P. D. BURGHER.

Shingle-Planing Machine.

No. 159,790. Patented Feb. 16, 1875.

FIG. II.

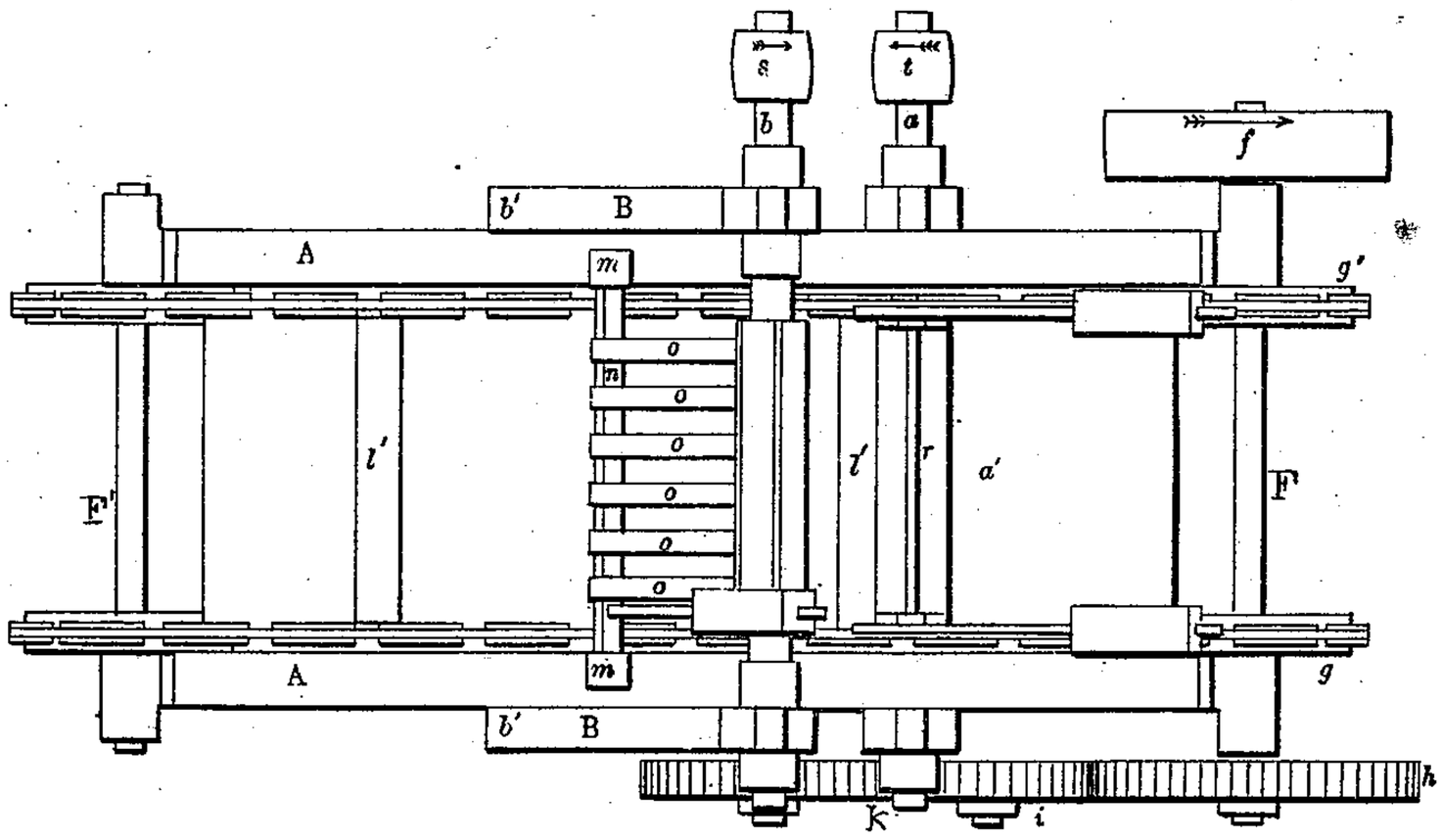
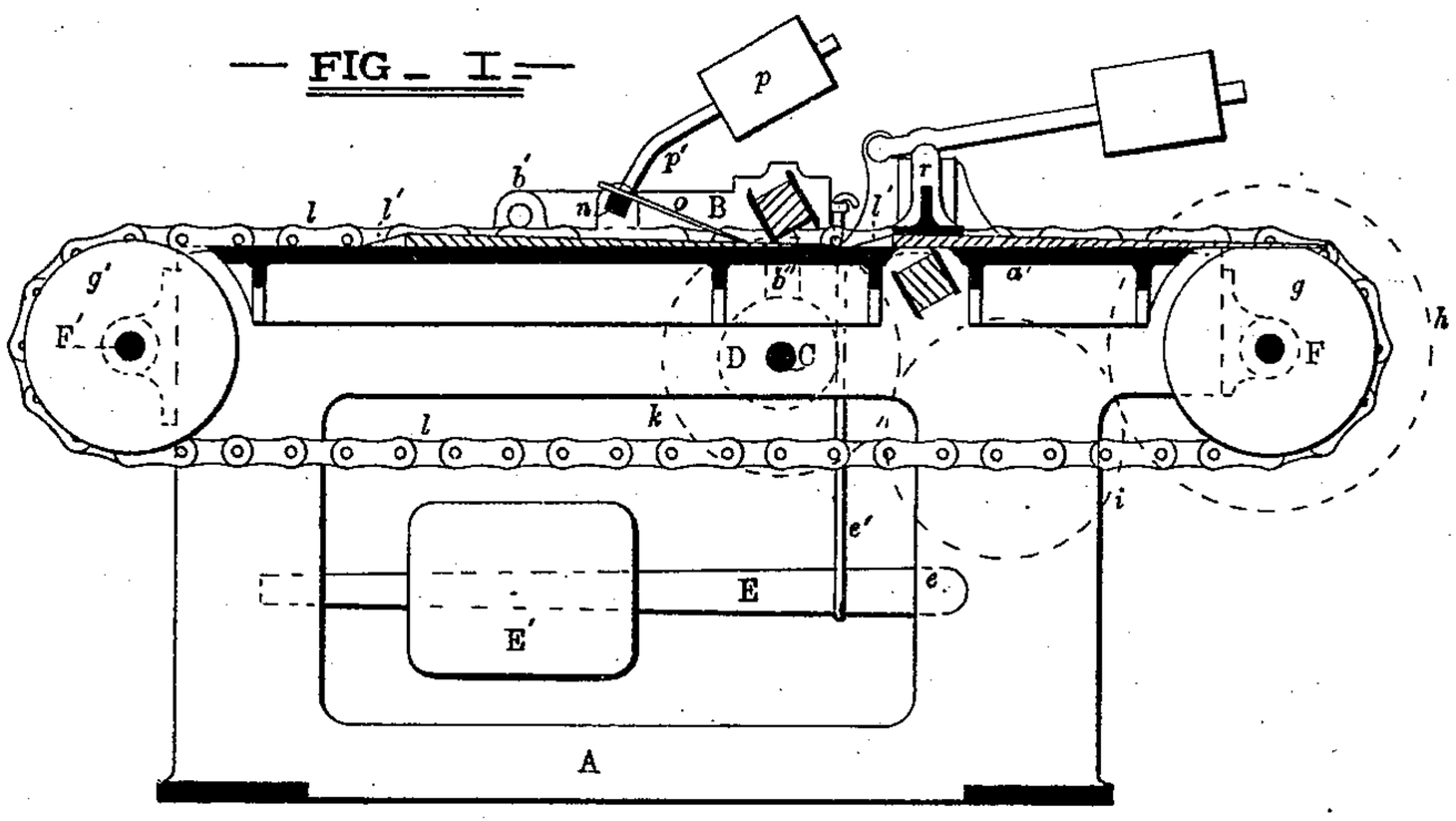


