No. 677,882. Patented July 9, 1901.

J. H. NEAVE.

MACHINE FOR TREATING HAT BODIES.

(Application filed June 11, 1900.)

(No Model.)

Fig. 1.

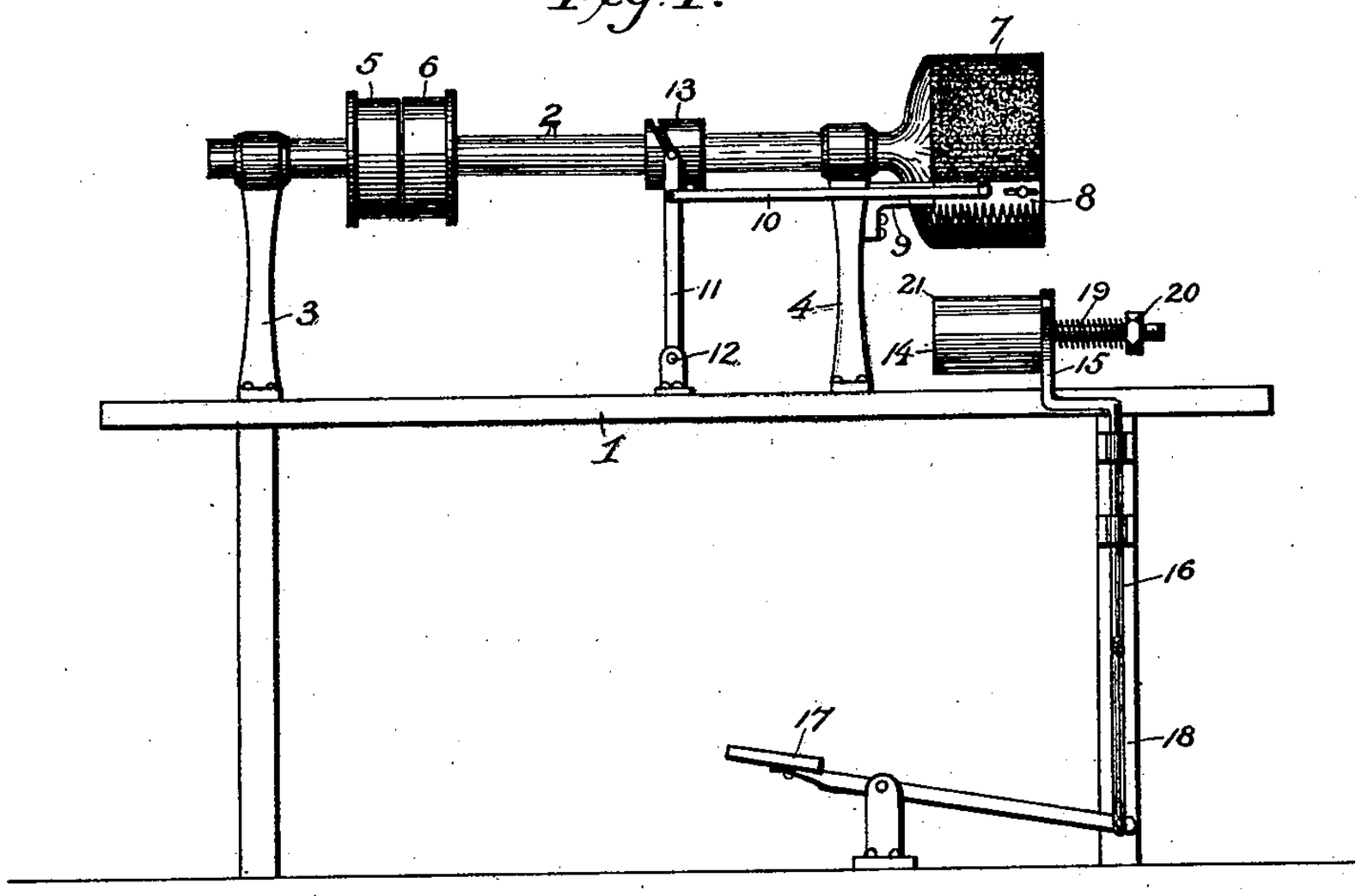
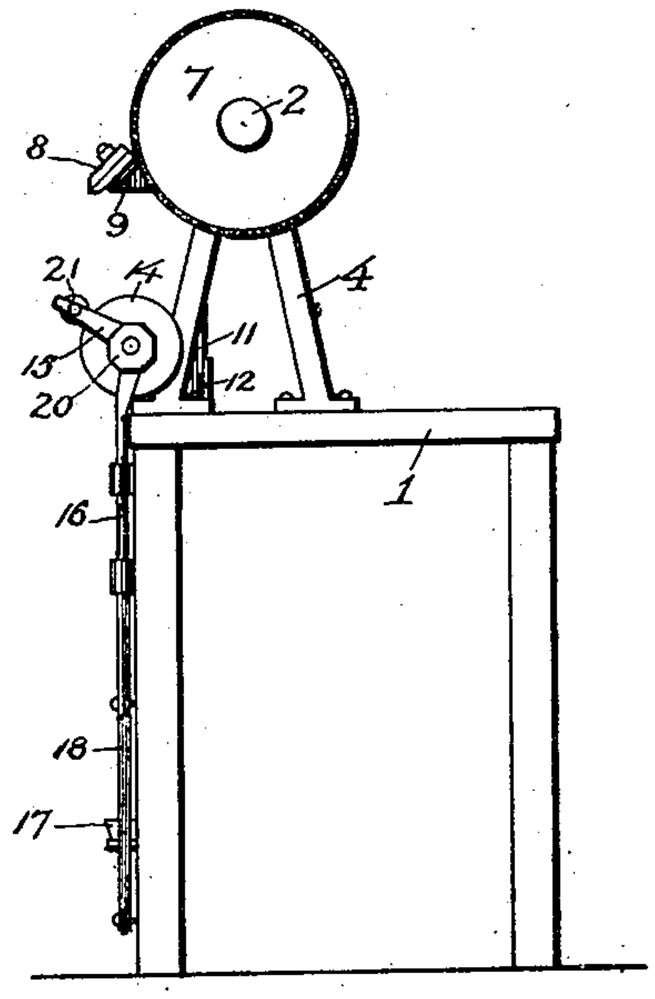


