S. HURST.

FLAT BRUSHING OR CLEANING ARRANGEMENT FOR CARDING ENGINES AND SUCH LIKE.

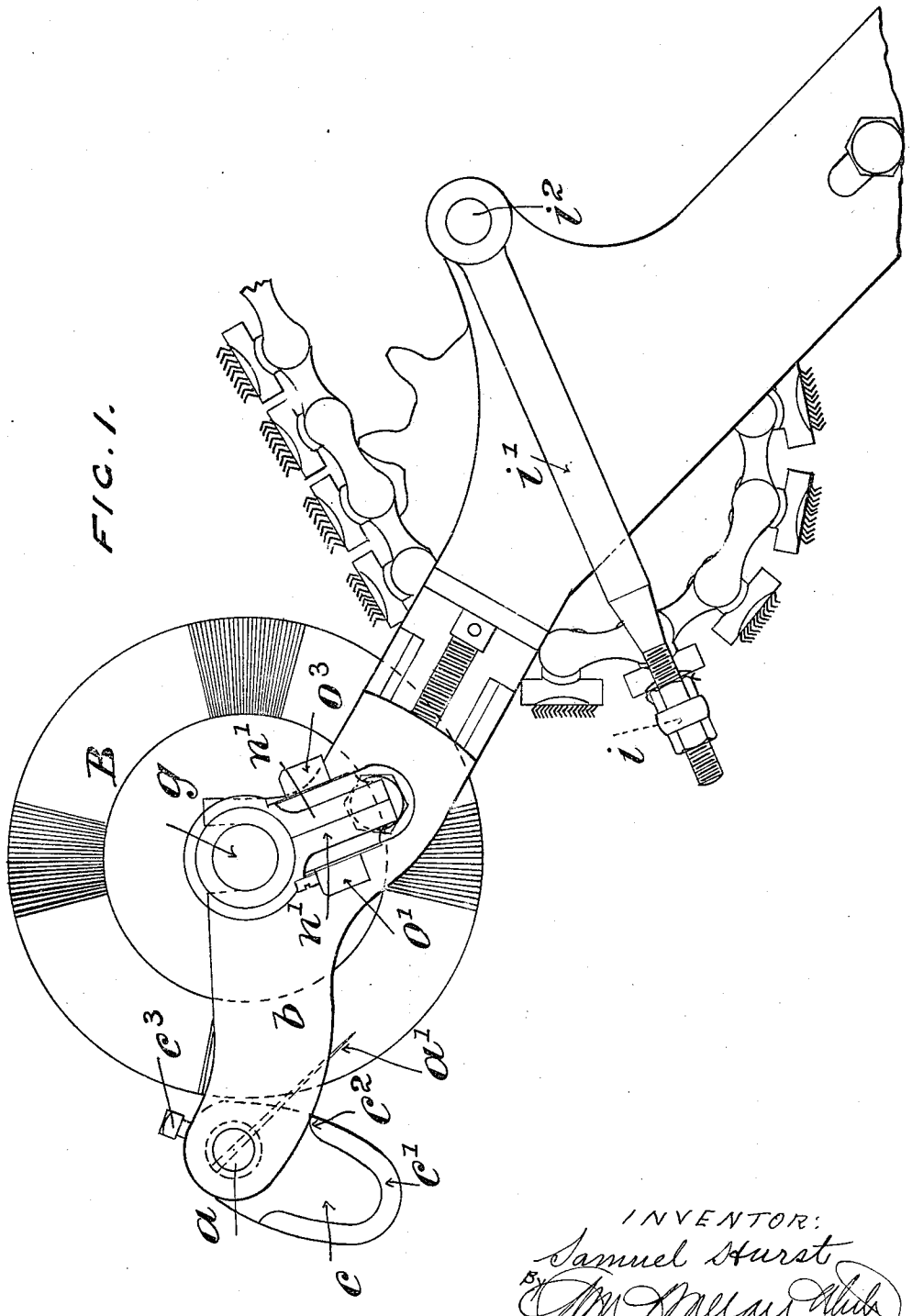
APPLICATION FILED DEC. 5, 1917.

