

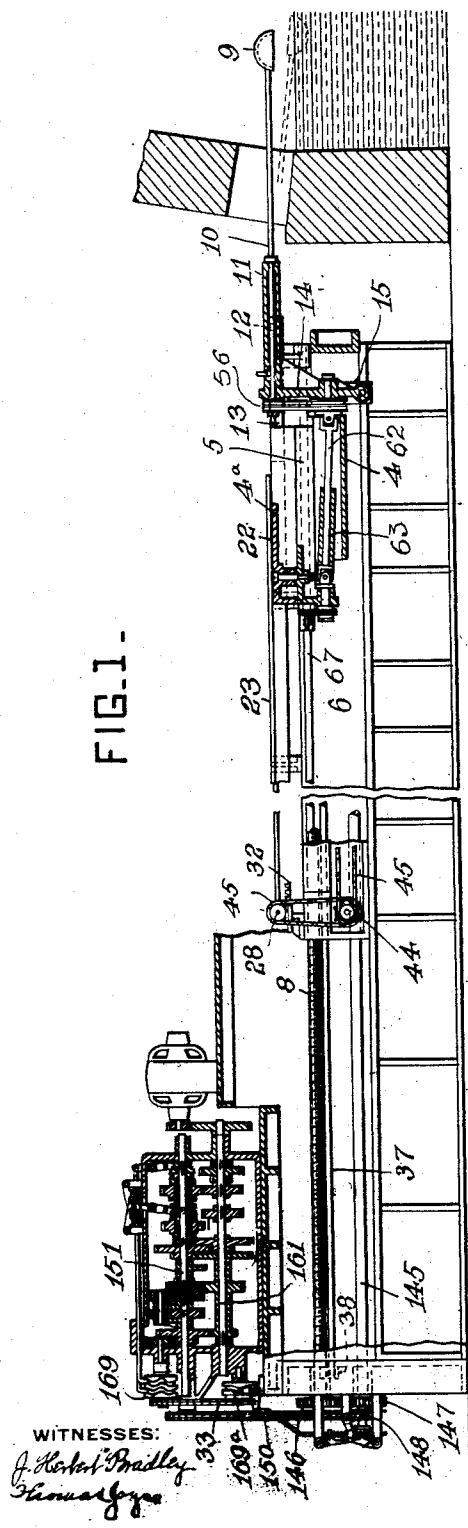
C. C. STUTZ.
 MACHINE FOR GATHERING GLASS.
 APPLICATION FILED DEC. 22, 1911.

1,037,363.

Patented Sept. 3, 1912.

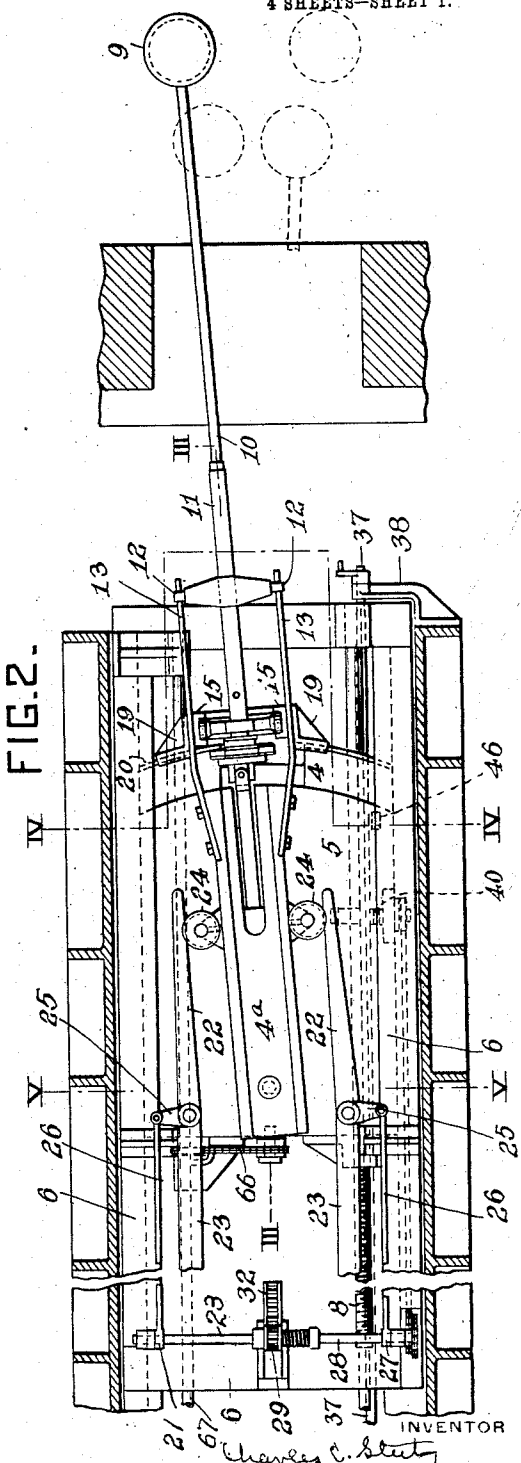
4 SHEETS-SHEET 1.

