W. E. TURNER.

MACHINE FOR ORNAMENTING AND FINISHING THE SURFACES OF FELT HATS.

APPLICATION FILED JULY 19, 1916.

1,350,687. Patented Aug. 24, 1920.

4 SHEETS—SHEET 1.

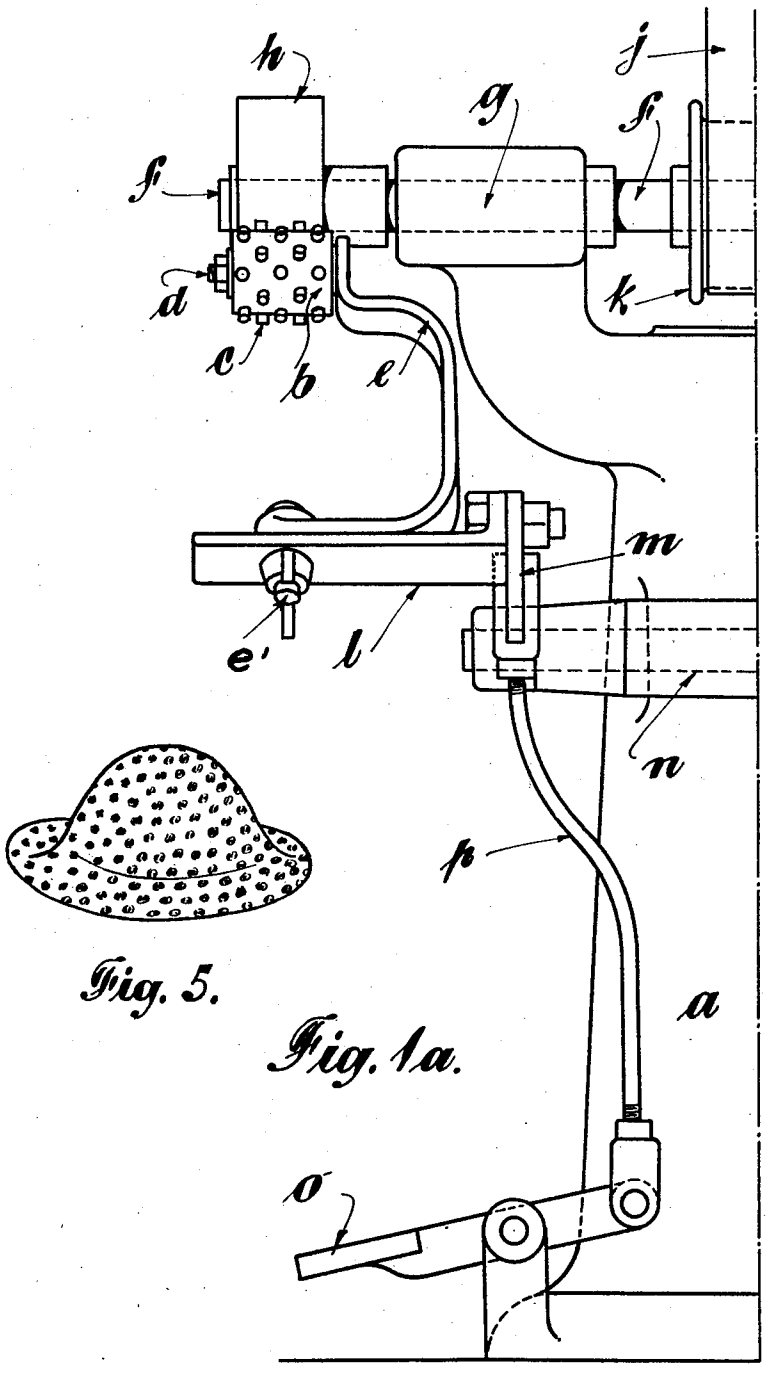


Fig. 5.

Fig. 1a.

