No. 703,668. Patented July 1, 1902.

M. PARIDON.

MACHINE FOR BOXING MATCHES.

(Application filed Mar. 12, 1902.)

(No Model.) 2 Sheets—Sheet 1.

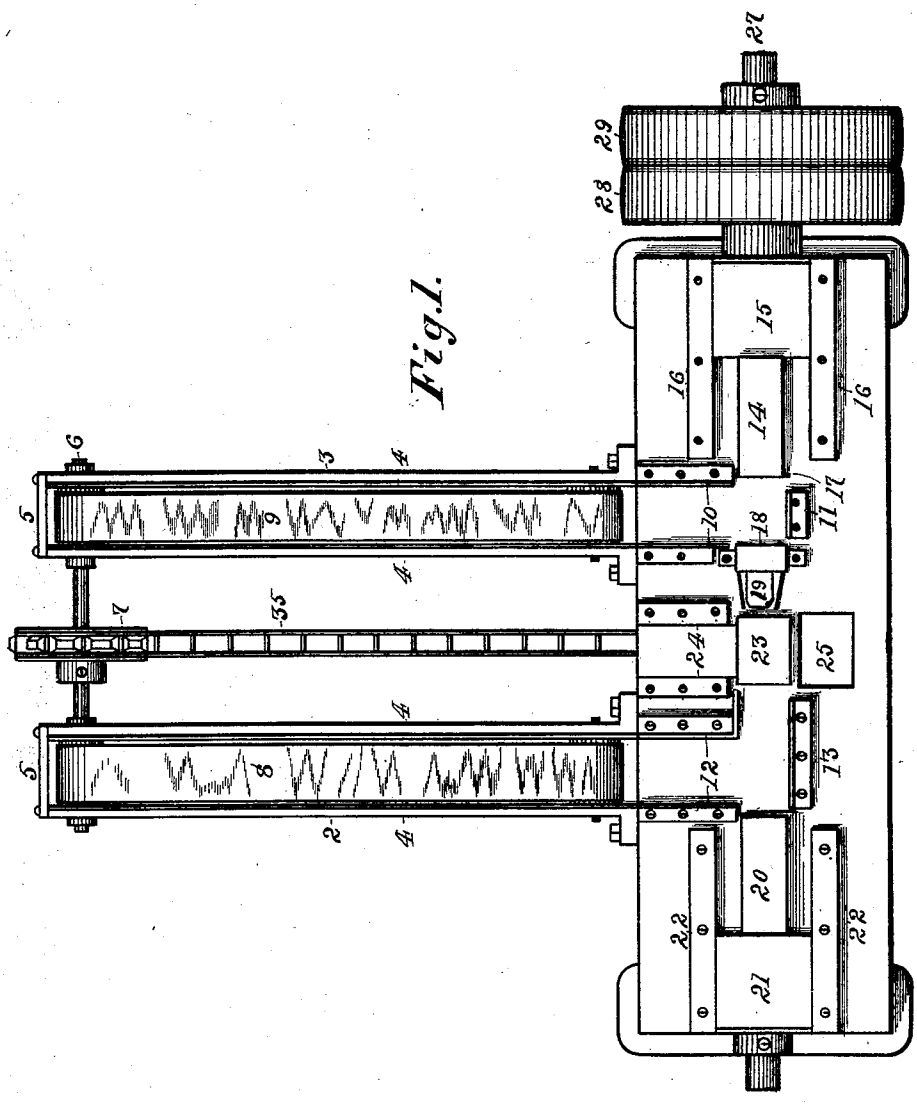


Fig. 1.

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Fig. 3.

