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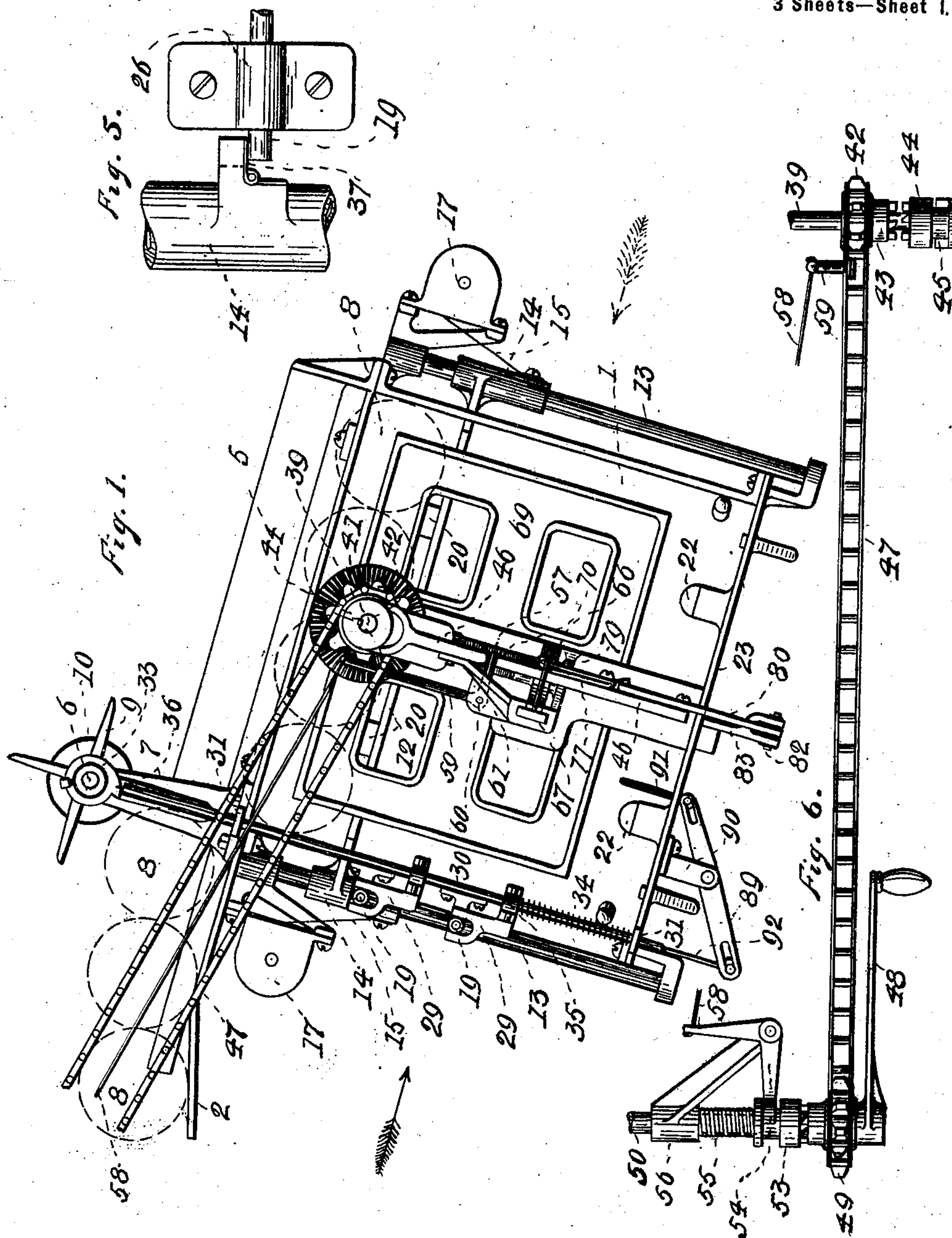
Patented Jan. 7, 1902.

