

T. J. PRICE.  
 Manufacture of Sugar.

No. 42,109.

Patented March 29, 1864.

Fig. 2

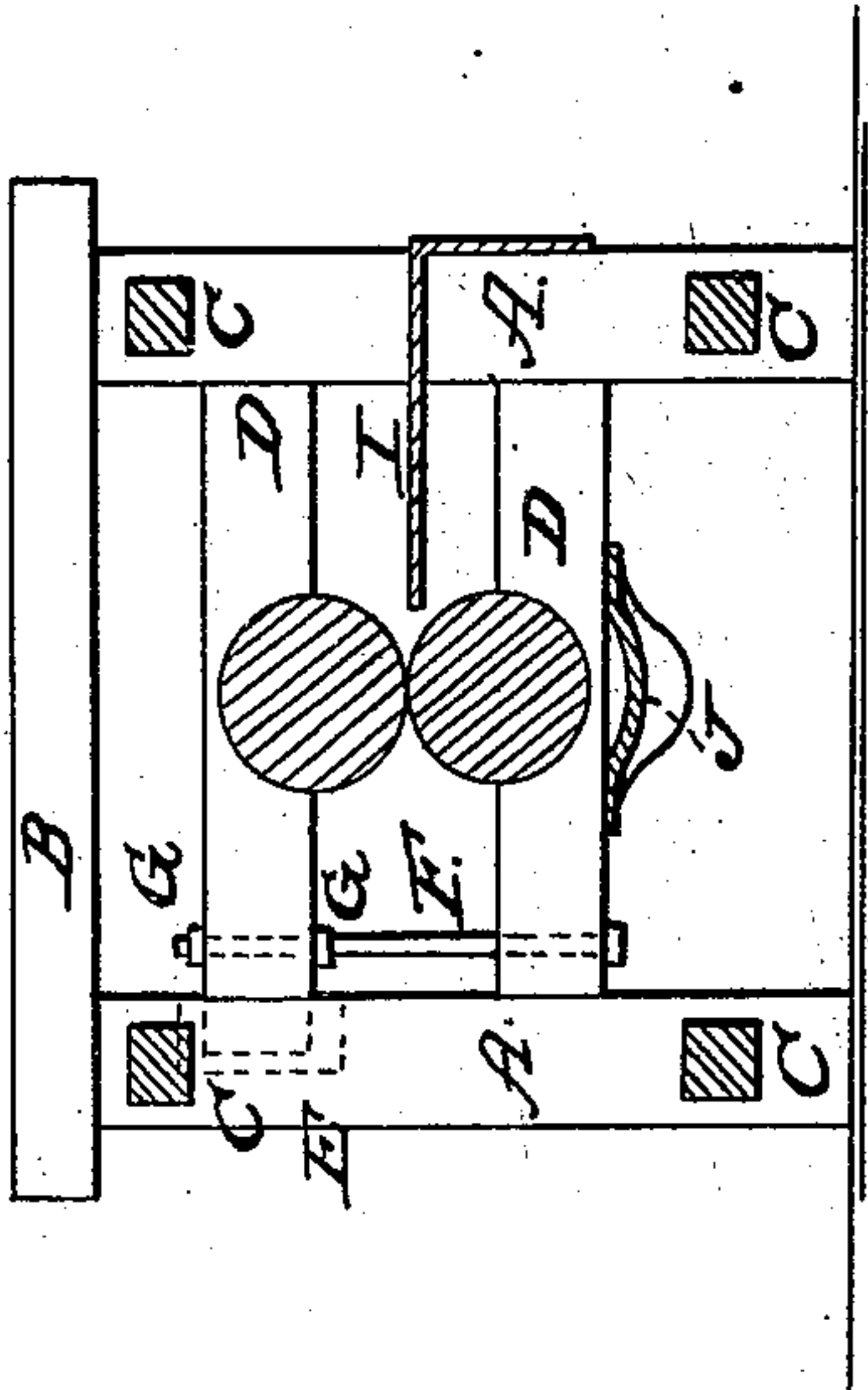


Fig. 4

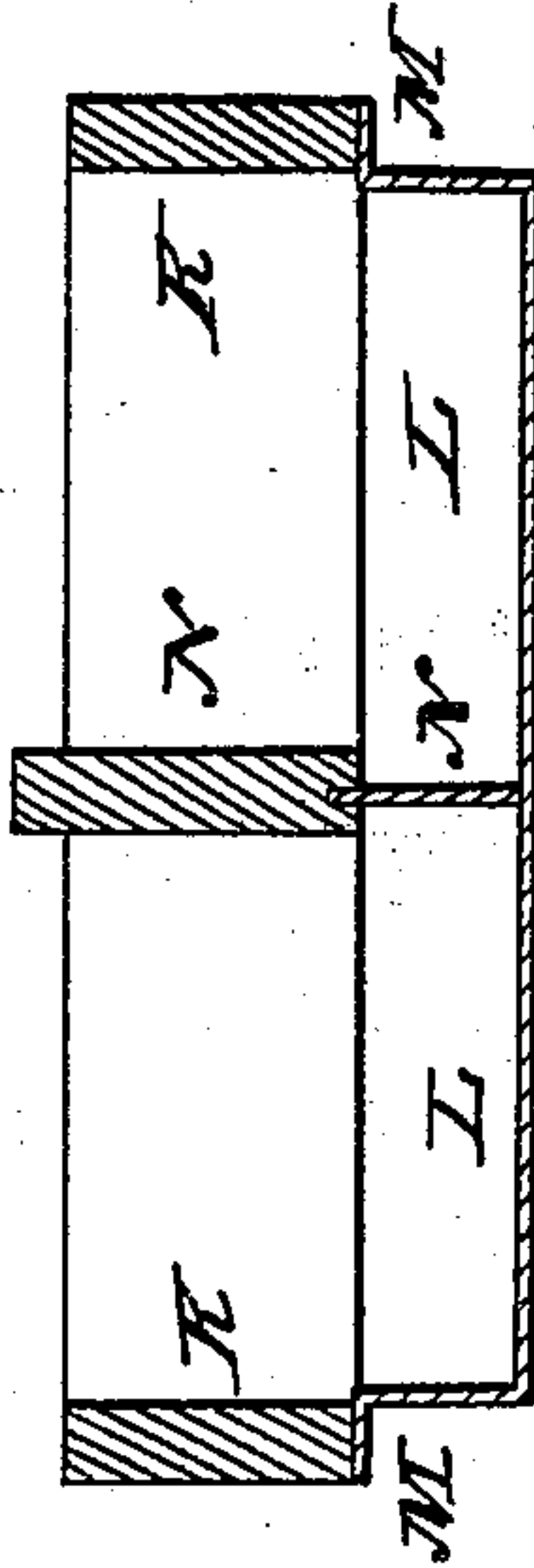


Fig. 1.