FIG. I.



WITNESSES

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UNITED STATES PATENT OFFICE.

PETER D. BURGHER, OF DEEP CREEK, VIRGINIA.

IMPROVEMENT IN SHINGLE-PLANING MACHINES.

Specification forming part of Letters Patent No. **159,790**, dated February 16, 1875; application filed August 29, 1874.

To all whom it may concern:

Be it known that I, PETER D. BURGHER, of Deep Creek, Norfolk county, Virginia, have invented certain Improvements in Shingle-Planing Machines, of which the following is a specification, reference being had to the accompanying drawing forming a part hereof.

My invention relates to a machine in which upper and lower revolving planer knives or blades operate simultaneously upon the respective sides of the shingle, which is fed to the said knives by the continuous forward movement of the means for conveying the shingles to the said knives.

My invention consists, first, in means for adapting the upper planer-knives to plane the shingle, whatever may be its thickness or the irregularity of its surface, to the required taper. Secondly, my invention consists in a novel construction of devices for feeding the shingles separately to the planing-knives, which construction is designed to take the place of that of the revolving bed, or the feeding-rollers, ordinarily used, which are found to be attended with inconvenience. Thirdly, my invention consists in means for holding the shingles firmly upon the stationary bed of the machine during the planing of the two sides of the shingle.

In the description of my invention which follows, due reference must be had to the accompanying drawing, in which—

Figure 1 is a longitudinal section through the machine. Fig. 2 is a plan of the same.

Similar letters of reference indicate similar parts of the invention in both views.

