(Model.) 2 Sheets—Sheet 1.

J. K. PRIEST & R. T. SMITH.

SHEEP SHEARING MACHINE.

No. 301,519. Patented July 8, 1884.

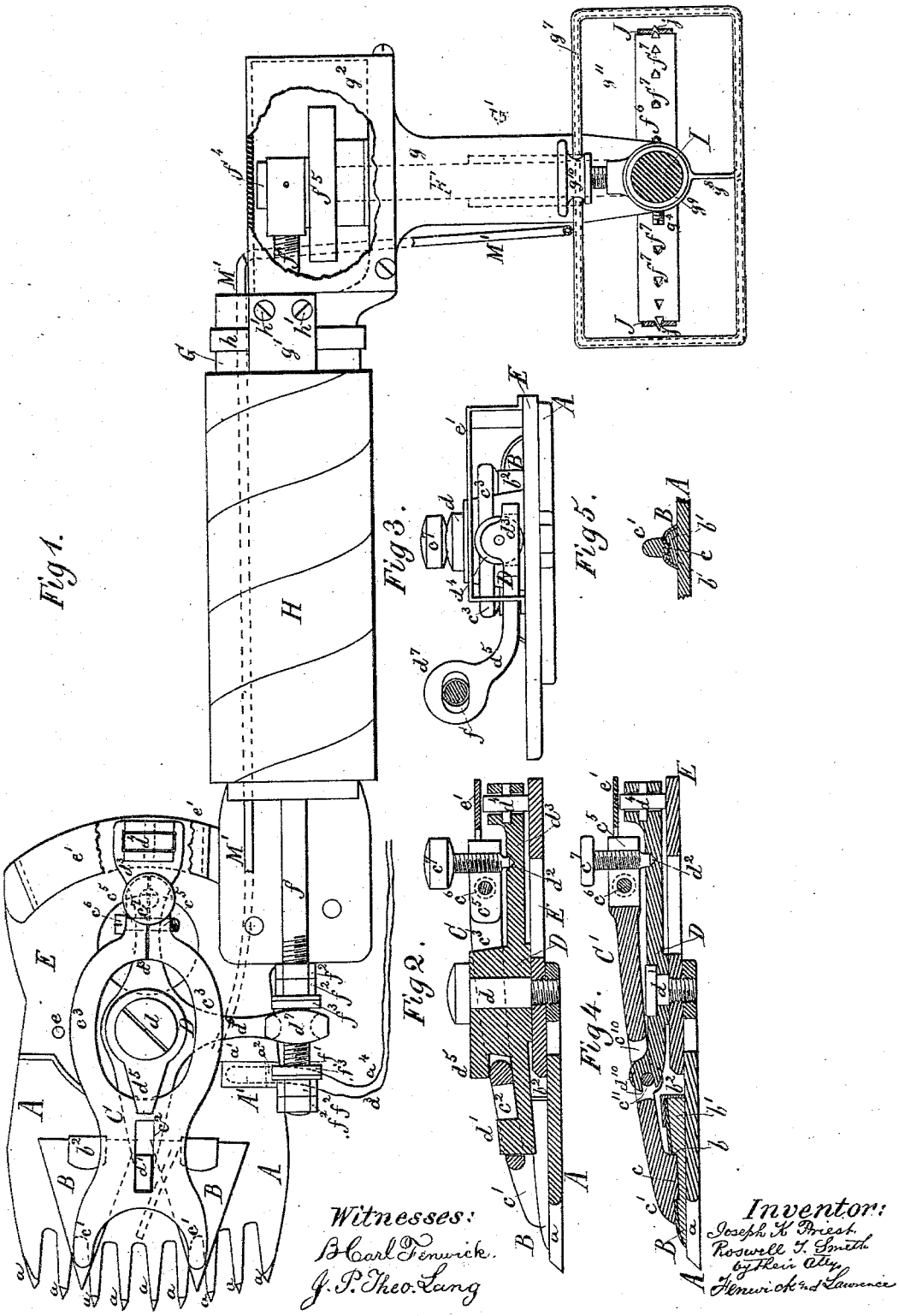

Fig 1.