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By his Attorney:-

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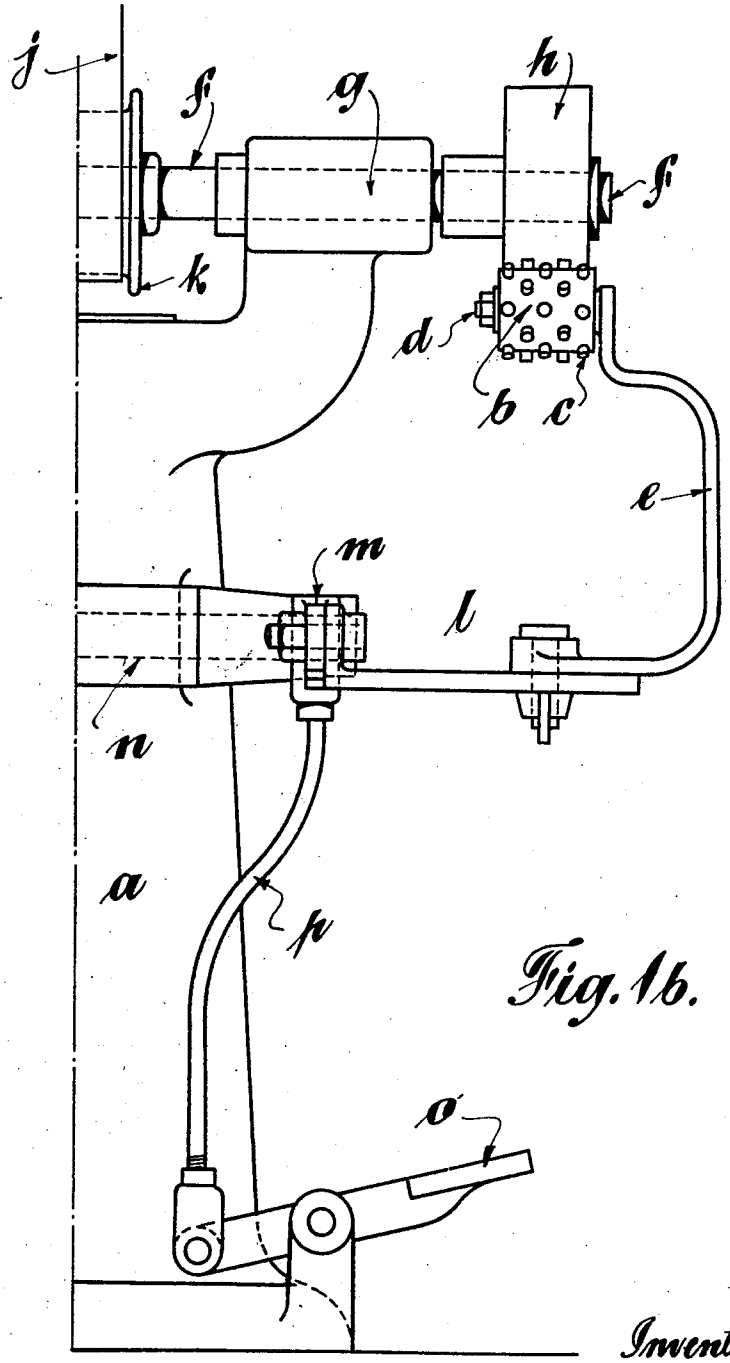


Fig. 1b.

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4 SHEETS—SHEET 3.

