(No Model.) 3 Sheets—Sheet 1.

W. J. McGALL.

FUR SEPARATING DEVICE.

No. 550,129. Patented Nov. 19, 1895.

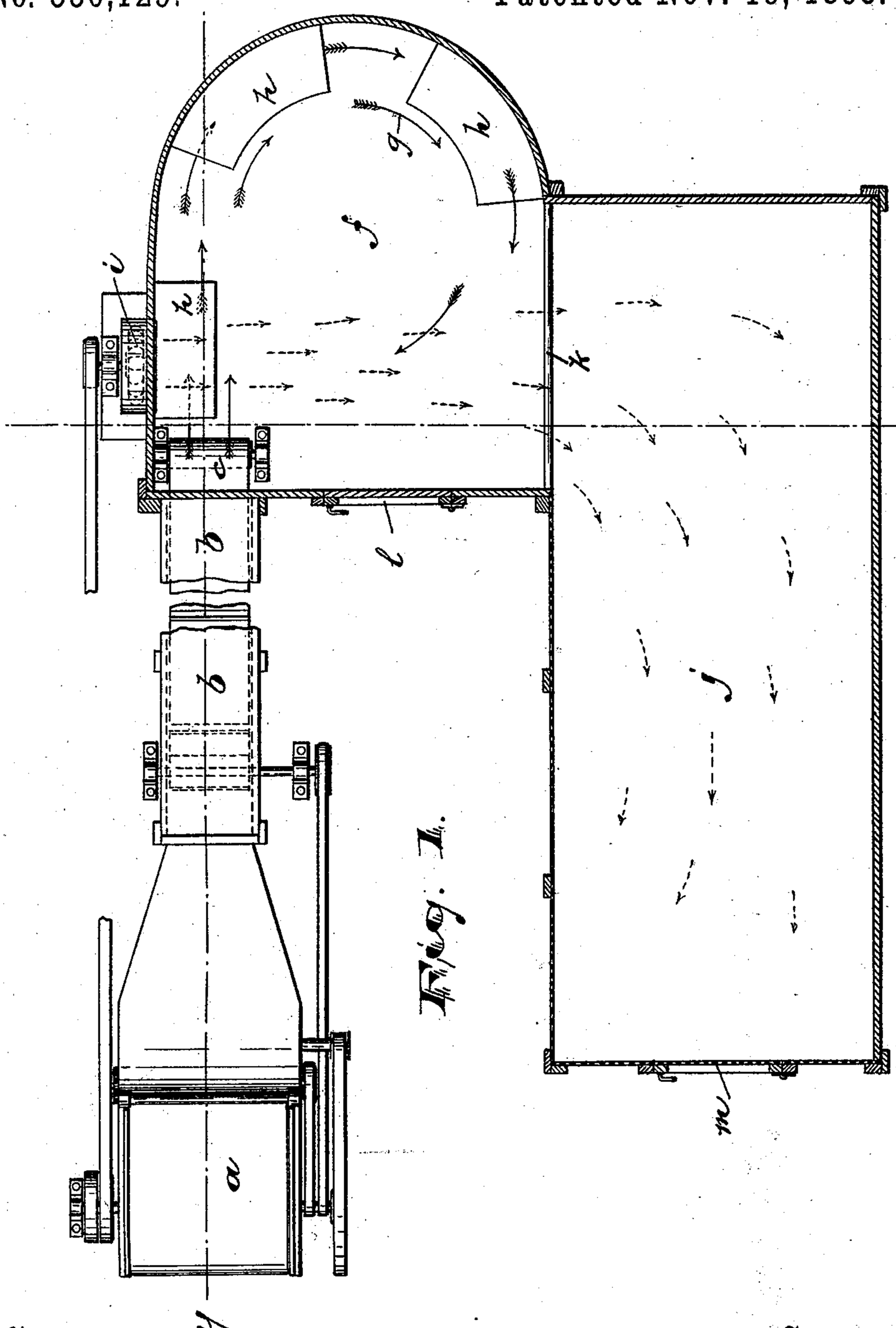

Fig. 1.

Witnesses

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Louise L. Browne.

Inventor

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By Drake & G. Atty's.

(No Model.) 3 Sheets—Sheet 2.