F. W. WILD, JR.
BOXING MACHINE.

(Application filed Aug. 23, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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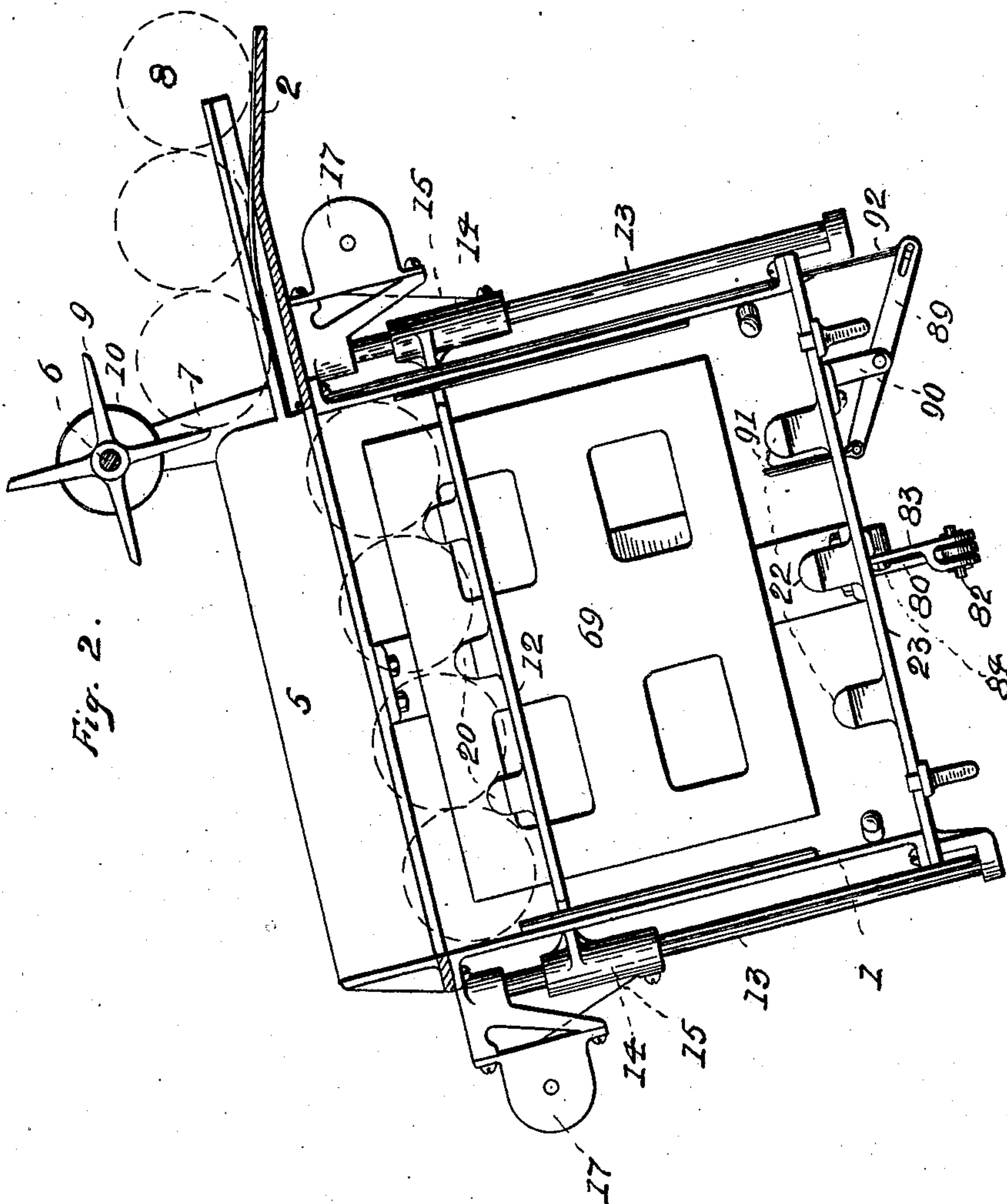