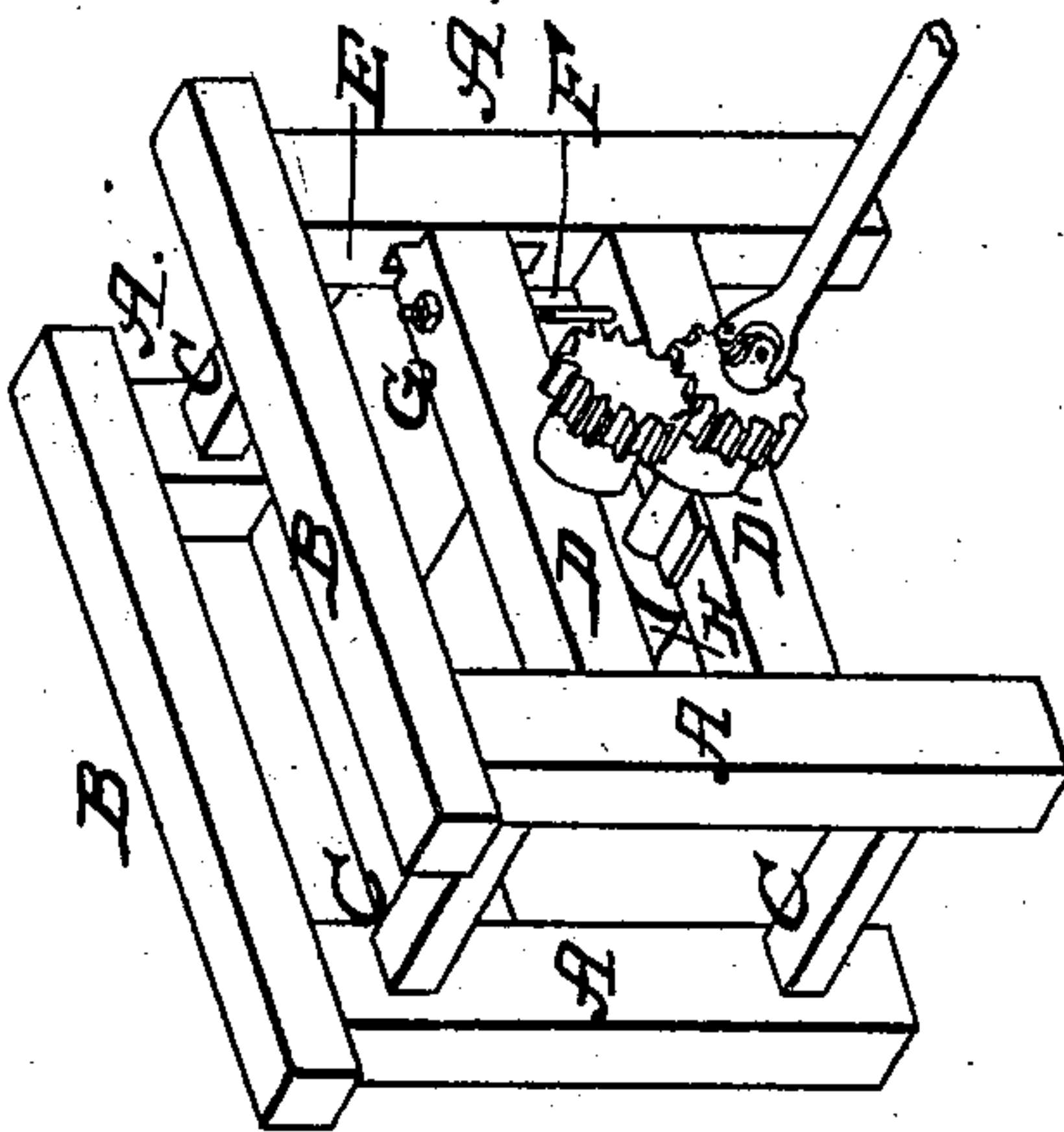
