R. H. COOK.

WASTE COLLECTOR.

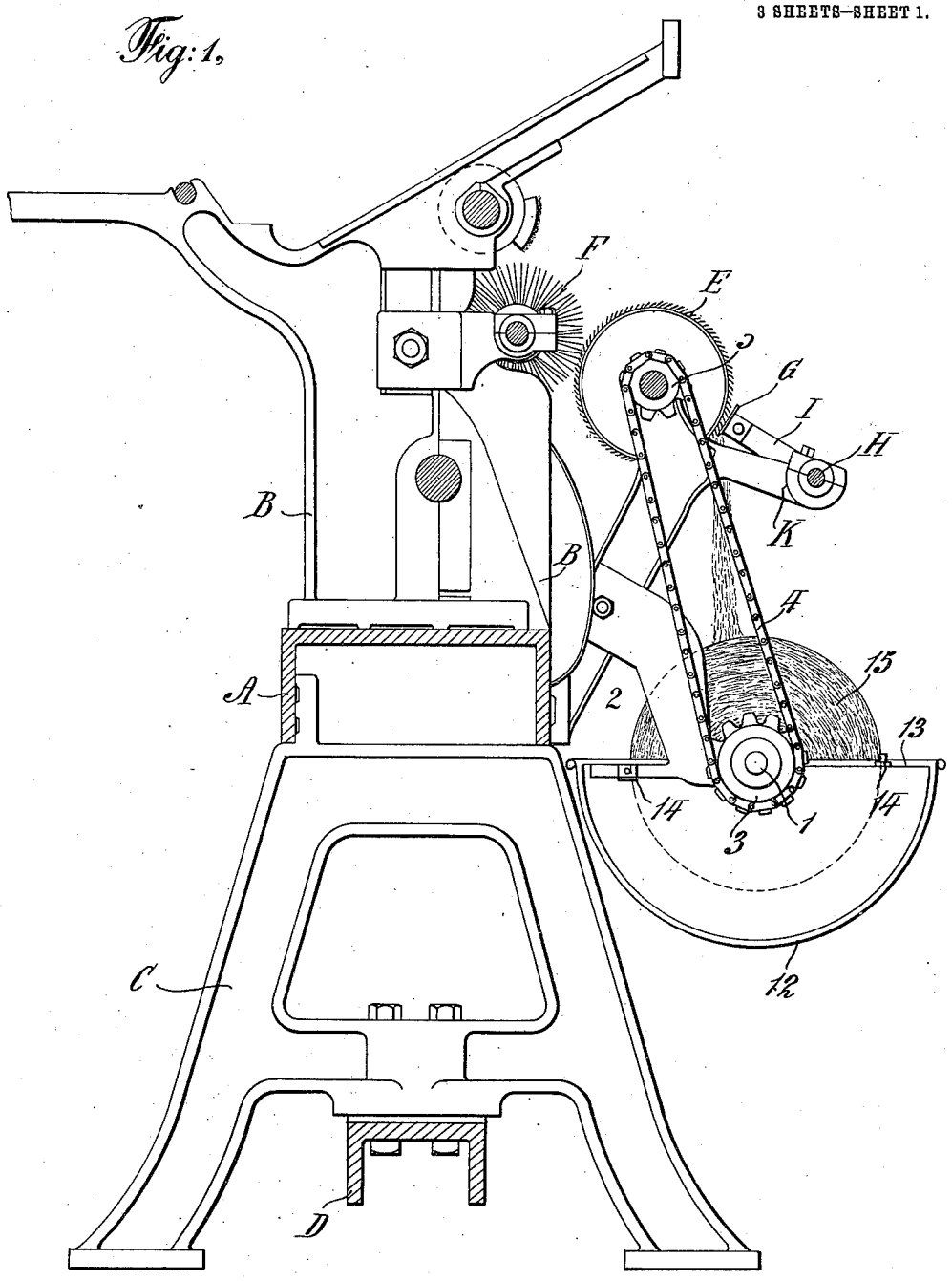
APPLICATION FILED AUG. 28, 1909.