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN HENRY NEAVE, OF RAINOW, ENGLAND.

MACHINE FOR TREATING HAT-BODIES.

SPECIFICATION forming part of Letters Patent No. 677,882, dated July 9, 1901.

Application filed June 11, 1900. Serial No. 19,918. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY NEAVE, of the village of Rainow, county of Chester, England, have invented a new and useful Improvement in Machines for Treating Hat-Bodies, of which the following is a specification.

This invention has reference to a machine for treating hat-bodies to produce a uniform surface, and it is designed more particularly for shaving or cutting the nap drawn out on the surface of felt bodies in order to produce a uniform surface of cut fibers.

The invention consists in improved mechanism by which this operation is speedily accomplished in uniform manner and embodies a shaving-knife or cutter and means for sustaining the hat-body in moving contact with the same in such manner that the body may be guided and manipulated by hand to bring every portion of its surface uniformly under the action of the cutter.

The invention consists also in the details of construction and combination of parts hereinafter described and claimed.

Referring to the drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is an end elevation of the same, showing the parts in the position they occupy during the shaving operation.

In the accompanying drawings, 1 represents a table or frame adapted to give support to the operative parts of the mechanism, comprising a horizontal rotary shaft 2, mounted in standards or bearings 3 and 4, rising from the table. The shaft is provided with fast and loose pulleys 5 and 6 for controlling its rotation, and at one end it has fixed to it a cylindrical drum 7, having a covering of felt or analogous material, whose function is to impart to the hat-body a motion relative to a shaving-knife or cutter 8, sustained at the front of the drum on the end of an arm 9, extending laterally from the standard 4. The cutter may be of any suitable form adapted to accomplish the end in view; but I prefer to employ a reciprocating cutter of the type commonly known as "horse-clippers," embodying an under fixed knife and an overlying reciprocating knife which is operated from the shaft by the horizontal rod 10, pivoted at one end to the knife and at its opposite end to a vertical lever 11. The lower end of this lever is pivoted, as at 12, to the table and is provided at its upper end with a friction-roller engaging in a groove in a cam-wheel 13 on the rotary shaft. By the rotation of the shaft the horizontal rod is given a rapid reciprocation and will impart to the reciprocating knife of the cutter a corresponding motion.

