J. H. MURRILL.

Sugar Cutter.

No. 41,855. Patented March 8, 1864.

Fig. 2

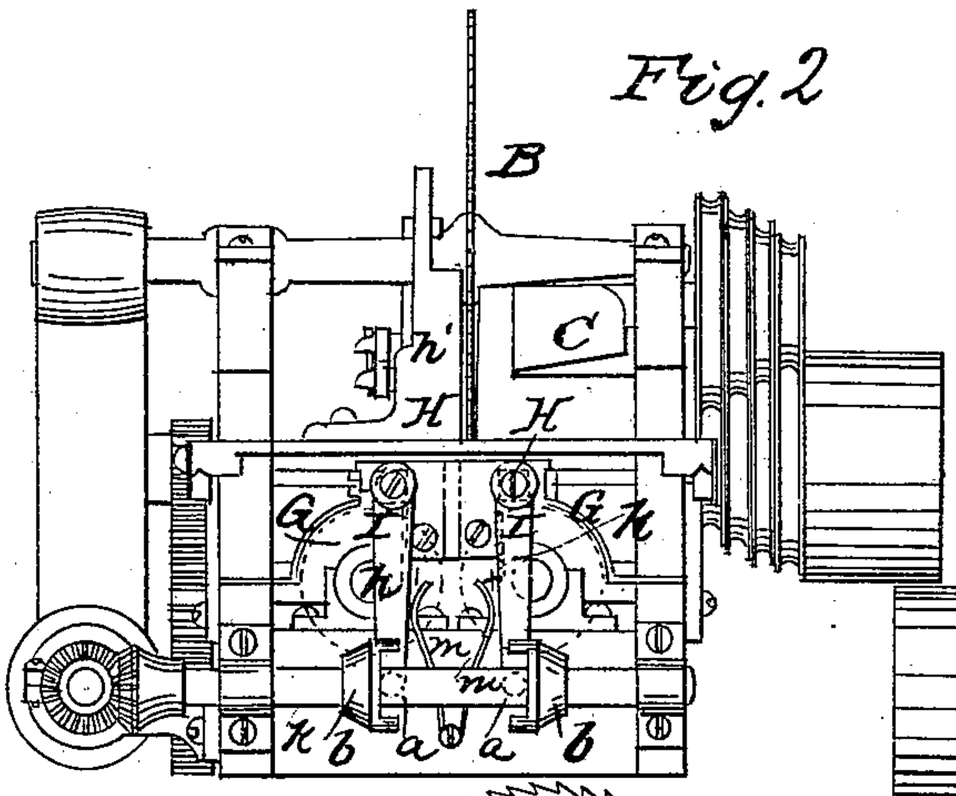


Fig. 4

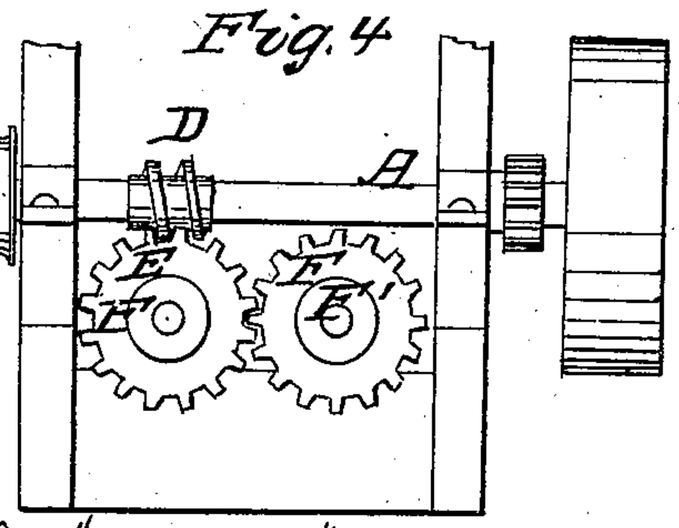


Fig. 1