1,272,045.

Patented July 9, 1918.

4 SHEETS—SHEET 1.

FIG. 1.



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4 SHEETS—SHEET 2.

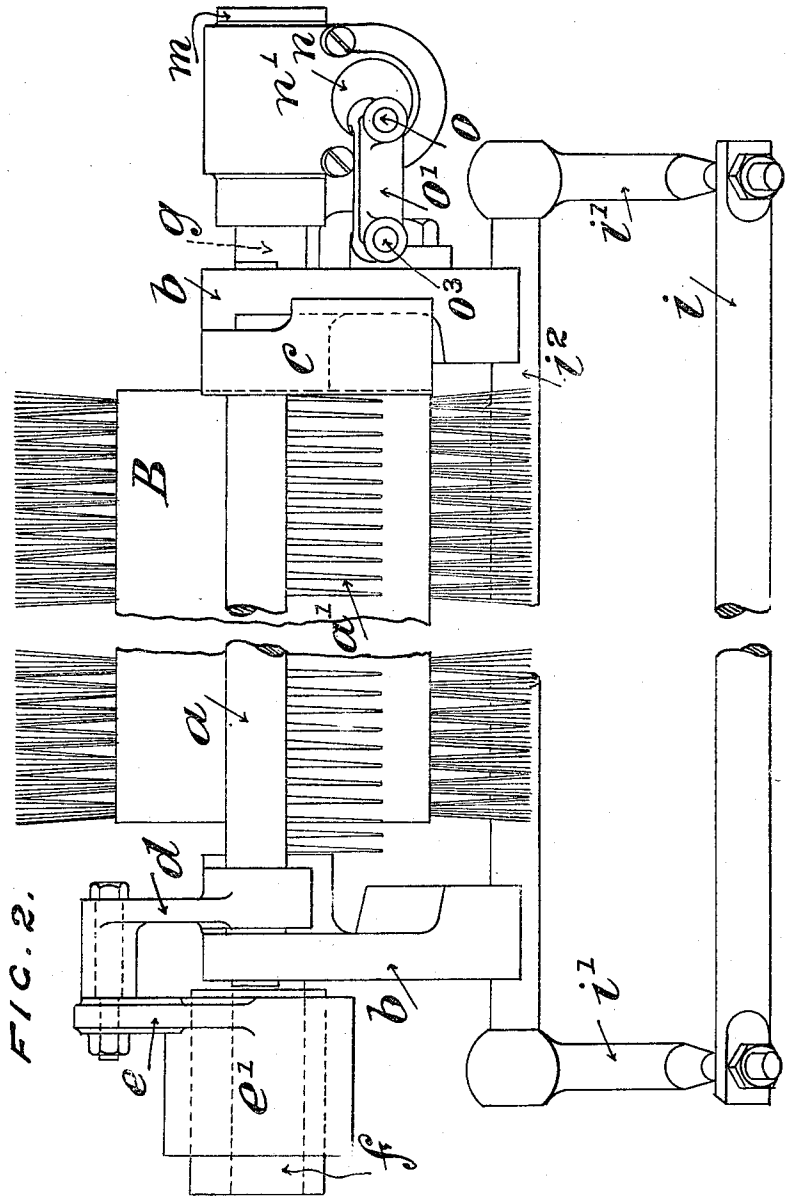


FIG. 2.

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4 SHEETS—SHEET 3.

FIG. 3.