FIG. 1-



WITNESSES:
J. Robert Bradley
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FIG. 2-



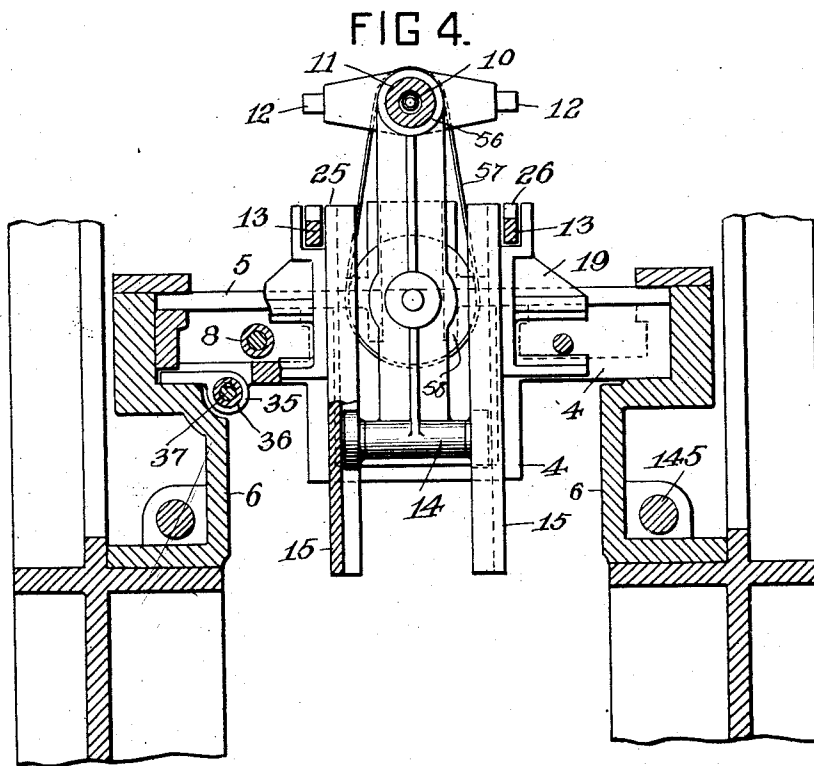
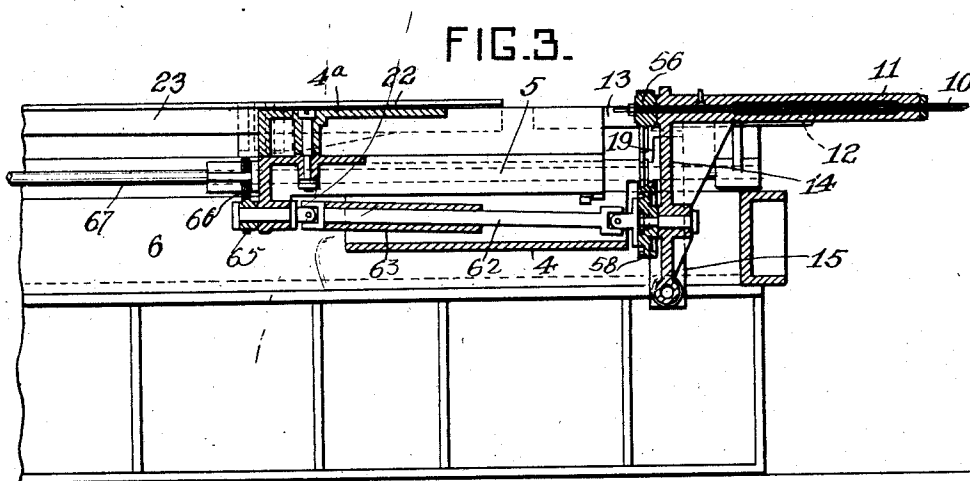
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WITNESSES:

