

(No Model.)

2 Sheets—Sheet 1.

E. WRIGHT.

MACHINE FOR SEPARATING ORGANIC MATTER FROM AQUEOUS  
COMPONENTS.

No. 430,456.

Patented June 17, 1890.

Fig. 1.

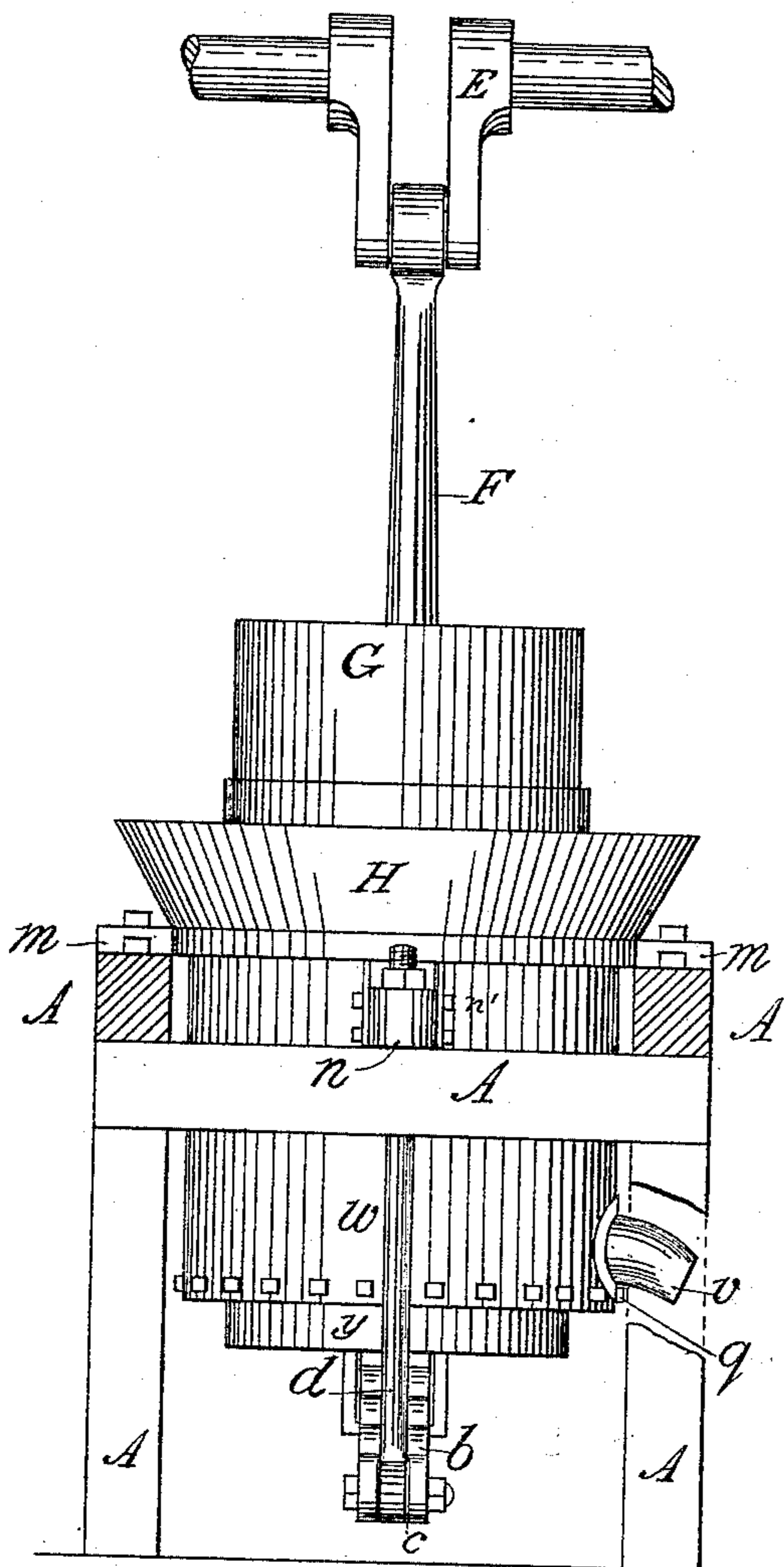


Fig. 2.

