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TAKE-DOWN DEVICE FOR GLASS DRAWING APPARATUS.

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1,260,081. Patented Mar. 19, 1918.

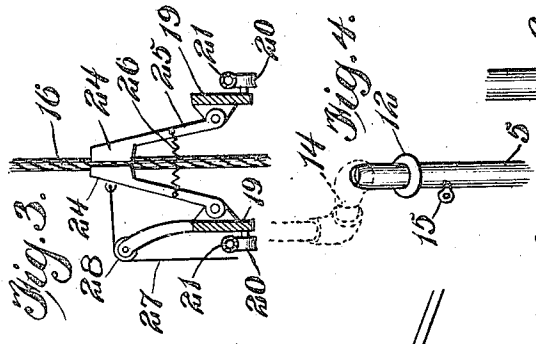


Fig. 3.

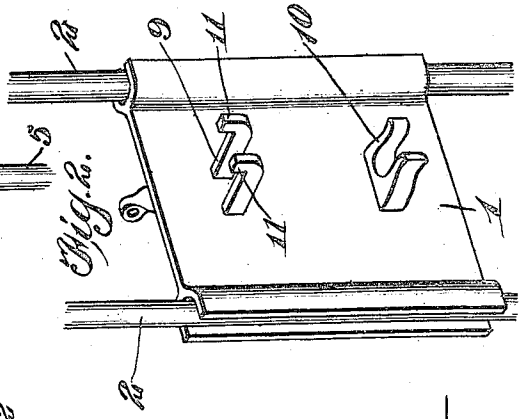


Fig. 2.