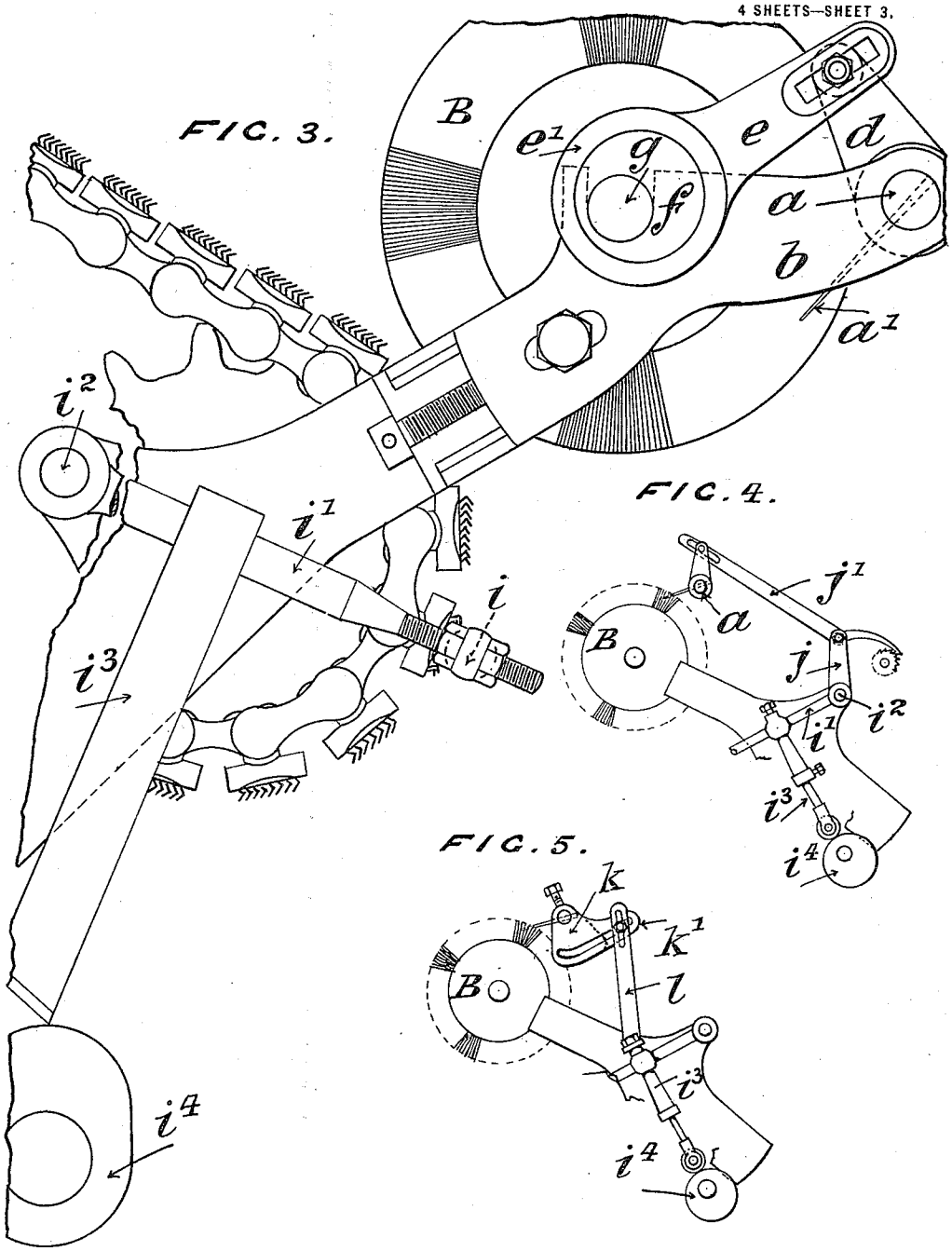


FIG. 4.

FIG. 5.

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4 SHEETS—SHEET 4.

FIG. 7.

