

(No Model.)

2 Sheets—Sheet 1.

J. & O. OLDHAM.
MACHINE FOR BRUSHING FELT HATS.

No. 471,018.

Patented Mar. 15, 1892.

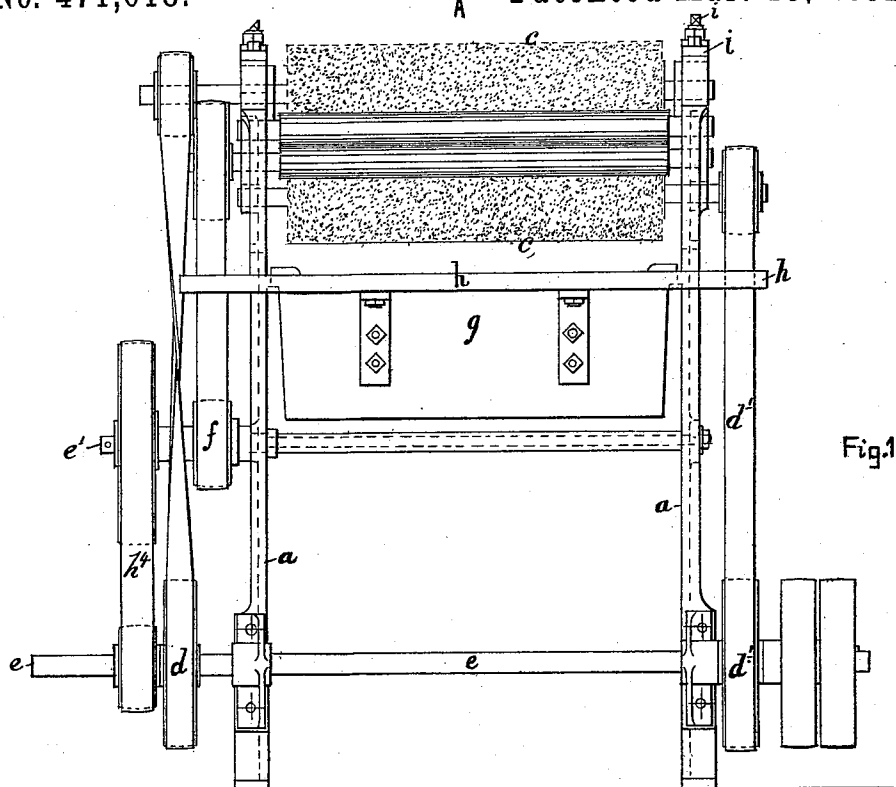


Fig. 1

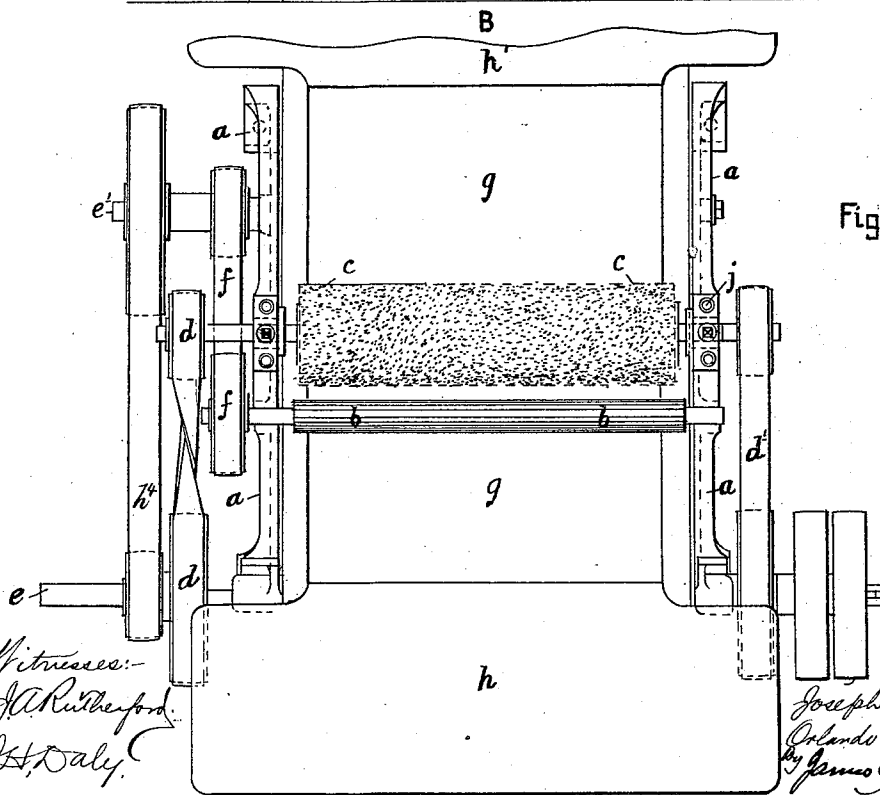


Fig. 2

Witnesses:-
J. A. Rutherford
J. H. Daly

Inventors.
Joseph Oldham
Orlando Oldham
by James L. Norris
Attorney

(No Model.)

2 Sheets—Sheet 2.

J. & O. OLDHAM.
MACHINE FOR BRUSHING FELT HATS.

No. 471,018.

Patented Mar. 15, 1892.