1,002,226.

Patented Sept. 5, 1911.

3 SHEETS—SHEET 1.

Fig: 1.



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3 SHEETS—SHEET 2.

Fig: 2,

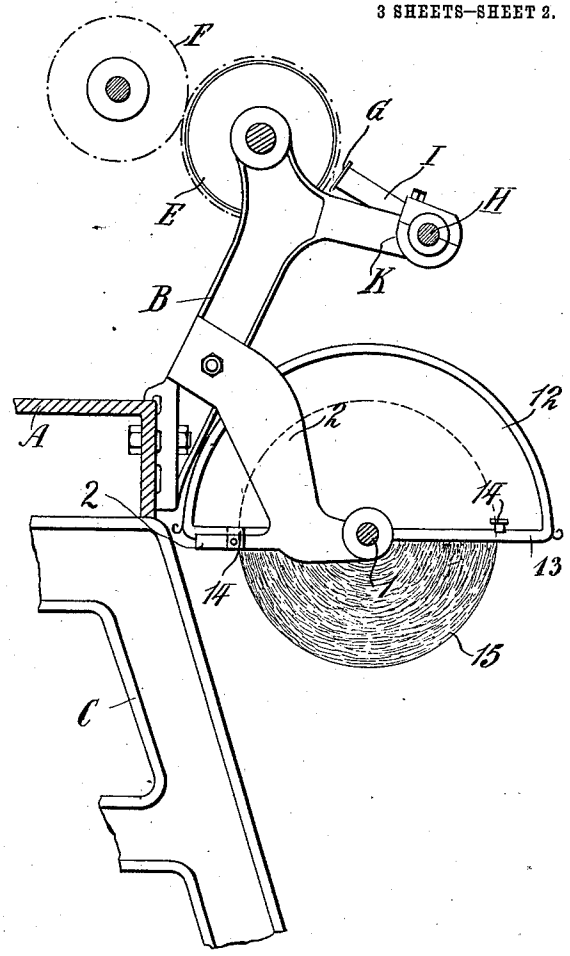
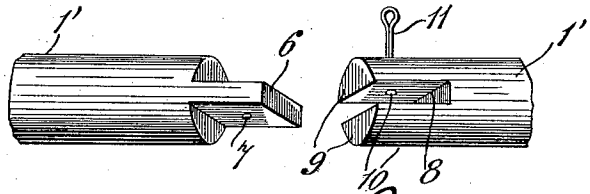


Fig: 4,



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3 SHEETS—SHEET 3.