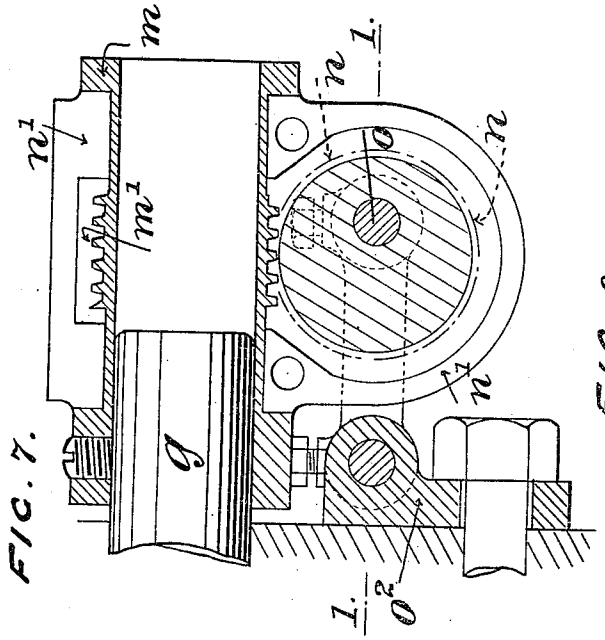
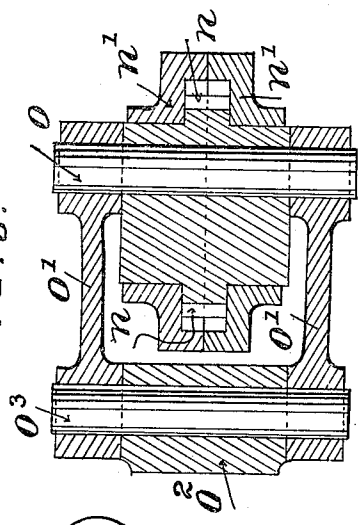


FIG. 8.



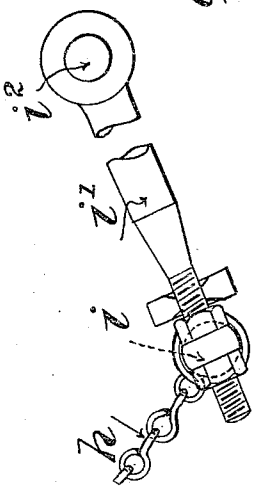
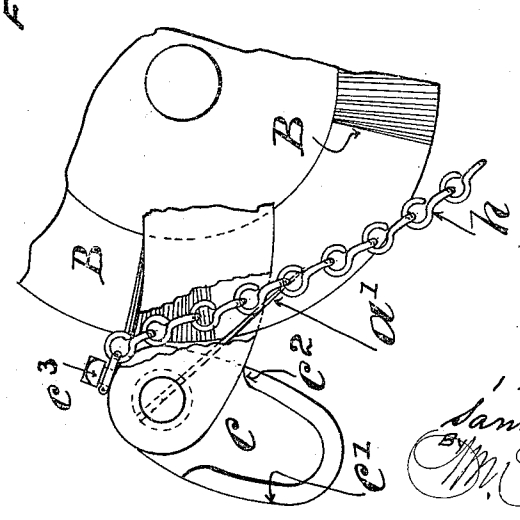


FIG. 6.



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UNITED STATES PATENT OFFICE.

SAMUEL HURST, OF WERNETH, OLDHAM, ENGLAND.

FLAT BRUSHING OR CLEANING ARRANGEMENT FOR CARDING-ENGINES AND SUCH LIKE.

1,272,045. Specification of Letters Patent. Patented July 9, 1918.

Application filed December 5, 1917. Serial No. 205,480.

To all whom it may concern:

Be it known that I, SAMUEL HURST, a subject of the King of Great Britain and Ireland, residing at 299 Frederick street, Werneth, Oldham, in the county of Lancaster, England, cotton-mill manager, have invented new and useful Improvements in or Connected with Flat Brushing or Cleaning Arrangements for Carding-Engines and Such like, of which the following is a specification.

This invention relates to improvements in or connected with flat brushing or cleaning arrangements for use with carding engines and such like.

As is well known, for the purpose of brushing or cleaning the filleting on flat bars it is common to act on the flats as same pass around carrier wheels, and revolving brushes of various types are used for this purpose. For example, brushes with spirally arranged bristles are often employed. It is also usual to act on such brushes by means of a fixed comb for brush cleaning purposes.

