

C. G. CONOVER,
Cutting Shingles,

No 24,445,

Patented June 21, 1859.

Fig 2.

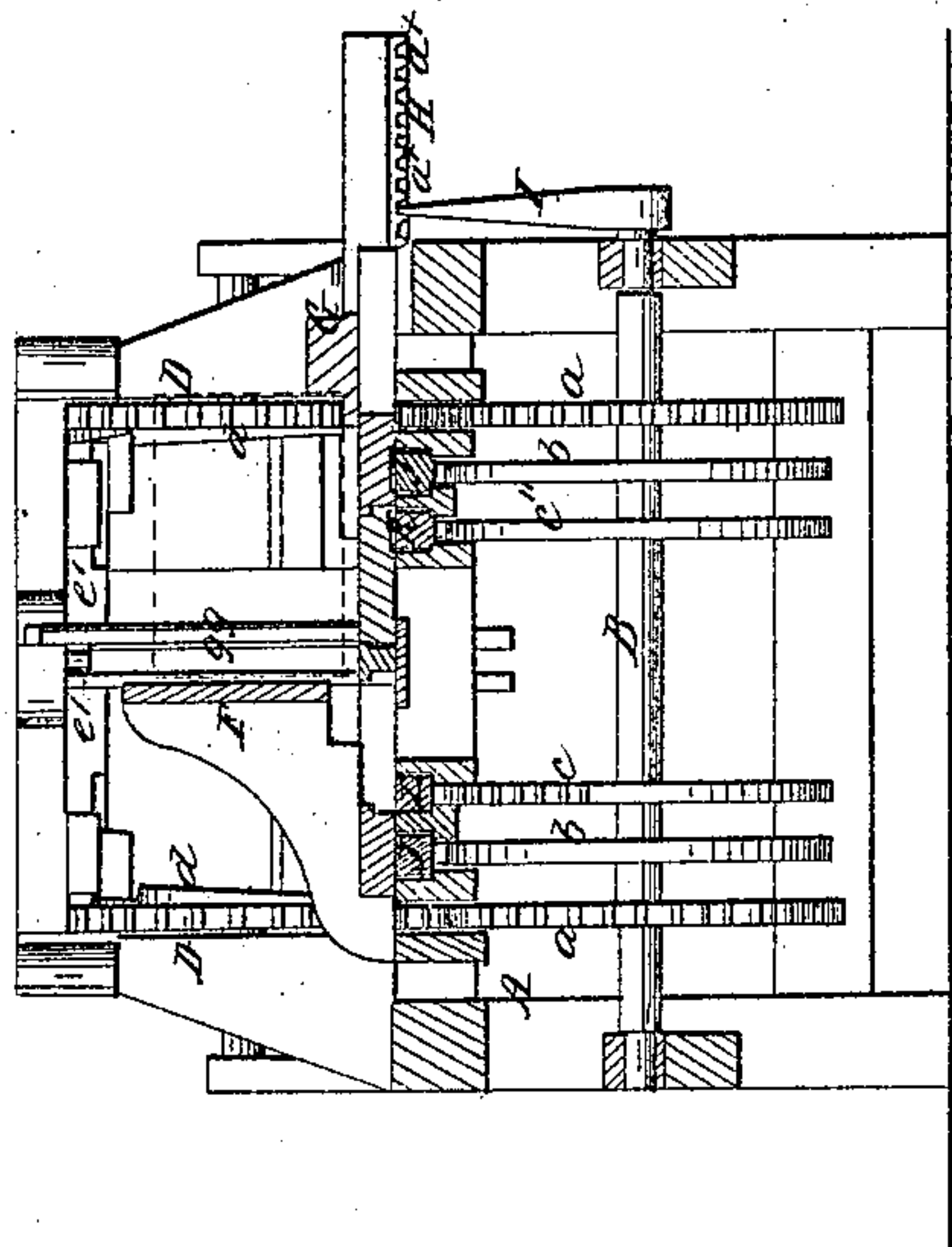
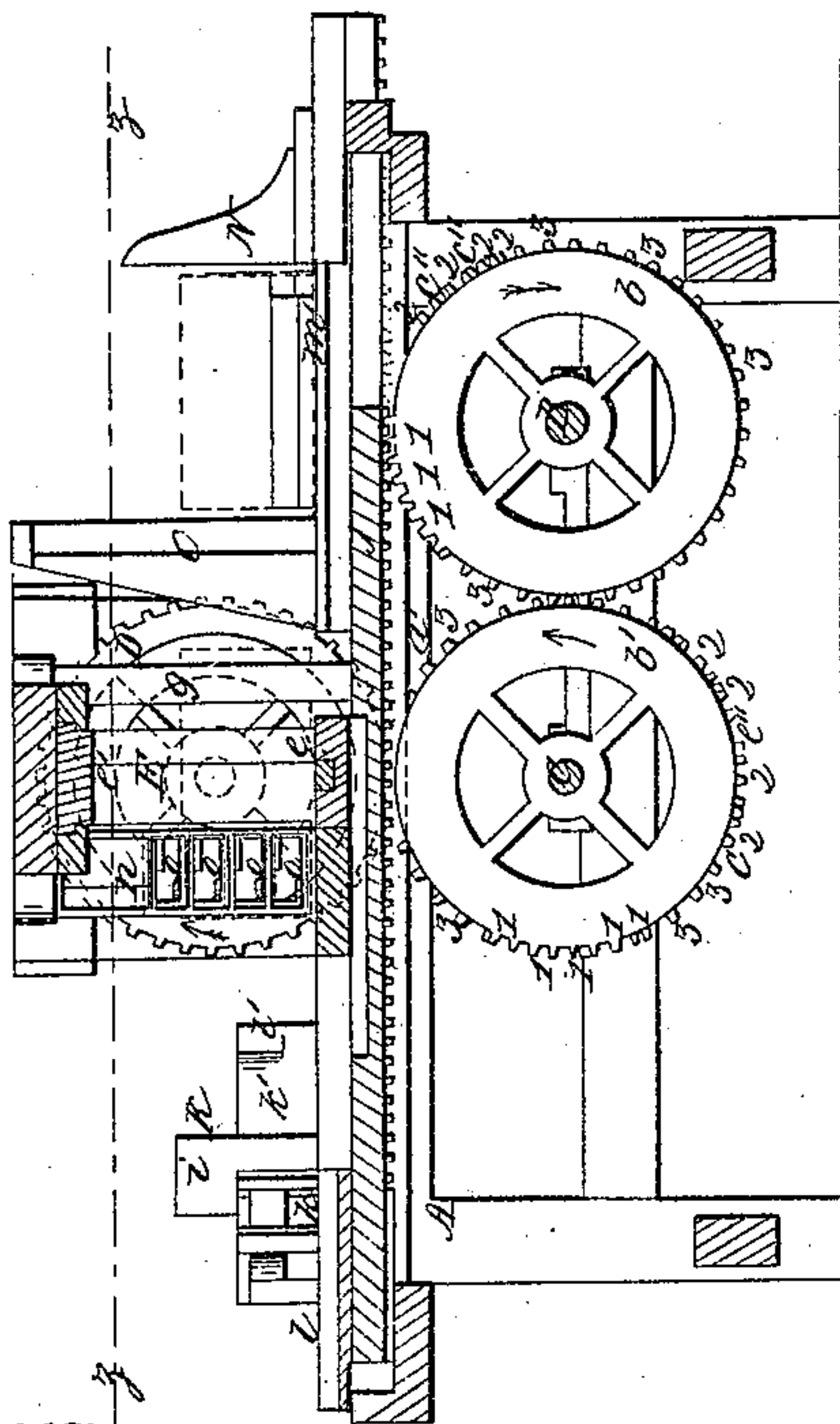