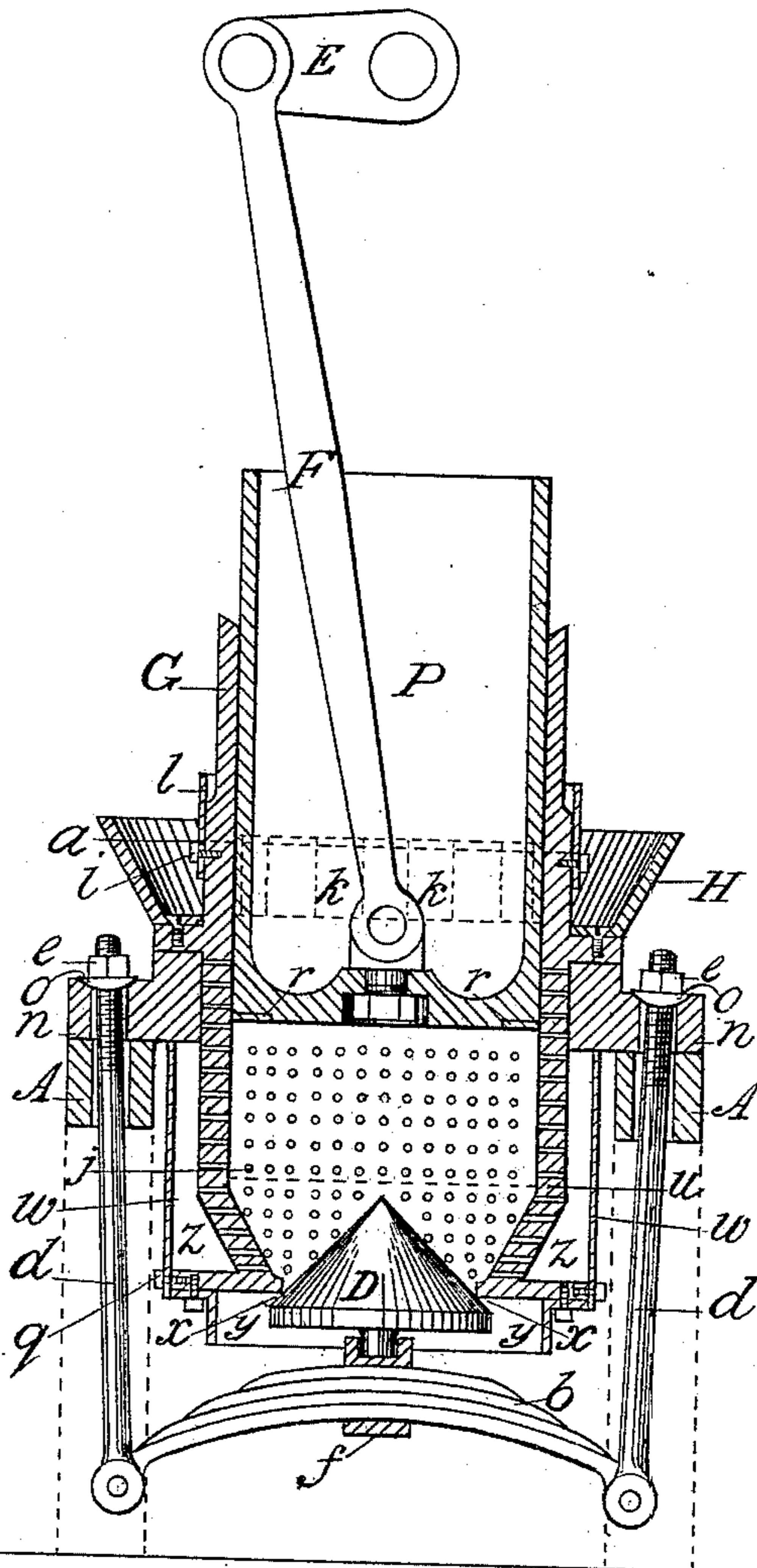