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4 SHEETS--SHEET 3.

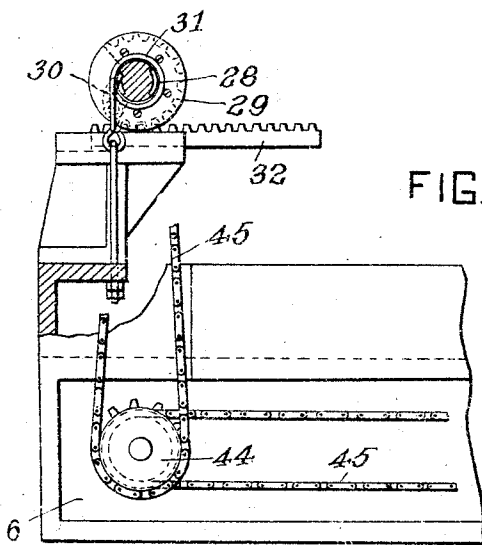
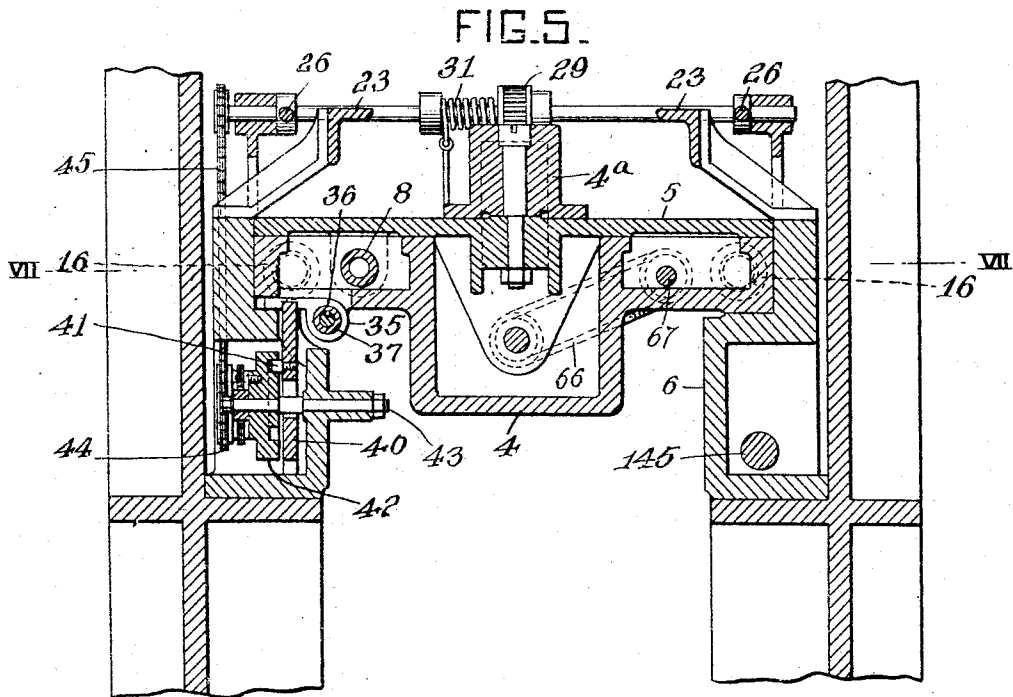
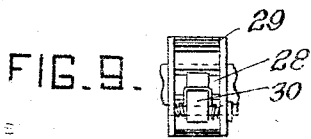
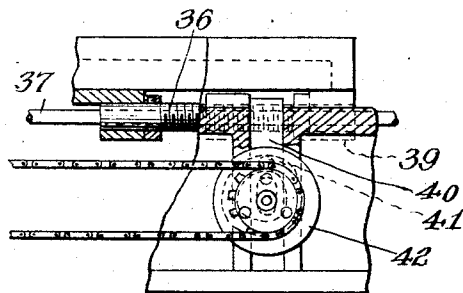
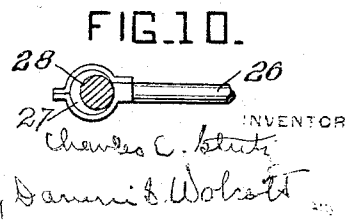


