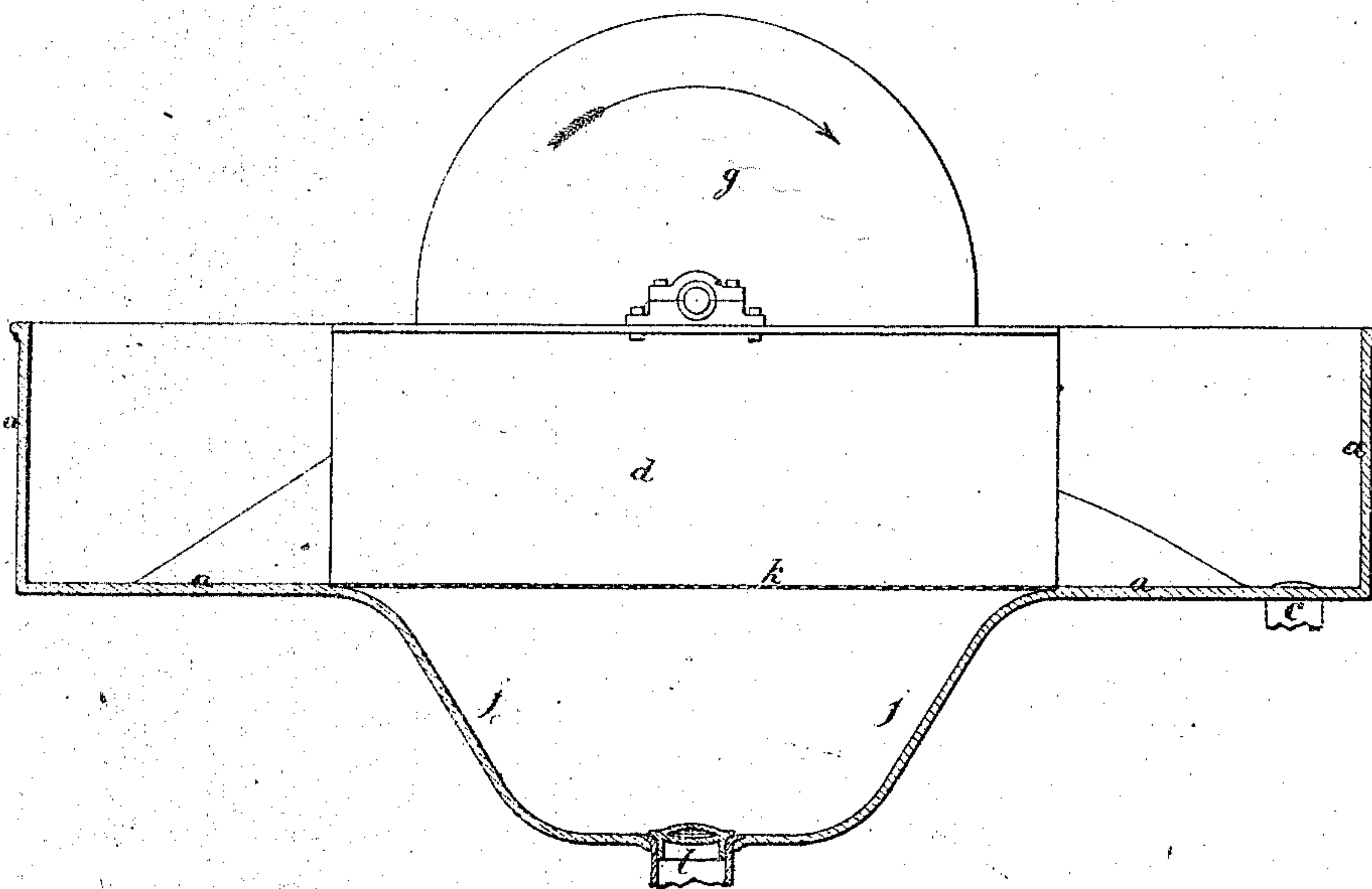


PATENTED JUL 26 1870

T. Rose and R. E. Gibson,

105729 Utilizing Cotton Seed,

Process,



Witnesses,

A. Hoermann.

Wm E Dey

Inventors,

Thomas Rose and
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by their attorney
C. D. Stetson

UNITED STATES PATENT OFFICE.

THOMAS ROSE AND ROBERT EMERSON GIBSON, OF EARLSTOWN, ENGLAND.

IMPROVEMENT IN PROCESS FOR SEPARATING THE FIBER FROM THE HUSK IN COTTON-COATED SEEDS.

Specification forming part of Letters Patent No. 105,729, dated July 26, 1870.

To all whom it may concern:

Be it known that we, THOMAS ROSE and ROBERT EMERSON GIBSON, of Earlstown, in the county of Lancaster, in that part of Her Britannic Majesty's dominions called England, have invented certain Means for Separating the Fiber from the Husk of Cotton-Coated Seed; and we do hereby declare that the following is a full and exact description thereof, whereby others will be enabled to carry our invention into practice—that is to say:

When cotton-seed of the description known as "coated seed" has been broken up by the machinery for which we obtained Letters Patent of the United States of America, dated the 27th July, A. D. 1869, No. 93,124, or by any equivalent machinery, and the meal or oil-yielding portion has been sifted out or separated, there is left a considerable proportion of the gross weight of the seed as it leaves the cotton-gin, consisting of the husks and adhering fiber. These have not hitherto been utilized in any manufacture; and it is the object of our present invention, as is indicated in the title, to separate the fiber from the husks, and obtain it in a condition serviceable for paper-making and for other purposes.