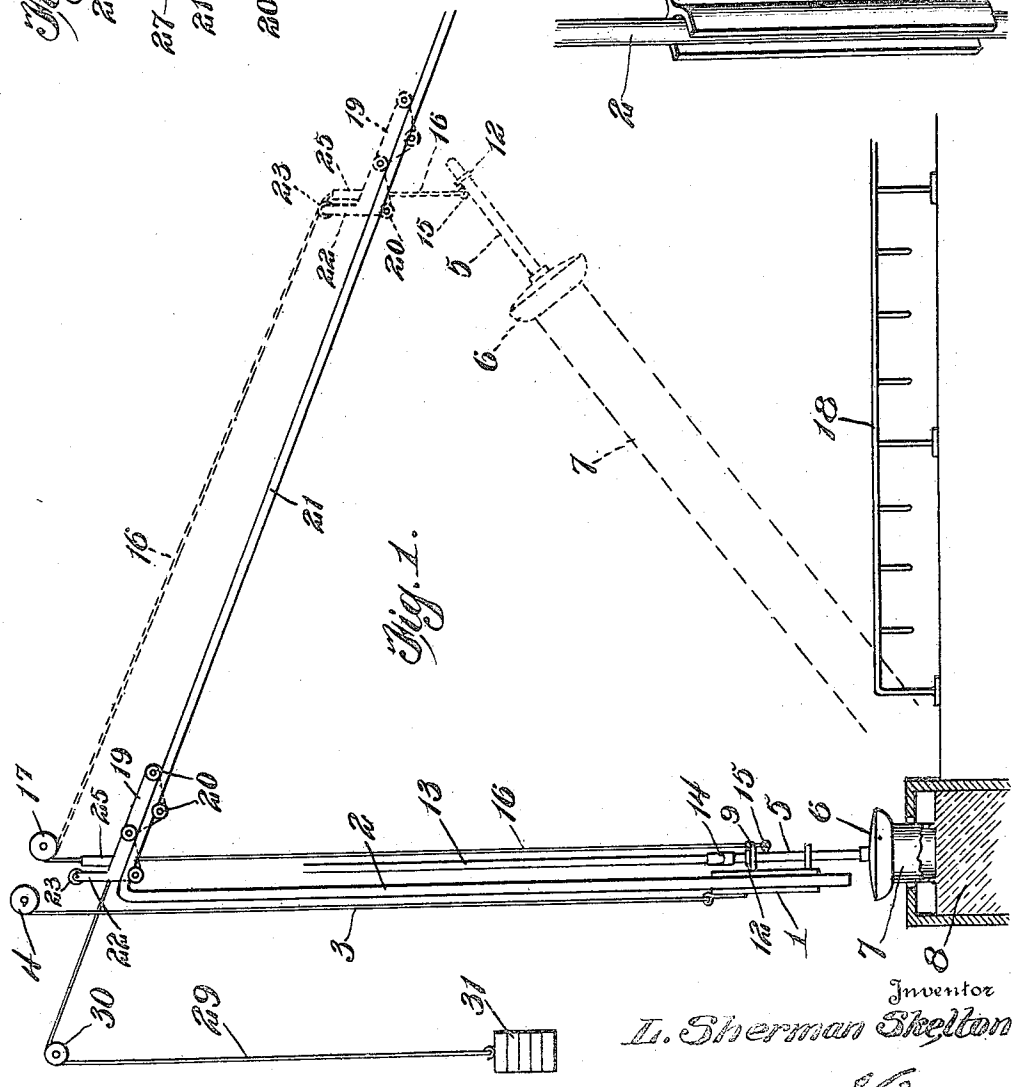


Fig. 1.

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TAKE-DOWN DEVICE FOR GLASS-DRAWING APPARATUS.

1,260,081. Specification of Letters Patent. Patented Mar. 19, 1918.

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To all whom it may concern:

Be it known that I, LEVI SHERMAN SKELTON, a citizen of the United States, residing at Okmulgee, in the county of Okmulgee and State of Oklahoma, have invented new and useful Improvements in Take-Down Devices for Glass-Drawing Apparatus, of which the following is a specification.

This invention relates to a take-down device for glass drawing apparatus, whereby the glass cylinder drawn by the action of the drawing tool may be turned and lowered from a vertical to a horizontal position and deposited into a receiver.

The primary object of the invention is to provide a take-down device by means of which the glass cylinder may be easily, conveniently and quickly handled, with a maximum degree of safety and a minimum degree of liability of accident or breakage.

A further object of the invention is to provide a take-down device which embodies means for positively holding the drawing tool and cylinder, when released from the drawing carriage, against any possibility of disconnection from the take-down mechanism until positively released and safely deposited in the receiver.

The invention consists in the features of construction, combination and arrangement of parts hereinafter more fully described, reference being had to the accompanying drawings, wherein:

Figure 1 is a view in elevation of a drawing mechanism and the improved take-down device, showing in full lines the normal position of the parts for a cylinder drawing action and showing in dotted lines the action of the take-down device;

Fig. 2 is a perspective view of the draw-carriage;

Fig. 3 is a detail section of the safety grip device; and

Fig. 4 is a detail view of the top of the drawing tool.

In the illustrated embodiment of my invention, I have shown a drawing mechanism including a draw-carriage 1 movable in guided engagement with and between a pair of vertically disposed guide rails 2 and connected with a draft cable 3 operated from a winding drum or hoist gear 4, whereby the carriage is raised and lowered. The carriage supports a drawing tool 5 comprising a tube carrying the usual bait 6 whereby the glass cylinder 7 is drawn from the glass contained in the glass reservoir 8. The tool 5 is releasably supported in position upon one side of the carriage, and to this end the carriage is provided with a pair of holding forks 9 and 10 arranged one above the other, the fork arms 9 being provided with upturned retaining lugs or shoulders 11. The tool 5 is adapted to be disposed between the arms of each fork and is provided with an annular collar or shoulder 12 to rest upon the upper surfaces of the upper fork arms 9 and to bear against the lugs or shoulders 11, by means of which the tool is normally held from displacement. The tool is adapted, however, to freely move, without interference, into and out of engagement with the fork 10, and when elevated sufficiently to bring the collar 12 above the plane of the lugs 11 may also be moved freely into and out of engagement with the fork 9.

Arranged for coöperation with the tool 5, which is movable upwardly and downwardly with the draw-carriage 1, is an air supply pipe 13 which is movable upwardly and downwardly therewith, and which in practice is supplied with air from a suitable source for passage through the tool 5 to the interior of the cylinder 7 for a purpose well known in the art. The tool 5 is releasably connected with the lower end of the pipe 13 by means of a swiveled coupling 14, which is preferably of the double-L or so-called Street type, the construction being such that when the tool 5 is moved upwardly and outwardly from engagement with the forks 9 and 10 the coupling 14 will be tilted out of engagement therewith.

