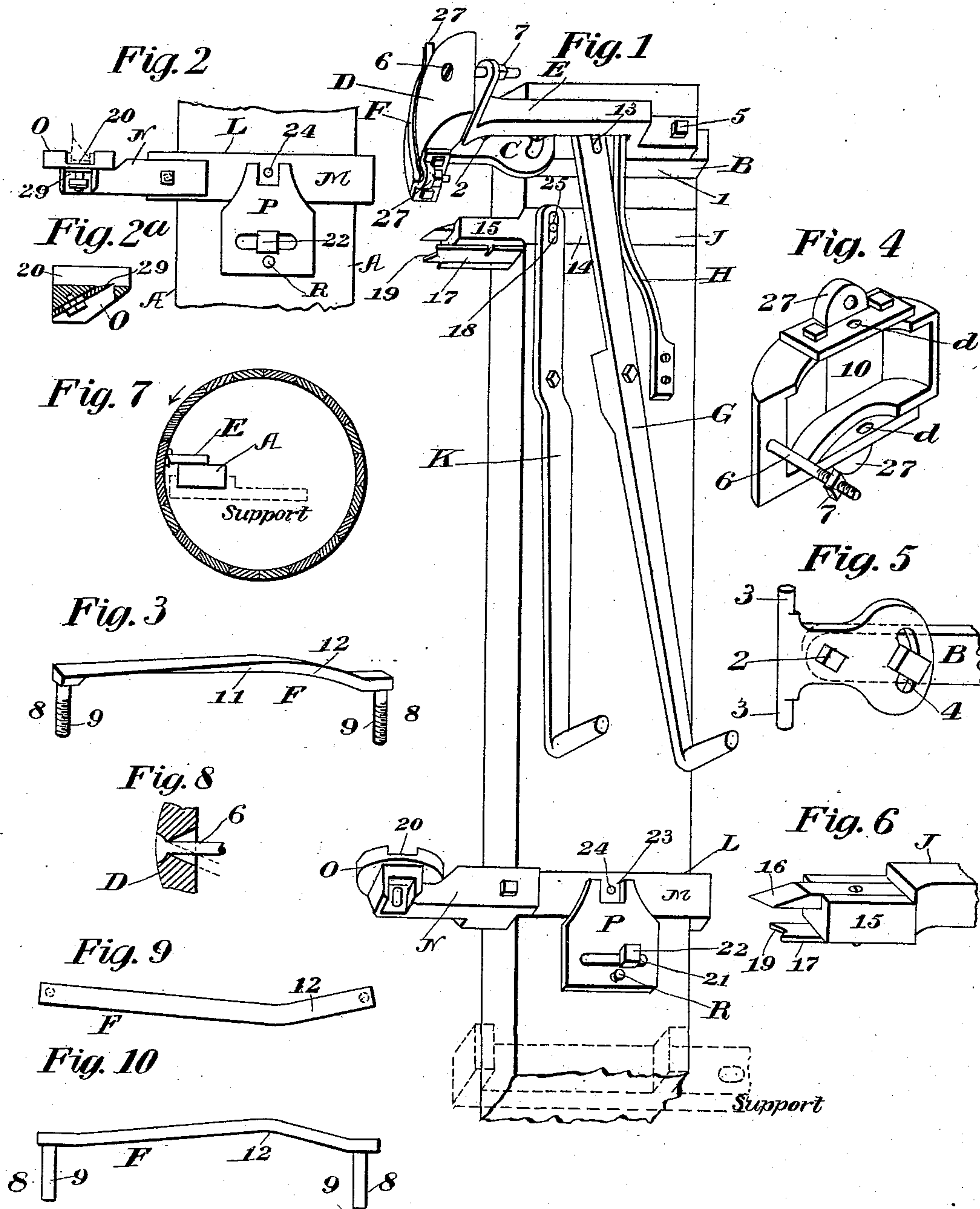


(No Model.)

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TUB OR PAIL MAKING MACHINERY.