Fig 3.

Fig 5.

Fig 2.

Fig 4.

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(Model.) 2 Sheets—Sheet 2.

J. K. PRIEST & R. T. SMITH.

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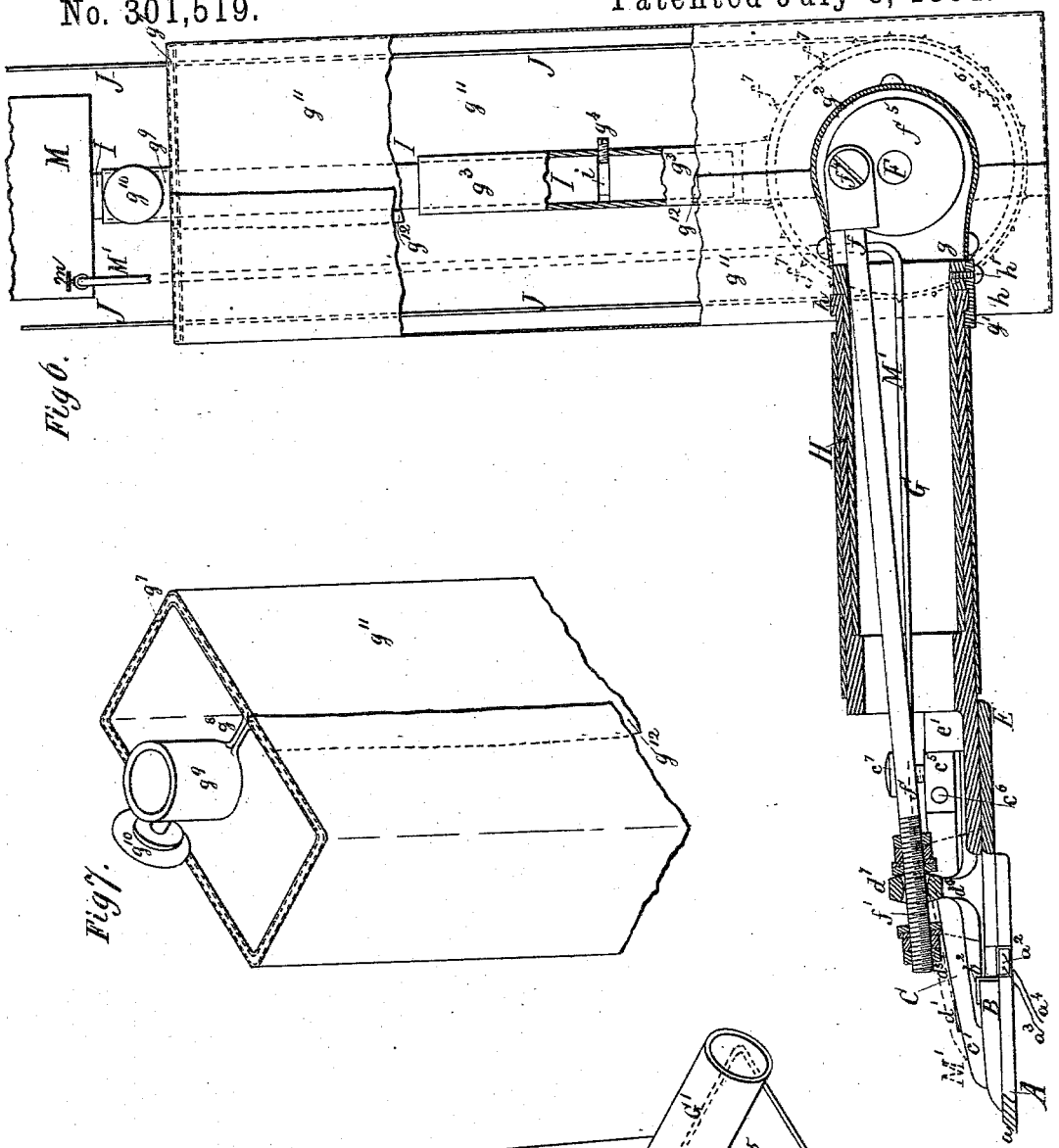

Fig 6.

