(No Model.)

W. P. MAHONEY.

MACHINE FOR STARTING HAT BODIES.

No. 431,272. Patented July 1, 1890.

Fig: 1.

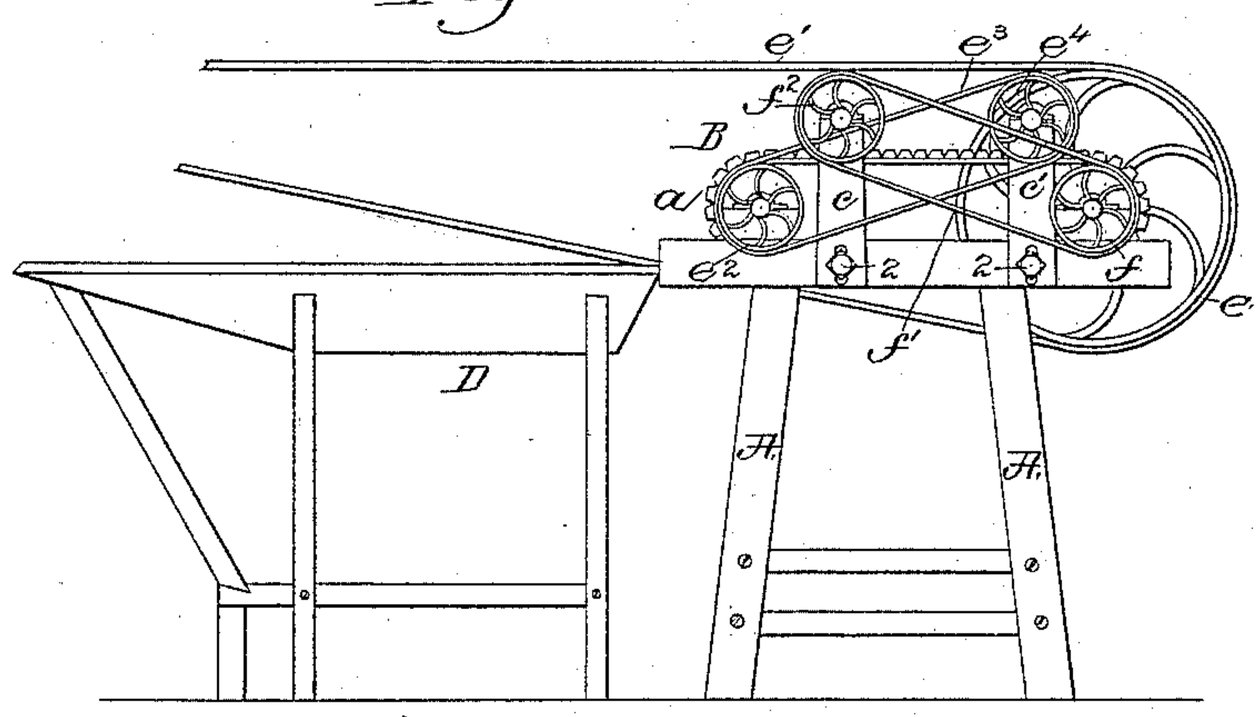

Fig: 2.