FIG. 6.



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4 SHEETS—SHEET 4.

FIG. 7.

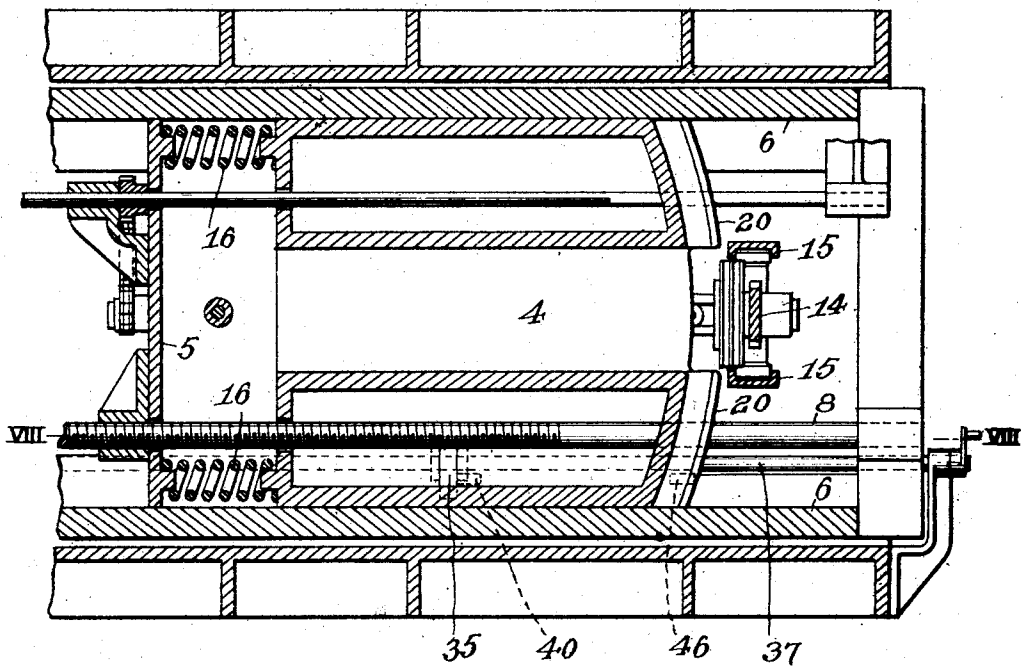
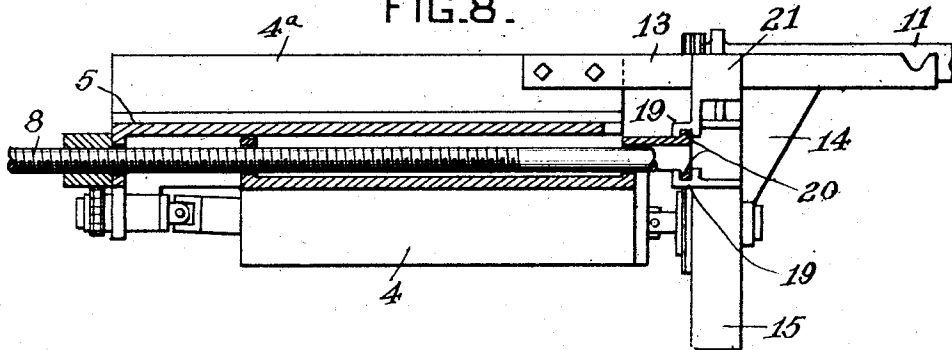