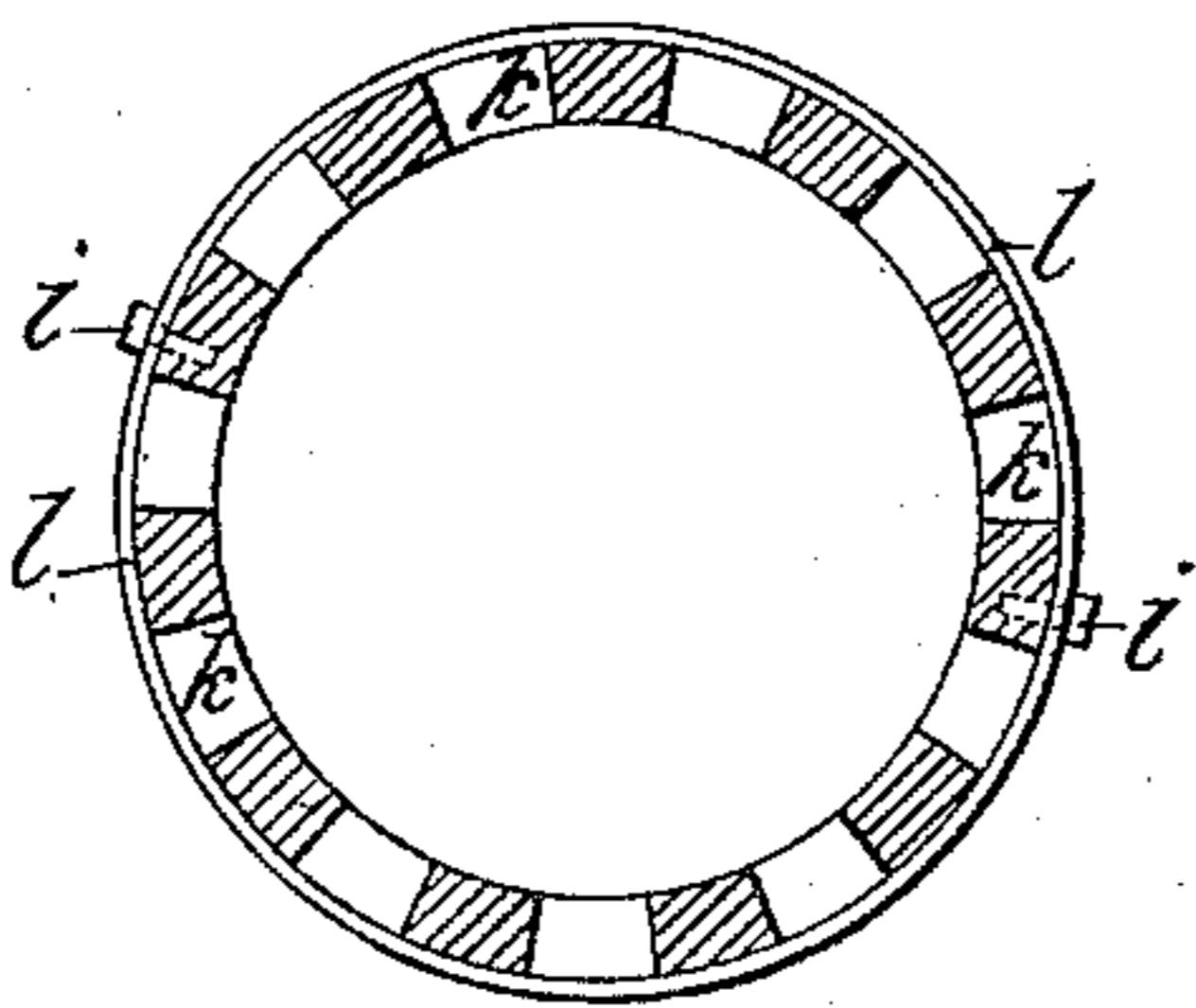