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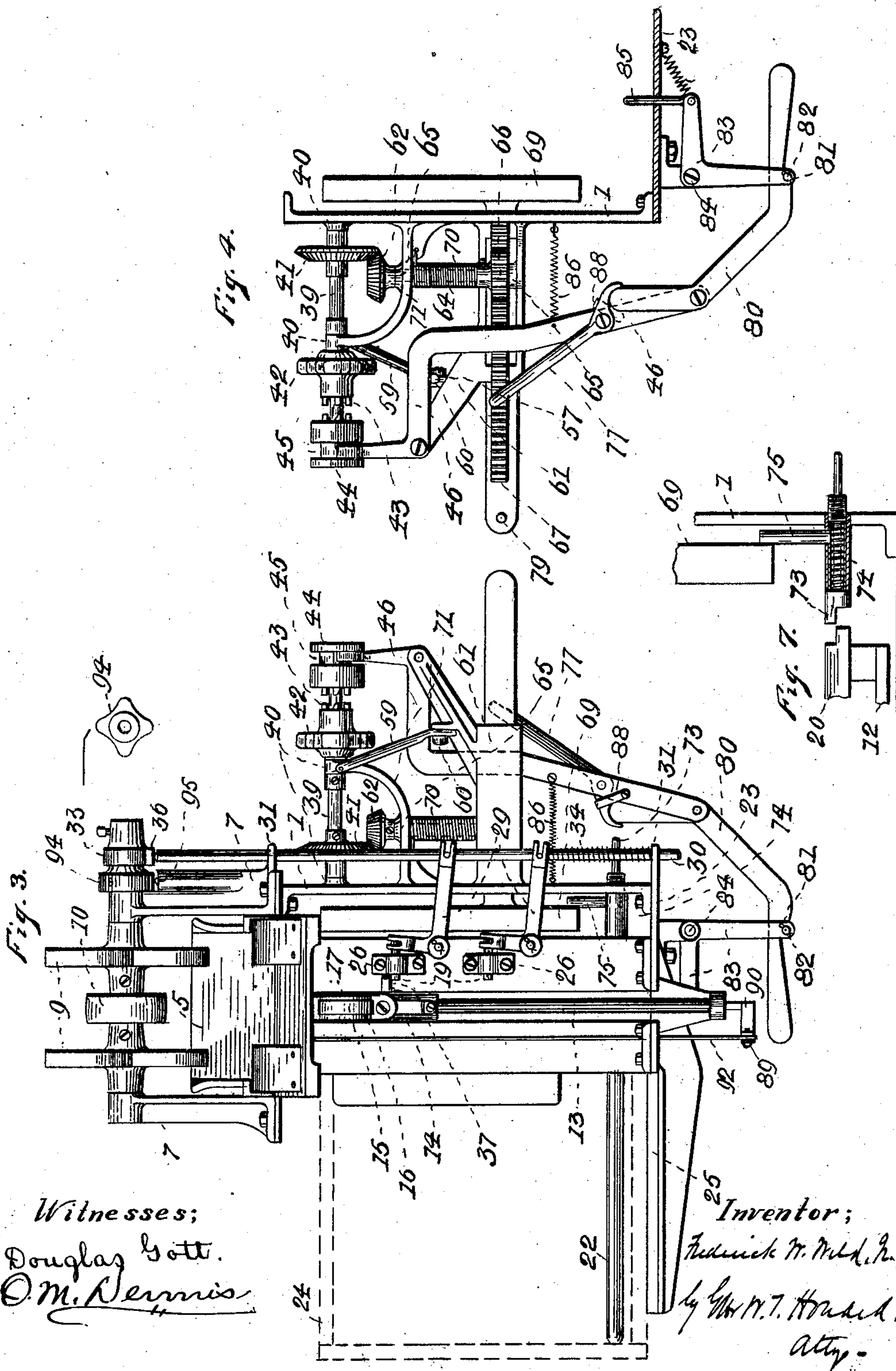
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UNITED STATES PATENT OFFICE.