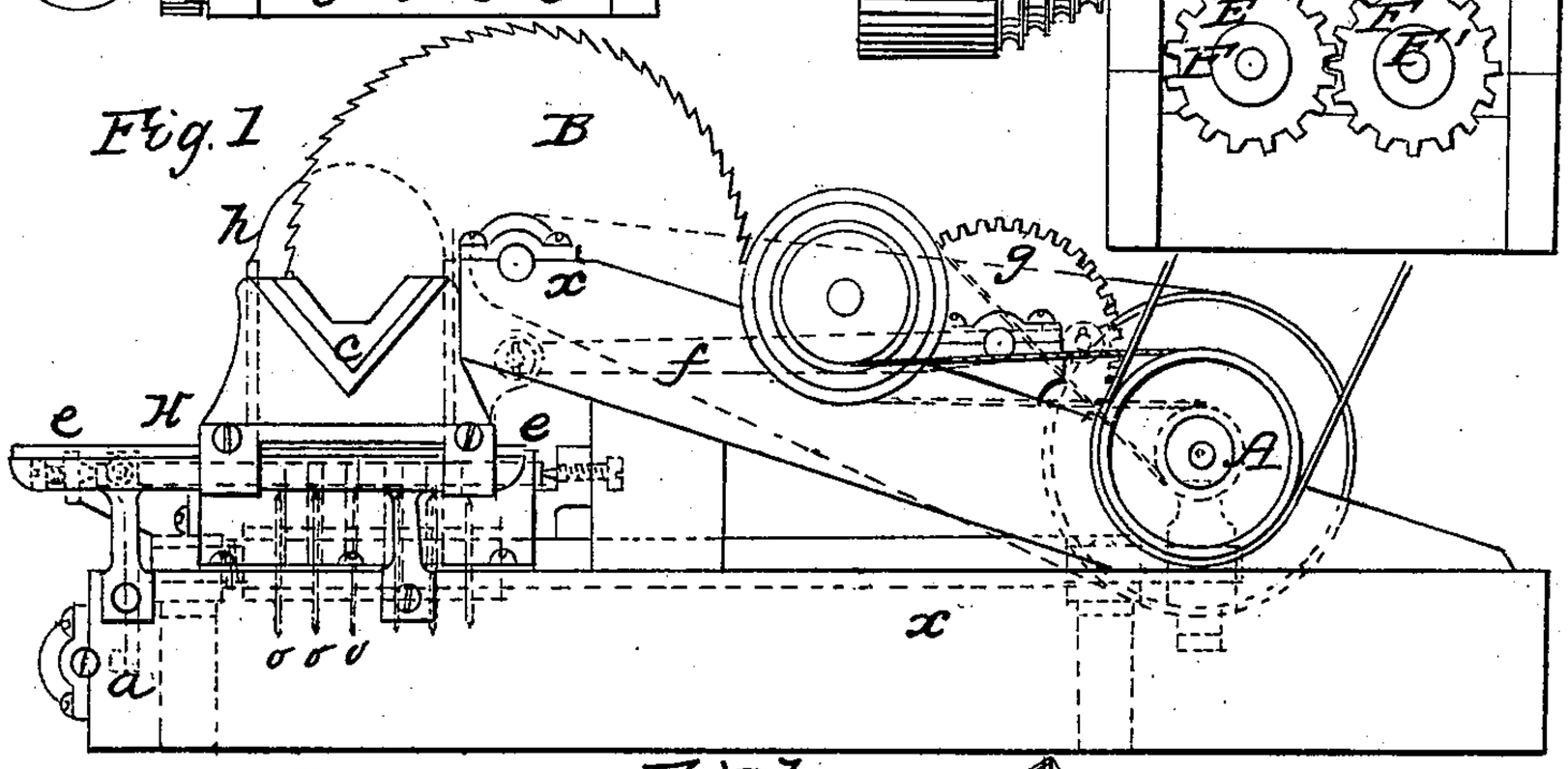
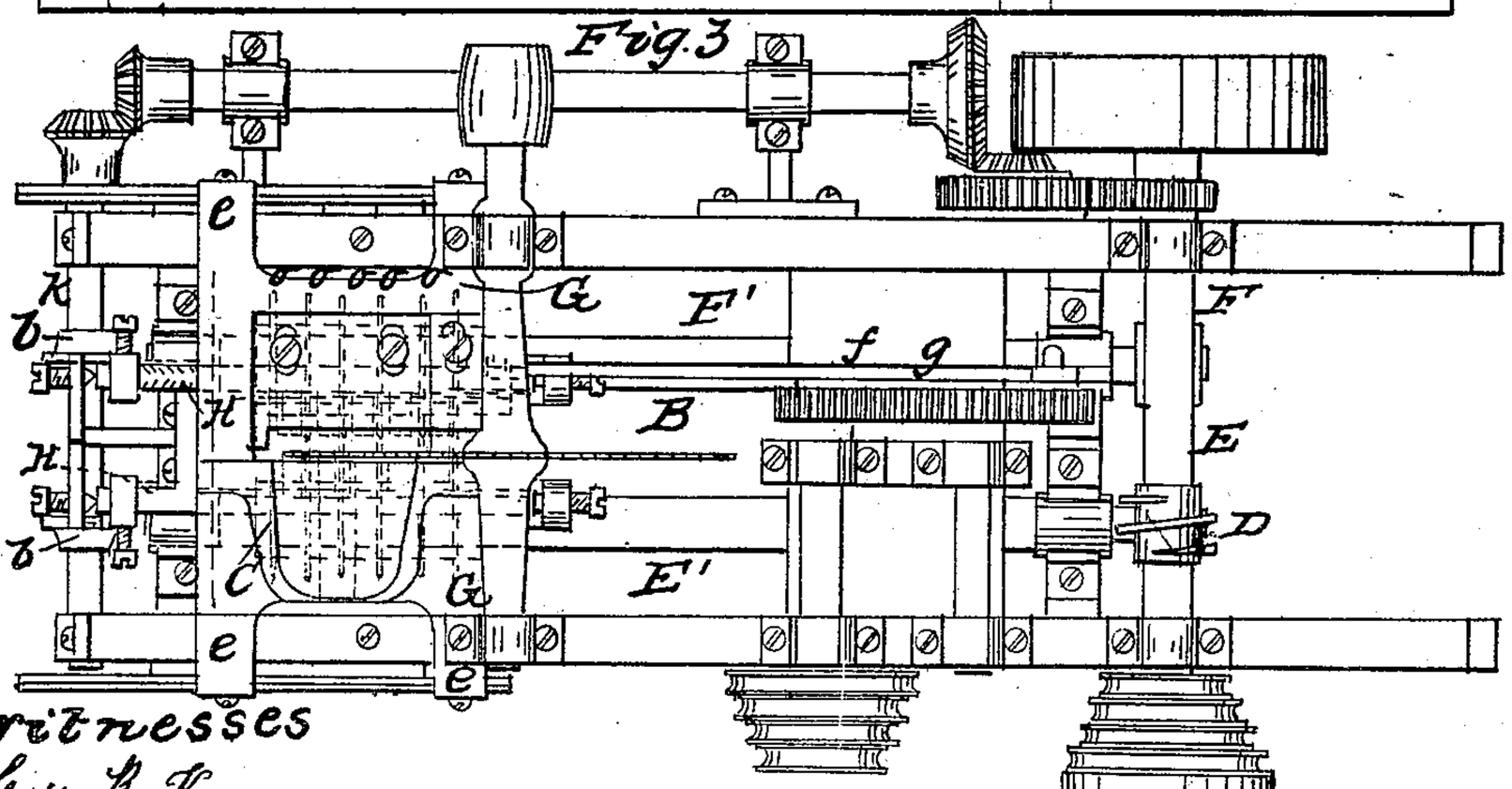