Fig. 3.



Witnesses.  
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H. Schrader

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Edmund Wright

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FIG. 4.

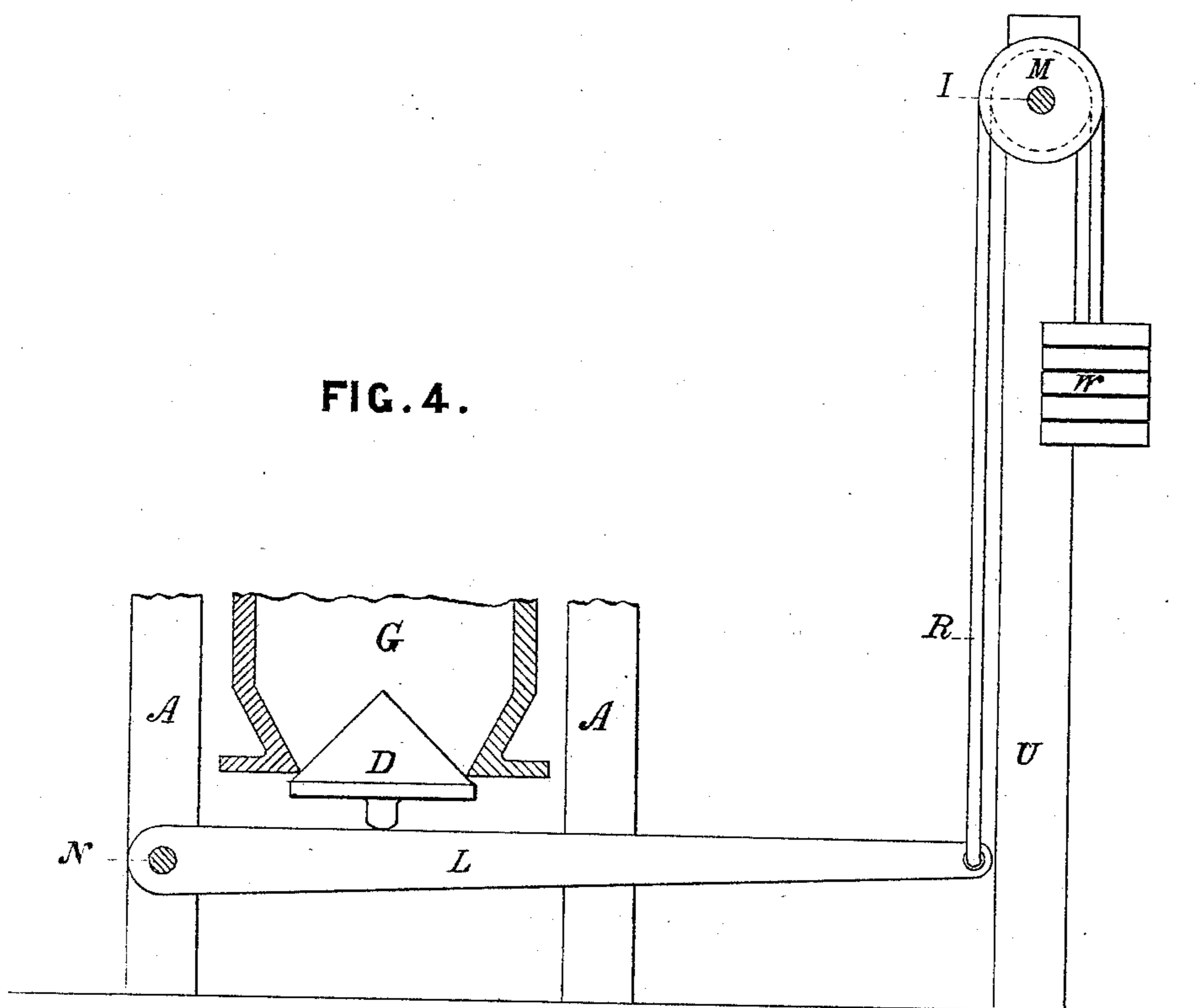
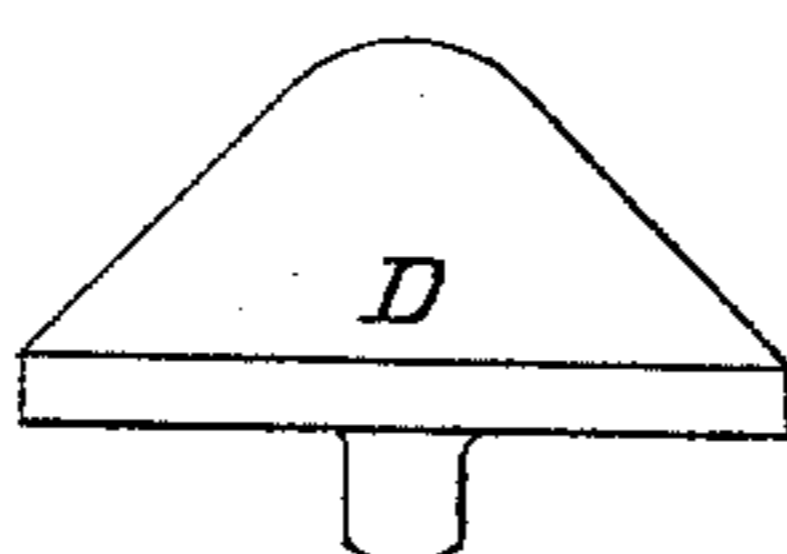


