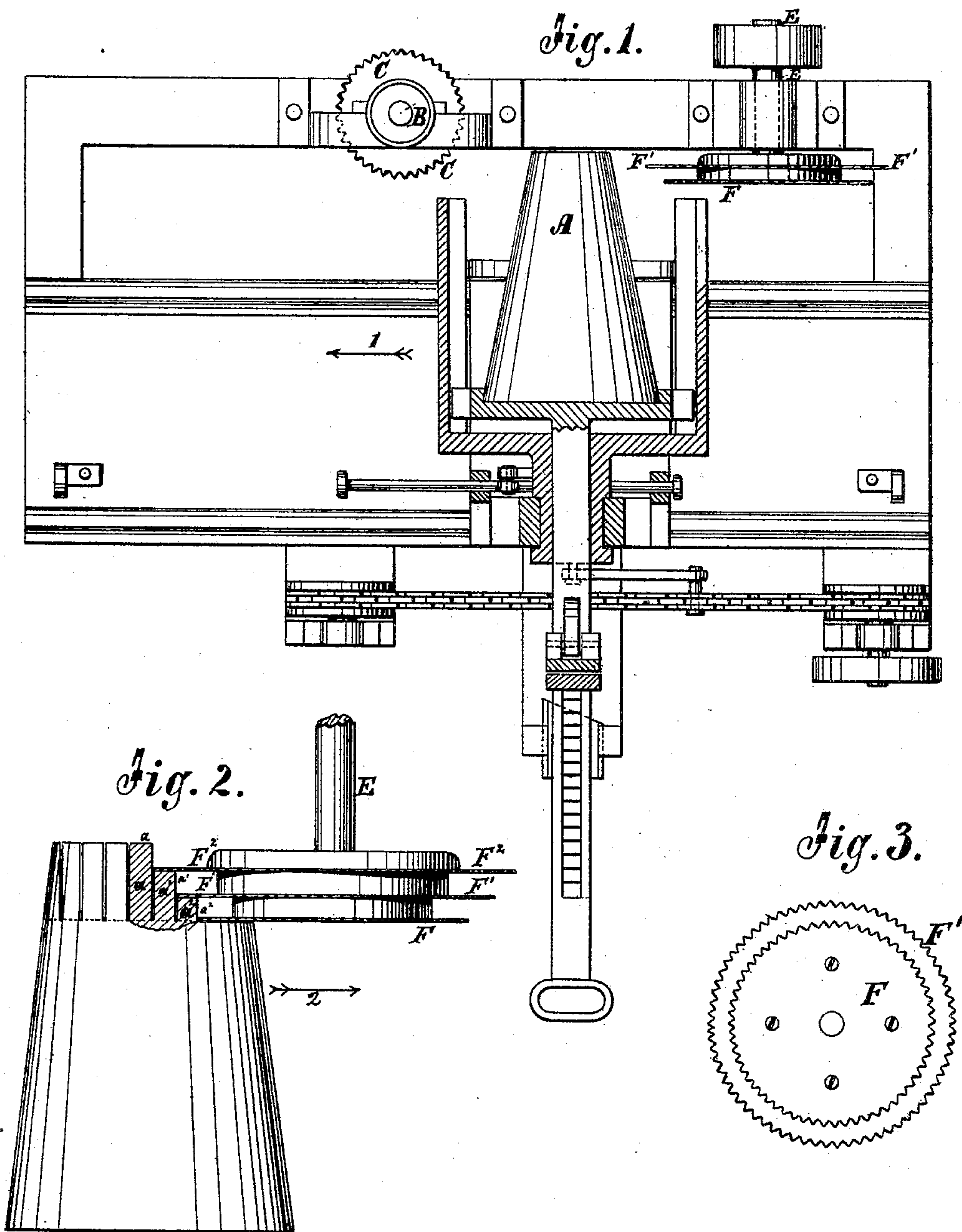


P. O. BRUNJES & A. BENNECKENDORF.  
 Machines for Cutting Sugar into Blocks.  
 No. 140,464. Patented July 1, 1873.



Witnesses:

Chas. Nida.  
 E. Woff.

