

# E. Waite. Felting Machine.

No. 43,164.

Patented June 14, 1864.

Fig. 1

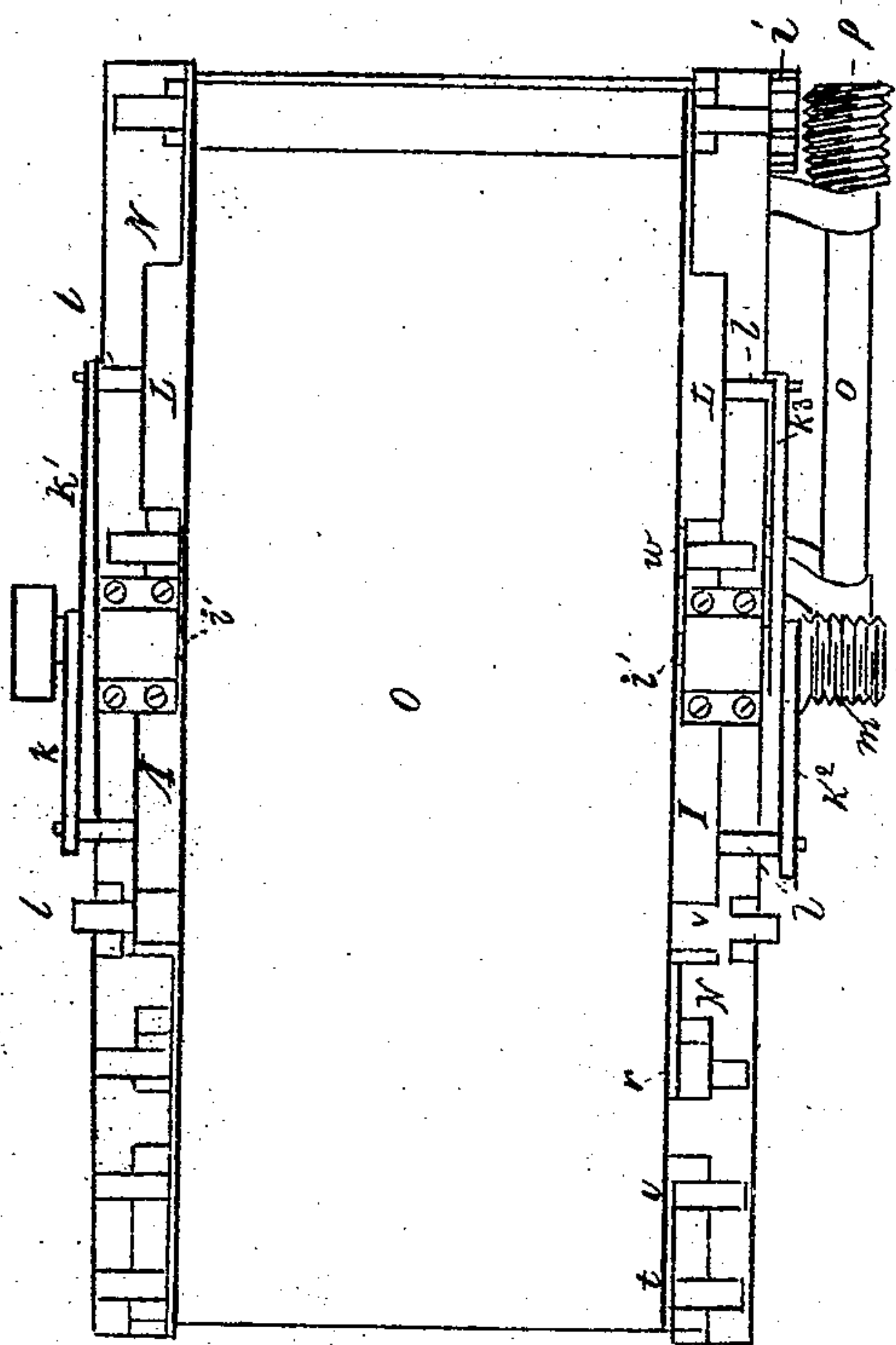
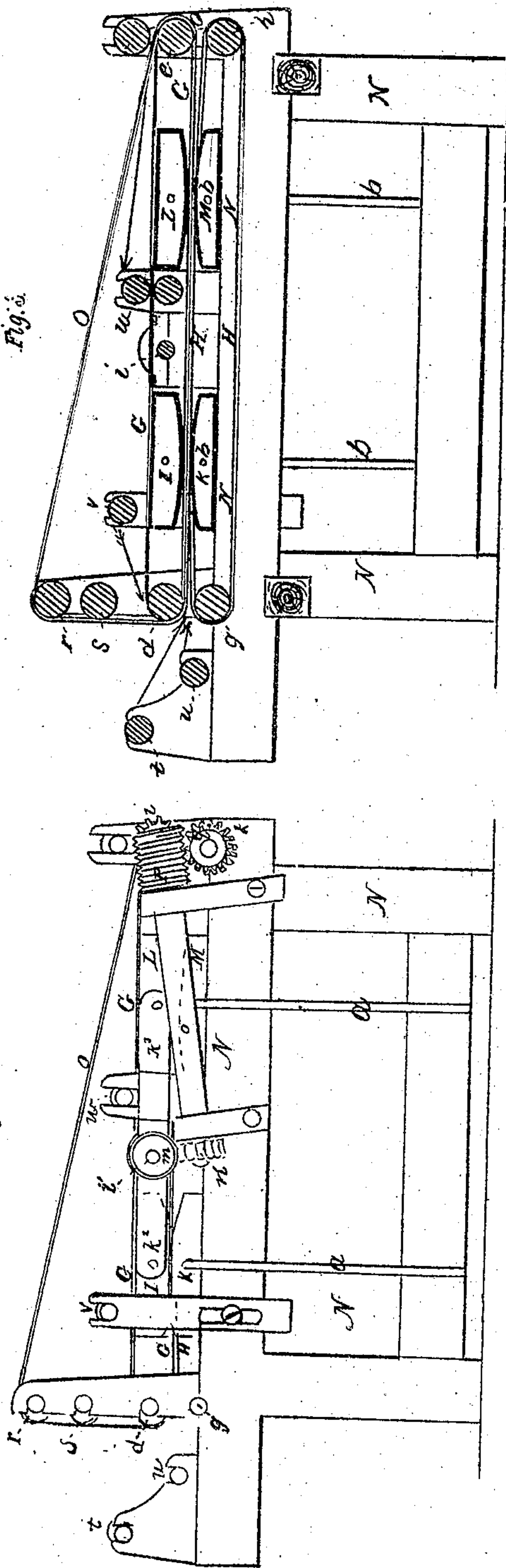