FREDERICK W. WILD, JR., OF BALTIMORE, MARYLAND.

BOXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 690,805, dated January 7, 1902.

Application filed August 23, 1901. Serial No. 73,000. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. WILD, Jr., of the city of Baltimore, in the State of Maryland, have invented certain Improve-
5 ments in Boxing-Machines to be Used in Connection with Can-Labeling Machines, of which the following is a specification.

In the description of the said invention which follows reference is made to the accom-
10 panying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of the improved machine. Fig. 2 is a side elevation the reverse of Fig. 1. Fig. 3 is an end view of Fig.
15 1 looking in the direction indicated by the full arrow in that figure. Fig. 4 is an end view of certain parts of the machine looking in the direction indicated by the dotted arrow in Fig. 1. Fig. 5 is an enlarged detail of
20 the machine. Fig. 6 is a top view of certain parts of the machine, together with certain parts of a labeling-machine to which the present invention is to be applied. Fig. 7 is a detail of the machine.

Referring now to the drawings, 1 is the frame of the machine, a portion 2 of which constitutes the runway abutting the runway of the labeling-machine (not shown) to which the present invention is applied. The frame
30 is shown in an inclined position, as seen from either side thereof.

By reference to Figs. 1 and 3 it will be seen that the runway 2 leads to an opening 3, which is bounded on three sides by the coam-
35 ing 5, which constitutes a part of the frame 1.

6 is a shaft adapted to turn easily in the stands 7, erected on the upper part of the frame 1. This shaft carries the star-wheels 9 and the roller 10, which is situated between
40 the two star-wheels and serves to keep the cans on the rails forming the runway. The star-wheels are rotated by the cans 8, delivered to the boxing-machine from the labeling-machine and serve to separate the delivered
45 cans. They also primarily operate certain mechanism hereinafter described.

12 is an inclined movable platform guided by the rods 13, the platform having sleeves 14, which loosely fit the said rods.

50 The platform 12 is held yieldingly in its highest position by means of the flexible straps 15, which connect the sleeves 14 with

spring-held drums 16 (shown only in Fig. 3) and which rotate in cases 17. The tension of the said springs is such as to retain the plat-
55 form in an elevated position except when the same is occupied by four cans. Consequently when four cans are deposited on the platform, as hereinafter described, it has a tendency to descend and carry with it the cans
60 resting thereon. The platform, however, is supported while the four cans are being arranged thereon by means of the upper sliding bolt 19, shown best in Fig. 3, and hereinafter more fully described.

On the platform 12 are secured the partition-bars 20, which divide the platform into four spaces for the reception of the cans. These bars, when the platform is in its lowest position, register with similar bars 22,
65 70 which are on and project laterally from the bottom 23 of the frame 1.

The partition-bars 22 are elevated somewhat above the bottom 23 of the frame 1 in order that a packing-box 24, in which the cans
75 are to be placed and shown only in dotted lines in Fig. 3, may be slid on rails 25 up to the frame to receive them.

The bolts 19, hereinbefore alluded to, are arranged to slide in bearings 26 on one side
80 of the frame 1, and they are each connected by a bell-crank 29 to a vertical rod 30, adapted to slide in bearings 31. The upper end of this rod is held yieldingly in contact with a cam 33, which is tight on the shaft 6, by means of
85 the coiled spring 34, confined endwise between a collar 35, to which the lower bell-crank 29 is pivoted, and the lower bearing 31.

The cam 33 has an operative spur 36, which at each complete rotation of the star-wheels 9
90 momentarily depresses the rod 30 and trips or withdraws the bolts 19.

The bolts 19, when the rod 30 is in an elevated position, are in the path of a hinged downwardly-swinging lug 37 (see Figs. 3 and
95 5) on one of the sleeves 14. Consequently the platform 12 is held until, say, the upper supporting-bolt is withdrawn, when it falls and the lug is caught by the lower bolt, which as the platform descends is thrown inward.

39 is a shaft which rotates in bearings 40, carrying the tight beveled gear-wheel 41 and the loose sprocket-wheel 42, the outer side of which is provided with the clutch member or
100

face 43. The said shaft also carries a clutch member 44, slidably splined thereto, having the groove 45 to receive the end of the shifting bell-crank lever 46, hereinafter described.