No. 491,157.

Patented Feb. 7, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TUB OR PAIL MAKING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 491,157, dated February 7, 1893.

Application filed August 7, 1891. Serial No. 402,029. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES D. AMES, a citizen of the United States, residing at Portland, in the county of Jay and State of Indiana, have invented certain new and useful Improvements in Tub or Pail Making Machinery; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in tub or pail making machinery and is shown in this application as adapted to the making of butter tubs, and consists in devices for smoothing the inner surface of the vessel, and for cutting a croze and leveling the lower end of the tub, and for smoothing the exterior and interior and leveling the upper edge of the tub. The devices utilized for this purpose are seated removably upon a longitudinal sliding base and are more particularly described hereinafter.

In the drawings—Figure 1. is a plan in perspective of the sliding bar carrying the afore-said devices. Fig. 2 is a plan view of the stave leveling tool with a portion of the support bar. Fig. 2<sup>a</sup> is a sectional detail view through the knife head of Fig. 2. Fig. 3. is a perspective of the smoothing knife. Figs. 4, 5, and 6 are details of several of the devices employed. Fig. 7 is a diagrammatic end view of the barrel with the tool in operative position. Fig. 8 is a broken sectional view of the main knife head, and Figs. 9 and 10 are plan and edge views of the knife of said head, as shown in perspective in Fig. 3.

Similar letters and figures refer to similar parts throughout the several views.

A. is the sliding bar referred to which is seated in suitable longitudinal ways upon a proper base in position to be projected through the mouth of the cask so as to finally project through the opposite end. Said base is shown in dotted line in Figs. 1 and 7, and may be of any ordinary construction for such machine.

As my invention consists of the devices for operating upon the cask during the rotation

of the latter around the bar A. I do not deem it necessary to show or describe the mechanism for supporting and rotating said cask during the process further than above. The cask is supported and rotated in a horizontal position, by any suitable mechanism, with its mouth toward the free end of the bar A. and at the time of the operation of my invention, the cask is entirely open at both ends and is held in place by clamping arms suitably attached to its outside, in position to leave the entire interior of the cask unobstructed, and the ends thereof clear for the operation of my devices.

Referring first to the mechanism for smoothing the interior of the cask, B. is a transverse plate suitably seated in ways 1. near the inner or free end of the bar A.

C. is an arm pivotally seated horizontally at 2. on the upper surface of the plate B. near one end of the latter, and extending laterally from the bar A. is provided at its outer end with oppositely extending pintles 3. which are substantially parallel with bar A. Near the inner end of the arms C. is formed a transverse slot 4. through which there is extended a suitable bolt attached to plate B. The slot 4. permits the arm C. to have a limited oscillation in a horizontal plane on the pivot 2.

D. is a smoothing knife bearing head which is formed hollow on its side next the bar A. to permit the projection within said head of the adjacent arm C. and in holes or bearings *d* in the walls of the head D. inclosing said hollow space, the pintles 3. are pivotally seated. This seating permits the head D. to oscillate in a vertical plane. This oscillation however is adjustably limited by an angular bracket E. the inner end of which is attached by a suitable bolt 5. near the opposite end of the plate B. and rising vertically from said point of attachment a slight distance, is then extended horizontally toward the head D. and from thence is again extended vertically substantially parallel with the inner face of the upper end of said head. A suitable bolt 6. is counter-sunk at its outer end in the outer face of the head D. and extended horizontally through the outer vertical portion of the bracket E. and adjustably connected to the latter by a nut 7. seated on the inner threaded



