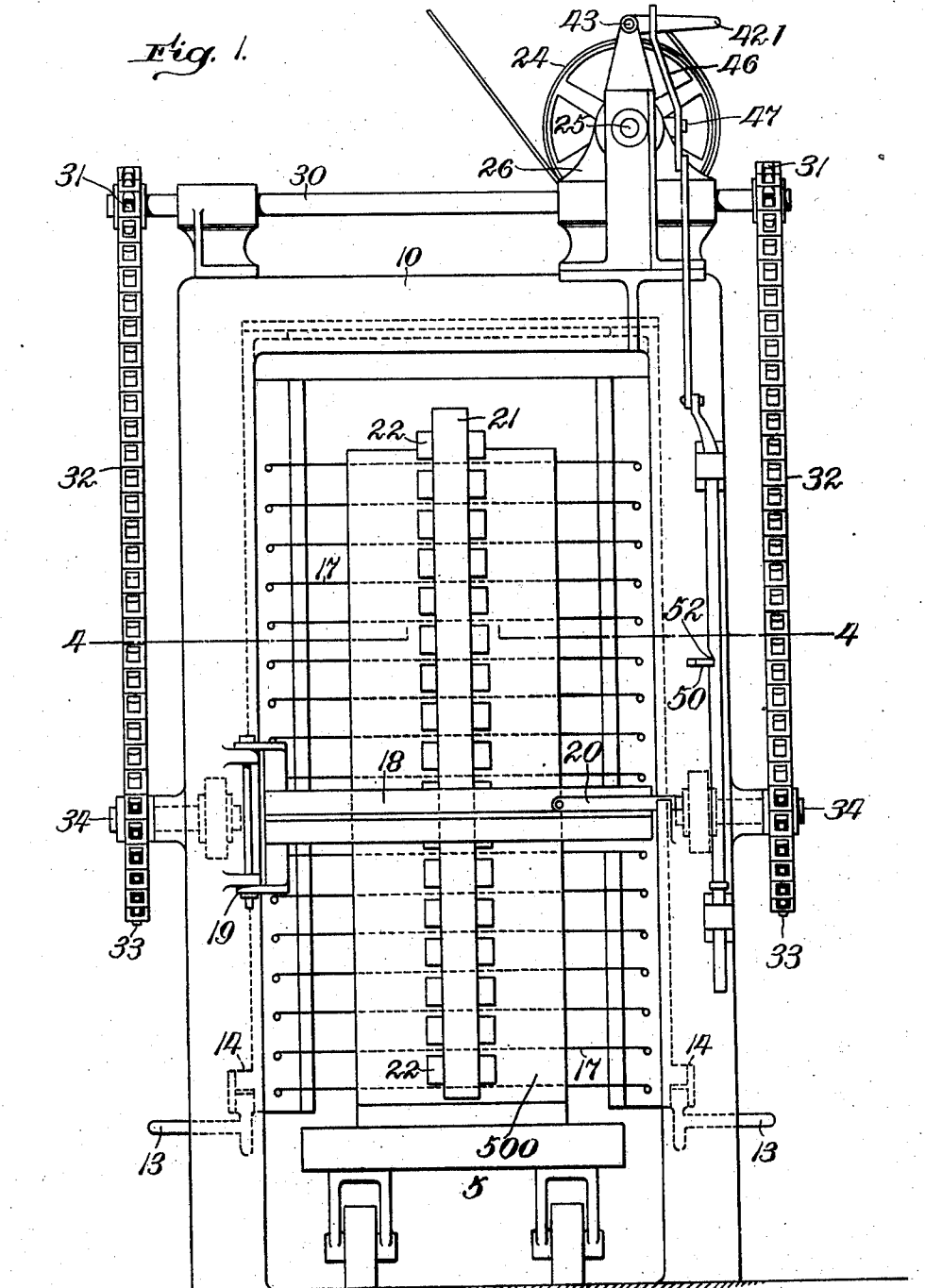


C. W. AIKEN.
 SOAP SLABBING MACHINE.
 APPLICATION FILED OCT. 10, 1907.

963,413.

Patented July 5, 1910.