FIG. 8.



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UNITED STATES PATENT OFFICE.

CHARLES C. STUTZ, OF NORWOOD, OHIO.

MACHINE FOR GATHERING GLASS.

1,037,363.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed December 22, 1911. Serial No. 667,406.

To all whom it may concern:

Be it known that I, CHARLES C. STUTZ, residing at Norwood, in the county of Hamilton and State of Ohio, a citizen of the United States, have invented or discovered certain new and useful Improvements in Machines for Gathering Glass, of which improvements the following is a specification.

As is well known to those skilled in the art it is impracticable to gather glass by a ladle or rod from a molten mass without the formation of strands extending from the gather to the mass of glass. When this strand is severed a portion drops back into the mass and it requires time for such returned portion to become incorporated with the mass. And further the rod or ladle being colder than the glass, portions of the glass adjacent to the point of immersion of the ladle or rod become chilled to such a degree, that if a second gather is made immediately at the same point as the first the glass of the second gather will lack uniformity and lines, etc. will appear in the article formed therefrom.

The invention described herein has for its object the provision in an automatic gathering machine of means insuring the gathering of the desired amount of glass from different points of a molten glass supply, the points of successive gathers being sufficiently separated from the point or points of previous gathers to insure the picking up of glass unaffected by the previous gather.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification Figure 1 is a sectional elevation of a gathering machine embodying my improvements; Fig. 2 is a top plan view of the front portion of the machine on an enlarged scale; Fig. 3 is a sectional elevation on a plane indicated by the line III—III Fig. 2; Figs. 4 and 5 are transverse sections on planes indicated respectively by the lines IV—IV and V—V Fig. 2; Fig. 6 is a view partly in elevation and partly in section showing portions of the moving frame and illustrating certain portions of the controlling devices; Fig. 7 is a transverse section on a plane indicated by the line VII—VII Fig. 5; Fig. 8 is a sectional elevation on a plane indicated by the line VIII—VIII Fig. 7; Figs. 9 and 10 are detailed view of portions of the mechanism

employed for shifting the swinging tool carrying member.

While I have shown my improvement as embodied in machine particularly adapted for supplying molds as described and shown in Letters Patent No. 1,007,156 dated October 31, 1911, the invention is not limited as regards the broader claims to supplying any particular arrangement of molds, nor to the specific structural arrangements and constructions herein shown and described.

In the form of mechanism herein shown the ladle 9 is carried by rod 10 having its rear end movably mounted in a sleeve 11 which is provided with trunnions 12 having their journals mounted in notches in the arms 13. These arms are secured to the swinging member 4^a which is pivotally mounted on the upper slide 5 mounted on the slide 4. This slide 4 is in turn mounted on a frame 6 which may be stationary or may be reciprocated dependent on the number and arrangement of molds to be charged as clearly shown and described in the Letters Patent above referred to. The upper or tool slide 5 is reciprocated by a screw 8 which is preferably rotated by mechanism substantially similar to that employed in the patented machine and the lower or tool tipping slide 4 is moved forward by the slide 5 through the medium of springs 16, so that the slide 5 may move independent of slide 4 as will be hereinafter described. The rearward movement of the slide 4 is also effected by slide 5 by means of a stop 18 on slide 5 engaging a portion of slide 4 or in any other suitable manner.