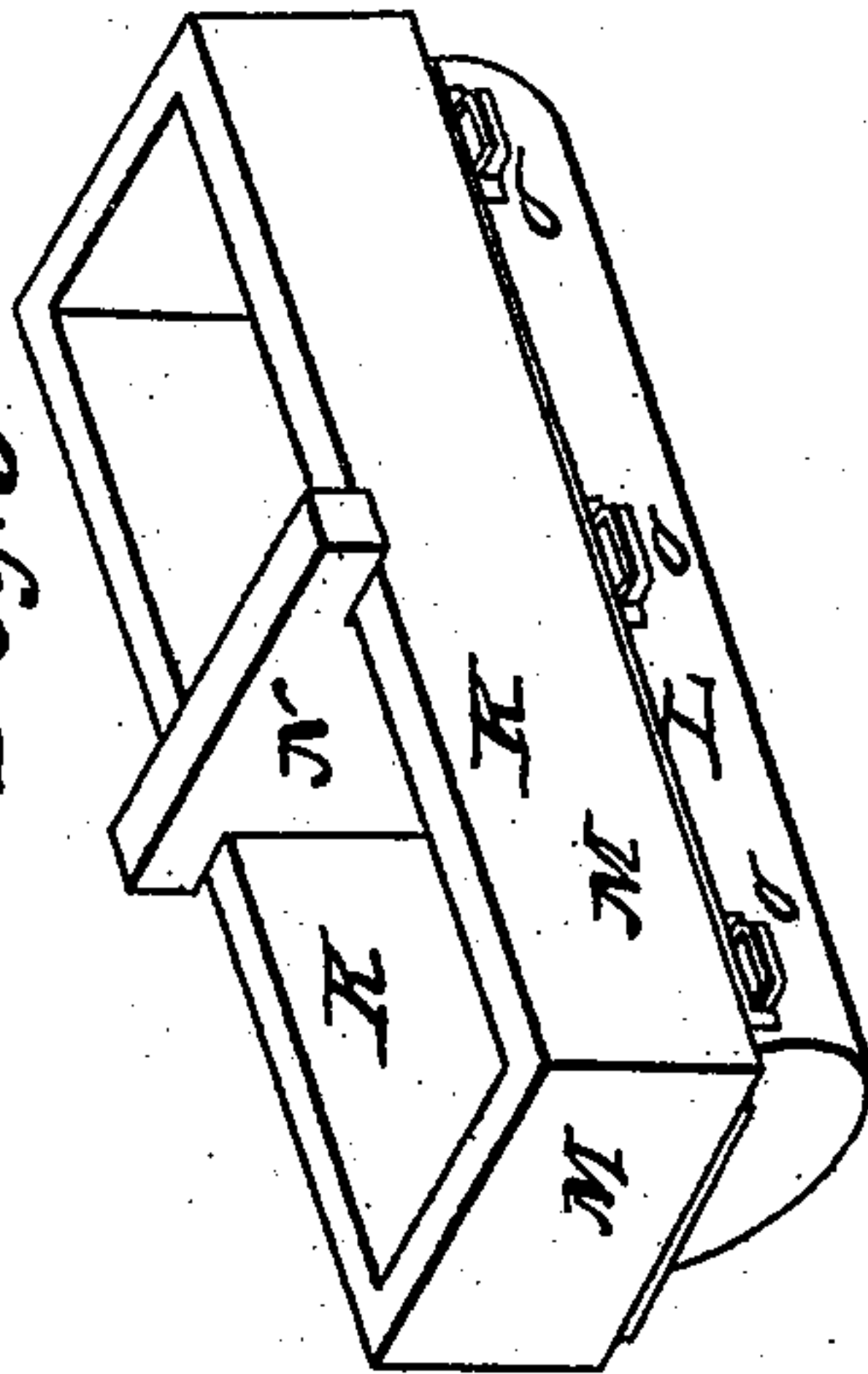


