(No Model.)

4 Sheets—Sheet 1.

C. SCHREBLER.

WOOL DUSTING MACHINE.

No. 537,940. Patented Apr. 23, 1895.

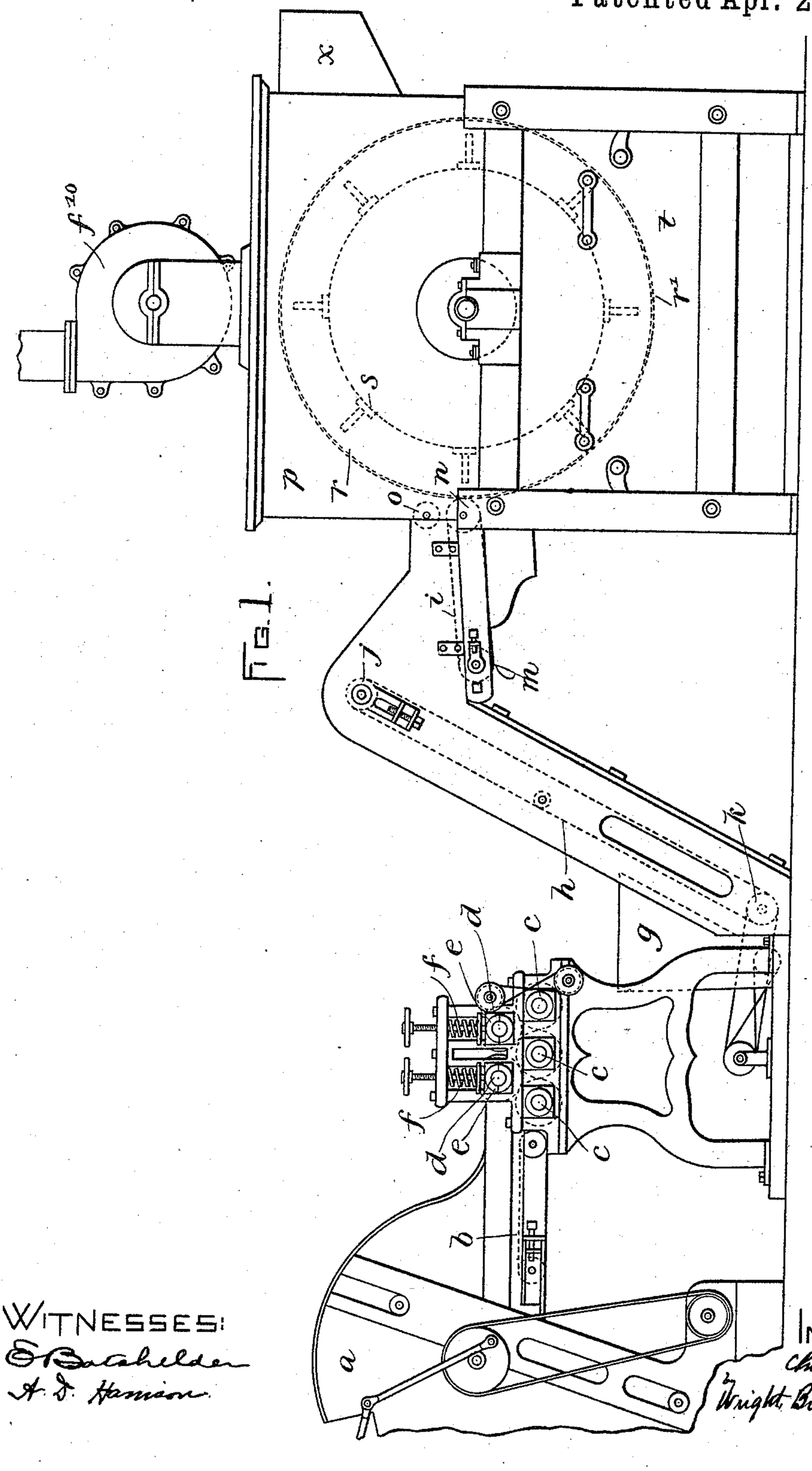

FIG. 1.

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(No Model.)

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FIG. 2.