Fig 7.

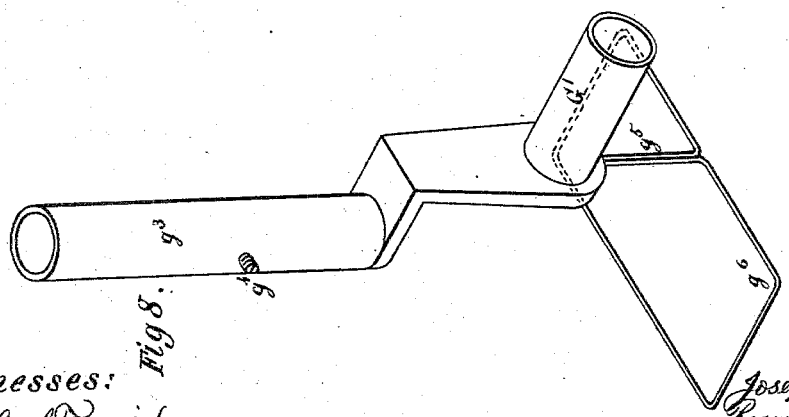

Fig 8.

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UNITED STATES PATENT OFFICE.

JOSEPH K. PRIEST AND ROSWELL T. SMITH, OF NASHUA, NEW HAMPSHIRE.

SHEEP-SHEARING MACHINE.

SPECIFICATION forming part of Letters Patent No. 301,519, dated July 8, 1884.

Application filed October 2, 1883. (Model.)

To all whom it may concern:

Be it known that we, JOSEPH K. PRIEST and ROSWELL T. SMITH, citizens of the United States, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Shearing-Machine, of which the following is a specification.

Our invention consists of certain constructions, combinations, and arrangement of parts, hereinafter fully described and specifically claimed, which constitute a machine of novel, simple, and durable construction, and of easy operation, adapted for shearing sheep and other animals.

In the accompanying drawings, Figure 1 is a top view of our invention as applied to a pendent drop-rod, which is shown sectioned horizontally, a portion of the cover of the crank mechanism being broken away. Fig. 2 is a vertical longitudinal central section of the comb-plate and shearing-levers, showing one cutter in the rear. Fig. 3 is a rear view of the comb-plate and adjuncts detached from the handle, the pitman being sectioned. Fig. 4 is a vertical longitudinal central section of a comb-plate and shearing-levers and cutter of a modified construction. Fig. 5 is a transverse section of one of the cutters, and the end portion of the operating presser-lever. Fig. 6 is a vertical central longitudinal section of the handle of the machine, showing the driving-pulley in a reversed position from that of Fig. 1, and exposing the pendent drop-rod by breaking away portions of the belt-guard and drop-rod socket. Fig. 7 is a perspective view of the upper portion of a belt-guard frame and cloth used around the driving-belt; and Fig. 8 is a perspective view of the drop-rod socket, crank-shaft sleeve, and lower belt-guard frame.