With such a fixed comb, and following long continued use, I have found in practice that the bristles ultimately assume a more or less fixed or permanent position which allows them to pass more or less freely between the gaps or spaces existing between the teeth of the comb. The result of this present method, only insures a proper cleaning or clearing effect between the ranks or in well defined passage ways between the bristles. In effect, long continued action of the comb gives a permanent disposition of the bristles and so accumulations of dirt and fiber grow in positions where the comb can not act to remove same. With such an unclean brush it is not possible to thoroughly brush and clean the flats in manner which is desirable.

Broadly, under my invention, I propose to swing or vibrate or move the comb (and if necessary to slightly recipocate same end-on) and also to slightly move or traverse the cleaning brush with respect to the comb.

The means to be employed for vibrating or moving the comb, and for traversing the cleaning brush, in accordance with my invention, may vary considerably, and, in the attached drawings I illustrate several suitable arrangements or combinations.

Referring to said drawings:

Figure 1 is a side elevation showing a flat cleaning brush, comb-bar, carrier wheel, and chain of flats, &c., with my improvements applied thereto. The disposition of the comb and brush, &c., follow the well known Asa Lees arrangement.

Fig. 2 shows a front elevation of the material parts seen in Fig. 1.

Fig. 3 shows an end elevation of the parts from the opposite hand to what is seen in Fig. 1.

Figs. 4 and 5 indicate modified ways of moving or actuating the comb bar, suitable for certain cards of the Platt type.

Fig. 6 is a fragmentary view, and illustrates a very simple way of rocking or moving the comb bar.

Fig. 7 is a detail sectional view showing a simple form of traverse motion for actuating the cleaning brush end-on.

Fig. 8 is a sectional plan on the line I—I Fig. 7.

In the arrangement indicated by Figs. 1, 2 and 3, I employ a suitable comb device such as the comb bar a carrying teeth a', and this comb bar is mounted in brackets b b in such manner as to permit of the comb bar turning in its bearings. Means are provided for adjusting the angle of penetration or movement of the teeth of the comb, as for example the bracket c with curved projection c' may be used and this is held on the comb bar by a pinching screw c^3. The forward edge c^2 of the curved projection c', by encountering the lower face of the bracket b, limits the possible upward movement of the comb teeth, as is obvious. It is also clear, that, by slackening the pincing screw c^3, and by turning the comb bar a, the teeth can be raised and set higher into the bristles. The arrangement permits of the comb bar being turned and adjusted whereby the penetrating effect of the teeth in the cleaning brush or the amount of clearance can be regulated. The comb bar a is acted upon in manner to cause its teeth to vibrate or move with respect to the brush B. In the arrangement illustrated by Figs. 1, 2 and 3, I show a lever arm d fixed on the comb bar a, and this lever arm d is connected to the slotted extremity of a lever device e having an eccentric sheath or strap device e' in which works an eccentric f mounted on the brush shaft g. Thus, as the brush shaft g is rotated, the eccentric f is worked and

moves the levers e, d, and vibrates the comb bar a and consequently works the comb teeth up and down to clean the bristles. As a modification, instead of using the eccentric motion referred to, I may as indicated in Fig. 6, connect a chain h from the pincing screw e^3 to the known bar i which is carried on the known radial arms i' centered at i^2 and which carry or work the ordinary or known flat stripping comb, one of said radial arms carrying a filbow or pendent bar i^3 acted on by a cam such as i^4. Thus, as the cam i^4 rotates, it moves the radial arms i' which acting on the chain h move the comb teeth through the bristles of the brush B.

By the Figs. 4 and 5, I indicate other modified ways of vibrating or moving the comb, these two ways being suitable for certain makes of Platt cards. In Fig. 4, the comb stock or shaft is marked a and is supported in bearings, the shaft a being worked by a connecting rod j' and lever arm j applied to the radial arm i' centered at i^2 and worked through the filbow i^3 and cam i^4. In Fig. 5, the comb stock or shaft a supported in bearings has a bracket k with extension k' fixed thereon and same is actuated by an adjustable connecting rod l from the filbow i^3 operated by the cam i^4.