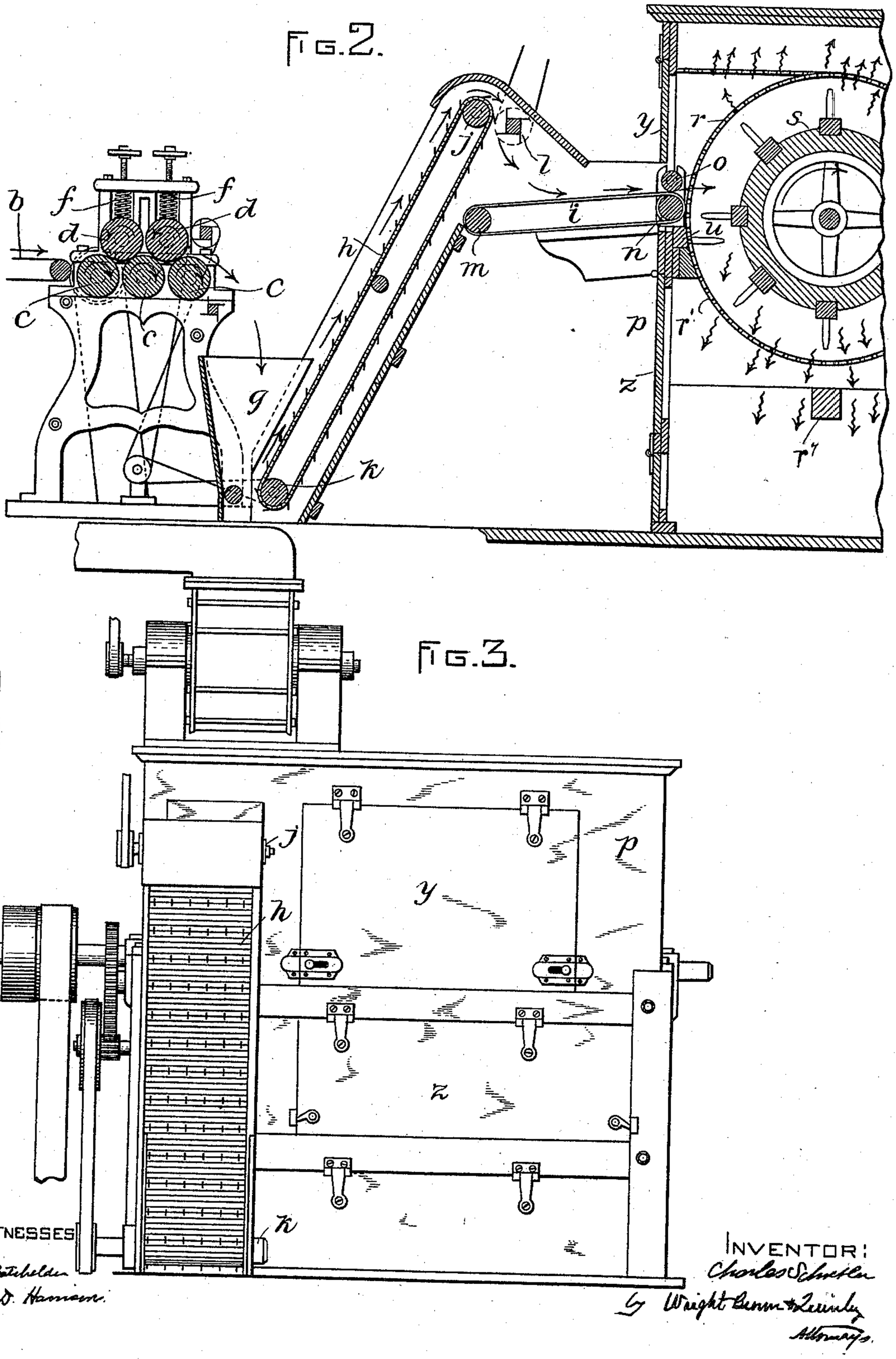

FIG. 3.

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FIG. 4.