5 SHEETS—SHEET 1.



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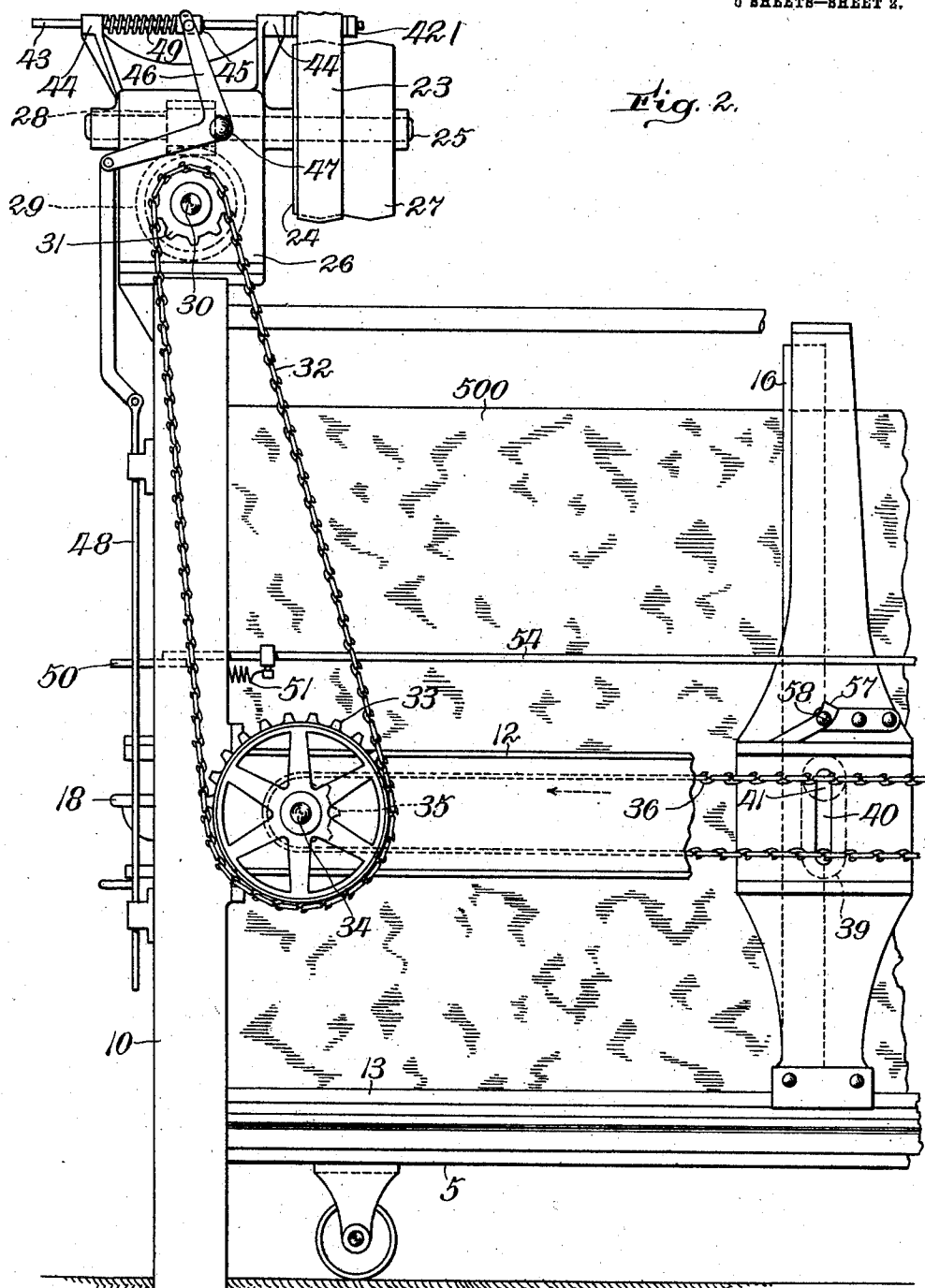


Fig. 2.