The tool carrying sleeve 11 is provided with an angularly arranged arm 14 provided at its lower end with lateral projections, preferably in the form of rollers engaging guide ways 15, which is carried on a slide 19 mounted on a curved guide 20 on the front end of the lower slide 4, the center of curvature of the guide coinciding with the center of movement of the swinging member 4^a. As will be seen by reference to Figs. 1 to 4 the arms 13 on which the ladle is carried while being shifted back and forth, extend through slots 21 in the slide 19, thus insuring coincident and equal movements of the slide 19 and the swinging member. As fully set forth in the patent referred to the slides 5 and 4 move forward together until the gathering means as the ladle is in proper position over the glass

supply, at which time the further movement of the slide 4 is arrested, so that by the continued movement of slide 5 the tool rod is turned on its trunnions 12 moving the
 5 gathering tool into proper relation to the glass supply. As the tipping guide 15 follows the movements of the swinging member 4^a and the tool rod 10 the latter can be shifted vertically in either of the horizontal
 10 positions it is caused to assume as herein-after described.

In the embodiment of my invention which is adapted for supplying molds arranged in tandem as shown and described in the
 15 patent referred to, the gathering of glass is effected on opposite sides of the line on which the molds are arranged and hence provision is made for shifting the swinging member 4^a and the tool carrying rod to
 20 one side or the other of the line on which the molds are arranged, as the slides 4 and 5 move forward, and to bring said parts into alinement with the molds after the glass has been gathered, and as the slides
 25 4 and 5 move back. A suitable construction for shifting the swinging member consists of arms 22 so pivotally mounted at the forward ends of guides 23 that when in mid-position the inner edges of these arms will
 30 be in alinement with the inner edges of the guides onto which rollers 24 will be directed by the arms as the slides 4 and 5 move back. The arms are provided with angular extensions 25 to which are connected rods 26
 35 provided at their rear ends with straps surrounding eccentrics 27 oppositely secured on shaft 28. On this shaft 28 is loosely mounted a pinion 29, which when rotated in one direction will effect the rotation of the
 40 shaft through the medium of a pawl 30. This pawl is mounted in a recess in the pinion in such manner as to engage shoulders on the shaft, as shown in Figs. 6 and 7. The reverse movement of the pinion on the
 45 shaft is effected by a spring 31. This pinion is operated to shift the eccentrics 27 by a rack 32 which is pushed back by the slide 5 as it approaches the rearward limit of its movement. The relative arrangement of
 50 the shoulders on the shaft and the movement imparted to the rack by the slide 5 will depend upon the lateral movement to be imparted to the gathering tool for the succeeding gather. By the shifting of the
 55 eccentrics the arms 22 are shifted from one position to the other, while the slide 4 is in its rear position, so that when during the next forward movement of the slide, the rollers 24 move into the arms, the swinging
 60 member 4^a, the ladle rod, the slide 19, etc. will be shifted to one side of the median line of the machine.

While the rotation of the gathering tool to collect the molten glass may be effected
 65 by any suitable means it is preferred to

employ the means set forth in the patent referred to and shown in Figs. 1, 3 and 4. On the rear end of the rod 10 is secured a drum 56 to which are attached two straps
 57 passing in opposite directions to a second 70 drum 58 loosely mounted on the stud 59 secured to the arm 14. A disk 60 is secured to the drum and is connected by a universal joint 61 to one member of a telescopic shaft consisting of a rod 62 and a sleeve 63 keyed
 75 one to the other so as to rotate in unison but to move longitudinally independently one of the other. The sleeve 63 is connected by a universal joint 64 to a short shaft mounted in the rear end of the upper slide 5. A
 80 sprocket wheel 65 on this shaft is operatively connected by a chain to a corresponding wheel 66 so mounted on the shaft 67 which extends the full length of the machine, as to be rotated thereby and movable
 85 along the same by the slide 5.