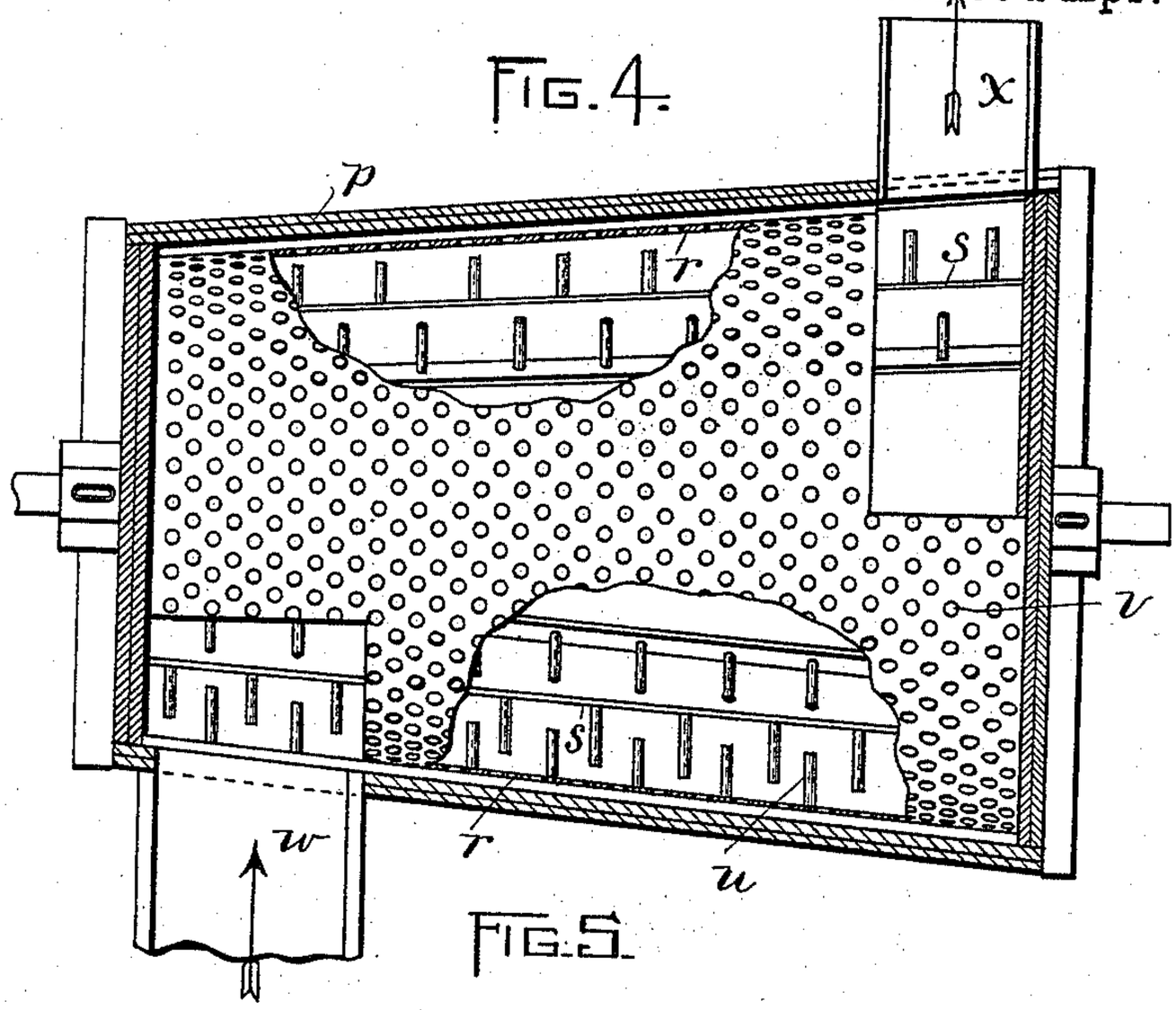