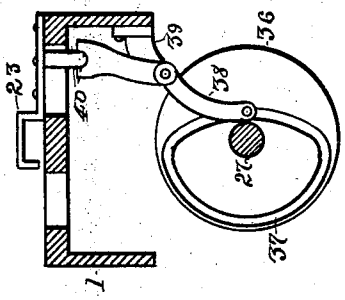
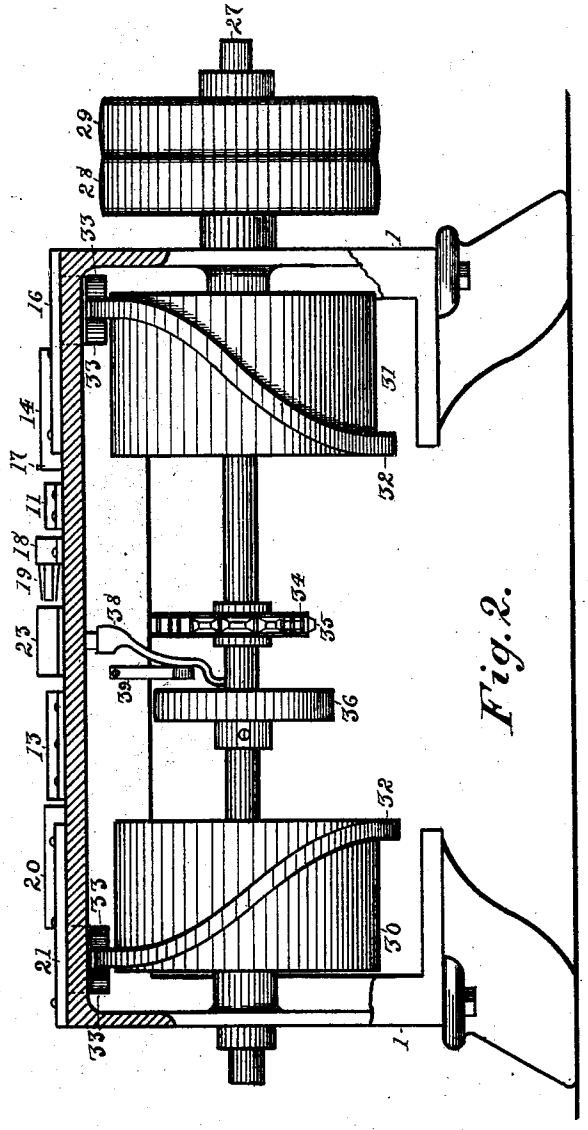


Fig. 2.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR BOXING MATCHES.

SPECIFICATION forming part of Letters Patent No. 703,668, dated July 1, 1902.

Application filed March 12, 1902. Serial No. 97,869. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL PARIDON, a citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Machines for Boxing Matches, of which the following is a specification.

My invention has relation to improvements in machines for the boxing of matches, and has especial relation to the inserting of the drawers previously filled with matches into the cases or shells; and it has for its object the production of a machine which shall rapidly box the matches into condition ready for the market.

In this improvement, which is hereinafter described, it is presupposed that the cases are of the proper size to receive the drawers and that the drawers when delivered to the machine will be filled to their proper capacity with matches.

To attain the aforesaid object, my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically claimed, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar reference-numerals indicate like parts in the different views, Figure 1 is a plan view of the machine; Fig. 2, an elevation looking from the bottom of Fig. 1 with certain parts cut away to better illustrate the interior mechanism, and Fig. 3 is a detail of the ejector used in this machine.

Referring to the drawings, 1 is a hollow box-like table, on the upper face of which is mounted the mechanism which performs the boxing that is sought to be produced by this machine. Extending from one side of the table are two brackets 2 and 3, which consist of side frames 4, bolted to the main table and united at their outer ends by tie-pieces 5, so as to form an oblong hollow frame. Near the outer ends of these side pieces 4 is journaled a transverse shaft 6, having mounted thereon between the brackets 2 and 3 a sprocket-wheel 7, over which runs a sprocket-chain 35 from a second sprocket-wheel, to be described. Mounted on this shaft 6, between the side pieces 4 and substantially central thereon, are two wide-faced pulleys, over which run belts 8 and 9, the other ends of which belts pass over similar pulleys placed in the brackets 2 and 3 adjacent to the table or frame 1. The object and purpose of these belts is to convey to the working mechanism the empty cases and drawers which are to be united on the table-top 1, and in this machine the belt 9 is designed to convey a continuous row of drawers, both drawers and cases being pushed onto the table-top by the cases and drawers immediately following. As the drawers pass onto the table-top they are held in position by side guides 10 and are passed forward, as previously described, until the most advanced encounters the stop 11. At the time that the drawer just described has reached the stop 11 the case into which it is to be placed is carried forward by the belt 8 between the guides 12 until it in turn encounters the stop 13. The stops 11 and 13 are so placed on the table-top as to bring the case and its respective drawer into substantial alinement with one another.

Mounted on the end of the table-top is a reciprocating plunger 14, attached at its rear end to a sliding plate 15, which plays backward and forward upon the upper surface of the table between parallel guides 16. This plunger 14 has at its front upper corners small lugs 17 for a purpose to be stated.