It will be readily understood that if the intervals of time between successive gathers are sufficiently long to permit of the restoration of the molten glass to normal or working
 90 condition, only two changes of position of the gathering tool will be necessary. But as in most cases the time interval between successive gathers will be too short for a proper restoration of the glass, provision is
 95 made for other changes of the position of the tool in gathering. As for example the depth of movement of the tool into the furnace or its forward movement over the glass supply may be changed for the second
 100 gather following a lateral change of position as above described. This change in the extent of movement of the tool is effected by varying the forward movement of the slides 4 and 5. In the construction shown
 105 herein, the movement of the slides is effected by the screw 8, as hereinbefore stated. The construction for rotating the screw 8 is preferably as set forth in the patent referred to, *i. e.* a pinion on the screw is driven
 110 through a sprocket chain 150 by a pinion on the shaft 151, which is operated through suitable gearing by the motor driven shaft 161. The stopping, starting and direction of movement of the shaft 151 and consequently
 115 of the slides 4 and 5 is controlled by cam grooves on the drum 169, and connections from said grooves to starting and reversing clutches as fully shown and described in said patent. In the embodiment
 120 of the invention set forth herein a dipping or gathering cycle will involve two long and two short strokes or movements of the slides 5 and 4 and consequently the grooves in the drum 169 are constructed for four periods.
 125 But when using my improved gathering mechanism in connection with a three unit shaping machine as shown and described in the patent referred to, the frame 6 will be shifted only two times during a dipping cy-
 130

cle, as said frame is not moved when the first mold of the series is charged. As in the patent, this slide is reciprocated preferably by a threaded shaft 145, driven from shaft 8,

5 which has keyed thereon a pinion 146 intermeshing with a pinion 147 loosely mounted on shaft 145, but adapted to be operatively connected thereto by a clutch 148. This clutch is shifted by the cam 169^a. This
10 cam is loosely mounted on a stud and is adapted to be rotated through a sprocket chain 33 by a sprocket wheel 34 on the shaft carrying the drum 169. The mechanism operating the threaded shaft 145 is so
15 constructed and driven, that the frame 6 will be shifted during two dipping or gathering movements, but will be stationary during the third gathering and mold charging movements.

20 The movement of the tool down to gather glass is effected by checking the movement of the lower slide 4 while the upper slide continues its forward movement. The stopping of the forward movement of the lower
25 or tipping slide is effected by suitable stops, the position of one of which must be changed to correspond with the change in the forward movement of the slides as hereinbefore described, and also to vary the downward
30 movement of the tool, as the level of the glass in the supply changes. In the construction shown, which is preferred although other forms may be used, the mechanism for
35 arresting slide 4 at the ends of the shorter tool movements is carried in part by said slide and in part by the frame 6. The elements carried by the slide 4 consist of a nut
40 35 provided with a lateral extension and mounted on a threaded sleeve 36 through which passes a rod 37 having its ends supported in bearings 38 secured to the frame of the machine. The ends of the sleeve are
45 so held in lugs 39 on the slide 4 as to move the sleeve along the rod 37 but permitting the sleeve to be rotated by the rod, to which it is splined, for adjusting the position of
50 the nut. The other elements of the stop mechanism, consists of a vertically movable slide 40 provided with a projection 41 extending into a cam groove in the disk 42
loosely mounted on the stud 43. The rotation of the disk to move the slide into and
55 out of the path of movement of the nut or stop member 35 is effected by the shaft 28 through suitable sprocket wheels 44 and chain 45, as shown in Fig. 6. The groove in disk 42 is so constructed, and the disk is so
60 rotated that the slide 40 will extend into the path of movement of the stop 35 during two successive forward movements of the slides 4 and 5 and will be withdrawn during the next two or longer forward movements of the slide 4, which is then stopped to dip the
65 tool by the fixed stop 46.

