A. D. ELLIOTT, G. E. FELLOWS & S. A. SIMMONS.

Heeling-Machine.

No. 166,756. Patented Aug. 17, 1875.

Fig. 1.

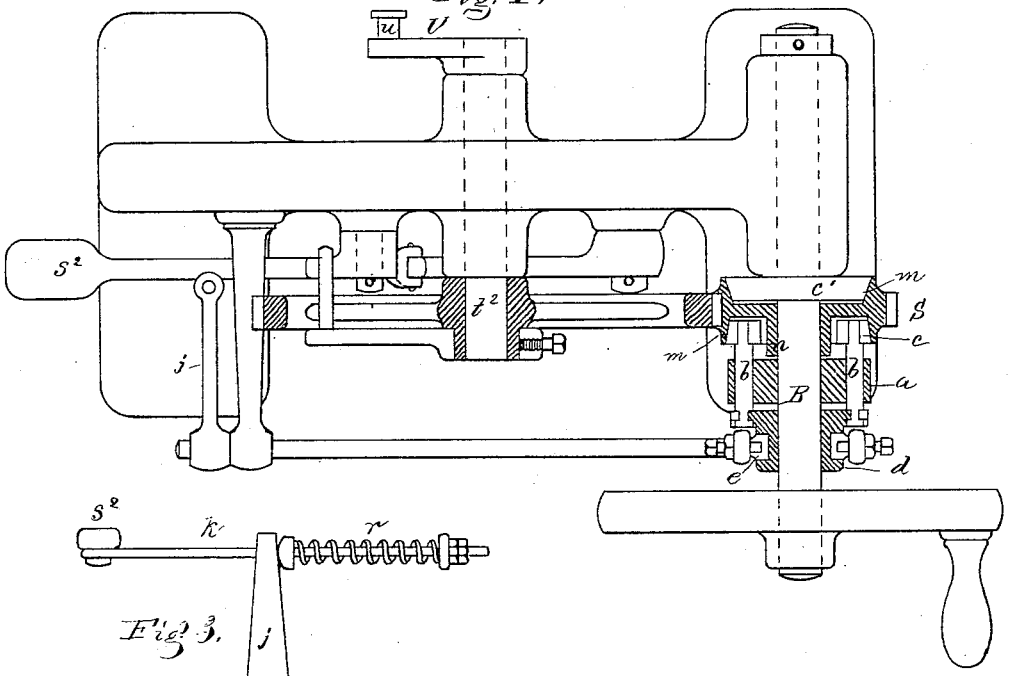
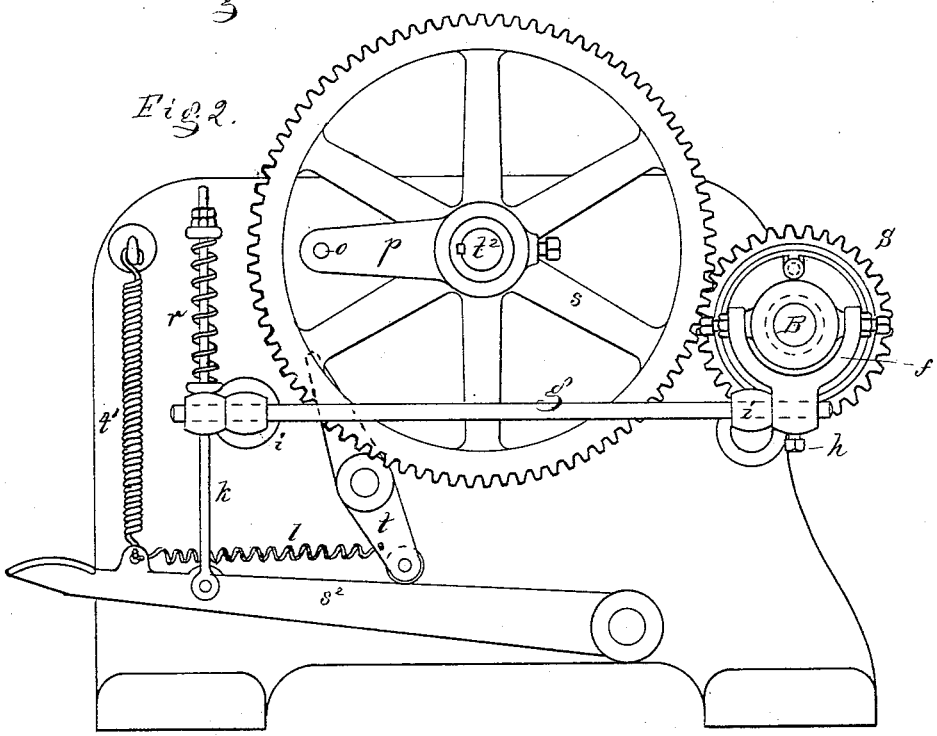


Fig. 3.

Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALVIN D. ELLIOTT, GEORGE E. FELLOWS, AND STEPHEN A. SIMMONS, OF LAWRENCE, ASSIGNORS TO JAMES W. BROOKS, TRUSTEE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HEELING-MACHINES.

Specification forming part of Letters Patent No. **166,756**, dated August 17, 1875; application filed June 24, 1875.

To all whom it may concern:

Be it known that we, ALVIN D. ELLIOTT, GEORGE E. FELLOWS, and STEPHEN A. SIMMONS, all of Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Heeling-Machines, of which the following is a specification:

This invention relates to the mechanism for operating positively the heel-trimming mechanism of a heeling-machine, and is an improvement on the mechanism shown in patent No. 139,058, and is specially applicable to the machine described in an application filed concurrently with this, and the invention of Gordon McKay, Charles W. Glidden, and Hadley P. Fairfield, in both of which machines the trimming-knife carrier is driven by friction-wheels. It is quite important that the radius-bar V (shown in Fig. 2 of the application above cited) stops as it reaches its extreme forward position, and that when it moves it shall move quickly to its extreme opposite position and back again. This movement needs to be made quickly, and yet steadily and positively, and at a single revolution of the crank-shaft, but the friction-gears, owing to the unequal strain on the heel-trimming knife, are liable to slip, rendering the operation uncertain; and, further, the central gear, being forced between the outside gears, is liable to force them apart.

This invention consists, principally, in the combination, with the driving-shaft of a toothed wheel, and clutch adapted to operate a toothed wheel on the shaft, provided with a crank corresponding with the crank U in the McKay, Glidden, and Fairfield application, and for the purpose of actuating the radius-bar for moving the heel-trimming mechanism.

The drawing shows sufficient of a heeling-machine to illustrate our invention, and for a complete view of the machine to which our improvements are to be applied reference is made to the application above cited, and on this drawing we use the same letters as are employed to designate similar parts in that application.

Figure 1 represents a top view, partially in section, of our improvements; Fig. 2, a side view thereof, and Fig. 3 a detail.

The driving-shaft B has power applied to it in any well-known way, and it has secured to it a block, *a*, to sustain and guide the pins *b b*, connecting a cone-like half-clutch, *c*, with a collar, *d*, free to move on the shaft B. This collar turns in a bearing-strip, *e*, pivoted on a fork, *f*, adjustably connected with a rod, *g*, by means of a set-screw, *h*. This rod *g* rests in bearings *i*, and is joined through an arm, *j*, with a rod, *k*, connected with the treadle s^2, drawn by a spring, t^1, except at such times as the treadle is held locked in its depressed position by the lever *t*, actuated by spring *l*. The shaft B has also attached positively to it a conical half-clutch, *c'*. Between these parts *c c'* is placed a loose pinion or toothed wheel, S, with cone-seats *m m* and hub *n*. The teeth of the pinion engage teeth on a second toothed wheel, *s*, on a shaft, t^2, provided with a crank, U, and crank-pin *u*, to move a slotted radius-bar that actuates the heel-trimming mechanism.

When the parts are in the position shown in the drawings it is supposed that a leather-faced brake (not shown) is being borne against the wheel *s*, the brake being carried by the treadle s^2, which is also a brake-lever, (see the application referred to,) and the toothed wheel S is then released from the shaft B, and the shaft turns without moving S. Now, if it is desired to throw the heel-trimming mechanism into action, the foot-treadle s^2 is depressed, the arm *j* and shafts *g* are turned, and the half-clutch *c* is, through connections *d e a b*, thrown into the cone-seat of toothed wheel S, which action causes the conical half-clutches to tightly grasp the cone-seats of the toothed wheel and move it, so that its teeth engage and move the toothed wheel *s*, which operates the crank U. When the treadle s^2 is depressed the lever *t* is drawn back until its end locks the lever and holds the treadle and its brake away from the toothed wheel *s;* but when the radius-bar of the cutter-actuating mechanism reaches its forward position the pin *o* on the adjustable arm *p* strikes the lever *t*, and releases the treadle s^2, and allows the brake to come into action and stop the movement of the trimming mechanism instantly. The de-

gree of the friction between the wheel S and the conical clutches is regulated by the spring *r* on shaft *k*.

We claim—

1. The combination of the shaft adapted to move the heel-trimming mechanism of a heeling-machine with a toothed wheel on such shaft, and with a toothed wheel and clutch on a second shaft, to operate substantially as set forth.

2. The rod *g*, fork *f*, collar *d*, and pins *b*, in combination with the clutch *c* and toothed wheel S, substantially as described.

3. The combination, with the clutch *c c'* and toothed wheel S, of the spring *r* and connecting mechanism for regulating the friction between the clutch and wheel, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALVIN D. ELLIOTT.
GEORGE E. FELLOWS.
STEPHEN A. SIMMONS.

Witnesses:

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S. B. KIDDER.