FIG. 5.



WITNESSES.

*O. Nordensen*  
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# UNITED STATES PATENT OFFICE.

EDMUND WRIGHT, OF CHICAGO, ILLINOIS.

MACHINE FOR SEPARATING ORGANIC MATTER FROM AQUEOUS COMPONENTS.

SPECIFICATION forming part of Letters Patent No. 430,456, dated June 17, 1890.

Application filed July 1, 1889. Serial No. 316,230. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND WRIGHT, a citizen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have  
5 invented a new and useful Improvement in Machines for Separating Organic Matter from Aqueous Components, of which the following is a specification.

My invention relates to machines for separating organic matter from aqueous components, in which a reciprocating piston works within the confines of a hollow perforated cylinder open at its lower end and yieldingly opened and closed by a valve of peculiar construction, which is held to its seating by a  
10 spring or springs of any desired strength or construction (or their equivalent in weighted levers) until forced open by the action of the piston on the solid part of the organic matter,  
20 which is then free to escape, while the bulk of its aqueous components has previously escaped through the lower perforations of the cylinder or chamber, leaving the residue sufficiently dry for burning or easy removal by  
25 carting to a distance. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the machine. Fig. 2 is a vertical section of the machine at the dotted line *c* and is shown at half-stroke. Fig. 3 is a top sectional view of the admission-spaces *k* with the regulating-band *l* at the dotted line *a*, Fig. 2. Fig. 4 is an imperforate sectional view of the lower portion of the  
30 cylinder or chamber *G* and the frame-work *A*, also showing an adaptation of a weighted lever *L*, actuating, in conjunction with the pressure caused by the piston or plunger *P*, the opening and closing movements of the  
40 valve *D*. Fig. 5 is a modified form of the conical valve *D*.

Similar letters refer to similar parts throughout the several views.

*A* is the frame-work, on which is supported  
45 the machine by means of the lugs *m* and *n*.

I have availed myself of the crank motion in showing the operation of this machine, although the necessary movement being comparatively slow, direct steam force, as in an  
50 ordinary steam-pump or eccentric, (any number of which may be operated from one shaft,) would answer equally well.

Under any circumstances I prefer to use a trunk piston or plunger *P*, which by means of the crank *E* and piston-rod *F* is made to freely reciprocate  
55 in the cylinder *G*.

The strength of a powerful spring *b*, which bears on the valve *D*, through its holder *f*, may be regulated by means of the nuts *e* and the bolts *d*, which pass through the frame-  
60 work *A* and lugs *n*, there being between the said lugs and nuts semi-spherical washers *o* to counteract the flexure of the spring *b*. The bolts *d* are placed at a slightly-inclining angle for the same purpose.