Fig. 3



Witnesses

Lewis R Kurzen

John F Clarke

Inventor

Jas H. Murrill.

UNITED STATES PATENT OFFICE.

JAMES H. MURRILL, OF BALTIMORE, MARYLAND.

IMPROVED SUGAR-CUTTING MACHINE.

Specification forming part of Letters Patent No. **41,855**, dated March 8, 1864.

To all whom it may concern:

Be it known that I, JAMES H. MURRILL, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Machine for Cutting Sugar; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, of which—

Figure 1 is a side elevation showing the slabbing-saw, loaf-holder, and slideways and carriage; Fig. 2, an elevation showing the front end; Fig. 3, a top view, and Fig. 4 an end elevation at the rear.

The nature of my improvement relates to and has for its object the providing a machine for cutting sugar into cubes from the loaf that will be more certain in its operation and durable from the arrangement of its parts.

It consists, therefore, in placing the shaft of the slabbing-saw in stationary boxes secured to the bed of the machine and making the hopper or loaf-holder to advance or to recede from the cut of the saw. The essential improvement is in the employment of a pair of vibrating knives in combination with a pair of rollers armed with cutting serrated edge disks, (so placed as to produce the desired width of the bars of sugar,) which, operating in unison with said pair of knives at right angles to the disks or rollers, effect the reduction of the slab of sugar after it is cut from the loaf into cubes, or, if desirable, into oblong portions by a slight change of the gearing. This arrangement of the knives prevents all clogging of the rollers or cutters.

To enable others skilled in the art to make and use my improvement, I will describe the construction and operation.

The machine is built upon a rectangular frame or bed, X X.

A is the main driving-shaft, and by a band and pulleys the saw B, for slabbing the loaf, is driven. The boxes of the saw-shaft are secured in the frame X X.

C is a hopper or loaf-holder fastened on the sliding frame *e e e e*, and is moved mechanically toward and from the saw by a pitman-rod, *f*, and crank-pin in the gearing *g*, the gear being driven by a band and pulley from the main shaft A. The hopper C is furnished with a gage or movable back, to give the required thickness to the slab of sugar.

On the main shaft A is secured a worm, D, which operates a pinion, E, secured on a shaft, E′, lying at right angles to the shaft A. A second pinion, F, meshes with E, and its shaft lies by the side of the other. These shafts carry the rollers or cutters constructed as follows, and as they are duplicates a description of one will suffice:

On the front end of the shaft E′ are placed at desired distances apart disks *o o o* of tempered steel. The edges thereof are knife-edged, but, instead of being smooth, are slightly serrated or sickle-edged, the object of this roughening being merely to hold the slab of sugar received from above and pass it between the rollers, the edges of the disks dividing it into bars, while a pair of nipping-knives (hereinafter described) cuts the bars transversely into cubes. These disks, and the washers between them forming the rollers G G, are locked on the shafts by suitable clamp-nuts and screws.

H H are rocking shafts placed above the rollers G G, and from these shafts depend arms I I, which have on their lower ends projecting studs *a a*.

K is a shaft placed horizontally and at right angles to the rock-shafts. On this shaft is secured two cams, *b b*, which, in their revolution, strike upon the studs *a a* and give motion to the rock-shafts. From the shafts H H also depend the shanks of the knives *h h*. Said shanks are bolted to the rock-shaft. The lower ends of the shanks are turned at right angles and toward each other, (see Fig. 2,) and, being sharp-edged, form cutters or knives. They work in and out from the shafts E′ and F′, between the disks of the rollers G G. As the disks and washers forming said rollers are always revolving, while the knives *h h* are at times at rest, any sugar adhering to said rollers will be removed by these knives, and thus perform the function of scrapers.

m m are casting-off springs, by which the arms I I, and consequently the knives *a a*, are thrown back after the cut, and thus allow the bars of sugar to pass the requisite distance for a repetition of the knife-cut.

In the use of my machine a loaf of sugar is placed in the hopper C. The saw B in its revo-

lution cuts off a slab, which descends vertically between the revolving rollers G G, by which it is reduced to bars, and by the knives *h h* cut into cubes. The gearing operating the knives gives them ten or twelve nips or movements to each revolution of the rollers.

I have not considered it necessary to describe the gearing more particularly, as it admits of changing without affecting my improvements.

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

1. The employment of the vibrating knives *h h*, in combination with the armed rollers G G, in the manner and for the purposes substantially as set forth.

2. The arrangement of a slabbing-saw, B, and reciprocating frame *e e e*, and hopper C, in combination with rollers G G and knives *h h*, in the manner substantially and for the purpose of cutting sugar into lumps.

In testimony whereof I have signed my name before two witnesses.

JAS. H. MURRILL.

Witnesses:

JOHN F. CLARK,

LEWIS R. KEIZER.