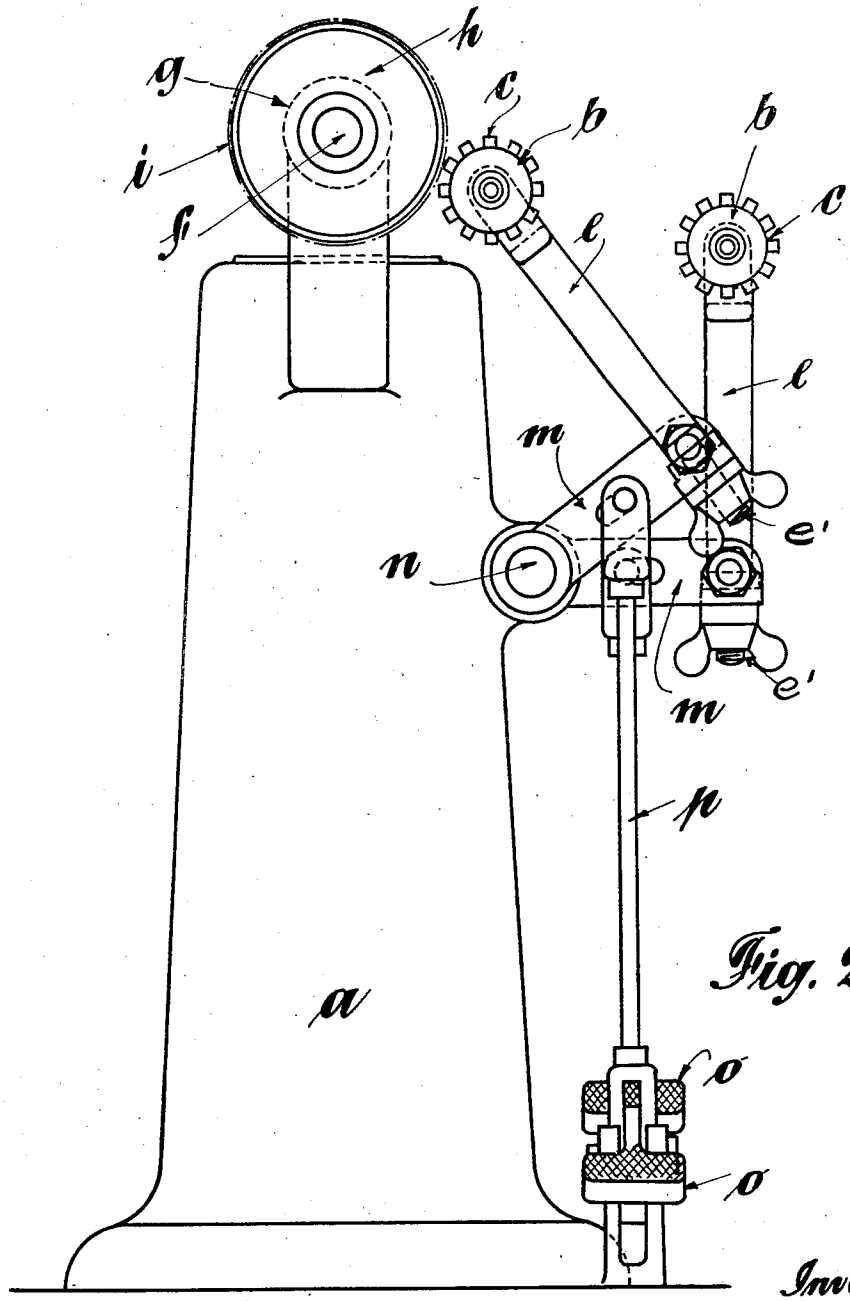


Fig. 2.

Inventor:-

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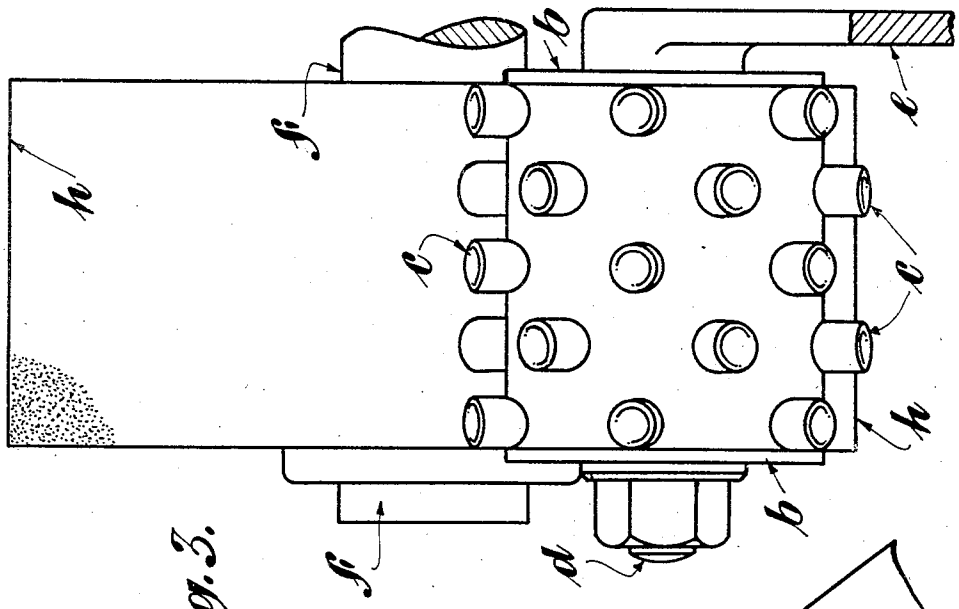


Fig. 3.