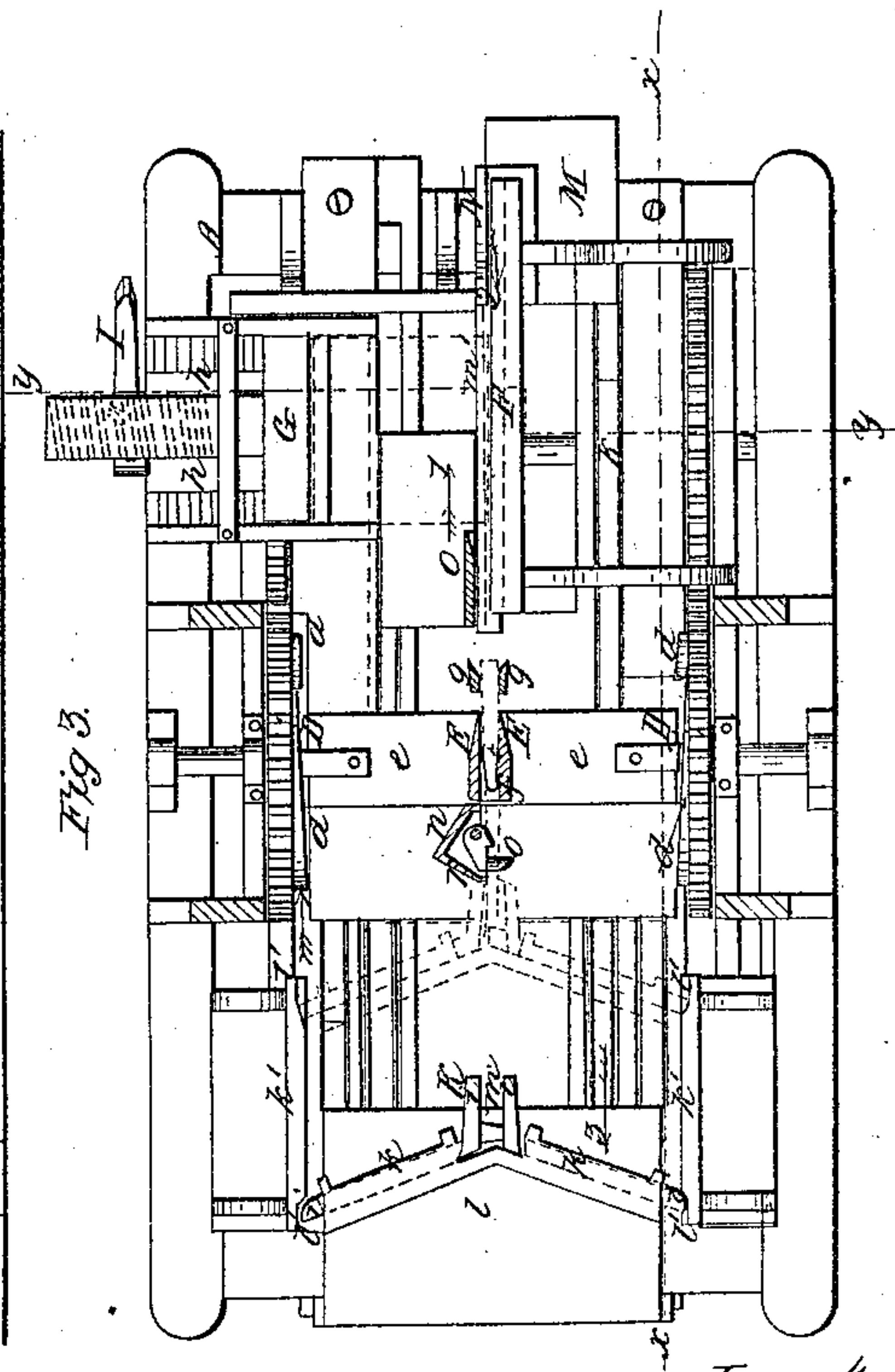
Fig 1.