A is the frame of the machine. The shaft of the lower planer-stock is indicated by *a*, the shaft being in fixed bearings, arranged to such a height as to bring the cutting-edges of the knives fitted to the stocks slightly above the surface of the bed *a'*, upon which the shingle rests, which bed is cut out for a distance sufficient to admit of the play of the knives upon the under surface of the shingle. The shaft *b* of the stock of the upper planing-knives is placed in bearings at the end of levers B, which have their fulcrums, at *b'*, in bearings forming parts of the frame of the machine. C is a shaft, also extending across and beyond the frame A, having at each end a cam, D, each of which cams is shaped so that a revolution of the said cams operates to produce upon the levers B, carrying the upper planing-knives, an effect hereinafter described. E E represent levers, having fulcrums, at *e*, in the respective sides of the machine, said levers having the weights E', and being connected, by rods *e'*, to the ends of the levers B. A shaft, F, placed in bearings at the forward end of the machine, which is the driving-shaft of the feeding mechanism, is provided with the pulley *f*, chain-wheels *g g'*, and spur-wheel *h*, which spur-wheel engages another spur-wheel, *i*, upon a counter-shaft, which wheel *i* engages another spur-wheel, *k*, upon the cam-shaft C aforementioned. At the rear end of the machine, upon a shaft, F', are two chain-wheels, *g'*, the same in diameter and construction as those, *g*, at the front end upon the shaft F, the center of the respective series of the said chain-wheels being in a common plane. The forward and rear chain-wheels, at both sides of the machine, are provided with endless chains *l*, across which are placed a series of carrying-bars, *l'*, spaced at distances apart, adapted to the separate carrying of the shingles thereby. Thus it will be seen that the belt driving the pulley *f*, which puts in motion the feeding mechanism, also serves to communicate motion to the cams, which cause the upper planing-knives to cut to the taper of the shingle. At the top of the frame of the machine, at each side thereof, are bearings *m*, a short distance in the rear of the upper planing-knives, within which bearings loosely rests a bar, *n*, provided with springs *o*, passing through the same, which springs are designed to rest upon the upper surface of the shingle as it is carried toward the knives. A pressure is given to the action of the springs by a weight, *p*, standing at the end of a rod, *p'*, extending from the bar *n*, and overhanging the upper planer-knives. Immediately over the lower planer-knives is a vertically-adjustable weight, *r*, resting in bearings placed at the forward side of the upper planing-knives, in positions corresponding with that of the bearings *m*.

The operation of the machine is as follows: The respective planing-knives are given a rapid rotary movement in the directions in-

dicated by the arrows by means of belts upon pulleys *s* and *t*, placed respectively on the shafts of the upper and lower planer-stocks. Motion is also given to the shaft F in the direction of the arrow by means of a belt passing around the pulley *f* from the shaft of the lower planer-shaft, or elsewhere, a forward movement being thus given to the endless chains *l* and the carrying-bars *l'*, forming the feed. A shingle sawed or worked roughly to the required taper, or of an even or irregular thickness, as the case may be, is placed upon the table of the machine, and carried forward by the first carrying-bar, *l'*, brought into contact with the back end of the shingle, under the weighted springs *o*, to the revolving upper planing-knives, and thence to the lower planing-knives under the adjustable weight *r*, the lower edge first receiving the shingle being beveled off slightly to admit of its entrance. Thus the shingle is carried between the upper and lower planing-knives. The cams D are constantly in contact with parts *b''* of the levers B, and have a shape and throw which, by the action of the cams upon the said levers B, cause the upper planing-knives to assume the position necessary to plane the upper surface of the shingle to the taper required. The shingle is thus planed on both sides.

The effect of the weighted springs *o* and weight *r* is to press the shingle down while it is being planed, and to insure smooth and clean surfaces.

The peculiar feed herein described has many merits, among which are those of strength, lightness, regularity of movement, and non-liability to disarrangement.

Having described my invention, I claim as new and wish to secure by Letters Patent of the United States—

1. The levers B *b'*, carrying the upper planing-knives, shaft, and stock, in combination with the levers E *e*, weights E', and rods *e'*, substantially as specified.

2. The endless chains *l*, carrying-bars *l'*, chain-wheels *g g'* upon their shafts, pressing devices *m n o p p'*, and upper planing-knives upon their stock and shaft, and in bearings, as specified, all combined substantially as herein set forth.

3. The endless chains *l*, carrying-bars *l'*, chain-wheels *g g'* upon their shafts, vertically-adjustable weighted presser *r*, and lower planing-knives upon their stock and shaft, and in stationary bearings, all combined substantially as herein set forth.

In testimony whereof I have hereto subscribed my name this 17th day of August, in the year of our Lord 1874.

PETER D. BURGHER.

Witnesses:
LENSDALE J. ROPER,
JAMES D. HARWOOD.