end of bolt 6. against the inner face of the adjacent portion of the bracket E. By adjusting the nut 7. to and fro on the bolt 6. the limited oscillation permitted to the head D. may be regulated the head of the bolt being pivotally or loosely secured in the head. To the outer face of the head D. is suitably attached a horizontal smoothing knife, F. The knife F. has ends 8. 8. parallel with each other and at right angles with the main body of said knife, converted into bolts 9. and passed through the ears 27 fastened to the sides respectively of the head D. whereby said knife is held horizontally and about parallel with the bar A. in a transverse recess 10. formed in the outer face of the head D. The cutting edge of said knife is projected sufficiently beyond the outer face of said head to engage and remove any irregularities on the inner surface of the cask. By suitable nuts on the bolts 9. of the knife F. (or by means of a suitable clamp) said knife may be adjusted to or from said head. The knife F. as to its central or cutting portion, is of a peculiar formation. It is narrow, so as to form clearance for the shavings; it is also bowed slightly outward with a maximum of such bow near one end of said cutting edge so that the operation of said knife has something of a draw-cut. The cutting edge 11. of said knife is also highest at the point 12. of the maximum of said bow, so as to further afford the quality of a draw-cut. The cutting edge of the knife F. can be set to the amount of cut desired, by oscillating said knife on its seat.

The plate B. is moved transversely so as to bring the knife F. against the interior of the cask by means of the lever G. pivotally seated about centrally on the upper face of the bar A. and having its end projected over the plate B. and under the horizontal portion of the brace E. and there pivotally attached to a vertical pin 13. formed on the upper surface of the plate B. The opposite or outer end of the lever G. extends in an opposite direction a sufficient distance to permit the operator to grasp the same by means of the handle 26. thereon, and control the head D. during its operation.

A spring H. is attached horizontally at its outer end to the upper surface of the bar A. and has its free end projected over the plate B. and under the horizontal portion of brace E. behind the adjacent end of the lever G. and pressing outward against the latter surface, with its belly or curved portion serves to hold the head D. flexibly against the interior wall of the cask.

The operation of this part of my invention consists in sliding, by a suitable handle or lever attached thereto, the bar A. longitudinally, until the head D. is within the mouth of the cask, the operator, by pressing lever G. backward against the spring H. meanwhile holding the head D. from extending beyond the wall of the cask. After the head D. is inserted into the mouth of the cask, the spring

H. is permitted to throw said head toward the cask so as to permit the knife H. to begin its operation of smoothing the inner wall of said cask. As this smoothing process continues the bar A. is gradually pushed farther into the cask, and finally so far as to project the head D. beyond the opposite end of said cask.

During the process of smoothing, the pressure of the spring H. may be supplemented if desired, by action through the lever G. or if the knife seems to be too rank, the pressure of said spring may be in part counteracted by pressure upon the free end of the lever G.

By making the outer surface of the head D and the knife F curved or rounded, as shown, and by pivotally securing the head to the bar B, the head and knife can be so adjusted as to follow the curvature of the interior of the barrel and thus effectually smooth it as the knife is passed through the barrel.

The crozing and leveling knives for the bottom of the cask, are carried upon a horizontal bar J. seated transversely in ways 14. on the bar A. such distance within the plate B. as to clear the head D. After the smoothing process of the knife F. is completed, the bar A. is progressed through the cask a sufficient distance to permit the bar J. to come opposite the lower end of the cask. On the outer end of the bar J. is attached a head 15. and to the side thereof next the head 15. there is attached a leveling knife 16. having a beveled cutting surface adapted to cut off the lower ends of the staves of the cask so as to bring them to a uniform length. On the opposite side of the head 15. is suitably attached the crozing knife 17. adapted to form a croze in the wall of the cask, concurrently with the leveling action of the knife 16.

The bar J. is reciprocated by means of the lever K. pivotally seated about centrally on the bar A. and provided with a slot 18. at its inner end through which a suitable pin 25. attaches it to the bar J. and extending through its opposite end a sufficient distance to be readily grasped by the operator. By oscillating the lever K. the knives 16. and 17. are brought into action or withdrawn, as may be desired. The knife 17. is of peculiar formation having a recess 19. formed centrally in its cutting edge whereby its upper corner serves to cut the croze and its rear corner to clear the same of adhering splinters.