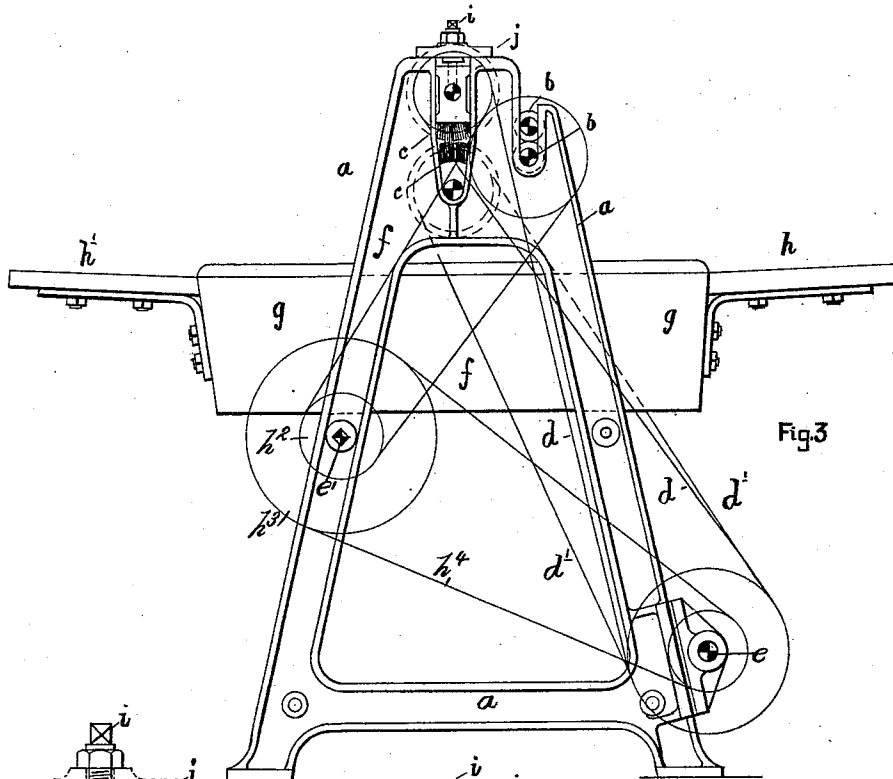


Fig. 3

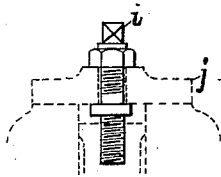


Fig. 5

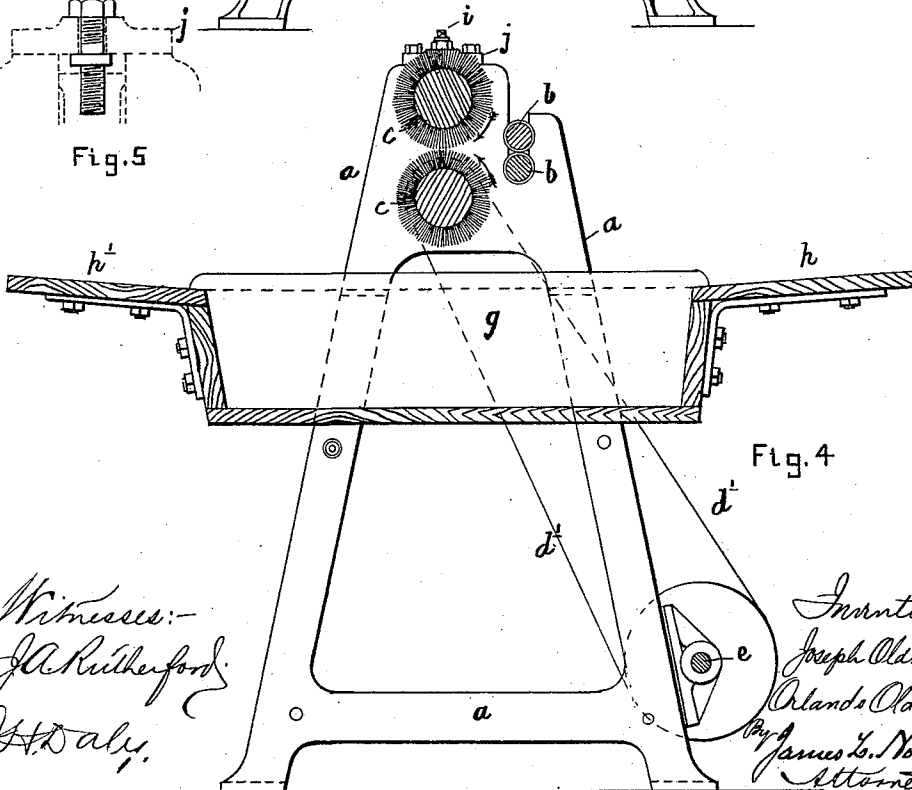


Fig. 4

Witnesses:
J. A. Rutherford
J. H. Daly

Inventors:
Joseph Oldham
Orlando Oldham
By James L. Norris
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH OLDHAM AND ORLANDO OLDHAM, OF DENTON, ENGLAND.

MACHINE FOR BRUSHING FELT HATS.

SPECIFICATION forming part of Letters Patent No. 471,018, dated March 15, 1892.

Application filed June 25, 1891. Serial No. 397,447. (No model.) Patented in England September 19, 1890, No. 14,809; in France January 6, 1891, No. 210,623, and in Belgium January 12, 1891, No. 93,399.

To all whom it may concern:

Be it known that we, JOSEPH OLDHAM and ORLANDO OLDHAM, subjects of the Queen of Great Britain, residing at Denton, in the county of Lancaster, England, have invented certain new and useful Improvements in Machines for Brushing and Clearing Felt Hat-Bodies, (for which we have obtained Letters Patent in Great Britain, No. 14,809, dated September 19, 1890; in France, No. 210,623, dated January 6, 1891, and in Belgium, No. 93,399, dated January 12, 1891,) of which the following is a full, clear, and exact specification.

This invention has for its object to provide a novel, simple, economical, and efficient machine for brushing and clearing felt hat-bodies during the felting or planking process for the purpose of removing the kemps, dags, and dirt, whereby both sides of the hat-body are simultaneously brushed and the operation is effected in a more perfect manner than is possible by hand-brushing.

To accomplish this object our invention involves the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an end elevation of our improved machine for brushing and clearing felt hat-bodies. Fig. 2 is a top plan view of the same, showing one of the tables broken away. Fig. 3 is a side elevation of the machine. Fig. 4 is a longitudinal sectional view of the same, and Fig. 5 is a detail view showing one of the adjustable suspension-screws for supporting the upper brush.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, referring to the drawings, wherein the letter *a* indicates a pair of standards or upright frames composed of cast-iron and suitably connected together by cross-braces. A case or box *g* is interposed between the two standards or upright frames *a*, and is provided at its front end with a feed-table *h* and at its rear end with a delivery-table *h'*.