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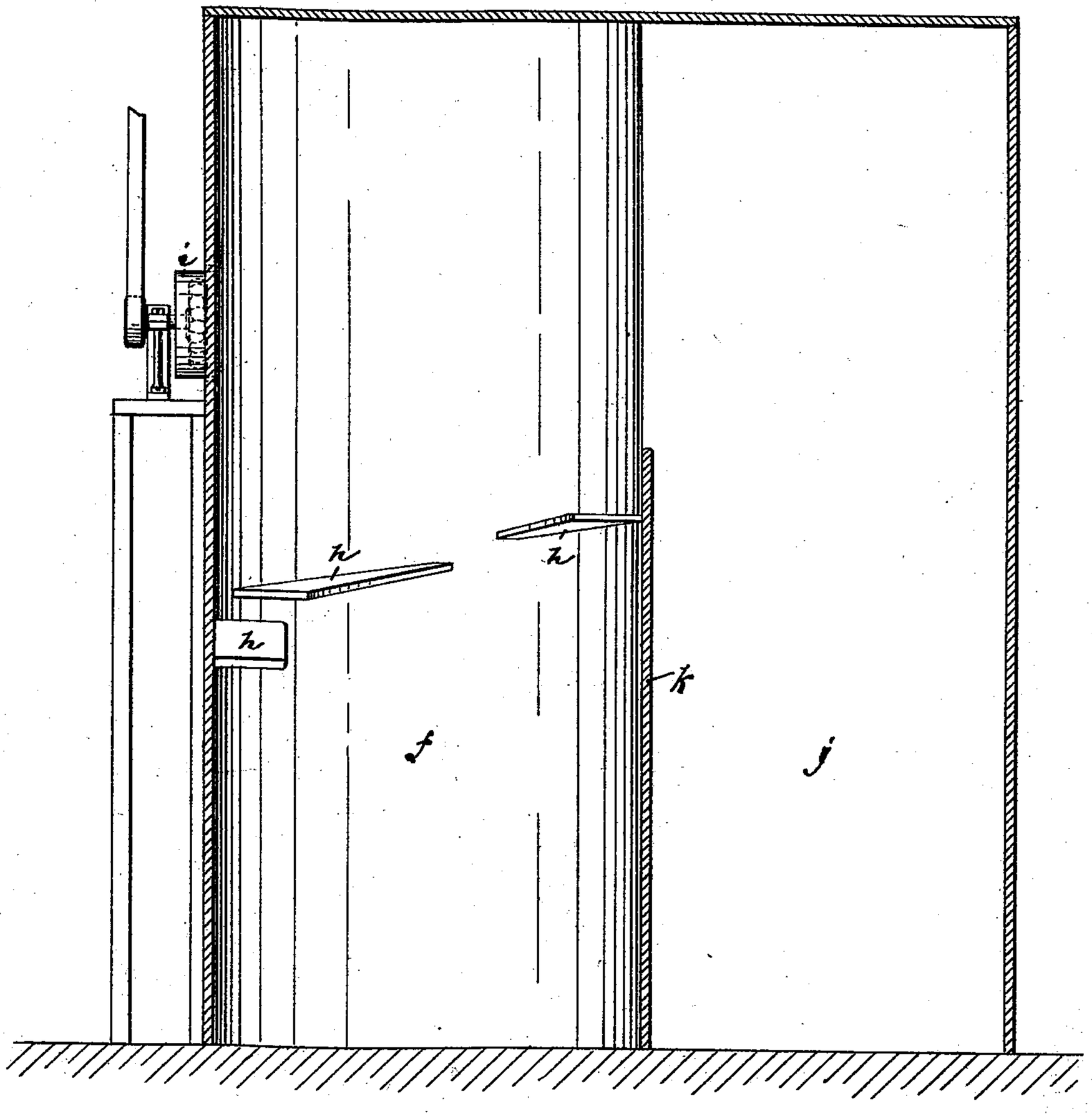

Fig. 2.

Witnesses

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(No Model.) 3 Sheets—Sheet 3.