We have ascertained after lengthened research and costly experiments that, unless the husks are altogether, or nearly altogether, separated from the fiber, such fiber cannot be satisfactorily utilized even in paper-making. We have, therefore, for the purpose of effectually and economically separating the said fiber, perfected the present process of treatment, and also an engine for facilitating the operation, for which we have applied for Letters Patent simultaneously with this.

By our treatment we obtain the fiber by itself in a fit state for making paper of fine quality, and also for other manufacturing uses to which cotton-fiber of short staple is applicable.

Our said means or process consists, essentially, in subjecting the husk and fiber material as it leaves the sifting mechanism, or after such material has been treated with an alkali or alkalis and heat and moisture to loosen the husks, as hereafter appears, to the action of a current of water contained in or passing through any suitable vessel. The pur-

poses which the current of water subserves are, (a,) causing the husks or portions of husks to rub against each other and detach the fiber; (b,) holding the husks in suspension so long as any fiber adheres to them; (c,) allowing the husks to fall to the bottom by their own gravity so soon as they are detached from the fiber; and, (d,) keeping the fiber floating. When all the husks have fallen to the bottom the fiber is collected and removed from the water. If it is to be converted into paper, it is pulped, bleached, and prepared in any ordinary manner. If it is to be used in any other manufacture, it is treated as circumstances may require.

The engine, which we have made the subject, as above stated, of a separate application for Letters Patent, consists, essentially, of certain improvements upon, or additions to, a paper-makers' washing-engine or rag-engine of such a nature that the speed of the current of water therein is greatly accelerated, and provision is made for collecting and withdrawing the husks by themselves.

The accompanying drawing is a longitudinal section thereof.

In the figure *j* is a chamber or receptacle for receiving the husks. *k* is a perforated cover through which the husks pass when the fiber is thoroughly removed from them. *l* is a discharge-way for husks, and *c* is a discharge-way for water and fiber.

We charge the containing vessel with water to within three or four inches from the top, and having arranged the roll *e* to run at about two hundred revolutions a minute give motion thereto. A large quantity of water is raised by the roll, but the curved plate *h* intercepts the water and returns it between the directing-plate *i* and cover *g* to the tail end, and hence largely increases the flow. In an engine of the size shown, with a charge of two hundred and twenty-four pounds of husk and fiber material, the roll running about two hundred revolutions per minute, the whole charge of water and material would be driven round the engine from two to three times a minute. It will be obvious the tearing or opening action of the beater accelerates the separation of the fiber from the husks.

Motion can be given to the water in any

convenient manner, but we prefer to employ this engine. We consider it important to maintain the current at a speed of from forty to sixty feet a minute.

Although the action of the current of water is the feature whereby the separation is effectively accomplished, we, in practice, as means for loosening the husk, and thereby facilitating the operation, adopt the following preliminary treatment: With husk and fiber material from American and African seed, we first place it in a revolving boiler or vessel, and to every ton of the said material we add four hundred pounds (more or less) of caustic soda dissolved in water. We then close the said boiler or vessel, and cause it to revolve for a period varying from eight to twelve hours, maintaining the steam at about forty pounds pressure to the square inch all the time, after which it is discharged and subjected to the action of a current of water. Instead of a revolving boiler a closed vessel provided with stirrers or agitators may be used.

With husk and fiber material from Smyrna and East India seed, we first boil it in water, preferably with a few pounds of soda; then subject it to the action of a current of water to separate the inner husks. We next treat the material, which now consists of the fiber and outer husks, to the action of caustic soda, heat, and moisture in the proportions above set forth for material from American and African seeds.

Having now described the nature of our said invention and the manner of carrying the same into practice, we would have it dis-

tinctly understood that we do not confine ourselves to the employment of water when contained in any particular kind of vessel, nor to any particular speed of current; neither do we confine ourselves to the employment of any particular quantity of alkali or heat or moisture therewith.

What we do claim is—

1. Subjecting the husks and fiber of coated cotton-seed, after the oil-yielding portions have been removed, to the action of a current of water, for the purpose of separating the fiber from the husks, substantially as herein set forth.

2. Subjecting the said husks and fiber, previous to placing them in the separating current of water, to the action of an alkali with heat and moisture, for the purpose of loosening the husks, substantially as specified.

3. Subjecting the said husks and fiber first to the action of boiling water with or without an alkali; second, to a current of water to separate the inner husks; third, to the action of an alkali with heat and moisture; and, finally, to a second current of water to separate the fiber from the outer husks, substantially as specified.

In testimony whereof we have hereunto set our names in the presence of two subscribing witnesses.

THOMAS ROSE.

ROBERT EMERSON GIBSON.

Witnesses:

J. T. KING,

R. A. MOSS.