5 The loose sprocket-wheel 42 is connected by a chain belt 47 (see Fig. 6) to a sprocket-wheel 49, which is loose on the driving-shaft 50 of a labeling-machine (not shown) and which has a crank-handle 48 for operating the
10 said machine and discharging the labeled cans from it to the boxing-machine.

The sprocket-wheel 49, which, as before stated, is loose on the shaft 50, has a clutch-face in like manner to the sprocket-wheel 42
15 on the shaft 39 of the boxing-machine. The shaft 50 of the labeling-machine is provided with a clutch 53, slidably splined to the said shaft, and the said clutch is circumferentially grooved for the shifting bell-crank lever 54.

20 The said clutch is held yieldingly in contact with the clutch-face of the sprocket-wheel 49 by means of the coiled spring 55, which extends between the bracket 56, to which the shifting bell-crank 54 is pivoted, and the face
25 of the clutch member 53.

The free arm of the bell-crank 54 is connected by a wire 58 to an arm 59, pivoted at 60 to a guide 61, hereinafter described as forming a part of the frame 1. This arm has a toe
30 57, which is situated under a horizontal part of the shifting bell-crank lever 46, below the pivot thereof.

The clutch faces or members of the sprocket-wheels 42 and 49 are on opposite sides of
35 the said wheels. Consequently when one sprocket-wheel is in clutch the other is out.

62 is a beveled pinion tight on the counter-shaft 64, supported in bearings 65, which is in mesh with the beveled gear-wheel 41, and
40 66 is a tight spur-pinion on the lower end of the said counter-shaft.

67 is a rack, the teeth of which are in gear with the spur-pinion 66, fitted to slide in the guide 61, hereinbefore alluded to, and 69 is
45 the boxing-head or can-ejecting device secured to the inner end of the rack 67 to push stacked cans into the box 24, as hereinafter described. Its outward movement or that toward the packing-box is produced through
50 the agency of the spur-pinion 66, and its inward or return movement is effected by a coiled spring 70 on the shaft 64, having one of its ends attached to the bracket 71 and the other to the upper face of the said pinion.

55 As the head is forced outward the coiled spring 70 is tightened, and the resilient action of the said spring effects the withdrawal of the can-ejector or boxing-head or its inward movement.

60 73 is a spring-held bolt (see Fig. 7) adapted to slide in a sleeve 74 and engage with a lip formed on the end of the central one of the bars 20 of the platform 12, and thus hold down that device while the boxing-head 69 is being
65 pushed toward the box 24. The said spring-bolt is held out of action by the can-ejecting device or boxing-head, as shown in Fig. 7,

which engages with a pin 75, projecting upwardly from the said bolt, the bolt becoming operative as the head leaves the pin. 70

77 is a lever pivoted to the lower arm of the bell-crank clutch-shifter 46, the upper arm of which is adapted to engage with the pin 79, projecting laterally from the rack 67, as that device reaches its inward limit. 75

80 is a lever hinged to the lower end of the bell-crank clutch-shifter 46. It is provided with a projection 81, which in one position of the said lever engages with a pin 82 in the lower end of a bell-crank 83, pivoted at 84 to
80 the bottom 23 of the frame 1.

The upper arm of the bell-crank 83 has a pin 85, which passes loosely through a hole in the bottom of the frame 1. The upper arm of the lever 80 is fitted to engage with the
85 lower arm of the lever 77. A stop 88 limits the motion of the lever 77. The spiral spring 86 serves to induce the lower arm of the bell-crank clutch-shifter 46 to move toward the frame 1 and hold the sprocket-wheel 42 out of
90 clutch. Another spiral spring (shown to the right of Fig. 4) is employed to project the pin 85 through the frame 1 to its fullest extent.

