H. D. HODGE.

MACHINE FOR CANNELURING, TRIMMING, AND GAGING CARTRIDGE CASES.

APPLICATION FILED SEPT. 3, 1912.

1,079,706.

Patented Nov. 25, 1913.

5 SHEETS—SHEET 1.

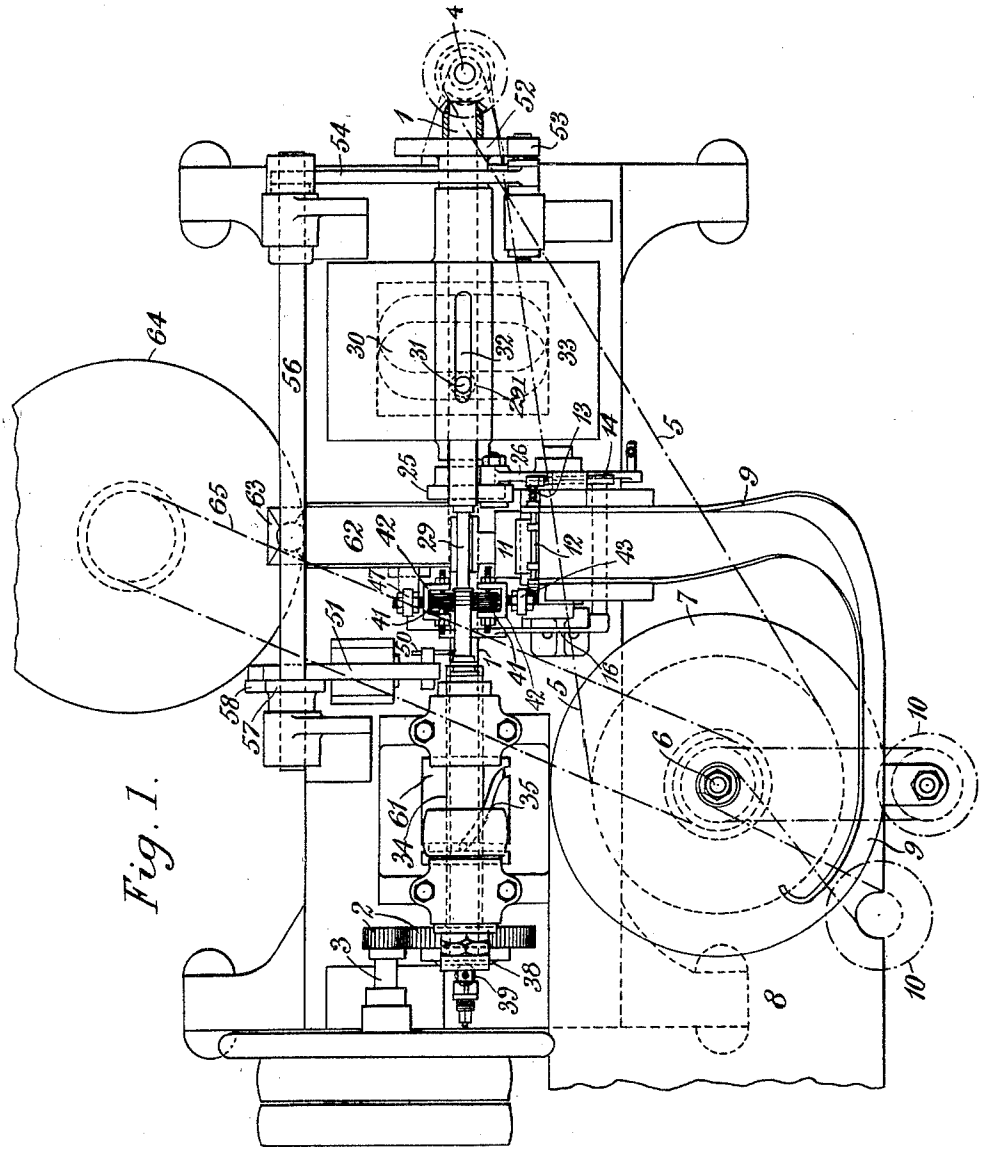


Fig. 1.

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Fig. 2.

