interferes with the operation of the machine and must be removed. Heretofore this has been done by means of a piece of hooked wire in the hands of a workman, with which he hooks or draws out of the machine as much of the collected lint or dirt as may be. This operation not only involves the stoppage of the carding-engine for a considerable time, but is clumsy and inefficient; and the object of my invention is to devise a cleaner which shall be adapted to revolve within the series of top-flat frames, and to operate automatically while the machine is running to pick up and take away the lint and dust from the inside of the top-flats substantially as fast as it is deposited, this brush or cleaner being made readily removable, so that when it becomes loaded it may be taken out to be cleaned and put back into the machine without material difficulty or loss of time and without stopping the machine.

In the accompanying drawings I have represented at Figure 1 such a brush or cleaner as arranged to operate within the series of top-flat frames in connection with an adjacent pair thereof, the view being in vertical section at right angles to the length of the top-flat. Inasmuch as my device operates to clean the top-flats successively, they passing by successively, it is not necessary to represent more of the chain of top-flats than the portion—viz., two top-flats—actually undergoing the operation of cleaning at any given time. Fig. 2 is a vertical section at right angles to that of Fig. 1, and shows additional devices old in this class of machinery, but which may be advantageously combined in a novel manner with my cleaner, as will be hereinafter more fully explained. Fig. 3 is an end view of the device, showing a portion of the frame of the carding-engine to which it is applied.

My improved brush or cleaner comprises a series—preferably four, as shown in the drawings—of revoluble cleaning-rolls A. Each of these rolls has a cross-section of a size and shape such as will permit it to enter the groove or trough B, formed by the ribs and the abutting portions of two adjacent top-flats. The rolls A should be of a length corresponding substantially with the length of the trough B to be cleaned. They are arranged circumferentially about and carried by a rod or shaft C. The ends of this shaft enter supporting-brackets C′, which may be slotted, as shown, to allow the ready removal of the shaft and its attached brushes for the purpose of cleaning. Each roller is journaled or pivoted at its end in an extension D of the shaft, and is also in slotted connection therewith, to allow the roller free movement outwardly or inwardly toward or away from the central shaft. Upon this shaft also may be mounted the wheel-brush E, which has heretofore been used to keep clean the grinding-faces F F of the top-flats upon which the flats are supported when the operation of grinding or renewing the surface of the clothing is performed. Additional

wheel-brushes G G may likewise be mounted upon the shaft C to keep clean the faces of the sprockets H H, by means of which, in conjunction with appropriate sprocket-wheels, the endless chain of flats is caused to move in the manner hereinbefore described over the face of the carding-cylinder.

When my improved top-flat brushing device is in its place in the machine within the series of top-flat frames, it will be observed that as the chain of flats passes along under the series of brushes A one of them drops into the trough B, and in so doing wipes or cleans that side of the rib past which the brush enters the trough. The continued motion sidewise of the flats cleans the bottom of the trough by carrying it sidewise past the brush, and, finally, the brush passes upwardly out of the trough and along the side of the next rib, thereby cleaning that, which forms the remaining portion of the trough. At the same time the brush, being free to rotate on its own axis, is continually presenting a fresh surface to perform the cleaning operation, and, furthermore, as one brush is about to leave the trough having been cleaned by it another brush is entering the next trough to clean it, the motion of the brushes toward and away from the central shaft, as before mentioned, allowing them to pass easily into and out of the successive troughs.

I prefer to construct the shaft C and slotted extensions D of metal. The brushes may conveniently be made with cylindrical wooden cores covered with a rough-fibered material, such as a coarse felt or clearer cloth.

The cleaners A may be themselves readily cleansed, when this becomes necessary, by removing from the machine the shaft to which they are connected and brushing or otherwise taking from them the accumulated dust, fiber, &c.

I have heretofore shown and described the shaft C as a single continuous shaft extending from side to side of the carding-engine. This is the construction which I have found preferable in practice. It might, however, be possible to make the shaft in two short parts C″, one suitably journaled at each side of the machine, as shown in Fig. 4. If so constructed, the shafts or cores of the cleaners or brushes A would themselves serve to connect the two parts of the shaft, and the contrivance would become in this way substantially equivalent to the single continuous shaft, which I prefer.

I claim—

1. The improved top-flat cleaner herein described, the same consisting of a central shaft adapted to revolve in but removable from supports at opposite sides of a carding-engine and within the series of top-flat frames, this shaft being provided with enlargements or extensions having a series of brushes or cleaners A in slotted revoluble connection therewith, the brushes being arranged circumferentially around the shaft and having a cross-section sufficient to permit them to enter and clean the trough B, formed by parts of adjacent flats, all substantially as set forth.

2. The improved cleaning device for carding-machines herein shown, consisting of the central shaft C, extension-pieces D, connected to said shaft, top-flat cleaners A, revolubly mounted in radial slots in said extension-pieces, and the circular brushes E G, mounted upon the shaft C, the whole forming a single device adapted to clean the top-flats and their grinding-faces and sprockets simultaneously and during the operation of the carding-machine.

In testimony whereof I have hereunto subscribed my name this 30th day of July, A. D. 1888.

CHARLES H. WHITTEN.

Witnesses:
G. T. FRANCIS,
GEORGE O. G. COALE.