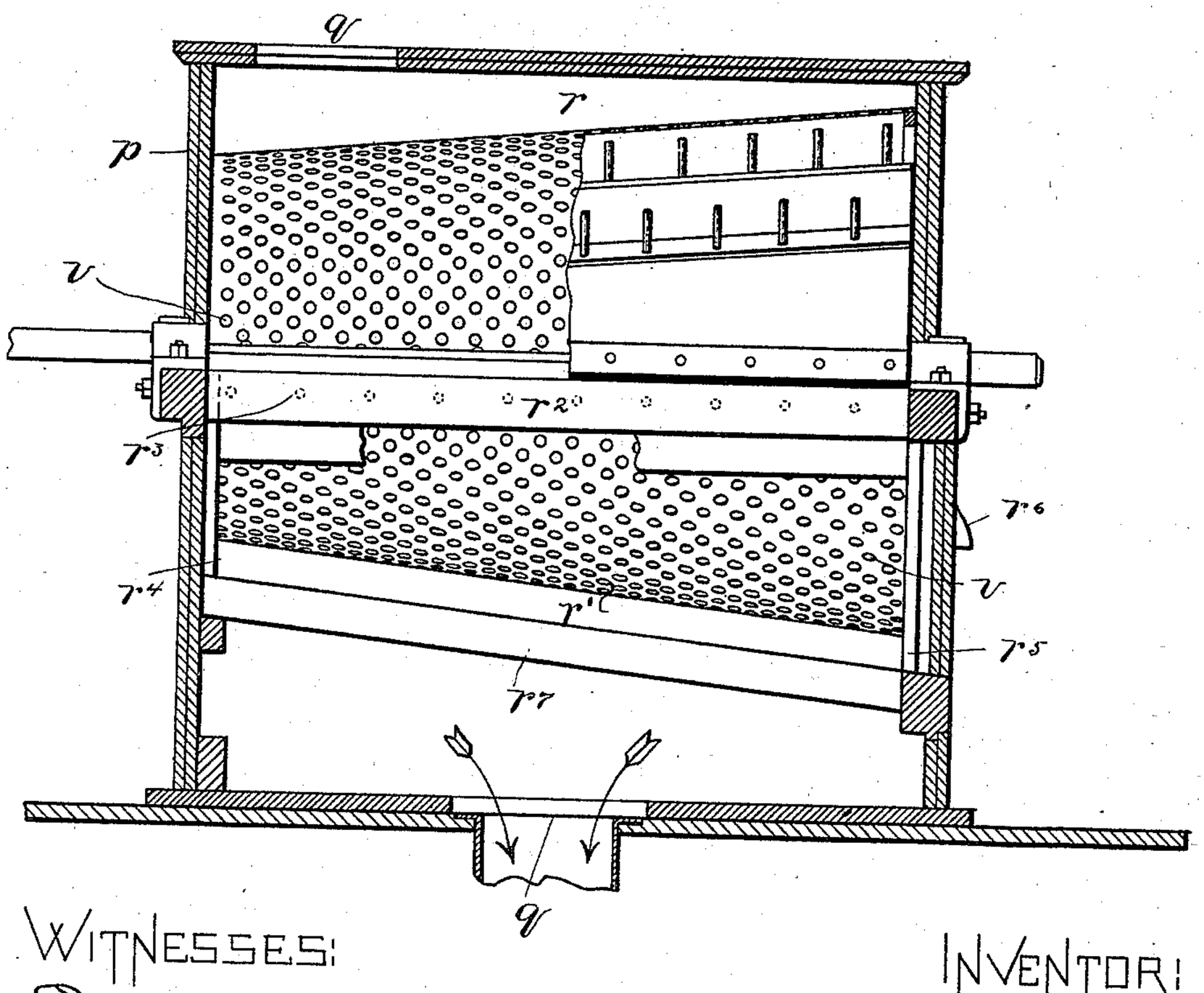