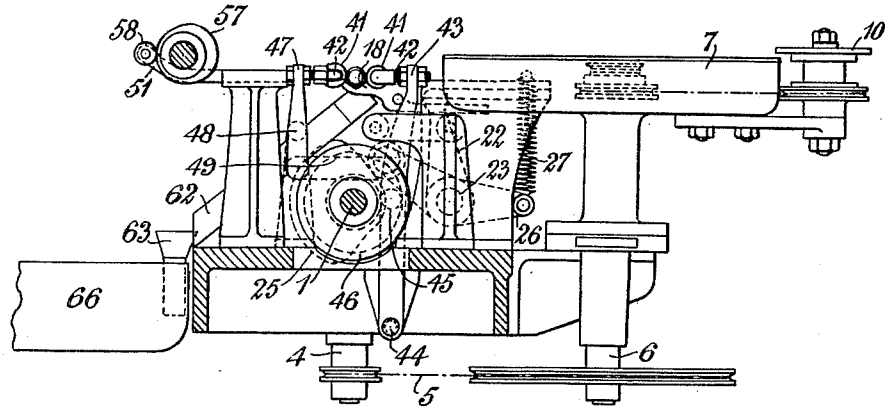


Fig. 5.

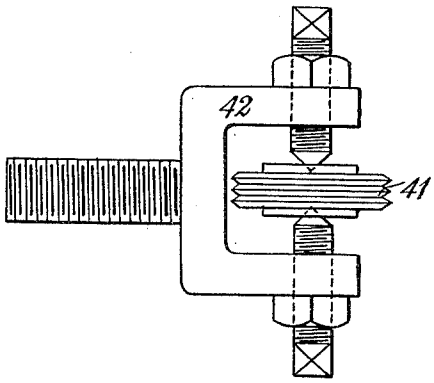
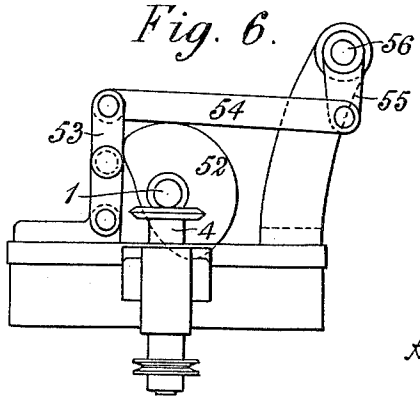


Fig. 6.



Witnesses
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5 SHEETS—SHEET 3.

