(No Model.)

J. S. BLINN.

POTATO MASHER.

No. 456,937. Patented Aug. 4, 1891.

Fig. 1

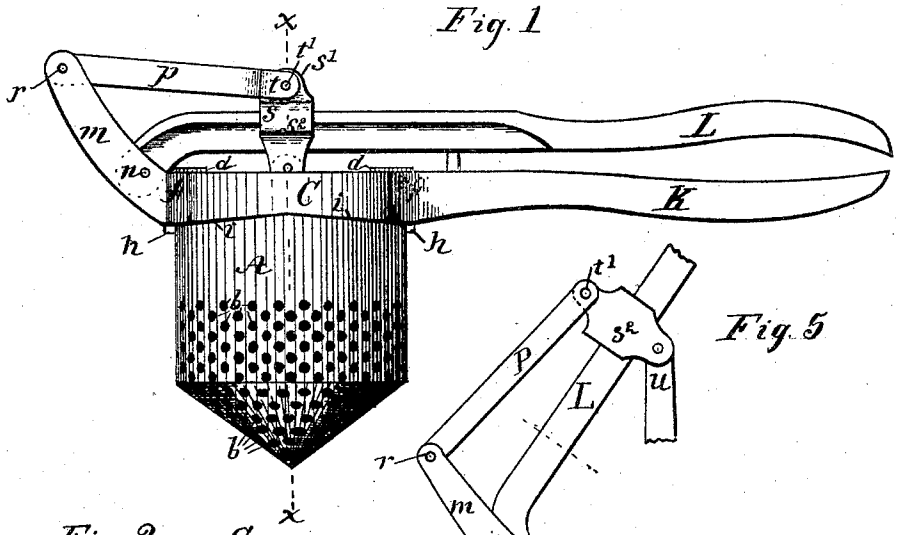


Fig. 5

Fig. 2

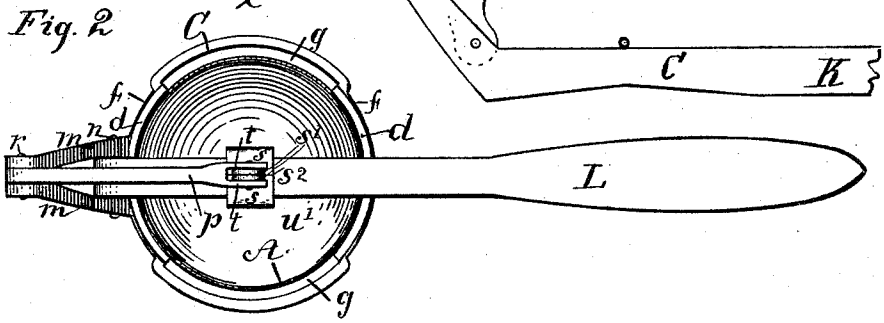


Fig. 4

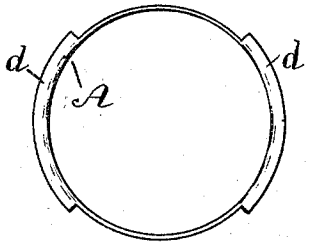
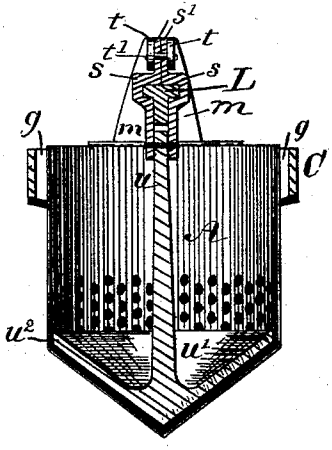


Fig. 3



WITNESSES:

Laurence B. Matthews

Horace E. Brackett

INVENTOR

Joseph S. Blinn.

BY

George L. Barnes

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH S. BLINN, OF NEW HAVEN, CONNECTICUT.

POTATO-MASHER.

SPECIFICATION forming part of Letters Patent No. 456,937, dated August 4, 1891.

Application filed January 12, 1891. Serial No. 377,452. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. BLINN, a citizen of the United States, residing at New Haven, in the town and county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Potato-Mashers, of which the following is a specification.

My invention relates to potato-mashers of that class in which a plunger or mashing-head is operated within a colander by means of a lever movement. In such devices it is desirable that the plunger should travel in a straight line in the colander; but as its connection with the operating-lever is usually made at a point near the fulcrum and of short radius it becomes difficult with the ordinary construction to obtain the necessary leverage without at the same time limiting the length of the plunger's stroke and also carrying the plunger-rod too much out of alignment with the axis of the colander.

The object of my invention is to provide a potato-masher in which a powerful leverage, ample travel of the plunger, and ease of movement are combined with compactness, strength, and simplicity of construction.

The improvement consists in the compound mechanism for operating the plunger and the construction of the parts, all as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of my improved potato-masher, and Fig. 2 is a plan view of the same. Fig. 3 is a vertical section on the line x, Fig. 1; and Fig. 4 is a plan view of the brim of the colander. Fig. 5 is a diagram representing the operating-lever raised to a position corresponding to the movement necessary to bring the plunger or mashing-head near the top of the colander.

Referring to the drawings, A designates a cylindrical colander having supporting-flanges d at its brim and suitable perforations b in its conical bottom and the lower part of its sides.