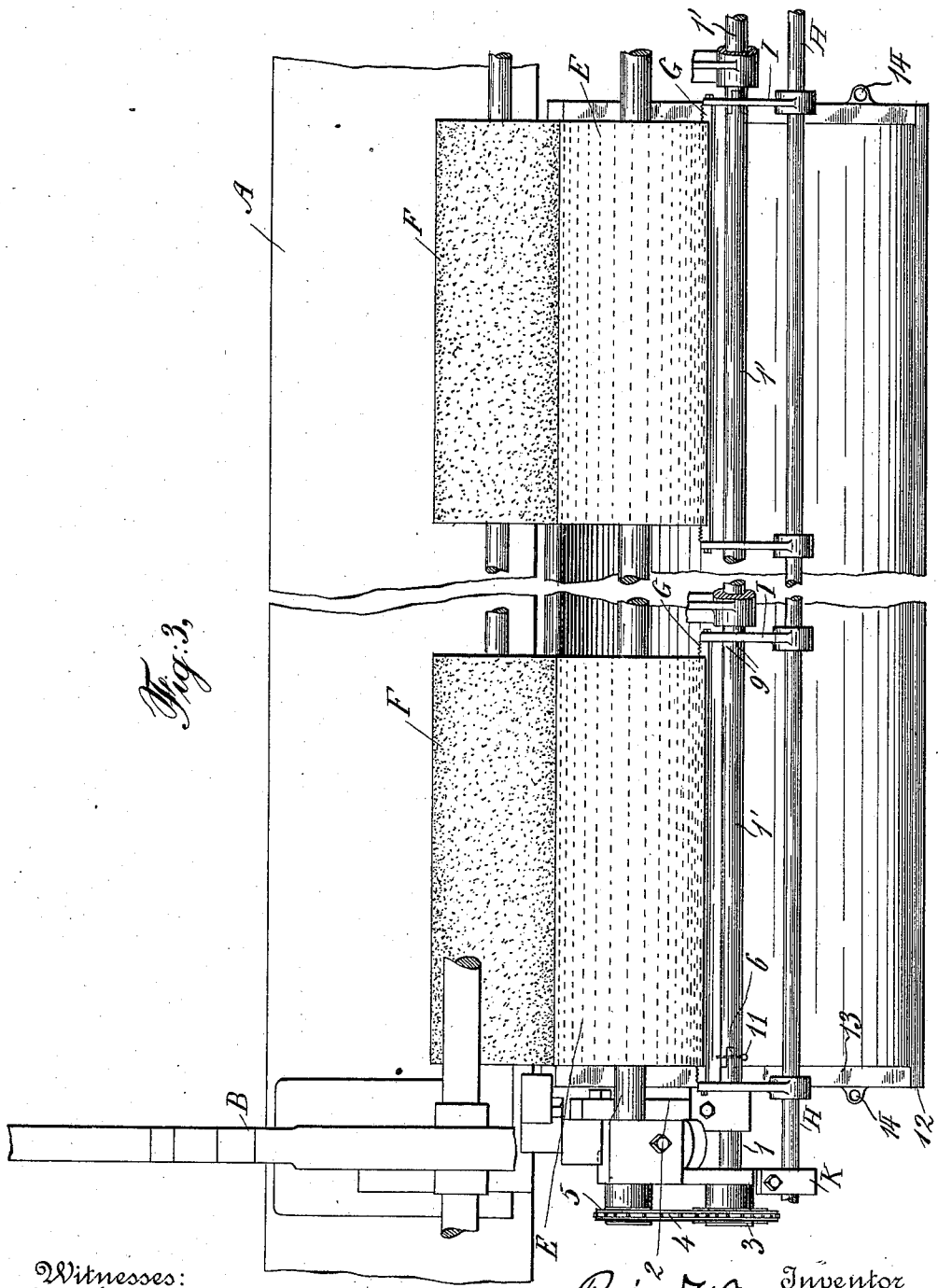

Fig. 3.

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UNITED STATES PATENT OFFICE.

RICHARD H. COOK, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR TO THE WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WASTE-COLLECTOR.

1,002,226. Specification of Letters Patent. **Patented Sept. 5, 1911.**

Application filed August 28, 1909. Serial No. 514,985.

To all whom it may concern:

Be it known that I, RICHARD H. COOK, a citizen of the United States, and a resident of the city of Fall River, county of Bristol, and State of Massachusetts, have invented certain new and useful Improvements in Waste-Collectors, as set forth in the following specification.

This invention relates to fiber collecting and compacting apparatus and more particularly to such apparatus in combination with combing machines, for example, cotton combers of the Heilmann type.

An object of the invention is to collect and compact the waste thereof automatically and in an efficient and convenient manner.

A further object is to provide for the convenient combination of such apparatus in a combing machine and to provide for the ready removal of the collected waste with convenience and despatch.

A still further object of the invention is to protect the collected waste from contamination by dirt and other foreign matter which would be likely to fall into it during the cleaning of the combing machine, and to improve the condition and quality of such waste so that it will be free from dust patches, and so that it will be useful for purposes for which the waste from combers heretofore is not suited.

The above and further features will be pointed out in the accompanying claims and will be apparent from the following specification, which should be read in connection with the drawings forming part of this application, in which like characters designate corresponding parts, and in which—

Figure 1 is an end elevation, partly in section, of parts of a cotton comber, as will be recognized by those familiar in this art; Fig. 2 is a transverse vertical section, with parts broken away and parts in elevation, taken through the above apparatus in a plane in front of the end bracket support for the waste winding shaft; Fig. 3 is a plan view of the apparatus with parts broken away; and Fig. 4 is a detail view of a sectional shaft coupling.