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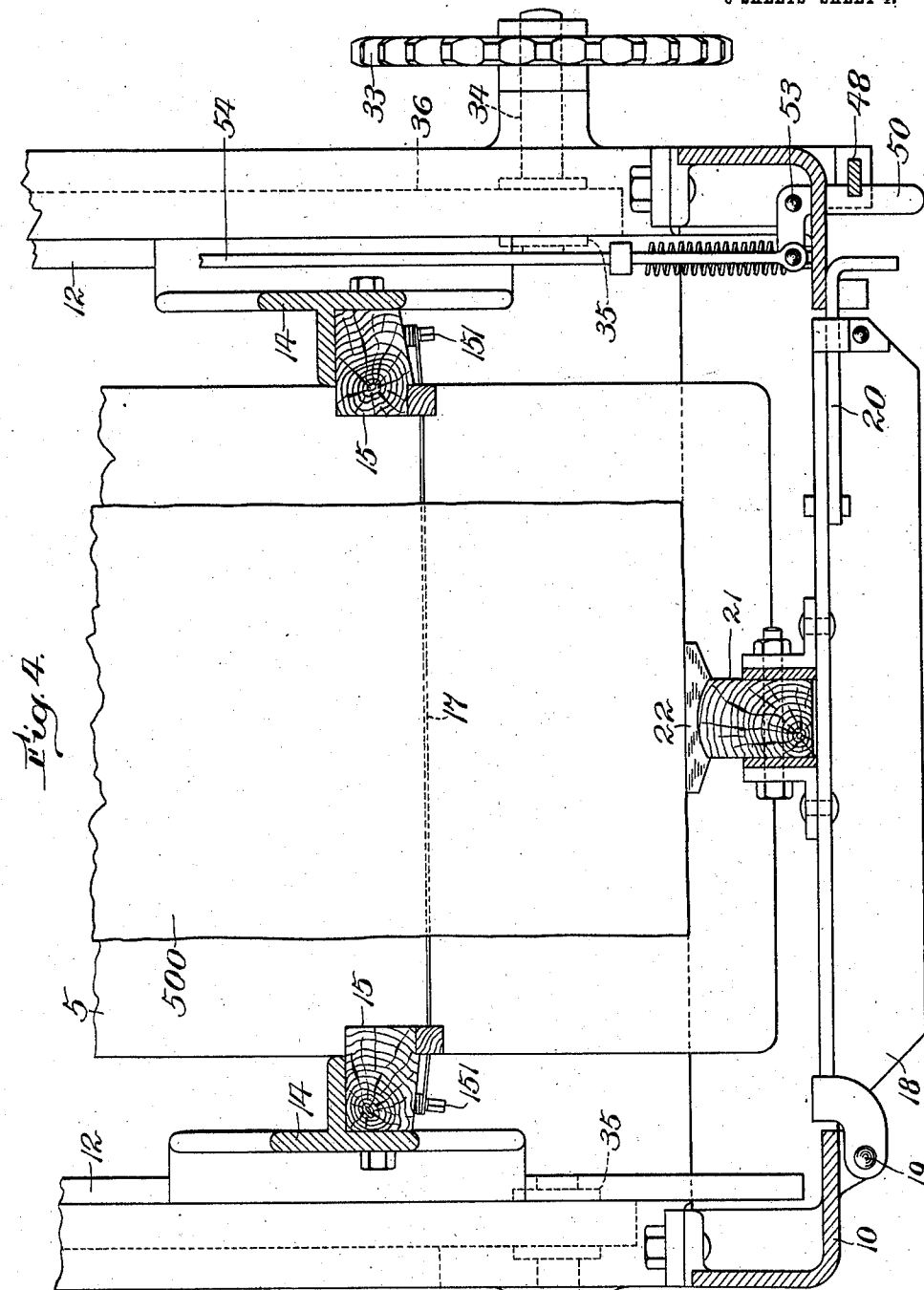
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UNITED STATES PATENT OFFICE.

CHARLES W. AIKEN, OF WEST NEW BRIGHTON, NEW YORK, ASSIGNOR TO HOUCHIN-AIKEN COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

SOAP-SLABBING MACHINE.

963,413.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed October 10, 1907. Serial No. 396,750.

To all whom it may concern:

Be it known that I, CHARLES W. AIKEN, of West New Brighton, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Soap-Slabbing Machines, of which the following is a specification.

This invention relates to machines for converting large blocks of soap previously formed by molds or otherwise, into slabs adapted to be subsequently converted into cakes by a subdivision of the slabs. The said invention was originally claimed in my application 374,855, filed May 21, 1907, but was removed therefrom under requirement of division.