Fig. 3



Witnesses  
 L. D. Davis  
 J. L. Combs.

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# UNITED STATES PATENT OFFICE.

THOMAS J. PRICE, OF SOUTH UNION, KENTUCKY.

## IMPROVEMENT IN THE MANUFACTURE OF SUGAR.

Specification forming part of Letters Patent No. 42,109, Dated March 29, 1864.

*To all whom it may concern:*

Be it known that I, THOMAS J. PRICE, of South Union, in the county of Logan and State of Kentucky, have invented certain new and useful Improvements in Apparatus for Making Sugar from the Sugar-Cane, Sorghum, or other like Saccharine Substance or Plant; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figures 1 and 3 are perspective views of a crushing-mill and boiler, and Figs. 2 and 4 sectional views of the same.

The object of my invention is to construct the crushing-mill and boiler—*i. e.*, the most indispensable apparatus for producing raw sugar from the cane, sorghum, or other similar plant containing saccharine juices—in a simple, cheap, yet effectively-operative form, so that the same may be portable, capable of being operated by horse-power or other available force, and easily adapted to driving mechanism of ordinary farming implements, so as to render them accessible to farmers whose production is too limited to justify the establishment of sugar-works, although of the most economical construction.

In the accompanying drawings I have represented an arrangement of apparatus which is designed to answer the conditions above set forth. The crushing-mill is mounted in a quadrangular frame composed of four uprights, A, held firmly secured together by two top rails, B, and side braces, C. The uprights are provided with four parallel traversing timbers, D D'. The former—*i. e.*, the upper timbers—are secured in the uprights or posts by means of tenons cut in their ends and fitting into mortises E, so as to be free to move up and down, and thus capable of adjustment in relation to the lower timbers, D', which are fixed—that is, immovably assembled with the posts. The upper timbers may be arranged to move at one end only, the other end being hinged to or confined in the post without moving in its mortise. The relative position of the upper and lower timber may be adjusted by means of a bolt, F, a nut or nuts, G. Upon the lower timber is established a roller, H, made of cast-iron or other suitable material, its axle revolving in journal-boxes the bed-plate of which is sunk into the timber, while the cap

passes over the axle which projects above the surface of the timber. The end of the axle-tree is filled with a cog-wheel gearing with another cog-wheel of equal diameter. The latter is arranged on the end of the axle of the top roller, held in boxes fast to the upper timber. The distance between the two rollers, or the pressure of one upon the other, is regulated by means of the bolt before referred to. Motion is imparted to the two rollers from the under roller by means of a tumbling-shaft connected therewith by means of a universal joint, so that the mill may be used as an attachment to or in connection with any available farming implement—*i. e.*, horse-power thrasher, &c. The mill is provided with a feeding-tray, I, upon which the cane or plant is disposed in uniform layers, and fed toward the rollers until seized by them to be crushed and squeezed. Below the two rollers I use an apron, J, sloping and curved in the shape of a gutter, in which the expressed juices dip and are emptied in a cistern or into the boiler. The arrangement of this crusher is such as will enable it to be constructed in such parts of the country where there are but limited facilities for the construction of machinery, while, on account of its comparative lightness, it is portable, and may be conveyed from farm to farm to perform its work. It, moreover, can be worked by persons unacquainted with machinery. The parts are simple, easily put together, and readily adjustable. This crushing-mill is accompanied by the boiler represented in Figs. 3 and 4. It is composed of a wooden frame, K, of quadrangular form, to the under side of which is secured a metallic kettle or boiler, L, made of wrought or cast iron. The boiler is semi-cylindrical, the ends being closed by vertical plates. On top there is a flange, M, which is fitted to the frame by means of screws or otherwise. Instead of using two or more such boilers—for the evaporation and clarification or defecation cannot be effected in one—I use one boiler with one or more partitions, N, the upper part of which—*i. e.*, the part which corresponds to the frame—is made of wood and the lower part of metal. Externally the boiler is provided with metallic loops O, for the purpose of hanging the boiler by means of legs therein to be inserted over a fire or furnace.

In the manufacture of sugar it is highly im-



portant to perform the scooping from one boiler to the other in the least possible time. Exposure to air by repeated ladling and carrying about the juices greatly injures the sugar, and is the cause of serious loss. The juxtaposition of two or more boilers, as shown and described, materially diminishes the loss due by injury and waste attending the ladling operation.

Having thus described my invention and the manner in which the same is or may be carried into effect, I claim—

The construction and arrangement of appa-

ratus for crushing and squeezing the cane, sorghum, and other similar saccharine plants, and for boiling and defecating the juice thus obtained, substantially in the manner hereinbefore described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

THOS. J. PRICE.

Witnesses:

L. B. FORD,

JAMES MCCARLY.