A represents a comb-plate of ordinary construction, having sharpened teeth *a* and an electric heating-case, A′, which latter is inserted sidewise into the comb-plate, and contains a thin platinum wire, *a′*, held in place by a non-conductor, a^2, at the front portion of the case A′, two ordinary conducting-wires, a^3 a^4, connecting the platinum wire *a′* with an ordinary galvanic battery, suitably applied upon the standard or to the swinging balanced support upon which the pendent drop-rod is hung. When an electric current is caused to pass over the said wires, the fine platinum wire *a′* becomes very hot, and thus warms the comb-plate sufficiently to melt any tallow which, during the operation of shearing, may come in contact with it, and would clog the plate if allowed to become set or solid. Two hollow triangular cutters, B, oscillate over and in close contact with the comb-plate. They are provided with slots *b*, inner oil-pads, *b′*, of porous oil-holding material, and angular end plates, b^2, which latter prevent the oil-holding pads from leaving the hollow cutters by way of their open backs. Thus the comb-plate and faces of the cutters B, which are in contact with the comb-plate, will be constantly supplied from the pads with oil, and always be kept well lubricated by oil held and supplied by the pads, while any possible waste of any lubricating material will be prevented by reason of the said oil-pads keeping it from flowing away and wasting before it is supplied to the comb-plate and cutters. The slots *b* are occupied by ribs *c*, formed on the extremities *c′* of a forked presser-lever, C, which is operated by means of a double bell-crank lever, D. This lever D is, by means of a pivot, *d*, held to an intermediate plate, E, to which the comb-plate A is fastened with the aid of screws *e*. A front arm, *d′*, of the lever D extends into a slot, c^2, in the front portion of the lever C, and is the means of connection between these parts. In the rear of the slot c^2 the lever C is divided into two curved arms, c^3, passing around the pivot *d*, and having flanges c^5 at their ends, which are drawn together by a transverse set-screw, c^6, by which means a vertical set-screw, c^7, passing through the joint of the flanges c^5, is securely clamped in place. The foot of said vertical set-screw c^7 rests in a socket-hole, d^2, in the lever D, and the middle portion of the lever C bears up against a short arm, d^5, of the lever D, which thus serves as a fulcrum between the front extremities, *c′*, and the set-screw c^7 of the lever C, whereby the pressure of the cutters upon the comb-plate is regulated. The arm d^3 is provided with an anti-friction roller, d^4, which travels on the plate E, and prevents friction and wear between the said arm and plate. A shield, *e′*, fastened to the plate E over the roller d^4, protects the same against clogging. The lever D

is also provided with a side arm, d^6, having a slotted head, d', through which latter a pitman, f, passes. The forward end of the said pitman is provided with screw-threads f', a pair of nuts, f^2, and a leather washer, f^3, at either side of the slotted head d', and by fastening these nuts closer to the slotted head d', or farther away from it, a greater or a less stroke is given to the cutters B. The pitman f is attached to a wrist-pin, f^4, on a crank-plate, f^5, which is fastened to the main shaft F of the machine. This main shaft F is hung in a bearing, g, which forms a portion of an inner sleeve, G, fitted into the hollow handle H of the machine, to the other end of which the intermediate plate, E, is suitably fastened. The handle H is provided with a collar, h, over which an arm or hooked plate, g', is so placed as to grasp the inner surface of the collar h, and thus hold the sleeve G to the handle, to which it is fastened by means of screws, but allow both the sleeve and the handle to turn independently of each other. The crank-plate f^5 may be protected against clogging substances by a sheet-metal cover, g^2, of suitable construction. A sleeve, G', extends a part of the way into the bearing g and over the shaft F, and upon its outer end an upright socket, g^3, is formed, into which the lower end of a pendent drop-rod, I, is inserted. About midway of its length the said socket is provided with a set-screw, g^4, which enters an annular groove, i, in the aforesaid pendent drop-rod, and thereby prevents the said rod from leaving the socket, while permitting it to turn therein. Directly below the socket g^3 a pulley, f^6, is fastened to the main shaft F, this pulley having a cylindrical surface and sprockets f^7. A flat belt, J, having holes j, coinciding with the sprockets f^7, serves to drive the pulley f^6. This belt J is driven by another pulley above, which forms, together with the drop-rod I, a portion of a device for transmitting motive power for which a patent was granted to R. T. Smith, October 23, 1866, and which, therefore, is not claimed or described herein. Below the socket g^3 an arm, g^5, extends downward a little distance below the pulley f^6, and there supports an oblong frame, g^6, in a central position with the drop-rod. At a suitable distance above the pulley f^6 another oblong frame, g^7, having an arm, g^8, and central socket, g^9, with set-screw g^{10}, is attached to the drop-rod I. This oblong frame g^7 is provided with a flexible cover or housing, g^{11}, which is closed at the bottom and open at the top and on one side, but at the latter (open side) the material or fabric is lapped over, as at g^{12}, and thus the vertical division is hidden, and the cover serves the same purpose as if it were made without a division. When the covering g^{11} is to be used, the frame g^7, to which it is fastened, is moved down on the drop-rod sufficiently to allow the lower frame, g^6, and pulley f^6 to be slipped through the side opening at g into the cover g^{11}. The frame g^7 is then moved up until the covering g^{11} becomes sufficiently tight between the frames g^6 g^7, and is then fastened to the drop-rod by means of the set-screw g^{10}. The position described is the normal position of cover g^{11}, which is only removed when repairs to the machine become necessary. When the machine is set in motion, the lever C is caused to oscillate with the lever D by means of the slot c^2, front arm, d', set-screw c^7, and socket-hole d^2, and the cutters B are caused to oscillate around the pivot d and over the teeth a of the comb-plate A by means of the slots b and ribs c. By turning the set-screw c^7 the pressure of the cutters B upon the comb-plate is very nicely adjusted, and by drawing on the set-screw c^6 the set-screw c^7 becomes rigid between the flanges c^5. The modified construction shown in Fig. 4 is especially adapted for the use of one cutter, and in this plan a presser-lever, C', is employed, which has a slot, c^{10}, and transverse pin c^{11}. The front end of an operating-lever, D, is fitted into the slot c^{10}, and by means of an inclined notch, d^{10}, bears on the pin c^{11}. The rear part of the lever C' is kerfed and provided with the set-screws c^6 c^7.