The present invention is shown in its application to a comber having a plurality of heads and of the usual construction and operation, a sufficient embodiment of the comber mechanism being illustrated in the above figures to show the correlation and combination for the purposes of this invention of the waste collecting and condensing mechanism with the waste discharging parts of the comber.

The frame of the combing machine comprises a main horizontal girder A extending the length of the machine for the common support of several combing heads, the parts of which are supported thereon by a series of intermediate upright supports B. The girder A is shown suitably supported by the usual leg castings C stayed by means of the lower horizontal girder D.

The doffing cylinder E is horizontally journaled on the uprights B in coöperative relation with the cylindrical brush F similarly journaled. The doffer comb G is secured to a rock shaft H by means of arms I, the said shaft H being suitably journaled in the usual doffer brackets K extending rearwardly from the uprights B. The brush, doffing cylinder and doffer comb are arranged to be driven in the usual manner, wherein the oscillating comb removes the waste deposited by the brush on the doffing cylinder and allows it to fall by gravity. Heretofore this falling waste has been collected in open boxes resting on the floor beneath the waste discharging apparatus, and such boxes have likewise been open for the collection of foreign matter, such as dust and dirt, dropping into the same when the various parts of the combing machine are cleaned, which cleaning is necessary at frequent intervals. The necessary limited size of these boxes results in their speedy filling with waste on account of its fluffy character and necessitates their frequent removal and emptying.

In lieu of the boxes, above referred to, this invention contemplates in combination with a combing machine of the character described a horizontally disposed shaft 1 journaled beneath the doffer comb G in brackets 2 suitably secured to the frame of the combing machine. In the embodiment illustrated, this shaft 1 is shown extending throughout the length of the combing machine and comprised of removable sections

1′ one for each pair of comber heads. At its end, the shaft is provided with a sprocket wheel 3 by which it is driven by a chain 4 from a sprocket wheel 5 on the doffing cylinder shaft.

The several sections 1′ of the winding shaft 1 may be joined together by means of any suitable coupling. In the embodiment illustrated (see Fig. 4) the end of one section is provided with a flat sided coupling tongue 6 pierced by a hole 7 while the cooperating end of the adjacent section is shown provided with a coöperating slot 8, the lips 9 of which are pierced by the holes 10 for the reception of a suitable pin 11 which is also designed to pass through the hole 7 of the tongue when the members are coupled together, as illustrated in Fig. 3.

A trough-like member or cradle 12, which may be formed of any suitable material, such as cast iron or sheet iron, and preferably in the form of an open-ended semi-cylindrical shell is loosely hung on the shaft 1 by means of its end-supporting cross-bars 13, journaled thereon, so as to support the member 12 directly beneath the winding shaft 1. Such member may be co-extensive in length with a pair of doffing cylinders, or of any suitable length. The journaling of this trough-like member 12 to the winding shaft 1, or concentrically thereto, permits it to be turned up over the shaft 1, in which position it may be stopped and held, in various ways as by means of the abutment lugs 14 which are formed on the cross-bars 13 to engage the bracket arms 2 when the cradle member is swung upwardly to its uppermost position indicated in Fig. 2. It is to be understood that the normal position for the member 12, however, is beneath the winding shaft 1, as shown in Fig. 1.

During the operation of the combing machine, waste fibers of short lengths, and themselves of a considerable commercial value, fall continuously from the doffer comb upon the winding shaft 1, or into the trough-like member 12, and become sooner or later caught and wound up into a cylindrical bale on the shaft. The baling action is assisted by the member 12 which serves the double purpose of collecting the falling waste, and, by the friction of its engagement with the fiber wound about the shaft 1, of also compacting and forming the fiber into cylindrical bales about the shaft, in which condition a much greater amount of waste can be held in the space available behind the comber, than has hitherto been possible, so that a day's run will require a single removal of the waste, or two removals at the most, according to the staple being combed. At the same time the waste is improved in quality by the working it receives from the constant wiping and baling action, and is uniformly and evenly disposed in the space provided for it, leaving a clear floor space beneath the machine.