It is obvious, that many different ways of vibrating or moving the comb shaft or stock may be used and I have only illustrated certain of the simpler methods.

I prefer to so mount and actuate the comb as to momentarily take the teeth clear of the bristles. I may use a soft "burnishing" brush having wire teeth, or some wire teeth, if desired.

The revolving brush B with bristles of spiral or other form, I drive in any suitable fashion as by a strap and pulley, and I arrange for same to be slightly traversed end-on—as for example say $\frac{1}{2}''$—and I support the brush shaft g in suitable bearings as it might be bearings in the brackets b b. I effect the traverse by a cam, eccentric, or other like mechanical contrivance, and for preference I use an inclosed traverse motion of some convenient type. In the drawings, I show a simple inclosed traverse motion consisting of a sleeve m with worm teeth m', such sleeve being pinned on the brush shaft g, the worm meshing with a worm wheel n eccentrically carried on a stud o which is anchored by tie links o', o', and stud o^3, from the toe bracket o^2. The worm wheel n, is held between the two corresponding halves n' n' of the gearing casing, which also partly incloses the worm on the sleeve m, as the drawings Figs. 2, 7 and 8 show. By this arrangement of traverse motion, as the worm m rotates it acts on the worm wheel n and so the brush shaft g is compelled to traverse slowly end-on.

With the construction described, the brush such as B during revolution, is moved relatively to the comb teeth, which, coupled with the fact that the comb teeth emerge from the bristles, insures the said comb teeth acting with greater thoroughness, opening up new channels left and right and cleaning the brush far more effectively. A further point is, that with the ever varied relative disposition of the bristles to the comb teeth, the bristles are not so likely to take up a "set."

I anticipate a much better cleaning result both as respects the flats and the brush, and a longer life for the brush.

The disposition of the comb and the form of brush and the method of actuation would obviously vary with different makes of card.

In case I should deem it desirable to traverse the comb as well as the brush, mechanical devices would be provided for this end.

I declare that what I claim is:

1. A revolving flat cleaning arrangement for carding engines comprising a vibrating comb, stationary supports for said comb, means for moving the teeth of the comb through an arc of a circle relatively to the bristles in the brush, a flat cleaning traversable brush carried in stationary bearings and means for traversing the brush end-on in the stationary bearings, the vibrating comb and the traversable brush being used in combination as set forth.

2. A revolving flat cleaning combination for carding engines comprising a rotating brush to act on the flats, a shaft for such brush, means for moving said brush end-on, a vibrating comb device acting on the traversable brush, stationary supports for the vibrating comb device, and means to vibrate the comb through the bristles of the traversable brush as same is rotated and traversed, as set forth.

3. A revolving flat cleaning combination for carding engines, comprising a vibrating comb stock, teeth on said comb stock, stationary supports for the stock, means for automatically vibrating the comb, teeth relatively to the bristles of a revoluble brush, a revoluble brush device, an axle for such brush device, stationary bearings for such revoluble brush device, means to rotate the brush device and means to move the brush device end on, all in combination and as set forth.

4. A revolving flat cleaning combination for carding engines, comprising a comb bar, teeth thereon, stationary supports for the comb bar, an automatic motion for vibrating the comb bar, a rotating brush, an axle for the brush, stationary supports for such brush axle, and an automatic traverse motion combined with the shaft to move same end-on, all for the purposes and as set forth.

5. A revolving flat cleaning combination for carding engines, comprising a comb

shaft, stationary supports therefor, teeth on said comb shaft, shaft adjusting means, mechanical means in connection with the brush shaft to vibrate the comb shaft, a rotary flat cleaning brush, a shaft carrying same, fixed bearings supporting the shaft, and a traverse motion carried by the shaft for moving said shaft end-on, as described herein.

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

SAMUEL HURST.

Witnesses:
JOSHUA ENTWISLE,
RICHARD WEBSTER IBBERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."