Fig. 2



Witnesses

Frederick Currier

for E. Waite

Emory M. Adams

for E. Waite



# UNITED STATES PATENT OFFICE.

ENOCH WAITE, OF SOUTH NATICK, ASSIGNOR TO EDWARD RICHMOND,  
OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN FELTING-MACHINES.

Specification forming part of Letters Patent No. 43,164, dated June 14, 1864.

*To all whom it may concern:*

Be it known that I, ENOCH WAITE, late of Lawrence, but now a resident of South Natick, in the county of Middlesex and State of Massachusetts, have made a new and useful invention having reference to the manufacture of felt or felted fabrics; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a top view, Fig. 2 a side elevation, and Fig. 3 a longitudinal section, of the machinery constituting my said invention.

My present invention may be used with parts of that for which Letters Patent of the United States of America, numbered 40,087, and dated September 22, of the year 1863, have been granted to the Berkeley Manufacturing Company, the invention covered by such patent having been made by me and assigned to such company. My present improved felting apparatus, however, is equally useful with any other kind of machinery for forming bats for being felted, it not necessarily being confined to a picker and a perforated drum or cylinder such as formed parts of the machine covered by such patent. Therefore in the accompanying drawings I have not deemed it necessary to exhibit any mechanism for forming the bat or bats used in the machine, but simply have represented the present invention as made by me, my improvement having machinery for felting, and particularly to such as described in the said patent; and it consists in the combination and arrangement of an auxiliary endless felting apron with two main felting-aprons and their platens, the whole being to operate together substantially as hereinafter described.

In the drawings, the felting apparatus, with which I have combined an auxiliary apron in order to enable two sheets or bats of felt to be made at once between the upper and lower felting-platens, is represented as composed of two endless aprons, G H, and certain stationary and movable platens, I K L M, arranged with respect to one another as shown in the drawings.

The two lowermost platens are stationary within the frame N, and serve to support the upper portion of the lower apron, H, which

passes directly over them, both platens extending transversely through the apron.

The upper two or movable platens pass through the upper, G, of the aprons G H, and when in use are to be vibrated—that is, each is to have a reciprocating horizontal motion imparted to it. Each of the lower platens is hollow, and is provided with a pipe, *a*, for the introduction either of steam or heated air into it, for the purpose of heating it. A pipe of discharge, *b*, also leads out of each of the lowermost platens.

The endless apron G is supported and worked by two rollers, *d e*, while the lower apron, H, is similarly supported and worked by two rollers, *g h*. The foremost two of these rollers—viz., *e* and *h*—are for driving or moving as well as for supporting the aprons, and they are connected by gears *i k*, affixed on their respective shafts. Each of these endless felting-aprons G H, as well as the auxiliary apron O, as hereinafter explained, is to travel at the same rate of speed.

The upper platen have machinery for vibrating them, such consisting of a shaft, *i'*, provided with eccentrics or bell-cranks to operate four connecting-rods, *k k' k<sup>2</sup> k<sup>3</sup>*, which extend from these eccentrics to projections *l l l l* from the platens. A screw or worm, *m*, on the shaft engages with a worm-gear, *n*, fixed on another shaft, *o*, which carries a worm, *p*, to work in a gear, *q*, fixed on the shaft of the roller *h*. By means of the endless screws or worms *m p*, the shaft *o*, and gears *n, q, i*, and *k*, the endless aprons may be put in movement.

With the two endless aprons G H and their platens I have combined a third or auxiliary endless apron, O, which extends between the two aprons G H and works around the rollers *d e* of the apron G, and one or more additional rollers, *r s*, the whole being arranged as shown in the drawings.

Rollers *t, u*, and *v* are employed for carrying the bats to be felted. There may be one or more of such rollers for each sheet of felt to be formed by the machine, the felt being made of either one, two, or more bats. The bats from the rollers *t u* are to be run together and led between the lower apron, H, and the lower part of the auxiliary apron O, the bat from the roller *v* being led around the roller



*d* and thence between the lower parts of the aprons *O* and *G*, thence around the roller *e*, and to and about a receiving-roller, *w*.

In passing between the felting-platens the bats will be felted so as to form at one and the same time two sheets of felt which will issue from the machine.

I would remark that instead of carrying the auxiliary apron around the rollers *d e* of the upper of the two main aprons *G H*, it may be carried about the rollers *g h* and the lower apron, *U*; or there may be an auxiliary apron to go around each of the main aprons. In this latter arrangement three sheets of felt

may be formed at once by the action of the platens.

I claim—

The combination and arrangement of an auxiliary endless apron, *O*, with the two main felting aprons *G H* and their felting platens, whether there be one or more sets of platens, the whole being arranged substantially in manner and so as to operate as described.

ENOCH WAITE.

Witnesses:

R. H. EDDY,

T. P. HALE, Jr.