C denotes the supporting frame or socket for receiving and holding the colander. It is formed with two opposite bearings f, fitting the outside of the colander, and intervening ways or recesses g, adapted to admit the flanges d as the colander is passed upward through the socket. Then when the colander is thus entered in the frame, passed through from the lower side, it may be turned therein to bring the flanges d upon the bearings f, whereby the colander will be supported in the frame, and it may be firmly fastened in place by providing opposite raised projections h on its outer surface and forming the socket with inclined or cam surfaces i on its lower side, the highest part of such surfaces being at the positions where the said projections are brought when the colander is in place, so that as the colander is turned either way after being entered in the frame the projections will slide along the said cam-surfaces and wedge the flanges d firmly down upon the bearings f. It is immaterial what arc of the circle is comprised by the said bearings if they embrace the cup or colander sufficiently to hold it securely; but in the mechanism here shown I have proportioned them each exactly one-quarter of the entire circle with the ways of the same dimensions.

The socket is formed with a horizontal lever or handle K and a pair of upwardly-projecting ears m opposite the handle. An opposite lever L is hinged to the socket by a pivot-pin n, passing through the ears m and the end of the lever which is fitted loosely between the ears. A link p is hinged to the upper ends of the said ears m by a pivot r, passed through the link and ears, as shown. The other end of the link is forked and hinged to a pair of blocks s, having their upper ends s' fitted between the ears t of the link with a pivot t' passed through the said ears and blocks.

The blocks s are shaped, as shown, to embrace the lever L and fitted loosely thereon, forming a traveler s^2, which is adapted to slide freely on the lever as the levers are moved toward or from each other, for the arc described by the end of the link is of greater radius than the arc described by a point on the lever immediately under the end of the link, and the traveler will therefore be moved back and forth on the lever as the lever is vibrated in operation.

Pivoted between the lower ends of the blocks s forming the traveler is a plunger-rod u, having a plunger-head or masher u' at its lower end, fitting the colander. The plunger

is formed of cone shape to fit the bottom of the colander and has a narrow bearing u^2 nearly fitting the cylindrical part of the colander, but adapted to slide freely therein, as in operation it is reciprocated by the movement of the lever L, the opposite lever K being at the same time firmly held stationary by the other hand.

The proportion and arrangement of the parts of the mechanism are such that when the plunger is at the bottom of the colander, as shown in Fig. 1, the traveler is at the position nearest to the fulcrum of the lever and will slide outward on the lever as the lever is raised, as shown in Fig. 5, being moved and governed by the vibration of the link p, whereby the upper end of the plunger-rod is carried in nearly a straight line—that is, kept nearly parallel with the sides of the colander. This action is due to the longer radius of the link, which compensates for the shorter motion of the lever at that point and carries the traveler proportionately outward as the lever is raised, the traveler being maintained perpendicular to the lever and correspondingly tipped or inclined from a vertical position as the lever is swung upward, all as fully shown in Fig. 5. Thus the length of the link, the relative position of the pivotal points of the link and lever, and the relative positions of the pivots in the traveler all affect the nature of the curve described by the pivot at the upper end of the plunger-rod, and all may be so proportioned that the line or curve described by the said pivotal point will approximate closely to a straight line, thereby confining the plunger-rod u to a nearly vertical position at all parts of its travel and carrying it nearly as true as if guided in straight bearings. With this construction the leverage exerted upon the plunger is variable and determined by the distance of the traveler s^2 from the fulcrum, increasing as the plunger is depressed to the bottom of the colander.

In operation as the lever L is thrown up to a vertical position the plunger will be entirely withdrawn from the colander, which may then be filled with the material to be mashed, and the depression of the lever will then insert the plunger and force it to the bottom of the colander, thereby mashing the soft material through the perforations of the colander. In ordinary use only the plunger and lower part of its rod and the colander will become coated with the material mashed, the rest of the mechanism remaining clean and not requiring to be washed. The construction which permits the colander to be removed from the lower side of the frame insures keeping the remainder of the mechanism clean, so that ordinarily only the plunger and the colander need be washed.

If desired, the pivot which secures the plunger-rod to the traveler may be made long and adapted to be easily removed to permit the plunger to be readily taken from the traveler and separately cleaned. All the parts are simple of construction and may be easily made and put together, and the device is strong and advantageous in use.

I claim—

1. In a potato-masher, the combination of a colander, a lever provided with a socket supporting the colander, the operating-lever hinged or fulcrumed to the socket-lever, a traveler guided on the operating-lever, a plunger fitted to travel in the colander and connected to the said traveler, and a guiding-link pivoted to the said traveler and the frame supporting the colander, for the purpose described.

2. In combination, the colander, the socket provided with a handle and an opposite upwardly-projecting part, arm, or ears, the operating-lever hinged to the base of said arm, part, or ears, a link pivoted or hinged to the upper end of said arm or ears, a traveler fitted to slide on the operating-lever pivoted or hinged to the said link, a plunger-rod pivoted or hinged to the said traveler, and a plunger at the lower end of said plunger-rod, all arranged substantially in the manner and for the purpose specified.

3. In a potato-masher, the combination of the colander provided with the projections h, the frame supporting the colander, provided with the inclined cam-surfaces i and having the lever-handle and ears m, the lever L, pivoted between said ears, the traveler adapted to slide on said lever, the link pivoted to the said traveler and the ears m, and the plunger having a rod or neck pivoted to the said traveler, all arranged substantially in the manner and for the purpose specified.

4. In combination, the colander having the flanges d, the frame supporting the colander, having the bearings f and ways g and provided with a lever-handle and the opposite upward projection, the operating lever hinged to the colander-frame, the traveler thereon, the link pivoted to the traveler and the upward projection, and a plunger pivotally connected to said traveler, all substantially in the manner and for the purpose specified.

JOSEPH S. BLINN.

Witnesses:
HORACE E. BROCKETT,
W. A. CHRISTIE.