When necessary to clean the machine, the purity and cleanliness of the collected waste may be preserved by swinging the trough 12 upwardly, over the shaft, so as to cover the cylindrical bale 15, as shown in Fig. 2. For such purpose this trough-like member is regarded broadly as a protecting hood which may be swung into and out of its waste shielding position. In removing the cylindrical bale, it is merely necessary to uncouple the sections 1′ of the winding shaft 1, as by removing one or both the pins 11, the shape and length of the bales permitting the necessary movement of the sections 1′ to allow of their ready removal. After the sections of the winding shaft with their cylindrical bales of waste have been removed, the shaft sections may be forced out of the bale and replaced in position for the next run of the comber, or fresh, empty, shaft sections may be substituted as desired, but it is, of course, to be understood that the baled waste may be stripped from the winding shaft without removing the same, and such mode of operation will obviously not require the winding shaft to be made in sections, as illustrated. The drawings show the shaft as divided into sections equal to the width of two comber heads, but they may be made of any length desired irrespective of the length of the troughs.

The embodiment of the invention, above illustrated and described, represents a practical, satisfactory means for collecting and disposing of the comber waste, but it is to be understood that the embodiment of the various parts is merely illustrative, and that the invention contemplates other embodiments and arrangements within the scope of the accompanying claims.

What is claimed and what is desired to be secured by United States Letters Patent is:

1. In a cotton comber of the kind described, the combination of the doffing cylinder and its comb and a horizontal baling shaft geared for rotation by the comber and disposed beneath the comb to collect fibers as they fall therefrom, with a trough-like member beneath the baling shaft operative for collecting fibers to be taken up by said shaft and also for compacting the fibers thereon.

2. Apparatus for collecting and compacting fiber comprising, a longitudinally journaled winding shaft; means for rotating said shaft; and a trough-like member suspended beneath and along said shaft to coact therewith in the collection of fiber and journaled to swing up over said shaft to shield a roll of fiber on said shaft from falling matter.

3. In a combination of a comber, a doffing cylinder and doffer comb; a waste collecting shaft journaled in position to receive the waste from said doffing cylinder; means for rotating said shaft; and a hood movably mounted to be moved into dirt shielding position for said shaft.

4. In a cotton comber, a doffing cylinder and doffing comb, in combination with a baling shaft, geared for rotation by the comber beneath the doffer comb, whereby it may collect fibers falling therefrom, and comprised of one or more movable sections adapted to permit removal of the accumulated fibers.

5. In combination in a comber, a plurality of doffing cylinders and doffer combs; a horizontal baling shaft suitably journaled and extending parallel to said doffing cylinders and comprising separately removable sections; a trough-like member arranged beneath said shaft, whereby it may collect fibers falling from said combs; and means for rotating said shaft to collect and wind up fiber discharged into said trough-like member and onto said shaft.

6. In combination in a combing machine, a plurality of doffing cylinders and doffing means therefor; a waste collecting shaft suitably journaled and extending parallel to one or more of said doffing cylinders, a trough-like member movably hung about said shaft and longitudinally coextensive with one or more of said doffing cylinders; and means for rotating said shaft to collect and wind up fiber falling into said trough-like member and onto said shaft.

7. In combination in a combing machine, a plurality of doffing cylinders and doffer combs; a waste collecting shaft suitably journaled and extending beneath and parallel to said doffing cylinders, a hood hung about said shaft to shield collected fiber from falling foreign matter while said combing machine is being cleaned; and means for rotating said shaft to collect and wind up fiber discharged from the doffing cylinders.

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

RICHARD H. COOK.

Witnesses:
OSCAR L. OWEN,
JOHN RATCLIFFE.