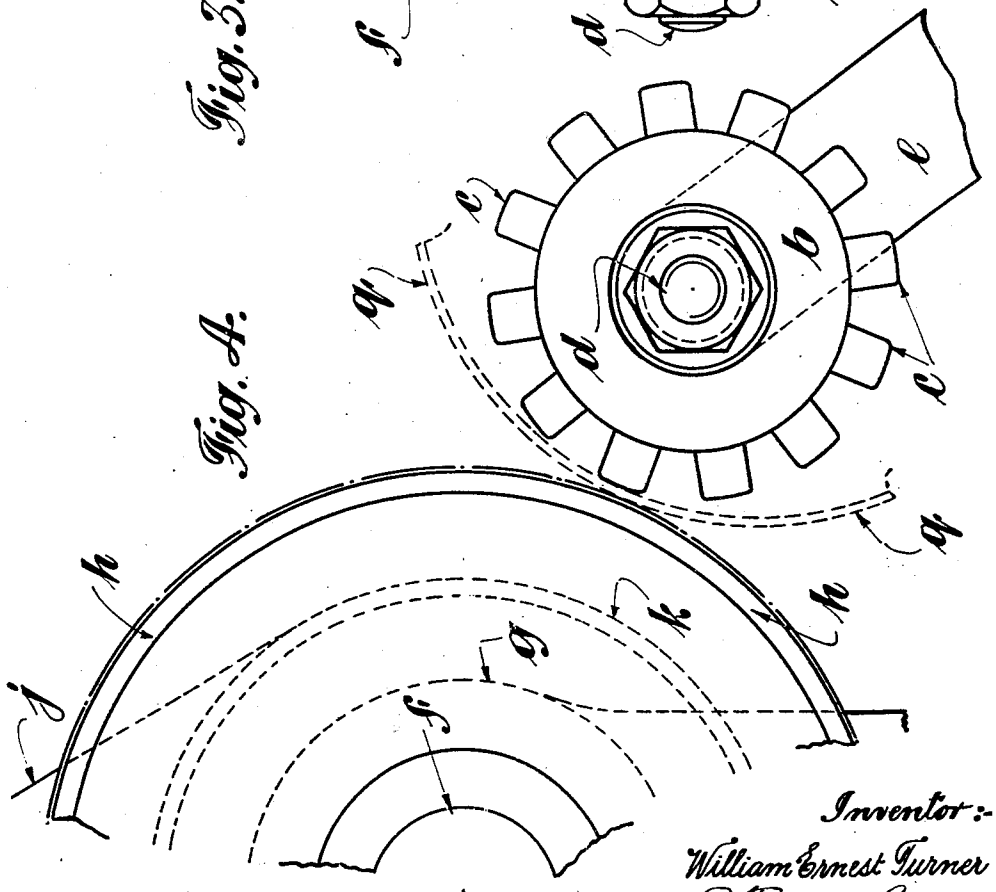


Fig. 4.

Inventor:-
William Ernest Turner
Walter Gunn.

By his Attorney:-

UNITED STATES PATENT OFFICE.

WILLIAM ERNEST TURNER, OF DENTON, NEAR MANCHESTER, ENGLAND.

MACHINE FOR ORNAMENTING AND FINISHING THE SURFACES OF FELT HATS.

1,350,687. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed July 19, 1916. Serial No. 110,115.

To all whom it may concern:

Be it known that I, WILLIAM ERNEST TURNER, a subject of the King of Great Britain and Ireland, and resident of Denton, near Manchester, England, have invented certain new and useful Improvements in Machines for Ornamenting and Finishing the Surfaces of Felt Hats, of which the following is a specification.

This invention refers to and consists of new or improved means for ornamenting and finishing the surface of felt hats and felt materials.

The invention will be described with the aid of the accompanying drawings, in which,

Figures 1ª and 1ᵇ together constitute a front elevation of a machine showing the invention applied and adapted to treat two hats simultaneously.

Fig. 2 is an end view of the complete apparatus.

Fig. 3 is a front view, and

Fig. 4 an end view in detail drawn to an enlarged scale of the improved hat pad and grinding wheel shown in Figs. 1 and 2.

Fig. 5 shows an example of a finished hat ornamented according to the invention.