The tool 5 has connected therewith a screw eye 15 to which is attached one, the lower, end of a take-down cable 16, which cable is connected with and operated by means of a winding drum or hoist device 17. This cable is provided for the purpose of releasing the drawing tool from the draw-carriage and supporting the drawn cylinder and effecting the tilting or downward movement of the cylinder from a vertical to a horizontal position, the cylinder being deposited within a horizontally arranged U-shaped receiver cradle or trough 18, arranged in suitable proximity to the drawing apparatus.

A guide carriage 19 is provided for guiding the take-down cable 16 in its movements in effecting the take-down action, and this carriage 19 is provided with upper and

lower sets of wheels or rollers 20 to travel upon track rails 21, which rails 21 lead at a desired outward and downward slope or angle from the upper ends of the rails 2 above the receiver 18 and to a suitable point beyond the outer end thereof. The inner end of the carriage 19 is provided with an upright 22 provided with a guide sheath or pulley 23 for the cable 16, which cable extends upwardly through an opening in the carriage and between the curved faces of a pair of opposed gripping jaws 24 of an automatic gripping device whereby the cable 16 is adapted to be gripped and controlled in the take-down action. The jaws 24 are carried by arms 25, pivotally mounted upon the carriage 19 for movement toward and from each other to effect the closing and opening of the jaws, the jaws and arms being normally arranged so that they will be normally held in gripping position during the drawing action and at all times when weight is imposed upon the drawing tool carrying end of the cable. If desired, a spring 26 may be employed to assist in holding the jaws normally closed, and a cable or trip line 27 is provided for opening or releasing the jaws, which cable hangs pendent from the carriage 19 and passes over a guide pulley 28 mounted on the carriage, and is connected with one of the jaws. Also connected with the carriage 19 is a rope or cable 29 passing over a supporting pulley 30 and carrying a counter-balancing weight 31, the arrangement of the said parts being such that the weight 31 normally serves to hold the carriage 19 at the upper end of the trackway 21, which position said carriage occupies during the drawing action, said weight also serving to return the carriage to normal position at the upper end of the trackway 21 after it has been moved downwardly along said trackway for the take-down action and when said action is completed.

In the operation of the device, the parts are normally arranged as shown in full lines in Fig. 1, the drawing tool being supported by the carriage as described and operatively connected with the air supply or blow pipe 13, and the carriage 19 being disposed at the upper end of the trackway 21. The cylinder 7 is then drawn by means of the drawing tool in the usual manner, in which operation the carriage 1 travels upwardly on the track rails 2 until a cylinder of the desired length is drawn. The carriage 1 is then held against further upward movement and the drum 17 operated to wind up the depending portion of the cable 16, which action is permitted without resistance, as the cable slides freely between the gripping jaws 24. By this operation the tool 5 is lifted out of engagement with the forks 9 and 10 and out of connection with the coupling 14, the tool 5 thus being released from the carriage so that the cylinder 7 may be severed at its lower end from the bath 8 and then swung downwardly into the receiver 18. In effecting this swinging motion of the cylinder 7 to a horizontal position, the lower end of said cylinder is disposed so that it will be brought into engagement with the adjacent end of the receiver 18 when its swinging movement begins, and the drum 17 is then operated to let out the cable 16, whereby, under the weight of the cylinder 7, the carriage 19 will travel against the resistance of the weight 31 down the track rails 21, thus swinging the upper end of the cylinder in such direction and until the cylinder assumes the inclined position shown in dotted lines in Fig. 1, in which it is disposed immediately above the receiver 18. At this stage, the cord or line 27 is pulled to release the jaws 24 from gripping engagement with the cable 16, whereby said cable will freely move through the carriage 19 and thus permit the cylinder 7 to tilt downward until it assumes a horizontal position and is deposited in the receiver 18, the movement of the cable 16 being controlled and regulated through the action of the winding drum 17, as will be readily understood. The cylinder is thus detached from the bait, whereupon the weight 31 will draw the carriage 19 back to normal position, so that by control of the cable through the action of the drum 17 the tool 5 may be lowered and again brought into engagement with the forks 9 and 10 of the carriage, thus resetting the drawing mechanism for the succeeding drawing operation.