The method of handling the soap, as performed by the machine to which the present invention relates, is approximately the same as that by which the machines now commonly in use operate, but the machine in the present case embodies certain novel features which facilitate the slabbing operation, and the interchangeability and adjustment of various cutting instrumentalities by which slabs of any desired size may be formed.

The machine referred to constitutes a "slabber" so called because it cuts the original block or mass of soap in slabs by forcing a gang of cutting wires horizontally therethrough.

The novel features of the slabber include an improved cutting-frame which carries the cutting wires, improved mechanism for reciprocating the cutting frame, the main frame of the machine of which one end is always open and from which the slabbed block of soap, mounted on a roller-truck, is automatically ejected by the cutting wires during their return movement, and an automatic stop motion for disconnecting the source of power from the machine. To these ends the machines of the present invention are constructed and operated as illustrated upon the accompanying drawings, and described in the following specification.

On the drawings,—Figure 1 is an end elevation of a slabbing machine constructed in accordance with this invention. Fig. 2 is a side elevation of the end appearing in

Fig. 1. Fig. 3 is a side elevation of that portion not included in Fig. 2. Fig. 4 is a sectional plan view on the line 4—4 of Fig. 1. Fig. 5 is a sectional plan view on the line 5—5 of Fig. 3. Fig. 6 is a perspective view of the cutting-wire frame. Fig. 7 shows the upper end of the frame in elevation and the lower end in section, showing also the application of a strut or spreader.

The same reference characters indicate the same parts wherever they occur.

The framework of the slabber is rectangular in general appearance although merely a skeleton, open at both ends as shown by Fig. 1. Suitable base portions of the frame may be embedded in the floor as shown by the drawings, so that an unobstructed longitudinal passage through the frame may be afforded the roller truck 5 on which the block of soap 500 is mounted. The ends 10 and 11 of the frame are connected by horizontal girts 12 12 and 13 13 which serve as guides for sliding crossheads 14 14, one on each side of the machine. The crossheads (see Figs. 4 and 5) serve as a carriage for the side bars 15 15 of a frame 16 on which a series of cutting wires 17 is strung, and are reciprocated between the ends 10 and 11 by means hereinafter described. The initial position of the cutting frame 16 is nearest the rear end 11, at which position the machine is at rest.

A truck 5 carrying a block 500 of soap enters the machine through the end 10 and is then inclosed by a gate 18 hinged at 19 and having a latch 20 adapted to interlock with a hook on the frame. The gate carries an upright bar 21 which extends from the level of the bottom to the level of the top of the block of soap, and to which is affixed a series of blocks 22 separated by spaces which register with the wires 17 on the cutting frame.

Power for reciprocating the cutting frame 16 is transmitted to the machine in any suitable way, such as by a belt 23 passing over a pulley 24 affixed to a shaft 25 journaled in a casing 26 on the top of the machine frame. The shaft 25 is also provided with a loose pulley 27 and a helical gear or worm 28 within the casing 26. The gear 28 intermeshes with a gear 29 affixed to a cross shaft

30 which extends through the casing 26 and has a sprocket 31 at each end. The sprockets 31 31 drive the chains 32 32 which also pass over the sprockets 33 33 affixed to the outer ends of stud shafts 34 34 journaled in bearings formed on the girts 12 12 near the end 10. The shafts 34 34 are in axial alignment with each other and are provided with other sprockets 35 35 which are inside or between the girts 12 12. Each sprocket 35 is provided with a chain 36 which extends horizontally between one of the crossheads 14 14, and its girts 12 and passes over an idle sprocket 37 mounted on a stud shaft 38 journaled in a bearing adjustably mounted on the girt near the end 11.

Referring to Figs. 2, 3, and 5, it will be seen that an elongated chamber 39 is formed in the crosshead and extends vertically above and below the two stretches of the chain 36. A relatively narrow slot 40 affords an opening from the exterior of the crosshead to the said chamber, through which extends the hub of a roller 41 occupying the chamber. One of the links of the chain 36 is provided with a cylindrical lug 42 which extends horizontally through the center of the roller 41 and about which the roller is free to turn. A similar connection between the crosshead and chain 36 on the other side of the machine is provided so that when power is applied to the machine by the belt 23, the chains 36 36 draw the crossheads slowly back and forth between the ends 10 and 11, the rollers 41 41 sliding up or down in the chambers 39 39, while the links to which they are connected, pass around the sprockets 35 or 37.