Inventor:

Peter Otto Brunjes  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR CUTTING SUGAR INTO BLOCKS.

Specification forming part of Letters Patent No. **140,464**, dated July 1, 1873; application filed February 20, 1873.

*To all whom it may concern:*

Be it known that we, PETER O. BRUNJES and ALBERT BENNECKENDORF, both of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Machines for Cutting Sugar into Blocks, of which the following is a specification:

This invention relates to an improvement of the machine, which is described in the Letters Patent No. 134,588, granted to us on the 7th day of January, 1873. The object of the invention is to increase the working capacity of the machine, which object is accomplished by the application of two or more detaching-saws of peculiar relation, according to size, instead of one detaching-saw, as it was described in our former patent. In the machine of our former patent the set of grooving-saws made the incisions in the sugar-cone just deep enough for the detachment of one layer of blocks at a time; now we form, at the end of the sugar-cone, by these incisions, a layer of parallelopipeds of such length that, by one movement of the sugar-cone over the aforementioned set of detaching-saws, two or more layers of blocks are detached, and, consequently, the working capacity of the machine is increased.

In the accompanying drawing, Figure 1 represents a top view of our improved sugar-cutting machine partly in section. Fig. 2 is a detail view of a set of three detaching-saws with sugar-cone. Fig. 3 is a front view of two detaching-saws.

Similar letters of reference indicate corresponding parts.

The letter A in drawing represents the sugar-cone. B is a vertical shaft upon which a series of circular saws, C, are mounted. E is a horizontal shaft, which carries the two detaching-saws F and F<sup>1</sup>, of which the smaller one F forms the end of the shaft.

In our former patent we have described how, by the working of the machine, the sugar-cone, in moving in the direction of the arrow 1, marked in Fig. 1, is grooved by the saws C with parallel incisions, and, after it has passed these saws, it is turned a quarter around, carried back over saws C, and grooved by them again in parallel incisions that will be at right angle to the incisions first made by

the said saws C. Then the cone is carried against the two circular detaching-saws F and F<sup>1</sup>, and as saw F<sup>1</sup> is of larger size than F saw F<sup>1</sup> will always meet one of the parallelopipeds formed at the end of the sugar-cone, and detach one block from it before the other and smaller saw F meets the parallelopiped and detaches it from the solid sugar-cone. In this manner each parallelopiped is cut into two blocks.

The operation of detaching the blocks from the layer of parallelopipeds, cut at the end of the cone, is clearly shown in Fig. 2 with a set of three detaching-saws, F F<sup>1</sup> F<sup>2</sup>. If, in this figure, the sugar-cone continues its motion against the detaching-saws in the direction of the arrow marked 2 the largest saw F<sup>2</sup> meets the parallelopiped *a* and detaches one block from it, while the smaller saw F<sup>1</sup> meets the already shortened parallelopiped *a*<sup>1</sup>, and detaches the second block from it; at the same time the smallest and last saw F meets the shortest parallelopiped *a*<sup>2</sup> and detaches it from the solid sugar-cone.

The difference of radius of one saw to the one next to it is about the thickness of one of the parallelopipeds formed at the end of the cone.

The object of this difference of the saws in size is to avoid the breaking of the parallelopipeds, which would occur at the saw next to the bottom of the incisions, before being wholly sawed off, by the strain of the other saws upon them, if all the saws were of the same size, which would injure them greatly in respect of their symmetrical appearance, lessen value, and waste the sugar.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination of two or more cutting-off saws with sawing mechanism arranged to cut the incisions the required depth for two or more pieces, substantially as described.

2. The said cutting-off saws, arranged in differential sizes, as described, to cut the parallelopipeds successively, as specified.

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Witnesses:

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