The body to be acted on is held in contact with the cylindrical drum and with the cutter by means of a rest 14, preferably in the form of a horizontal rotary roller, provided with a spindle mounted in a bearing in an arm 15, which latter is fixed to a vertical slide 16, mounted in guides on the table and adapted to be moved vertically by a foot-lever 17, connected with the slide by a rod 18.

By this means the rest may be raised or lowered to carry the hat-body in position to be acted on or free of the cutting apparatus, as desired.

In the operation of the machine the hat-body is passed over the rest and the foot-lever depressed, which will carry the rest upward and will force the body in contact with the drum and knife. The rapid rotation of the drum will tend to move the body on the rest in active relation with the cutter, and by a proper manipulation and guiding of the body by hand it may be caused to be presented to the knife, so that every portion of its surface may be acted on by the same. In practice the drum is rotated very rapidly, usually from fifteen hundred to two thousand revolutions per minute; but the hat-body does not partake of this rapid motion by reason of the resistance offered by the knife and hand. Hence the motion of the body can be easily regulated to gain the proper cutting and shaving action of the knife.

As a means of further controlling the motion of the body while being acted on I propose to apply friction to the rest by means of a spring 19, encircling the spindle of the roller and bearing against the arm in which the spindle is mounted. An adjusting-nut 20 is applied to the end of the spindle and bears against the spring, so that by increasing or diminishing the tension of the spring more or

less friction may be applied to the roller, with the effect of retarding the motion of the hat-body thereon.

In certain cases where the form and material of the hat or the hat-body are such that there is a tendency to wrinkle or buckle, which would interfere with the proper action of the knife, I propose to employ in connection with the rest a smoothing device in the form of a roller 21, Fig. 2, which is sustained closely to the surface of the rest and in such position that when the rest is elevated to carry the hat-body in active relation to the knife the smoothing-roller will extend in proximity to the edge of the knife and will act on the hat-body passing between the roller and the rest to smooth out the material and cause the same to be presented to the knife in a smooth condition and pressed flatly against the surface of the rest.

It is obvious that various details of the machine may be modified without departing from the limits of my invention or changing the general operation of the machine. For instance, other means than those shown for reciprocating the knife may be employed, and the form of the cutter may be wholly changed, and a rotary cutter instead of a reciprocating cutter used. Further, other means than those shown for raising and lowering the rest may be employed and various other immaterial changes made, these details forming in themselves no part of my invention except as combined in the manner pointed out in the claims.

Having thus described my invention, what I claim is—

1. In a machine of the type described the combination with a rotary friction-drum and a relatively-fixed cutting apparatus adjacent thereto, of a support for the hat-body movable to and from the drum and cutting apparatus, and means for operating said support to present the hat-body simultaneously in active relation to the drum and cutter.

2. In a machine of the type described the combination of a rotary friction device, a cutter adjacent to the rotary device and fixed in relation to the same, and a support for the hat-body, said support and friction device being movable one to and from the other and so arranged that when brought together the hat-body will be subjected simultaneously to the action of the drum and cutter.

3. In a machine of the type described, the combination with the rotary drum, of a cutter sustained adjacent thereto in fixed relation to the drum, and a movable rest adapted to support the body under treatment and carry the same simultaneously in contact with the drum and cutter.

4. In a machine of the type described the combination with a rotary friction device and a relatively-fixed cutting apparatus adjacent thereto, of a support for the hat-body movable to and from the friction device and cutting apparatus, and a smoothing device movable with and carried by the support in position to act on the hat-body just before the body is acted on by the cutter, when the support is moved to carry the body in active relation to the cutter.

5. In a machine of the type described, the combination with the rotary drum, of a cutter sustained adjacent thereto, a rest comprising a roller adapted to give support to the body under treatment and present it to the cutter, and a smoothing-roller sustained adjacent to the rest in such position that the body acted on will pass between the smoothing-roller and rest just previous to being acted on by the cutter.

In testimony whereof I hereunto set my hand, this 26th day of May, 1900, in the presence of two attesting witnesses.

JOHN HENRY NEAVE.

Witnesses:
WM. T. FERRIS,
JOEL S. DE SELDING.