At the instant that a drawer filled with matches reaches the stop 11 the plunger 14 moves forward toward the center of the table by mechanism to be hereinafter described and in its travel encounters one end of the drawer filled with matches, pushes it under a spreader 18, which is placed immediately in the track of the advancing drawer and which consists of a strip of metal fastened to the table and having an interior large enough to allow the passage of the drawer and has on its side opposite to the side of the plunger 14 a series of inturned inclined thin strips of metal 19 to accurately steady the exit of the drawer. Simultaneously with the operation just described the plunger 20 on the opposite end of the table attached to a sliding plate 21, sliding between guides 22, moves forward toward the center of the table and pushes the empty case, which is resting against the stop 13, forward

until the case reaches the thin strips 19 of the spreader 18, over which it rides and slightly incloses, at which time the stroke of the plunger 20 will have reached its extreme limit. As the drawer of matches advances influenced by the plunger 14 it passes through the strips of metal 19 and accurately enters the empty case held on the strips of metal 19 by the plunger 20. The motion of the plunger 14, however, continues, and the lugs 17 on the plunger 14 encounter the end of the case now filled by the drawer of matches, and at the same instant that the drawer is completely within the case the return stroke of the plunger 20 commences, while the stroke of the plunger 14 is still advancing, so that it pushes the now-filled case free from the strips 19.

During the passage of the empty case from its first position in front of the stop 13 it passes under an overhanging ejector 23, which slides transversely across the table between the guides 24, and its motion is such that as soon as the plunger 14 has pushed the filled case free from the strips 19 the filled case will be immediately within the opening in the ejector 23. As soon as this has taken place the ejector is moved forward, carrying with it the filled case the required distance to bring the case immediately over the opening 25 in the table-top 1, through which the box of matches falls to any desired or preferred receptacle. The mechanism to cause these several operations is as follows: Mounted longitudinally and centrally in the table 1 is a shaft 27, bearing on its right end tight and loose pulleys 28 and 29, by which means motion is communicated to the mechanism by any preferred or desired source of power. Immediately within the interior of the table 1 and mounted on the shaft 27 are two cams 30 and 31, having on their outer faces substantially spiral ridges 32. These ridges are arranged to run between rollers 33, mounted on depending lugs situated on the under faces of the plates 21 and 15 and which project through the table-top and run backward and forward in slots placed in the table for this purpose. By the rotation of these cams the plungers 14 and 20 are caused to reciprocate to and fro, approaching and receding from the center of the table. The mechanism which is designed to cause the belts 8 and 9 to travel continuously consists of a sprocket-wheel 34, mounted between the cams 30 and 31 on the shaft 27 and over which runs the sprocket-chain 35.

The mechanism for causing the ejector 23 to act at the desired time consists of a cam 36, mounted on the shaft 27, having in one face a groove 37, in which runs a roller on the end of an arm 38, pivoted on a bracket 39 on the side wall of the table 1. The upper end of the arm 38 is slightly bifurcated and is designed to surround a depending lug 40 on the lower face of the ejector-plate 23.

It is thought that the operation of the machine has been sufficiently described to make it understood from the description of the mechanism.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for boxing matches, the combination of a table, two traveling belts moving toward the upper face of said table, the one to bring forward filled cases of matches and the other empty shucks onto said table in alinement with one another, reciprocating plungers moving toward the center of said table to cause said cases to enter said shucks, and to cause such insertion to take place, substantially equidistant between said belts, substantially as shown and described.

2. The combination in a machine for boxing matches, of a table, belts to bring forward into alinement on said table the filled drawers of matches and shucks, a spreader to open the ends of said shucks and to guide said filled drawers, situated on said table, reciprocating plungers to drive both drawers and shucks simultaneously together, substantially as shown and described.

3. The combination in a machine for boxing matches, of a table, means to feed filled drawers and shucks onto said table in alinement with one another, a shaft mounted in said table, cams mounted on said shaft, plungers mounted on the face of said table provided with depending rollers to engage said cams, and means to cause said cams to revolve and reciprocate said plungers to and from the center of the table, substantially as shown and described.

4. The combination in a machine for boxing matches, of a table, belts to convey drawers filled with matches and shucks in parallel lines onto said table, a spreader to direct the entrance of said drawers into said shucks, and reciprocating plungers on said table to cause the insertion of said drawers, and an ejector working transversely to the line of motion of the reciprocating plungers to force said cases from said table when the said drawers have been placed therein, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

MICHAEL PARIDON.

In presence of—
C. E. HUMPHREY,
C. P. HUMPHREY.