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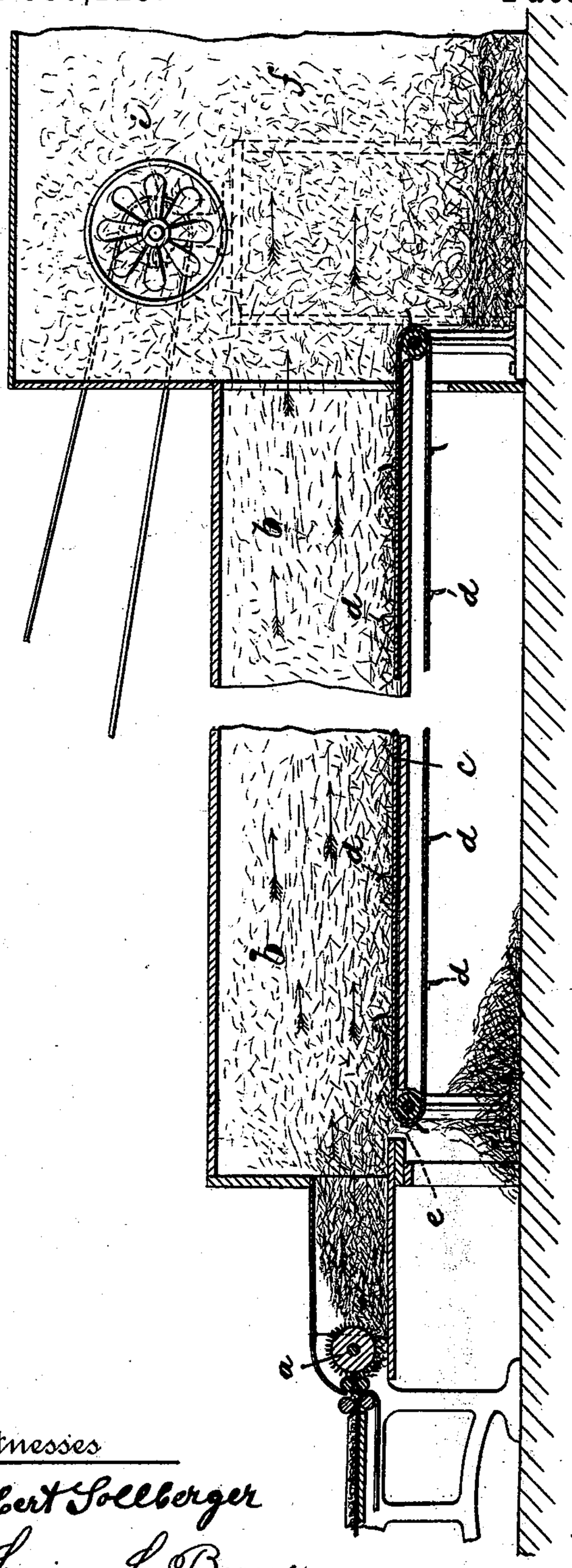

Fig. 3.

Fig. 4.

Witnesses

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Inventor:

W. J. McGall,

By Drake & Co., Atty's.

UNITED STATES PATENT OFFICE.

WILLIAM J. McGALL, OF ORANGE, ASSIGNOR TO LUDOVIC McGALL, OF WEST ORANGE, NEW JERSEY.

FUR-SEPARATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 550,129, dated November 19, 1895.

Application filed September 18, 1894. Serial No. 523,335. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. McGALL, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fur-Separating Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to more perfectly separate the finer fibers of the fur of animals, distinctively known in the art of felt-hat making as the "fur," from the coarser fibers, known as "hair," and to enable a large proportion of a very cheap and to a large extent heretofore a waste mixture of hair and fur, so far as the hat-making trade is concerned, to be utilized.

The invention consists in the improved device hereinafter described for separating the fur from the hair and in the art or process of separating said fibers, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the views, Figure 1 is a plan of the device, certain portions being in horizontal section. Fig. 2 is a vertical section of the same, taken at line *x* of Fig. 1. Fig. 3 is another vertical section taken at line *y*, and Fig. 4 is a sectional detail illustrating the construction of a certain belt for transferring the hair settling thereon back to a point near the picker.

In said drawings, *a* indicates a suitable picking-machine of any ordinary construction, adapted to open up the compacted fiber and to blow the same by an easy or comparatively slow current of air through the machine into and through an extended chamber or duct *b*, having at the bottom thereof a belt *c*, moving in a direction opposite that in which the fiber is being blown to a circulating-chamber *f*. The said belt *c* is provided with a series of wings *d*, consisting of wire-netting, which extend upward into the chamber six inches, more or less, and are adapted to catch and retain the heavy hair settling thereon and to draw it backward to an opening *e* near the picking-machine, where it is allowed to gravitate to the floor, from whence it may conveniently be retreated to the picking and blowing operation. The said hair, while of no value in the manufacture of hats, may be utilized for bedding, cushioning, or other purposes, and because of its loosened condition is in a better condition for said purposes than it was when received at the machine. The finer particles of fur and a limited part of the finer hair are blown entirely through the said extended chamber or duct *b* into the circulating-chamber *f*, where they are given a very slow circuitous movement, as indicated by the full or unbroken arrows *g*. The lighter fibers remain in the upper strata of air, while the heavier particles gravitate to the floor.