FIG. 5.



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(No Model.) 4 Sheets—Sheet 4.

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WOOL DUSTING MACHINE.

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FIG. 6.

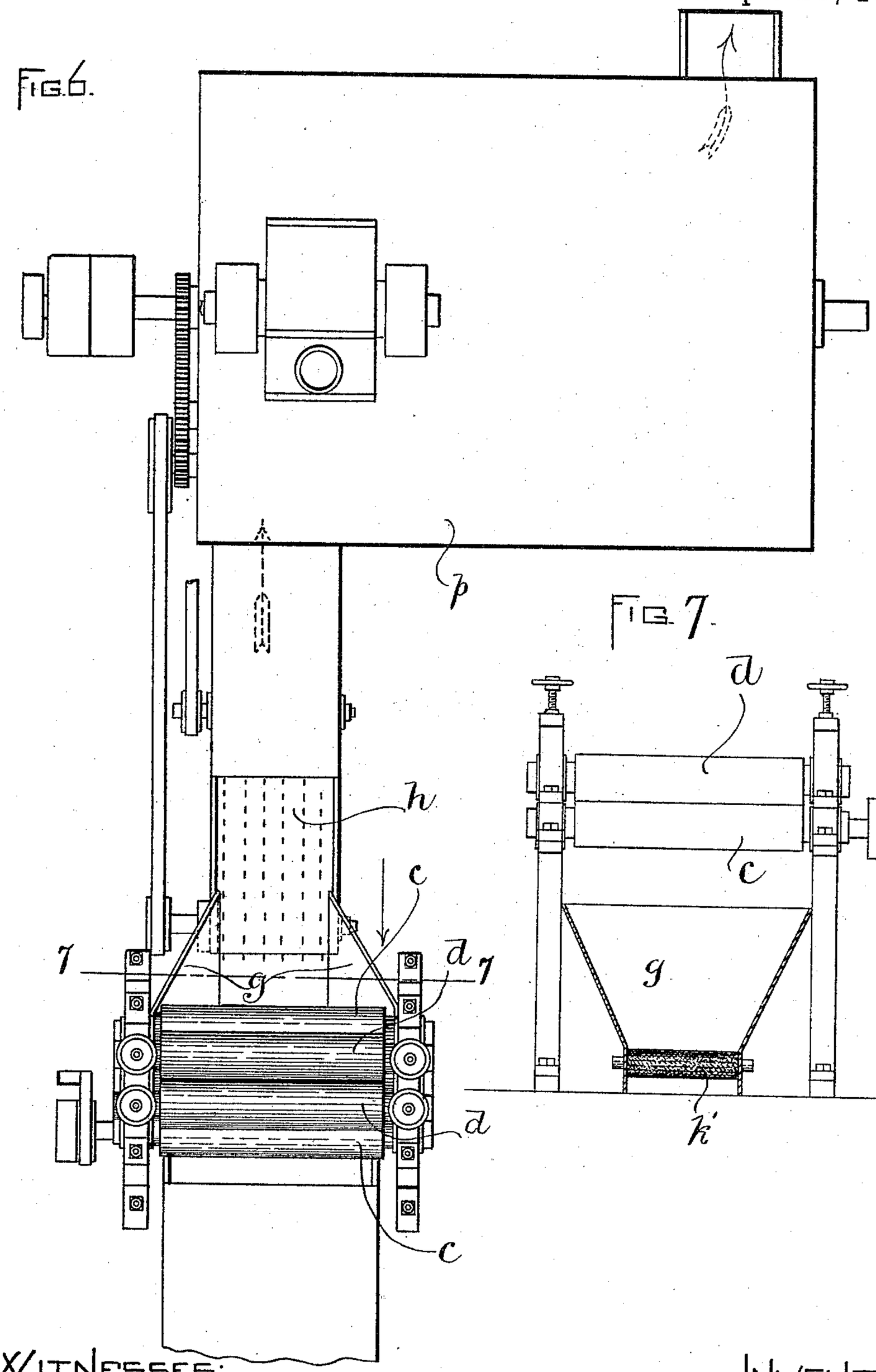

FIG. 7.

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UNITED STATES PATENT OFFICE.

CHARLES SCHREBLER, OF LAWRENCE, ASSIGNOR OF ONE-HALF TO FRED HARTLEY, OF NEWTON, MASSACHUSETTS.

WOOL-DUSTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 537,940, dated April 23, 1895.

Application filed February 7, 1895. Serial No. 537,607. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SCHREBLER, of Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Wool-Dusting Machines, of which the following is a specification.

This invention relates to an improvement in wool-dusting machines, and consists in the novel features of construction and relative arrangements of elements hereinafter fully described.

The invention is fully illustrated in the drawings and particularly pointed out in the claims.

Reference is to be had to the annexed drawings, forming a part of the application, the same characters designating the same parts wherever they may occur.