According to the invention, a machine such as *a* is employed wherein is a roller *b*, provided upon its periphery with a number of stud-like projections *c* preferably comparatively short and of uniform height. The roller *b* (hereinafter called the pattern roller) is rotatably mounted upon a stud or axis *d* carried by an arm or bracket *e* which is so shaped and proportioned as to allow of a hat fitting over the roller, or of the roller extending into the hat. The arm *e* is secured to a bracket *l* by a bolt *e'* about which, as center, said bracket can be adjusted. The bracket *l* is carried by a lever *m* which is rocked about a spindle *n* by means of a foot lever *o* and connecting rod *p*, so that the pattern roller can be advanced to, or withdrawn from, the wheel *h* (hereinafter described), while the adjustable arm *e* allows said pattern roller to be initially adjusted in relation to the said wheel *h*.

Upon an axle *f* which is rotatably mounted in bearings *g*, is mounted the wheel *h*, provided upon its periphery (see Fig. 2) with a covering of sandpaper *i* or the like, and hereinafter called the grinding wheel. This grinding wheel is driven by belt *j* and pulley *k* or other suitable means, at a high speed. In the machine illustrated, two sets of pattern rollers and grinding wheels are shown, but inasmuch as both sets are operated and work in exactly similar manner, one set only has been described.

The juxtaposition of the said parts (brackets, roller and wheel) is such as to permit of a felt hat *q* being passed over the roller *b* with the thickness of the hat material lying between the projections *c* on the pattern roller and the sand-paper *i* of the grinding wheel. With the hat thus positioned it is advanced by means of the foot treadle and held with a slight pressure against the grinding wheel, the roller bracket being adjustable to give the desired pressure. Upon setting the grinding wheel in motion and drawing the hat material slowly forward, the grinding wheel acts upon those parts of the felt lying over the projections *c* on the pattern roller *a* and by grinding away (or shaving) small portions of the felt produces the desired ornamentation, as seen in the finished hat in Fig. 5. The hat is retained upon the roller by the operator, who maintains a grip upon the same and regulates the speed at which the hat is drawn forward by the grinding wheel, thereby regulating the amount of treatment.

The shape, arrangement and proportions of the projections on the roller (which may vary) determine the pattern or character of the ornamentation. By moving the hat to slightly different positions while under treatment, nondescript or broken patterns may be obtained.

The grinding wheel *h* will preferably be of larger diameter than the pattern roller *b* and the latter will rotate idly on its axis as shown.

The pattern roller may be variously made. In the drawings it is shown made of india-rubber molded in one piece and with the periphery studded with projections in the form of studs or nipples. Instead of the pattern roller being formed of india-rubber it may be formed of wood, with the periphery studded with projections which may be made of wood, or rubber, inserted in holes in the periphery of the roller. The essential feature is to provide the pattern roller with a multiplicity of stud-like projections, forming teeth so spaced as to allow of the material requiring to be ornamented, to sink around each projection, while opposite the abrading or polishing roller, and receive a

definite degree of treatment. In this connection it may be pointed out that the patterns produced by this invention are sharply defined and are not easily obliterated in use. By making the roller or projections of rubber a better grip is obtained on the felt, while being operated upon.

Instead of using a grinding wheel, a rapidly revolving felt buffing wheel, or polishing tool may be used.

The hats will preferably be treated after being shaped and polished and when ready to be finished and trimmed. The invention is chiefly intended to apply to soft hats, wool or fur. It may also be applied to felt made in the piece.

What I claim is:—

1. A machine for ornamenting felt materials, comprising in combination a frame work, an abrading or polishing roller, means to rotate said roller, a lever arm pivotally connected to the framework, an overhung pattern roller loosely mounted at the free end of said lever arm the peripheral surface of said pattern roller being provided with perpendicular stud like projections spaced apart at a distance which allows the felt material to sink around each projection when the latter is opposite the treating roller, together with foot operated means to bring and retain the pattern roller in engagement with the rotary treating roller, substantially as described.

2. A machine for ornamenting felt hat bodies, comprising in combination a frame-work, a spindle rotatably mounted in said frame-work, means to rotate said spindle, grinding or polishing rollers on the free end of said spindle, foot operated rocking arms on said framework, reversible lever arms mounted on the rocking arms and over-hung pattern rollers on said reversible lever arms coacting with said abrading or polishing rollers, the peripheral surface of said pattern rollers being provided with perpendicular stud-like projections spaced apart at a distance which allows the felt material to sink around each projection when the latter is opposite the treating roller, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

W. ERNEST TURNER.

Witnesses:

F. C. PENNINGTON,

F. J. MEREDITH.