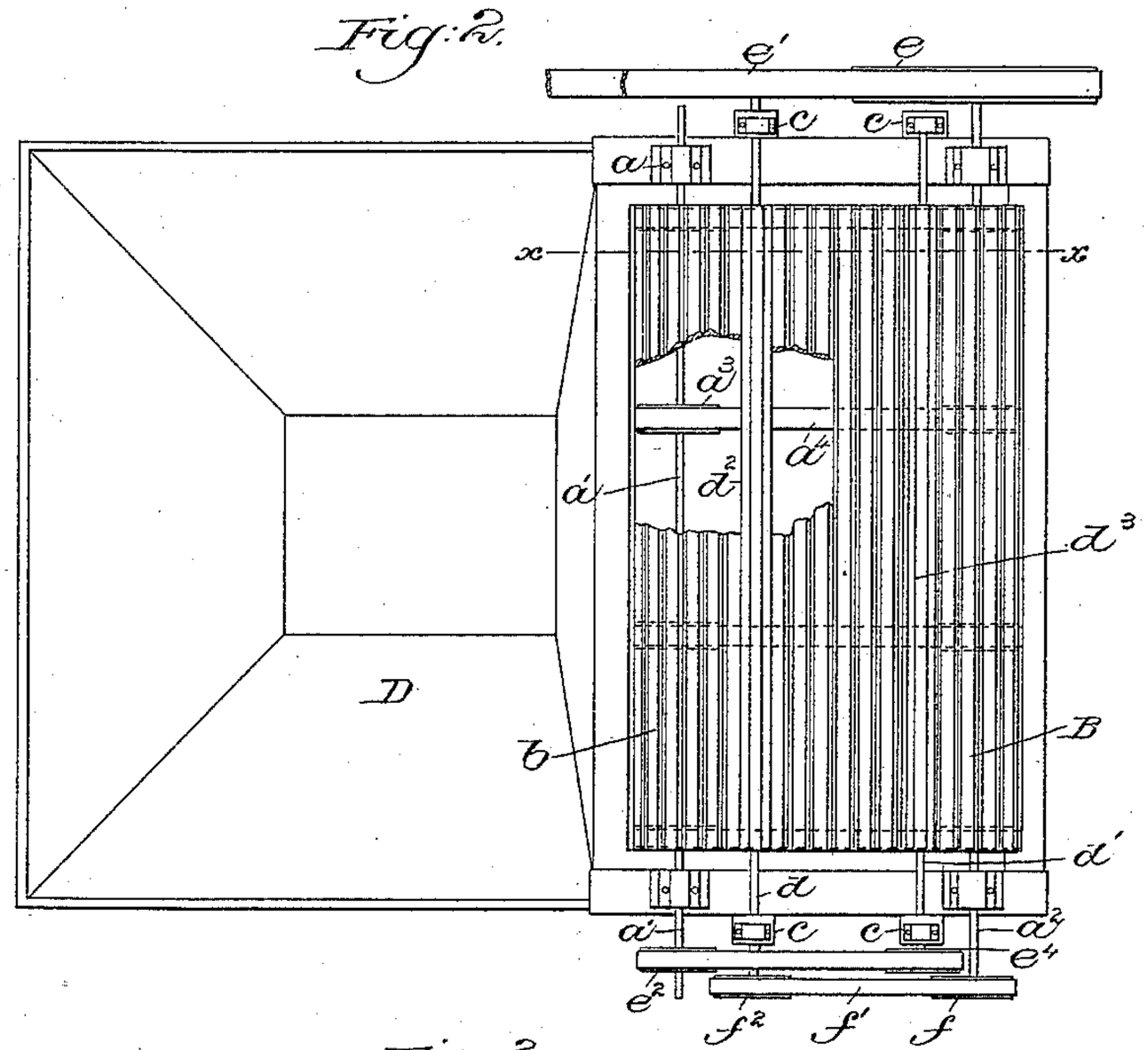

Fig: 3.

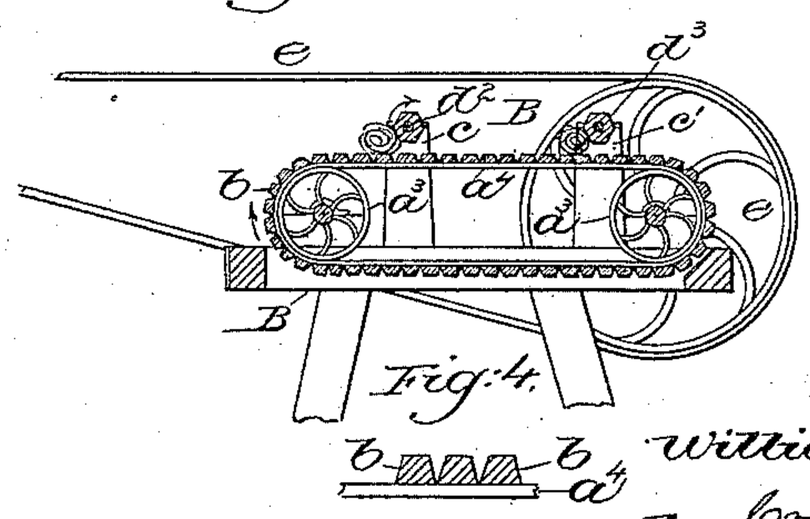

Fig: 4.

Witnesses.
Howard F. Eaton.
Fred L. Emery.

Inventor.
William P. Mahoney
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UNITED STATES PATENT OFFICE.

WILLIAM P. MAHONEY, OF NEWBURYPORT, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES H. FOLSOM, OF BROOKLYN, NEW YORK.

MACHINE FOR STARTING HAT-BODIES.

SPECIFICATION forming part of Letters Patent No. 431,272, dated July 1, 1890.

Application filed December 8, 1887. Serial No. 257,298. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. MAHONEY, of Newburyport, county of Essex, and State of Massachusetts, have invented an Improvement in Machines for Starting Hat-Bodies, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the manufacture of felt hats the bat taken from the former and wrapped in cloth is immersed in hot water and rolled or manipulated to start the interlacing of the fiber for the formation of felt. This preliminary step in hat-making is commonly carried on by hand and is a slow and tedious process. Some machines have been devised to hasten this operation.