89 is a lever hinged to the bracket 90, carrying at one end a pin 91, which, like the one
95 85, passes loosely through a hole in the bottom of the frame 1, and at the other a suitable rod 92, which in certain circumstances extends upward through the runway 2 into the path of the cans as they enter the machine. 100

The rod 92 is normally depressed, so as not to interfere with the entrance of cans to the machine; but when the platform 12 presses down the pin 91 the said rod is elevated and acts as a stop to the cans, as before described. 105

On the shaft 6 is a collar 94, (see Fig. 3,) having four equidistant depressions in its surface, and 95 is a spring-held bolt which enters the depressions in the said collar to cause the star-wheels 9 to hesitate at each
110 quarter-rotation which represents the passage of one can to the platform 12 and, further, prevents momentum from carrying the said wheels too far or past the position which they should occupy when a can has passed
115 one of their points.

Supposing the packing-box 24 to be in the position shown in Fig. 3 by its dotted delineation, the various parts or elements of the boxing-machine to occupy the relative positions shown in the drawings, and the machine to be in operation, motion being communicated to the machine by means of the crank-handle of the driving-shaft of the labeling-machine, the operation of the boxing-
120 machine is as follows: The first can to pass the star-wheels falls to the platform 12 and is prevented from rolling along the same by the first one of the partition-bars 20. The second can, which enters the machine at the
125 next quarter-rotation of the star-wheels, drops to and rolls over the first can, falls to the platform, and is stopped from rolling as was the first. The third and fourth cans fol-

low the same course as that of the preceding ones and are seated side by side on the platform, as shown in Figs. 1 and 2. The upper bolt 19 having been withdrawn from under the hinged lug 37 by the action of the projection 36 of the cam 33, as described, the combined weight of the four cans causes the platform to descend until the said hinged lug comes in contact with the lower bolt 19, which has just been pushed inward by the resilient action of the spring 34, the projection 36 of the cam 33 having passed the upper end of the vertical rod 30, and the platform comes to rest. Four additional cans are now deposited on the platform or on those already seated on the platform, when that device again descends until it reaches the bottom, and after the last four cans have been received the said platform strikes the pins 85 and 91 by reason of its gravity. The clutch member 44 is now pushed into gear with the clutch-face of the sprocket-wheel 42, which is thus placed in rotation and communicates its motion directly to the shaft 39, while the clutch member 53, which slides on a feather on the shaft 50 of the labeling-machine, is detached from its sprocket-wheel, and the said driving-shaft coming to a stop further delivery of cans from the labeling-machine is suspended. The rod 92 being thrown up in a manner and by means before described serves as a stop to hold back the cans which remain on the runway 2. When the platform strikes the pin 85, it (the pin) is forced down and changes the position of the bell-crank lever 83, and the lower arm thereof being swung to the left causes the operation of the lever 80, which in turn actuates the lever 46 so as to throw the clutch 44 into engagement with the clutch-face 43 of the sprocket-wheel 42. This engagement effects the rotation of the shaft 39, together with the beveled gear-wheels 41 and 62, as also the spur-pinion 66, and the rack carrying the boxing-head is pushed toward the packing-box. At the same time the sprocket-wheel 49 on the driving-shaft of the labeling-machine is thrown out of clutch by means of the wire 58 and its attachments and the labeling-machine is stopped. The action of the can-ejector or boxing-head is to push the twelve cans from the platform into the packing-box until their heads are flush with the edge of the same, and as soon as this is accomplished the pin 79 coming into contact with the long arm of the lever 77 the lower arm of the lever 80 is lifted, thus detaching its projection 81 from the pin 82, when the lower arm of the bell-crank 46 is drawn back by the spring 86 and the sprocket-wheel 42 unclutched while the one 49 is placed in clutch. The uncoiling of the spiral spring 70 now causes the boxing-head to be drawn back to its original position, and the platform being released from engagement with the spring-bolt 73 ascends to its highest and original position, when the stacking of cans, as described, is repeated. When the second stack of twelve

cans is forced into the box, the first stack is pushed to its bottom, and the box being full is withdrawn and an empty one substituted for it.