It is characteristic of my improvement

that the point of gather can be varied either by shifting the tool carrying devices laterally or by varying the length of stroke of such devices, and that by suitably combining
70 such change producing means of position a plurality of points of gathering may be obtained, and in that way rendering it possible to reduce the intervals of time between successive gathers.

It will be understood that suitable means
75 are to be employed for removing the glass from the gathering tool and transferring it to the molds. As for example when using my improvements in connection with the apparatus shown and described in the patent
80 referred to the glass may be charged into the molds in the manner therein set forth. The movement necessary to gather the glass is imparted to the tool in any suitable manner after the latter has been brought into
85 operative relation to the glass supply.

I claim herein as my invention:

1. In an apparatus for gathering glass, the combination of a gathering tool, means
90 for shifting such tool to and from position over a glass supply and means for automatically varying the forward movement of the tool relative to such glass supply.

2. In an apparatus for gathering glass, the combination of a gathering tool, means
95 for shifting such tool to and from position over a glass supply, means for automatically varying the forward movement of the tool relative to such glass supply and means for
100 moving the tool to effect the gathering of a portion of the glass.

3. In an apparatus for gathering glass, the combination of a gathering tool, means
105 for moving the tool to and from position over a glass supply, means for automatically varying the forward movement of the tool relative to the supply, means for moving the tool vertically and means for varying
such vertical movement.

4. In an apparatus for gathering glass,
110 the combination of a gathering receptacle, a carrier therefor, means for reciprocating the carrier to bring the receptacle to gathering and discharging positions, means for shifting
115 the carrier laterally during such reciprocation, means for varying the reciprocation of the carrier, and means for rotating the receptacle to gather glass.

5. In an apparatus for gathering glass, the combination of a gathering tool, a tool
120 carrier, means for reciprocating the carrier to bring the receptacle to gathering and discharging positions, means for varying the reciprocation of the carrier, means for shifting the carrier laterally during such reciprocation and means for moving the tool ver-
125 tically.

6. In an apparatus for gathering glass, the combination of two slides, means for
130 moving said slides, means for automatically

varying the movements of the slides in a forward direction, automatically variable means for arresting the forward movement of one of the slides, a tool carried by one of the slides and means for moving the tool vertically carried by the other slide and operative on the arrest of the slide to move the tool vertically.

7. In an apparatus for gathering glass, the combination of a slide, a laterally movable member mounted on the slide, a gathering tool carried by such member, means for reciprocating the slide, means for varying the reciprocation of the slide and means for shifting the tool carrying member laterally.

8. In an apparatus for gathering glass, the combination of a slide, a laterally movable member mounted on the slide, a gathering tool carried by the member, means for reciprocating the slide, means for varying the reciprocation of the slide and means operative by the slide for shifting the member laterally.

9. In an apparatus for gathering glass, the combination of two slides, a laterally movable member mounted on one of the slides, a gathering tool carried by said member, means for moving the gathering tool

vertically mounted on the other slide, means for reciprocating said slides, and means for moving the laterally movable member and the tool shifting means laterally of the slides.

10. In an apparatus for gathering glass, the combination of a reciprocating slide, a laterally movable member mounted on the slide, a gathering tool carried by the member, means for reciprocating the slide, means for shifting the member vertically, and means for returning the member to normal position.

11. In an apparatus for gathering glass, the combination of two slides, a gathering tool carried by one of the slides, means for moving the tool vertically carried by the other slide, automatically variable means for reciprocating the slides, stops for arresting the forward movement of the tool tipping slide, and automatic means for shifting one of said stops to inoperative position.

In testimony whereof, I have hereunto set my hand.

CHARLES C. STUTZ.

Witnesses:

HOWARD FERRIS,
JAMES KENNEDY.