In suitable bearings on the standards or upright frames at a point above the case or box

g is journaled a pair of feed-rollers *b*, covered with india-rubber, and the lower one of which has a belt connection *f*, with a pulley *h²*, mounted on a counter shaft or stud *e'*, which is supported by the standards or upright frames *a* at a point beneath the case or box *g*. The counter shaft or stud *e'* is also provided with a drive-pulley *h³*, connected by a belt *h⁴* with a pulley on the main driving-shaft *e*, whereby the feed-rollers are automatically and continuously revolved.

In rear of the feed-rollers is journaled a pair of revolving brushes *c*, the uppermost one of which is suspended through the medium of vertically-adjustable screws *i*, engaged with the cap-pieces *j* in such manner that the upper brush can be adjusted toward and from the lower brush. The lower brush is connected by a belt *d'* with a pulley at one end portion of the driving-shaft *e* and the upper brush is connected with a pulley at the opposite end portion of the driving-shaft through the medium of a crossed belt *d* in such manner that the two brushes are continuously revolved in the direction of the arrows, Fig. 4. The revolving brushes and the automatically-rotated feed-rollers are arranged in juxtaposition to each other and in such relation that the feed-rollers support the felt hat-body and feed it between the revolving brushes, which simultaneously act upon opposite sides thereof to remove the kemps, dags, and dirt. It may be proper to here state that the kemps are hard and coarse hairs, which will not take dye, and if not effectually removed they impart a harsh inferior surface to the finished hat. It is a difficult matter to remove these kemps, and the ordinary hand-brushing process does not accomplish the object; but by our new combination and arrangement of parts the felt hat-bodies are positively cleared of the kemps, so that the value of the hat when finished is materially increased. The kemps, dags, and dirt are deposited in the case or box *g*, which is located directly beneath the brushes and feed-rollers. The brushes are revolved at an accelerated speed, while the feed-rollers are revolved at a reduced speed, and consequently, as the feed-rollers support and feed the felt hat-body, the continuously-revolving brushes,

running at a greater speed than the feed-rollers, effectually brush and clear both sides of the hat-body in a manner which is practically impossible by the ordinary hand process.

5 The feed-table *h* serves to support the hat-bodies, so that the attendant can conveniently introduce them between the feed-rollers. The hat-bodies after being acted upon by the brushes are received by the attendant and
10 can be laid upon the receiving-table *h'*. As the brushes wear away the upper one can be adjusted toward the lower one through the medium of the adjustable suspension-screws *i*, which pass through the caps *j*, as is more
15 clearly illustrated by Fig. 5.

The automatic and continuous revolution of the feed-rollers is an important feature in combination with the pair of continuously-revolving brushes traveling at an accelerated
20 speed, because the feed-rollers nip the hat-body and while supporting and feeding the same they tend to hold it back as the revolving brushes act upon the opposite sides thereof.

25 Having thus described our invention, what we claim is—

1. A machine for brushing and clearing felt hat-bodies, consisting of a pair of standards or upright frames, a kemp-receiving case or
30 box interposed between the standards or upright frames to receive the kemps, a main driving-shaft journaled on the standards or frames, a counter shaft or stud having a pair of pulleys, one of which is belted to the driv-

ing-shaft, a pair of feed-rollers, one of which 3 is belted to the other pulley on the counter shaft or stud, and a pair of continuously-revolving brushes, each provided with an independent belt connection with the driving-shaft, substantially as described, whereby the two brushes are positively rotated at a speed greater than the speed of the feed-rollers.

2. A machine for brushing and clearing felt hat-bodies, consisting of a pair of standards, a main driving-shaft journaled on the stand- 4 ards, a counter shaft or stud carried by the standards and having a pair of pulleys, a pair of feed-rollers, one of which is belted to one of the pulleys on the counter shaft or stud, a belt connection between the other pulley on 5 the counter shaft or stud and the driving-shaft, a pair of rotary brushes journaled in the standards in juxtaposition to the feed-rollers to receive the hat-body advanced by the latter, a straight-belt connection between 55 one of the brushes and the driving-shaft, and a crossed-belt connection between the other brush and the driving-shaft for automatically and continuously revolving the brushes at a speed greater than the feed-rollers, substan- 60 tially as described.

In testimony whereof we affix our signatures to the foregoing specification.

JOSEPH OLDHAM.
ORLANDO OLDHAM.

Witnesses:

WALTER GUNN,
EDMUND WILSON.