I claim as my invention—

1. In a can-boxing machine, the combination of a runway, a supported downwardly-moving platform to receive cans delivered by or from the runway, detaching devices to effect the drop of the platform as it receives its complement of cans, and a boxing-head with means to move it laterally of the machine to push out the stack of cans which is seated on the platform, to a box placed to receive it, substantially as specified.

2. In a can-boxing machine, the combination of a runway, a downwardly-moving platform to receive cans delivered by or from the runway, spacing mechanism to separate the cans as they are delivered to the platform, a boxing-head with means to force it against the stack of cans and thereby push it to a box situated in alinement with the stack, and devices to withdraw the said boxing-head, and others to return the platform to its highest or original position, substantially as specified.

3. In a can-boxing machine, the combination of a runway, an inclined downwardly-moving platform to receive the cans delivered by or from the runway, partition-bars arranged on the platform, fixed partition-bars situated laterally of the machine and in alinement with those on the platform when the said platform is in its lowest position, adapted to project into a box placed to receive the stack of cans, a boxing-head with means to move it laterally of the machine to push the stack of cans into the packing-box, means to withdraw the boxing-head, and other means to lift the platform to its original position to receive another stack of cans, substantially as specified.

4. In a can-boxing machine, the combination of a runway, an inclined platform to receive cans delivered by or from the runway, the said platform having a downward movement, stop mechanism to hold the downwardly-moving platform during the placing of a layer of cans thereon, means to release the platform before another layer of cans is placed in position on the first or preceding one, a boxing-head with means to force it laterally of the machine and thereby push the stack of cans from the platform to a packing-box, mechanism to withdraw the boxing-head, and other means to reinstate the platform so that it will be in a position to receive the first layer of another stack of cans, substantially as specified.

5. In a can-boxing machine, the combination of a runway, a downwardly-moving platform to receive cans delivered by or from the runway, with stop mechanism to hold the downwardly-moving platform until a layer of cans is deposited thereon, devices to release the said platform when filled, stop devices to hold back the cans delivered by the

runway, after the platform has received its full complement of cans or a complete stack, a boxing-head with means to force it laterally of the machine and push the stack of
5 cans from the platform into the packing-box, mechanism to withdraw the boxing-head, devices to reinstate the platform or place it in its original position, and other devices to withdraw the stop mechanism whereby the pas-
10 sage of cans from the runway is reestablished, substantially as specified.

6. In a machine of the class described, the combination with a can-delivering apparatus, of a preliminary receptacle for cans which is
15 arranged under said delivering apparatus, and a constantly-running driving mechanism, of a can-ejecting mechanism, means whereby the same may be operatively connected with or disconnected from said driving mechan-
20 ism, and an automatic trip mechanism which throws said ejecting mechanism into action, substantially as shown and described.

7. In a machine of the class described, the combination with the preliminary can-recep-
25 tacle, of an ejector arranged therein and adapted to reciprocate horizontally, a rack-bar attached to the ejector, and a lateral guide for said rack-bar, a gear-wheel, which meshes with the latter, means for driving said gear-
30 wheel, a clutch operatively connecting said

gear-wheel and said driving means, and trip mechanism for throwing the clutch into action, substantially as shown and described.

8. In a machine of the class described, the combination with a preliminary can-recepta- 35 cle, of a can-ejector arranged in the latter, a gear-shaft for operating said ejector intermittently, driving mechanism for operating the gear-shaft, a clutch between said driving mechanism and said gear-shaft, and trip mech- 40 anism which includes means for acting on the clutch to force it into action, and a movable device arranged in the path of the cans as they pass into said receptacle, substantially as shown and described. 45

9. In a machine of the class described, the combination with the preliminary can-receptacle, and the can-ejector arranged therein, of gearing for actuating said ejector, a driv- 50 ing mechanism operatively connected with such gearing, a device for temporarily locking the latter with said driving mechanism, and the trip mechanism which shifts said device and is operated by the cans as they pass into place, substantially as shown and de- 55 scribed.

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