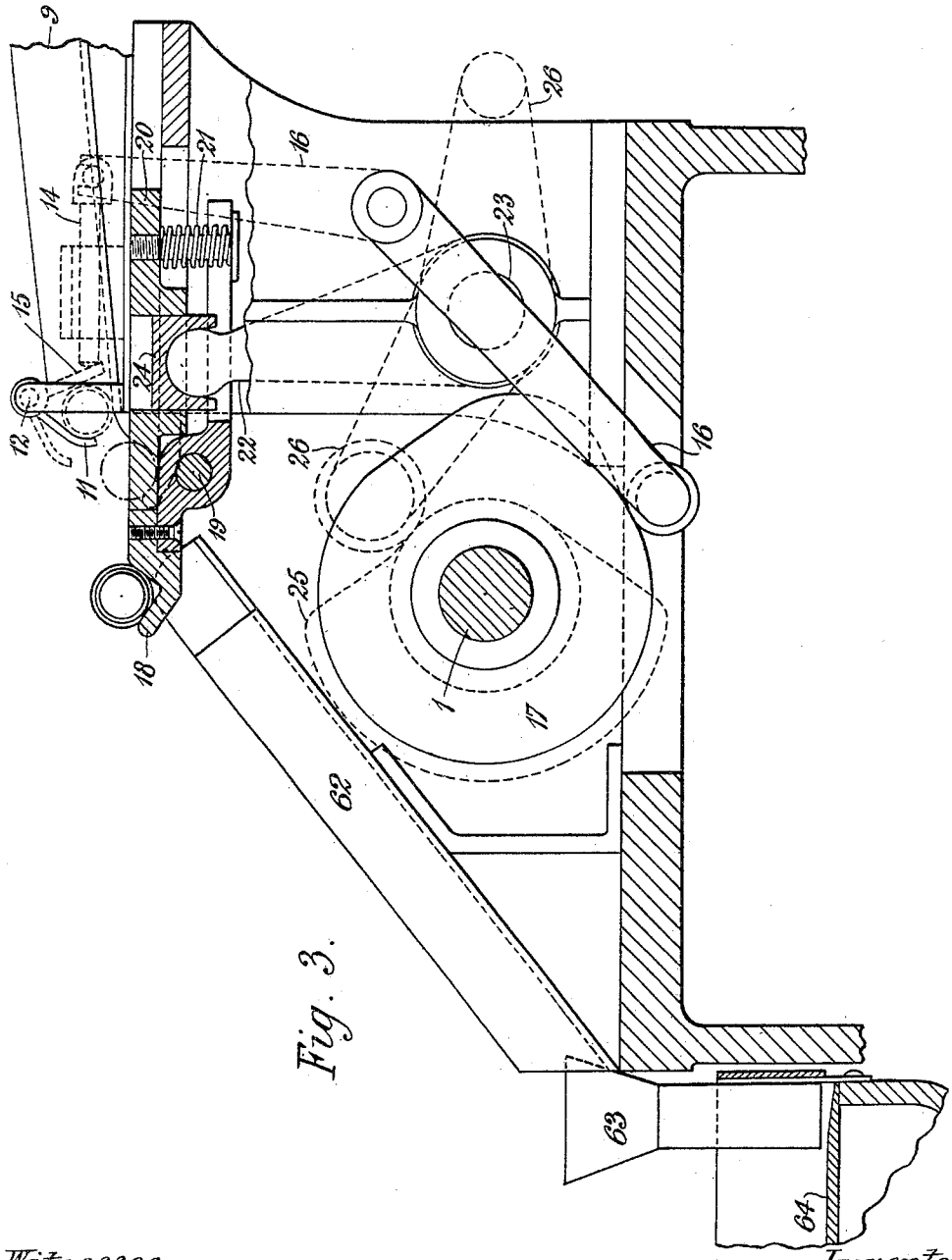


Fig. 3.

Witnesses
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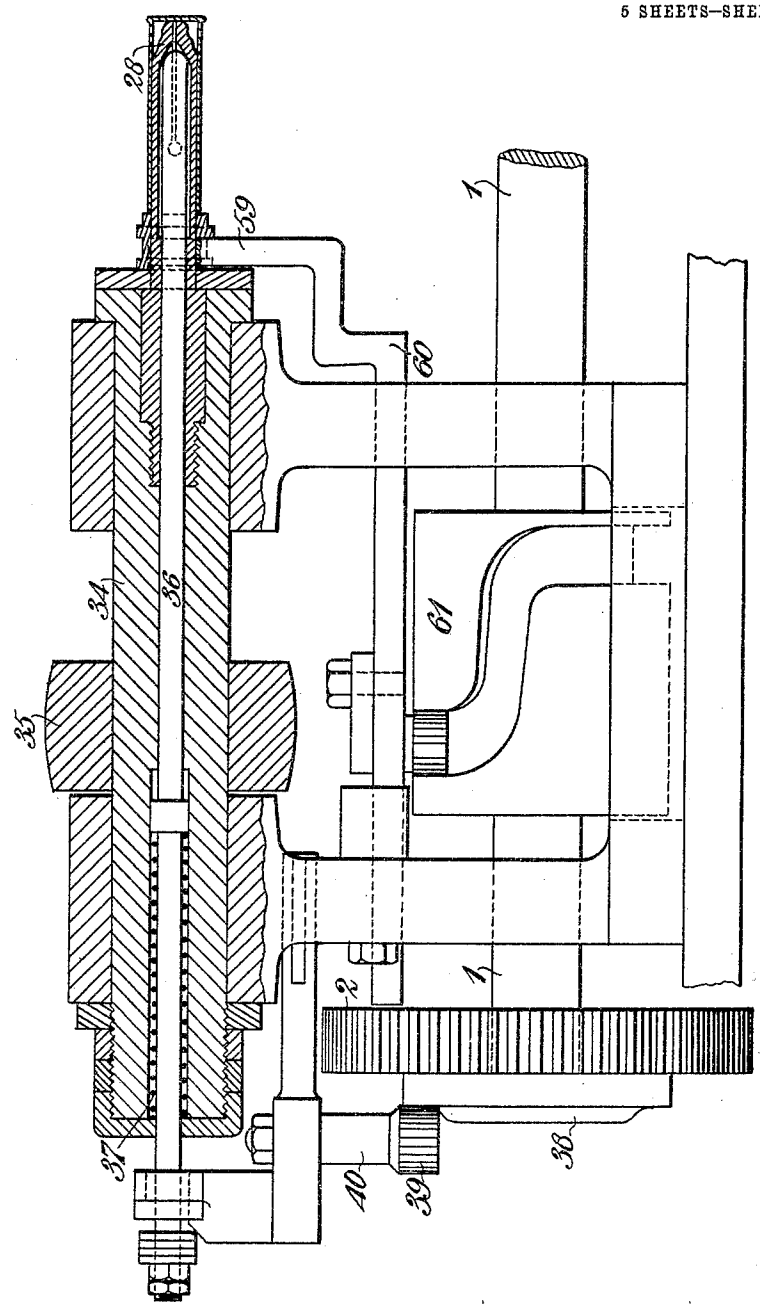
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5 SHEETS—SHEET 4.