It will be seen that by the use of my improved take-down device, which is of an exceedingly simple construction, the cylinder may be quickly and easily tilted from the vertical position it occupies when fully drawn to a horizontal position and deposited in the receiver, and that the construction is such as to effect the quick disconnection of the drawing tool in this operation from the draw-carriage and the quick return of the parts to normal position after use, for the next drawing operation. Also, it will be seen that by means of the automatic gripper the drawing tool 5 and cylinder 7 will be supported and held, through the gripping action of the jaws 24 upon the cable 16, so as to obviate any liability of the tool and cylinder falling or getting beyond control, and thereby reducing to the minimum liability of accident or breakage of the cylinder from such cause. Also, it will be seen that the upper end of the cylinder will be held elevated during the take-down action until the carriage 19 reaches the limit of its outward movement, while the portion of the cable between said carriage and the drum 17 is winding out, allowing the carriage to

have free running motion without liability of the drawing tool or cylinder being released. Absolute safety will thus be secured in the take-down action, the drawing tool and cylinder being positively held until the trip line 27 is actuated to release the gripping jaws for the downward movement of the cylinder into the receiver.

I claim as my invention:

1. A take-down mechanism for glass drawing apparatus including a take-down cable for supporting a drawing tool when released from its cage, a guide carriage movable in a plane inclined to the horizontal and with which said take-down cable is in guided connection, winding mechanism controlling said cable, gripping mechanism upon the guide carriage for automatically engaging and holding the tool supporting portion of said cable from independent downward movement, and means for releasing said gripping mechanism.

2. A take-down mechanism for glass drawing apparatus including a guide carriage movable in a plane inclined to the horizontal, a hoisting device arranged above the path of travel of said guide carriage, a take-down cable for supporting a drawing tool when released from its cage, said cable extending through and in guided connection with the hoisting device, automatic grippers upon the guide carriage for engaging and holding the depending portion of said cable from downward movement, and tripping means for releasing said grippers to permit free running movement of the cable through the guide carriage.

3. A take-down mechanism for glass drawing apparatus, including a guide carriage movable in a plane inclined to the horizontal, a hoisting device arranged above the highest point of travel of said guide carriage, a take-down cable extending from the hoisting device for connection with a drawing tool and in guided connection with the guide carriage, gripping means upon the guide carriage for automatically engaging and holding the depending portion of the take-down cable from downward movement, means for releasing said gripping means, and means connected with the guide carriage for automatically returning it to normal position after actuation.

4. A take-down device for glass drawing apparatus including an inclined track, a guide carriage movable along said inclined track, a hoisting device arranged above the level of said track, a take-down cable extending from said hoisting device for connection with a drawing tool and in guided connection with the guide carriage, a gripping device upon the guide carriage for engaging and normally holding the depending end of the cable from downward movement, and means for releasing the said gripping device.

5. A take-down device for glass drawing apparatus including an inclined track, a guide carriage movable along said inclined track, a hoisting device arranged above the level of said track, a take-down cable extending from said hoisting device for connection with a drawing tool and in guided connection with the guide carriage, a gripping device upon the guide carriage for automatically engaging and holding the depending portion of the cable against downward movement, means for releasing said gripping device, and means for automatically returning the guide carriage to normal position after actuation.

6. A take-down device for glass drawing apparatus including an inclined track, a guide carriage movable upon said track, a hoisting device arranged above the highest point of the track, a cable connected therewith and extending downwardly through the carriage in guided connection therewith, a gripping device upon the carriage operating to normally hold the depending end of the cable from downward movement, and means for releasing said gripping device to permit the cable to move through the carriage.

7. A take-down device for glass drawing apparatus including an inclined track, a guide carriage movable upon said track, a hoisting device arranged above the highest point of the track, a cable extending from said hoisting device downwardly through the carriage and in guided connection with the carriage, grippers upon the carriage having gripping jaws for engagement with the cable to hold the same from downward movement while permitting upward movement thereof, means for normally holding said jaws in gripping position, and means for rendering the jaws inoperative for a gripping action, to permit the cable to travel downward through the carriage.

In testimony whereof I affix my signature in presence of a witness.

L. SHERMAN SKELTON.

Witness:
BENNETT S. JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."