Witnesses:

*J. W. Ains
D. J. Long*

Fig 3.



Inventor:

C. G. Conover

UNITED STATES PATENT OFFICE.

C. G. CONOVER, OF JEFFERSON, WISCONSIN.

SHINGLE-MACHINE.

Specification of Letters Patent No. 24,445, dated June 21, 1859.

To all whom it may concern:

Be it known that I, C. G. CONOVER, of Jefferson, in the county of Jefferson and State of Wisconsin, have invented a new and Improved Shingle-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my invention taken in the line *x, x*, Fig. 3. Fig. 2, is a transverse vertical section of ditto, taken in the line *y, y*, Fig. 3. Fig. 3, is a horizontal section of ditto, taken in the line *z, z*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain improvements in that class of shingle machines in which the shingles are rived or cut from the bolt by means of a reciprocating knife, and has for its object the riving of the shingles from the bolt, the tapering of them in proper form and also the jointing of them by a novel automatic mechanism which will be hereinafter fully shown and described.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a rectangular frame which may be constructed in any proper ways to support the working parts of the machine.

B, is a driving or power shaft, placed in the front part of the frame A, and having six wheels *a, a, b, b, c, c'*, placed on it as shown clearly in Fig. 2. The wheels *a, a*, are toothed entirely around their peripheries, but the wheels *b, b, c, c'*, have their peripheries but partially toothed. In the frame A, a shaft C, is also placed, said shaft being parallel with the shaft B, and having the same number of wheels on it as shaft B, said wheels being toothed in precisely the same way as those on the shaft B, but placed in a different position on their shaft as shown in Fig. 1 of the drawings, in which Fig. 1, represents the teeth of the wheels *b, b'*, on shafts B, and C, said teeth being in outline, and Fig. 2, represents the teeth of the wheels *c'', c'''*, and its fellow *c'''*, on shafts B and C, said teeth being partially shaded. The wheels *a', a'*, on the shaft C, the teeth of which are designated by the figure 3, and are tinted black, gear into wheels

D, D, which are placed in the upper part of the frame A, and have each two cams *d, d*, on their inner sides, the form of which cams is plainly shown in Fig. 3. The cams *d, d*, act against horizontal slides *e, e, e', e'*, placed in the upper part of frame A, and between the wheels D, D, the slides *e, e*, being at the lower parts of the wheels D, and the slides *e'*, at the upper parts, see Figs. 1 and 2. To the inner ends of the slides *e, e'*, vertical knives E, E, are secured, and between the upper and lower parts of said knives, springs *f*, are placed, said springs having a tendency to keep the knives E, E, distended, see Fig. 3.