The cutting frame 16 and upright bar 21 are adapted to be readily attached to or detached from the crossheads and gate, so that others having more or less space between the cutting wires 17 may be substituted therefor. The frame consists of the side bars 15 15 already mentioned, and a cross bar 150 connecting the upper ends thereof. The side bars into which the tension pins 151 of the cutting wires are inserted, are adapted to be clamped by screw-bolts into the angles of the crossheads which are T-shaped in cross section (see Fig. 4). Fig. 7 shows the method of holding the side bars 15 in place against the tension of the cutting wires when attaching a cutting frame to the crossheads. One side bar is provided with a square pocket 152 and the other bar is provided with an elongated pocket 153 having a curved inner face. Both pockets are near the lower ends of the bars and are formed on the inner faces thereof. Prior to fastening the side bars to the crossheads, the lower ends thereof are drawn toward each other by the wires unless some temporary means is employed to spread

them. For this purpose a bar or spreader 154 is used by inserting one end in the pocket 152 and depressing the other end from an inclined to a horizontal position so that the other end may slide into the pocket 153.

When the machine is ready to be set in operation, the block of soap is between the cutting frame and the gate bar 21 having the separated blocks 22 which resist the pressure of the soap and enable the wires to cut entirely through the soap by reason of the spaces previously referred to which permit the wires to enter between the said blocks.

The belt 23 is provided with a shipper 421 which is affixed to one end of an axially movable shipper rod 43 mounted in bearings 44 44. A collar 45 affixed to the rod 43 is pivotally connected to one end of a bell crank 46 which is fulcrumed upon a stud 47. The other end of the bell crank is pivotally connected to a jointed rod 48 which is vertically movable in bearings on the end 10 and adapted to be manually depressed to cause the shipper 421 to shift the belt from the loose pulley 27 to the tight pulley 24. A helical spring 49 surrounding the shipper rod 43 and compressed between the collar 45 and one of the bearings 44 normally holds the shipper so as to keep the belt on the loose pulley, but when the manually operative rod 48 is depressed, one arm of a bell crank latch 50 is caused by a spring 51 to snap into a notch 52 formed in the edge of said rod and so prevent the spring 49 from returning the starting mechanism to normal position. The latch 50 is fulcrumed upon a stud 53 and its other arm is pivotally connected to one end of a rod 54 whose other end is pivotally connected to one arm of another bell crank 55 which is fulcrumed upon a stud 56 at the rear end 11 of the machine. The free end of the bell crank 55 is beveled so as to form a latch, and is adapted to be engaged and actuated by a dog 57 pivoted upon the crosshead 12 on the right side of the machine by a stud 58. The dog 57 is beveled so as to form an inclined face parallel to the contacting face of the latch 55, by reason of which the latch is raised when the dog passes beneath it, as it does when the crosshead approaches its rearward extreme of movement. By reason of the starting mechanism just described, the power is automatically disconnected as explained in the following description of the operation of the machine.

Assuming that the cutting frame 16 is at its initial position nearest the rear end 11, and that a truck bearing a block of soap is introduced through the front end 10 as previously explained, the gate 18 is first closed and locked. The vertical starting rod 48 is then manually depressed by means of a suitable handle until the notch 52 registers