Of the drawings—Figure 1 is a side elevation of a wool-dusting machine embodying my invention. Fig. 2 is a vertical sectional view of the principal parts of the same. Fig. 3 is a view of Fig. 1 looking from left to right from between the crushing devices and the means for directly feeding the dusters proper. Fig. 4 is a horizontal sectional view of the cone duster and its equipments, parts being represented as broken away. Fig. 5 is a vertical sectional view of the parts shown in Fig. 4. Fig. 6 is a top plan view with the relative length of the rolls considerably reduced. Fig. 7 is a vertical section of the hopper on the line 7—7 of Fig. 6, looking in the direction of the arrow.

In the drawings, *a* designates a wool or other fiber-feeding machine, which may be of the well-known Bramwell type, or of any other kind or structure suited to the purpose of feeding the stock in regular even quantity to and depositing it upon the endless traveling apron *b* by which it is carried forward and fed to the crushing-rolls. The said crushing-rolls, considered as a group, effect a very desirable result. The said group of rolls consists of three bottom rolls *c c c* and two top rolls *d d*. The latter are arranged between the first and second and the second and third rolls, so that the five rolls afford four crushing-surface lines,—two between the first and second rolls, and two between the second and third rolls. In constructions heretofore generally employed, where the rolls were used in pairs, one on the top of the other, but three crushing-surface lines were obtained from six rolls.

The top rolls *d d* are journaled in vertically movable boxes *e* upon which adjustable springs *f* are arranged to bear in a manner well known to artisans skilled in the art to which the invention relates.

The material passed through the crushing-rolls is delivered into a feed-box *g*, from which it is immediately taken by an endless traveling lifting or spike-apron *h* and carried up and deposited upon a horizontal traveling apron *i*. A short apron or roll *k'*, (see Fig. 7) at the bottom of the feed-box aids in transferring the material from the box or hopper to the lifting-apron.

The lifting or spike-apron *h* travels around the rolls *j k*, and a fan-like beater *l* may be employed in connection with the upper roll *j* as a doffer to insure the deposit upon the apron *i* of the wool carried over the said upper roller by the lifting-apron *h*.

The endless apron *i* travels around the rolls *m n*, and a roll *o* is arranged to bear upon the roll *n*, so that the material deposited on the said apron *i* will be carried into the cone duster between said rolls *n o*.

The cone duster is inclosed in a casing *p*, and an exhaust fan (or fans) f^{10} is so disposed as to carry off the dust and impurities separated from the material by the current of air through the apertures *q q* one formed in the top and the other in the bottom of the casing.

The crushing-rolls are of a considerable length, while the feed-opening into the duster is quite narrow as compared with the length of said rolls. The aprons *h* and *i*, being of necessity of the same width as the feed-opening in the duster, it is necessary to provide some means for contracting the lateral space occupied by the material as it leaves the long crushing-rolls to a lateral space substantially equal to the width of the aprons *h* and *i* and the feed-opening in the duster. This object I accomplish by introducing the feed-box or hopper *g* between the long feed-rolls and the comparatively narrow aprons. This feed-box is of the conventional "hopper" shape, as

clearly shown in Figs. 1, 2 and 7; that is, of the form of an inverted frustum of a pyramid with the base or wide part thereof arranged to receive the material as it leaves the rolls, while the narrow end of said hopper, which is arranged to be substantially the same in width as the aprons *h* and *i*, delivers the material upon the apron *h* in a contracted form that has a lateral dimension equal to the width in the opening of the duster. By this means, I can use crushing-rolls of considerable length to enable the material to be spread out thin to insure the complete action of the rolls, and at the same time by means of the hopper and the belts deliver the material after it has been operated upon by these long crushing-rolls to the conventional-sized opening in the duster.

The screen *r* surrounding the revolving spiked beater *s* is made in two parts, as is most clearly portrayed in Figs. 2 and 5, so that the lower part may be drawn out in line with the axis of the beater cylinder, through the door *t* (see Fig. 1) of the casing, should occasion require.

The lower or removable part *r'* of the screen *r* is secured by suitable fastening devices r^3 to side pieces r^2 and to front and end pieces r^4 r^5 respectively, arranged to slide upon a supporting-bar or way r^7, as clearly shown in Figs. 2 and 5, a handle r^6 serving as a convenient means for withdrawing said removable section *r'*.