In the frame A, and directly in front of the knives E, E, two vertical plates *g, g*, are placed. These plates have a certain degree of elasticity and may be formed of metal—steel being preferable. On the frame A, a vertical bearing plate or “fence” F, is placed and permanently secured.

G, is a carriage which is placed on the frame A, between guides *h, h*, said guides being secured transversely on the frame and at the right side of the “fence” F. The under side of the carriage has a rack H, attached to it, which rack is provided with oblique teeth *a''*, the position being shown by dotted lines in Fig. 3. To one end of the driving or power shaft B, an arm I, is attached, which arm gears or engages with the rack H, at every revolution of shaft B. On the upper part of the frame A, two sliding racks J, J, are placed, to the back ends of which a clamp K, is attached. This clamp is formed of two jaws *i, i*, which are attached to the horizontal bars *j, j*, which are fitted in proper guides *k, k*, attached to a plate *l*, said plate being attached to the racks J, J. Between the two jaws *i, i*, a spring *m*, is placed, said spring having a tendency to keep the jaws *i, i*, distended and the outer ends of the bars *j, j*, against plates *k', k'*, the inner surfaces or sides of which are recessed at each end as shown at *l'*. On the upper part of the frame A, there are also placed two sliding racks K, L, to one of which K, a plate or carriage M, is attached, said plate or carriage working on a suitable way or guide *m'*, and having an upright N, attached to it, said upright being in line with the plates *g, g*, and knives E, E, as shown clearly in Fig. 3. To the rack L, a vertical knife O, is attached. Into the racks J, J, the wheels *b, b, b', b'*, gear alternately,

and the wheels c, c'' , and their fellows c', c''' , on shaft C, gear alternately into their respective racks K, L.

Directly back of the knives E, E, there are placed in a suitable support n , a series of cutters o . These cutters when not otherwise acted upon are kept out from the support n , and within the plane of the movement of the shingle by springs p , as shown clearly in Fig. 3.

The operation of the machine is as follows:—The bolt, shown in red, and designated by P, is placed on the carriage G, and motion is given the shaft B, by any proper means. A reciprocating movement is given the knife O, by means of the wheel c , on shaft B, and its fellow on shaft C, the two shafts B, C, rotating simultaneously in consequence of the wheels a, a' , gearing into each other. A reciprocating movement is also given the carriage M, and upright N, by means of the wheels c'' , on shaft B, and its fellow on shaft C, gearing alternately into the rack K, it being understood that the shafts B, C, rotate in reverse directions and that the teeth on the wheels c, c', c'', c''' , and b, b, b', b' , are placed respectively in different positions in order to give the reciprocating movement to the racks. The bolt is fed to the splitting knife O, in consequence of the arm I, acting against the teeth a^x , of the rack H, and the bolt is fed to the fence F, at each movement of the carriage G. The knife O, cuts a shingle from the bolt as it is moved in the direction indicated by arrow 1. When the shingle is rived from the bolt, the plate N, is moved in the direction of arrow 2, and shoves the shingle between the plates g, g , and knives E, E, the latter being gradually moved toward each other by the action of the cams d , on the wheels, and the shingle will be cut in taper form thereby. As the shingle passes out between the back parts of the knives E, E, the cutters o , joint or square its top and bottom surfaces, a plurality of cutters o , being placed one above the other

in order suit shingles of different widths. The jaws i, i , of the clamp K, receive the end of the shingle, as it passes the joints o , and the clamp as it moves back in the direction of arrow 3, carries the shingle with it, the projecting surfaces of the plates k' , closing the jaws i, i , and the recesses l' , allowing the jaws to open at the termination of each movement of the clamp, so that the jaws may receive the shingle and also permit it to escape. The spring m , throws the jaws i, i , open and the springs f , throw open the knives E, E.

From the above description it will be seen that the shingles are rived from the block, cut in taper form and jointed at one operation, and by a very simple arrangement of means.

The fence F, not only serves the office of a stop but also serves to prevent the bolt from splitting out of line with the cut of the knife O, a contingency which frequently occurs provided the grain of the bolt is not very straight.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,

1. The employment or use of the fence F, in combination with a reciprocating splitting knife O, and reciprocating or shoving plate N, arranged to operate substantially as and for the purpose set forth.

2. The reciprocating splitting knife O, shoving plate N, tapering knives E, E, jointers o , and clamp K, combined and arranged to operate substantially as and for the purpose specified.

3. Operating the bolt carriage G, by means of the revolving arm I, on the shaft B, and the obliquely toothed rack a^x , at the under side of the carriage G, substantially as described.

C. G. CONOVER.

Witnesses:

I. W. BIRD,
D. F. JOUEY.