The mixture to be separated is placed in the receiving-basin *H*, and motion being given to the crank *E* the bottom of the piston *P* is drawn up to the dotted line *a*, which opens the admission-ports, (shown by the dotted  
70 lines *k*;) but the opening in these ports may be regulated by the sleeve or collar *l*, which slides up and down on the outer portion of the cylinder or chamber *G*, and may be fixed in any desired position by the set-screws *i*.  
75 The conical-shaped valve *D* is held tightly to its position by the springs *b* and bolts *d*, as aforesaid. The piston *P* on its downward stroke, after passing the ports *k*, has effectually closed them and continues so to do (being a trunk-piston) till it again rises above the admission-ports *k*. The object of the trunk-piston is obvious, as, besides dispensing with guide-bars, it prevents any of the organic matter entering above the piston. On  
85 the piston *P* reaching the bottom end of its stroke at the dotted line *u*, the bulk of the aqueous portion of the mixture has escaped through the small apertures *j* in the cylinder, while the more solid portion is retained in  
90 the lower part of the cylinder or chamber *G*.

In starting the machine it will probably be found that several strokes (according to the degree of moisture in the mixture) are necessary before the quantity left in the cylinder  
95 or chamber below the dotted line *u* will be sufficiently compressed and dry to force open the valve *D* for its escape at the seating *x*. It will then continue to come out in a comparatively dry state at every stroke, and the  
100 water that comes in with after charges is again pressed out before it has time to per-

meate the lower portion. The solid matter from the cylinder passes through the seating  $x$  into a pipe or receiver  $y$ , where it falls to the ground or to a tank or conveyer. The aqueous portion passes through the small apertures of the cylinder or chamber  $G$  to a space  $z$ , formed by a light outer jacket  $w$ , whence it escapes by the spout  $v$ . This jacket is attached to the cylinder by set-screws  $q$  (shown at the base of the cylinder) and also by set-screws  $n'$  at lugs  $n$ .

To prevent facial wear on the trunk-plunger  $P$ , I prefer fixing an annular steel or phosphor-bronze ring to its bottom end, as shown at  $r r$ .

The great aim in constructing the valves is that they be of a conical shape, or of such a shape at their apexes that they easily divide the organic matter in its downward progress and egress. A suitably-formed valve is shown at  $D$ , Fig. 5, being a conical valve with a rounded or elliptical apex.

I do not claim any special form of springs for holding the valve to its seating, as spiral springs would answer the purpose, or levers with properly adjusted weights—such, for example, as is shown in Fig. 4—in which any upright  $U$  may be erected, having the pulley  $M$  attached by and rotating freely on the axis  $I$ . The lever  $L$ , working on its fulcrum  $N$ , (which may be attached to the frame-work  $A$ ), actuates the valve  $D$  by means of the rope  $R$ , attached to one end of the lever  $L$ , and passing thence round the pulley  $M$  to the weights  $W$ , attached at the other end, the valve  $D$  opening the end of the cylinder  $G$  on the descent of the piston  $P$ , Fig. 2, and closing it again on its ascent by means of the aforesaid lever and accessories; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for separating organic mat-

ter from aqueous components, the combination of a hollow perforated cylinder or chamber having a valve-seat at its lower end, a plunger working in said cylinder or chamber, a conical valve  $D$ , fitting on said valve-seat, and means for yieldingly holding the valve to the seat, whereby the downward movement of the plunger will force the valve from its seat to permit the organic matter to escape from the cylinder, and the spring will act upon the upward movement of the plunger to return the valve to place, all substantially as described, for the purposes set forth.

2. The combination, in a machine for separating organic matter from aqueous components, of the conical valve  $D$ , the spring  $b$ , for yieldingly holding the valve to its seat, the adjusting-rods  $d$ , the washers  $o$ , and the frame  $A$ , with the hollow perforated cylinder or chamber  $G$ , substantially for the purposes herein specified.

3. In a machine for separating organic matter from aqueous components, the combination of the movable ring or collar  $l$ , the adjusting-screws  $i$ , with the hollow perforated cylinder or chamber  $G$ , having admission-ports  $k$ , the said ring or collar being moved by hand to regulate the size of the admission-ports, as and for the purpose set forth.

4. The combination, in a machine for separating organic matter from aqueous components, of a hollow perforated cylinder or chamber  $G$ , open at its lower end, said lower end being yieldingly closed by a conical valve  $D$ , with an outer receiving-basin  $H$ , and an outer jacket  $w$ , having an outlet  $v$ , all for the purposes substantially as set forth.

EDMUND WRIGHT.

Witnesses:

FRED C. ZEISS,  
OTTO A. SCHERER.