The upper and lower sections of the screen *r* are separated on the entrance side by a spiked bar *u* (see Fig. 2), the spikes in which bar co-operate with the spikes of the spiked cone cylinder in effecting the separation of the dust and other foreign substances from the material being operated upon.

As heretofore constructed, the screens of wool dusters have been made of woven wire, and in the use of screens as thus formed much difficulty was met with from the wool being caught between the wires forming the meshes, and thus clogging the screens, making the cleaning of the same frequently necessary, resulting in a material loss of time and consequently material expense. I obviate this difficulty by providing the screen with round holes *v*, as shown in Figs. 4 and 5, the edges of said holes being free from all ragged points or projections, so that there is little or no liability of the material being lodged upon or in the holes of the screen.

w designates the inlet, and *x* the outlet for the material to the cone beater, and *y z* indicate doors in the sides of the casing by which access may be gained to the screen and beater.

By employing a Bramwell or other suitable feeder for supplying the stock to the crushing-rolls, and taking the material immediately from the latter and feeding it automatically to the cone duster, I am enabled to maintain an even and regular supply to the latter, which is important in order to secure a perfect and uniform dusting of the material, and by this means also I am enabled to dispense with the expense of manual labor in taking the stock from the crushing-rolls and feeding the same to the duster.

I have shown means for operating most of the movable parts, but such means need not be particularly described, since they form no part of my invention and will be fully understood by a casual inspection of the drawings, and moreover the said means may be varied within the limits of mechanical skill to suit circumstances, without departing from the nature or spirit of the invention.

It will be understood, of course, that the screen may be divided into more than two sections or parts, and that more than one, or all of the parts or sections may be made removable.

At the bottom of the hopper I provide a traveling belt or roll *k'* to insure the delivery of the wool upon the lifting-apron.

I desire to call attention specially to the long crushing-rolls. These are provided with flutes, as is common, which when in engagement with each other do not shoulder. The dusting device proper has the conventional-sized opening. Now when rolls are used of the ordinary length to correspond with the width in the opening of the duster, in order to supply stock enough to the duster, it must be fed through the rolls in such quantities that in order to thoroughly crush the burs, the fiber of the wool itself becomes broken. By my invention, with the long rolls, I am enabled to spread the wool out very thin, and thus insure pulverizing of burs or any foreign substance, without injury to the fiber of the wool, the length of the roll to be determined by the quantity of wool to be supplied to the duster.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. A wool-dusting machine comprising in its construction a series of long crushing-rolls, a dusting device having a relatively narrow opening, and means including an inverted frustum-shaped hopper for conveying the material from the crushing-rolls to said dusting device in a contracted form, substantially as and for the purpose set forth.

2. In a wool-dusting machine, in combination, crushing-rolls, a dusting device, means for automatically feeding the material to the crushing-rolls, a hopper or receptacle for receiving the material from the crushing-rolls, and a lifting-apron constructed and arranged for automatically taking the material from the said receptacle and feeding the same to the duster, as set forth.

3. A wool-dusting machine comprising in its construction crushing-rolls, a dusting de-

vice, a hopper or receptacle for receiving the material from the crushing-rolls, and a lifting-apron for automatically taking the material from the said receptacle and feeding the same to the duster, as set forth.

4. A wool-dusting machine comprising in its construction a casing, a dusting cylinder, a two-part dusting screen surrounding said cylinder, a support, a framework (r^2) (r^4) (r^5) arranged to slide upon said support, one of the parts of said screen being removable and mounted in said framework, air-ports in opposite sides of said casing, and a fan for exhausting the air from said casing, substantially as and for the purpose set forth.

5. A wool-dusting machine comprising in its construction a series of long crushing-rolls, a hopper to receive the material from the crushing-rolls and contract the lateral space occupied by said material, a traveling apron at the bottom of said hopper, a dusting device, and means for transferring said material from said hopper to said dusting device, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of December, A. D. 1894.

CHARLES SCHREBLER.

Witnesses:

WILLIAM QUINBY,

A. D. HARRISON.