In accordance with my invention I have provided a machine containing an endless horizontal belt or apron, which has co-operating with itsupper surface, preferably, two rollers, the belt having, preferably, a faster surface speed than the rollers, several bats properly scalded and folded together in a roll being placed between the said belt and each of the said rolls, the rotation of the belt and rolls tumbling or rolling the roll of bats, thus starting the felting operation.

My invention consists, essentially, in the combination, with an endless horizontal traveling belt or apron, of a polygonal roller cooperating with its upper surface and provided with a series of parallel sharp edges having a motion in a direction opposite that of the belt or apron, and having, preferably, a slower surface speed than the belt or apron, substantially as will be described.

Figure 1, in side elevation, represents one of my improved starting-machines placed at one end of a scalding-bath. Fig. 2 is a top or plan view thereof, partially broken out to show the belts to which the lags are secured. Fig. 3 is a section of the machine shown in Fig. 2 in the dotted line $x\ x$, and Fig. 4 is an enlarged detail of the endless apron.

The frame-work A, of proper shape to support the working parts, has suitable bearings or boxes, as a, which receive the ends or journals of shafts $a'\ a^2$, which at suitable intervals are provided with wheels or drums, as a^3, over which are extended horizontally several narrow belts a^4, of india-rubber or other material, the aforesaid belts being shown in Fig. 2, the said belts having attached to them, by screws or in other suitable manner, lags or bars b, preferably of wood and shaped substantially as shown in the section, Fig. 4, the said lags or bars being in practice separated from each other for a slight distance, just enough to enable the apron to be bent readily, the lags being in practice preferably from seven-eighths to an inch wide.

The belts a^4 and lags constitute the horizontal apron. The frame-work has erected upon it suitable standards $c\ c'$, made adjustable by screws, as 2. The upper ends of these standards erected at each side of the frame-work receive the journals $d\ d'$ of a series of like rolls $d^2\ d^3$, the said rolls, preferably made from wood, being in cross-section, preferably hexagonal, octagonal, or of any other many-sided shape, co-operating with the upper horizontal surface of the apron.

The shaft a^2 at one side of the machine has fast on it a large driving or belt pulley, as e, which receives upon it a belt, as e', driven from any suitable counter-shaft, the rotation of the said shaft with its attached drums through the belts a^4, extended over other like drums on the shaft a', effecting the progressive continued rotation of the endless belt B, made up, as stated, of the said belts a^4 and lags or bars b.

The shaft a' at one end of the machine has a pulley, as e^2, which drives a belt e^3, which is extended over a pulley e^4, fast on the shaft d', carrying the roller d^3. The shaft a^2 has fast upon it at one end a pulley f, which drives a belt f', extended over a pulley f^2, fast on the shaft d, carrying the roll d^2, the said belt rotating the said shaft and roll.

By an examination of the belts and pulleys referred to in Fig. 1 it will be seen that the direction of motion of the surface of the apron B is in an opposite direction to that of the rolls $d^2\ d^3$, and from the sizes of the pulleys referred to it will be seen that the rotation of the surface of the endless apron is faster than that of the surface of the said rollers $d^2\ d^3$, so

that the said rolls acting upon the rolls or bunches of hat-bodies placed in the spaces between the said apron and rolls, as represented in Fig. 3, are caused to rotate; but the said rolls of hat-bodies cannot pass between the rolls d^2 or d^3 and the endless apron below them.

In practice the roll of hat-bodies, properly treated with hot water or scalded, having been rolled or tumbled for a short period of time, the operator unrolls the hats and refolds them in other forms and again subjects them to a rolling or tumbling action until the hat-bodies are properly "started," ready to be applied to an ordinary felting and sizing machine, wherein the felting and sizing are completed.

The tank D, of usual or suitable shape, contains the hot or scalding water in which the soft hat-bodies are immersed before rolling them.

The irregular shape of the rolls d^2 d^3 in cross-section causes the series of parallel sharp edges of said rolls to strike a series of blows or present detaining edges to obstruct the passage of the roll of hat-bats between the rolls and apron and squeeze the same intermittingly.

I claim—

1. In a starting-machine for hat-bodies, an endless horizontal apron, substantially as described, combined with a polygonal roll having a series of parallel sharp edges, the surface of which rotates in a direction opposite that of the apron and at a speed slower than that of the apron, to operate substantially as described.

2. In a starting-machine for hat-bodies, an endless horizontal rotating apron having a series of lags or bars, as *b*, combined with two polygonal rolls, as d^2 d^3, located near the upper horizontal surface of the said apron, and with means to rotate the said apron and the said rolls, the direction of motion of the rolls being opposite the direction of motion of the apron, the surface speed of the rolls differing from that of the apron, substantially as described.

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

WM. P. MAHONEY.

Witnesses:
G. W. GREGORY,
J. C. SEARS.