with the latch 50. This movement causes the shipper 421 to shift the belt 23 to the tight pulley 24, and permits the latch 50 to be thrown into the notch 52 by the spring 51, and to hold the controlling mechanism in operative position. The chains 36 then advance the crossheads in unison, and the dog 57 tilts on its pivot 58 when it engages the rear face of the latch 55, and passes under without changing the position of the latter. The dog then drops to its normal position, and the cutting wires 17 enter the soap, as shown in Figs. 2 and 3. When the crossheads approach the forward extreme of their motion, and the rollers 41 41 pass around the forward sprockets 35 35, the cutting wires emerge from the front end of the soap, passing between the gate bar blocks 22. Then as the movement of the crossheads reverses and the cutting wires start to return, they engage the soap again, but inasmuch as each slab of soap just cut settles down slightly when the wires leave it, the wires subsequently engage uncut places on the front end of the block, and as the resistance of the soap is comparatively great, the return movement of the cutting wires moves the entire block of soap and its supporting truck toward the rear end 11. As previously stated, the rear end 11 is always open and unobstructed, so that as the cutting frame returns to its initial position, the wires 17 roll the soap and truck entirely from the machine. The dog 57 once more passes under the latch 55 toward the rear end, and in so doing raises the same, thereby effecting the withdrawal of the latch 50 from the notch 52 and releasing the shipper 421. The spring 49 then returns the shipper to its normal position over the loose pulley 27, and so disconnects the power from the machine. The cutting frame is thus left stationary in its initial position ready for the introduction of another block of soap through the front end of the machine. The latch 50 is also manually operative so that in case of emergency the starting rod 48 may be released before the completion of the operation of the machine.

The terms and phraseology used in this specification are only for the purpose of description and should not be so interpreted as to limit the invention, for there are many parts which might be conveniently varied without departing from the spirit and scope of the invention.

I claim:

1. A soap-cutting machine comprising a frame having an open passageway there-
through to inclose the soap during the cut-
ting operation, a gate for obstructing one
end of said passageway, a cutting-head sup-
ported on the said frame and adapted to be
reciprocated back and forth in said passage-

way, and means for reciprocating said cut-
ting-head. 65

2. A soap-cutting machine comprising a
frame having an open passageway there-
through to inclose the soap during the cut-
ting operation, a gate for obstructing one
end of said passageway, a cutting-head sup-
ported on the said frame and adapted to be
reciprocated back and forth in said passage-
way, means adapted to be connected to a
source of power for reciprocating said cut-
ting-head, and means for automatically dis-
connecting said reciprocating means from
the source of power at a predetermined
point. 75

3. A soap-cutting machine comprising a
frame having an open passageway there-
through to inclose the soap during the cut-
ting operation, a gate for obstructing one
end of said passageway, a reciprocatory cut-
ting-head supported on the said frame and
adapted to cut through soap stationed in the
passageway, means adapted to be manually
connected to a source of power for recipro-
cating the cutting-head, and means which
automatically disconnects said reciprocating
means and the source of power when the cut-
ting-head is farthest from the gate. 85

4. A soap-cutting machine comprising a
frame having an open passageway for pas-
sage therethrough of a movable block of
soap, a reciprocatory head mounted on said
frame and having cutters adapted to engage
and propel a block of soap stationed in said
passageway, means for reciprocating said
head back and forth in said passageway, and
a gate for obstructing one end of said pas-
sageway in consequence of which the cutters
of said head cut through the soap in ap-
proaching the gate and propel the soap when
moving in the reverse direction. 100

5. A soap-cutting machine comprising a
cutting-head, a reciprocatory carriage there-
for, a guide for said carriage, two rotary
members, one at each end of said guide, an
endless actuator adapted to run on said ro-
tary members, a guiding chamber in said
carriage extending transversely to the line
of said rotary members, and having a slotted
wall, a lug projecting laterally from said
actuator through said slot into said trans-
verse chamber, a member inclosed in said
transverse chamber and mounted upon said
lug so as to turn on the same, and adapted to
be moved thereby in its guiding chamber
when the lug passes around said rotary mem-
bers, and means for rotating one of said ro-
tary members. 105

6. A soap-cutting machine comprising a
frame to inclose the soap during the cutting
operation, said frame having guides, a cut-
ting-head, a reciprocatory carriage for said
cutting-head mounted on the guides, continu-
ously-moving driving means, means adapted
to 125

to be driven by said driving means to impart reciprocating motion to said carriage, manually-operative controlling means adapted to render said driving means operative or
5 inoperative, means for locking said controlling means in operative position, means actuated by said carriage for withdrawing said locking means, and yielding means for mov-

ing said controlling means when released, to inoperative position.

In testimony whereof I have affixed my signature, in presence of two witnesses.

CHARLES W. AIKEN.

Witnesses:

C. F. BROWN,

ARTHUR H. BROWN.