In Figs. 1 and 6 we have shown by full and dotted lines an oil-reservoir, M, having a flexible supply-tube, M', with cock m. This reservoir may be applied to the drop-rod I, or other suitable portion of the machine, and its purpose is to serve as a means whereby thin oil may be flowed over the cutting and other contiguous parts of the machine while shearing sheep which have a thick oily, gummy, or sticky substance like pitch in their wool. The oil thus supplied prevents such wool adhering to said parts.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the cutting portion of a shearing-machine, of an electric heating apparatus applied to said cutting portion, and connected with and adapted for being heated by a galvanic or electric battery, substantially as and for the purpose described.

2. In a shearing-machine, the combination of the pendent drop-rod I, pulley f^6, belt J, frame, and flexible cover g^{11}, substantially as and for the purpose described.

3. In a shearing-machine, the combination, with the cutter B and comb-plate A, of the lever D, having an operating-arm, d^6, arms d' d^3 d^5, and socket d^2, and the lever C, having arms c^3 and flanges c^5, provided with set-screws c^6 c^7, slot c^2, and ribs c, substantially as and for the purpose described.

4. In combination with a comb-plate, the angular hollow cutter B b^2 and absorbent oil-pads b', substantially as and for the purpose described.

5. In a shearing-machine, the combination of the slotted cutter B, comb-plate A, ribbed presser-lever C c, and the main lever D, substantially as and for the purpose described.

6. In a shearing-machine, the combination

of the cutter B, main lever D, having arm d^6 and slotted head d^7, and the operating-pitman f, having screw-threads f' and nuts f^2, substantially as and for the purpose described.

7. In a shearing-machine, the combination, with the pitman and crank-shaft, of the hollow revolving handle H, having attached to one of its ends the shearing mechanism, and to its other end the bearing g, substantially as and for the purpose described.

8. The combination of the main lever D, pitman f, crank-shaft F, handle H, having collar h, bearing g, having sleeve G, and hooked plate g', substantially as and for the purpose described.

9. The lever D, provided with separate arms d' and d^5, in combination with the lever C, having an oblong slot, c^2, arms c^3, and presser and confining screw c^7, substantially as and for the purpose described.

10. In a shearing-machine, the plates A E, in combination with the cutter B, presser-lever C, and operating-lever D, having anti-friction roller d^4, substantially as described.

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