The desired horizontally-circuitous movement is produced in the chamber *f* by so disposing the duct *b* as that the air enters the chamber at one side horizontally, as indicated in Fig. 1, the said duct being disposed tangentially with reference to the side walls of the chamber. Thus the currents produced in said chamber, due to the inflow through said duct, are given repeated horizontal circuitous movements with a slow upward tendency, and thus full opportunity is afforded for a complete separation of the fur from the hair, the circuitous movements of the air being under a reduced air pressure because of the chamber *f* being much larger in size transversely than the duct *b*.

To prevent the heavier hair from rising in the chamber *f*, I have provided inwardly-projecting plates *h*, which tend to hold the air and the fur and hair carried thereby downward. At the upper part of said chamber *f*, above the level of the entrance from the chamber or duct *b*, is a blower *i*, which throws a current transversely across the upper portion of the chamber *f*, in which the fur is floating, and throws said fur into a lateral chamber J over a partition *k*, separating said chamber *j* from the circulating-chamber *f*, as indicated by the broken arrows. Part of the

air thus blown strikes the partition *k*, and, being bent down, assists in producing a general circulation. Thus the heavier particles of hair are prevented from rising in the circulating-chamber, and only the very light particles of fur are blown into the chamber *j*. Here they are allowed to settle upon the floor, from whence they may be removed for use.

The side walls of the chamber *j* are in part of wire-gauze, and thus the air-currents entering therein are allowed egress.

The chambers *f* and *j* are provided with suitable doors *l* and *m*, through which the settled fiber may be removed, the fiber in the chamber *j* for use in felt making, and the fiber in the chamber *f*, which at the first may retain a certain proportion of fur, for another treatment or, if clear of fur, for other purposes.

By making the wings *d* on the belt *c* of wire-gauze the moving air in the lower part of the chamber *b* is allowed to pass through, and no eddies are formed at the bottom of chamber such as would tend to prevent the heavy hair from being caught and carried back to the picker.

I am aware that various changes and modifications may be employed to secure the desired result, and therefore I do not wish to be understood as limiting myself to the particular form and arrangement of the chambers and the dispositions of the blower and picker; but in ordinary practice the peculiar relation of parts shown is the one preferred.

Having thus described the invention, what I claim as new is—

1. The device herein described for separating fur from hair, which consists of a picker, a duct, *b*, containing a return belt, a circulating chamber at the end of said duct and, next to said circulating chamber, a partly separate settling chamber, combined substantially as set forth.

2. The device herein described for separating fur from hair, which consists of a picker, a duct or passage, *b*, provided with a belt, *c*, a circulating chamber receiving said passage or duct at one side so that the air entering therefrom is given a circuitous course horizontally, and a settling chamber, partly separate from said circulating chamber, said parts being arranged and combined, substantially as and for the purposes set forth.

3. The improved fur separating device herein described in which is combined a picker, a duct or passage connected therewith and provided with a belt having wings, *d*, a chamber, *f*, at the opposite end of said duct or passage from said picker and a settling chamber partly separate from said chamber, *f*, substantially as and for the purposes set forth.

4. The improved fur separating device herein described in which is combined a picker, a duct or passage leading therefrom and containing means for returning tufts or heavy particles gravitating from the mixture blown therethrough back to the said picker, a chamber, *f*, at the edge of said passage opposite said picker and receiving the mixture therefrom after said tufts or heavy particles have been separated, the said chamber, *f*, admitting a circulation of the mixture horizontally and a gravitation of the hair, and a settling chamber for the fur partly separate from said chamber, *f*, all said parts being arranged and operating, substantially as set forth.

5. The improved separating device in which is combined a picker, a duct or passage connected therewith and provided with a belt for returning the tufts, &c., a chamber, *f*, receiving said duct or passage and having a blower, *i*, for the fur, and a settling chamber, all said parts being arranged and operating, substantially as set forth.

6. The improved fur separating device herein described in which is combined a picker, a duct or passage extending therefrom, the said picker serving to produce an air current by which the loosened mixture is blown through said duct or passage, a circulating chamber receiving said mixture, the duct or passage entering the same horizontally at one side of the chamber to produce a slow horizontal circulation of the air containing the loosened mixture, and a settling chamber partly separate from the circulating chamber, the settling chamber and circulating chamber being each provided with doors, *l*, *m*, all substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of September, 1894.

WILLIAM J. McGALL.

Witnesses:
CHARLES H. PELL,
LOUISE L. BROWNE.