The mechanism for leveling and smoothing the exterior of the upper end or mouth of the cask is located on the bar A. near its outer end and consists of the following:

L. is a groove formed transversely in the upper surface of the bar A. and adapted to operate as a way for the reciprocating transverse bar M. suitably placed therein by dovetailed edges, or otherwise.

N. is a short arm pivotally seated near its inner end on the bar M. and projected laterally beyond the side of the bar A. and provided at its outer end with a knife head O. In the inner side of the knife head O. is



formed a recess 20. which is traversed by the upper edge of the cask, in its axial rotation. By having the arm projecting laterally, the ends of the staves can be trimmed, and by swinging the arm upon its pivotal point it can be made to stand at such an angle as to trim the chine of the barrel. The back of the recess 20. is provided with a suitable knife to engage the upper ends of the staves and reduce the latter to a uniform level. In the walls of the recess 20. there can be seated knives 30, shown in dotted lines in Fig. 2 for smoothing either the exterior or interior of the mouth of the cask, but inasmuch as the knife F. of the head D. levels the interior of the cask, it will be necessary only to seat a knife 29 in the outer walls of the recess 20. to smooth the exterior of the mouth of the cask to receive the projecting flanges of the lid.

P. is a feeding plate provided with the slot 21. and seated on the bar A. by means of a pin 22. inserted in the upper surface of said bar and projecting upward through the slot 21. and provided with a head extending over the walls of said slot. In the inner end of the feed plate P. is formed a recess 23. and the pin 24. rigidly seated in the bar M. extends upward loosely into said recess whereby the bar M. is permitted to reciprocate automatically to a certain degree in the ways L. to accommodate the knife head O. to the variance from a true circle of the walls of the mouth of the cask. The plate P. is provided with a handle R. as a convenience for reciprocating said plate transversely, or the same might be reciprocated under the pin 22. by any other suitable means.

After the head D. has been pushed entirely through the cask as aforesaid, either concurrently with the crozing and finishing of the lower edge of the cask, or after said process is completed, the bar A. is forced still farther toward the cask until the upper edge of the latter is engaged by the recess 20. of the head O. After the cask is finished as aforesaid, the bar A. is withdrawn therefrom and the cask removed from its carrying arms and the process repeated with the next succeeding cask.

What I claim as my invention and desire to secure by Letters Patent of the United States is,

1. In a tub and pail making machine, the combination of a longitudinally sliding bar A., a reciprocating bar B. seated transversely therein, and a knife head D. pivotally and adjustably seated on the end of said bar B. and provided with a knife F., substantially as shown and for the purpose described.

2. The combination of a sliding bar A. reciprocating transverse bar B. seated transversely therein, head D. pivotally and adjustably seated on bar B. and provided with the knife F. and the lever G. pivoted immediately on bar A. and pivotally attached to bar B. substantially as shown and for the purpose described.

3. The combination of the sliding bar A., bar B. seated in ways transversely thereon, head D. seated on the end of bar B. and provided with knife F., and a spring H. seated on bar A. and adapted to press the bar B. outwardly, substantially as shown and for the purpose described.

4. The combination of the sliding bar A., bar M. seated transversely thereon, and arm N. pivotally seated on bar M. and projected laterally beyond the side of bar A. and provided with knife head O. having recess 20. adapted to carry suitable smoothing knives, substantially as shown and for the purpose specified.

5. The combination of the sliding bar A., bar M. seated transversely thereon, arm N. pivotally seated on bar M. and provided with knife head O. and a slotted feeding plate P on the bar A, one end of which engages with the bar M. and the other end is provided with means for moving the plate, substantially as shown and for the purpose specified.

6. The combination of the sliding bar A., bar B. seated transversely thereon and provided with knife head D. and means substantially as shown for permitting a limited oscillating action to said knife head, in both vertical and horizontal planes, substantially as shown and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES D. AMES.

Witnesses:

GEORGE WALKER,  
CHARLES M. GATES.