Fig. 4.



Witnesses.
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5 SHEETS—SHEET 5.

Fig. 7.

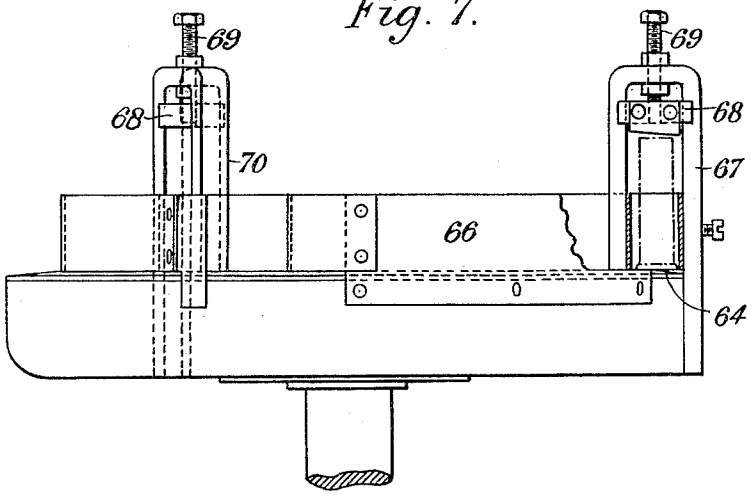
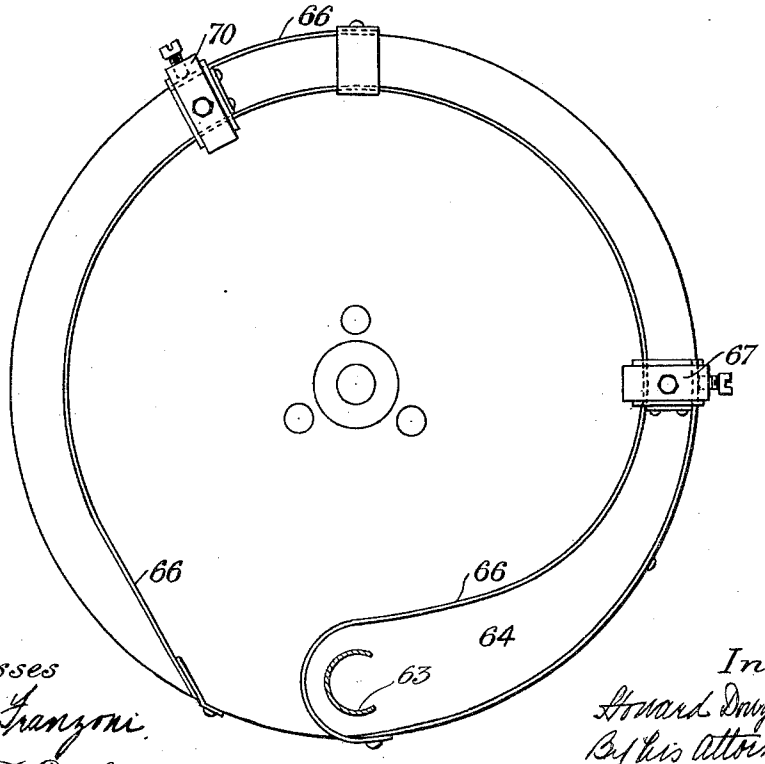


Fig. 8.



Witnesses
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UNITED STATES PATENT OFFICE.

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MACHINE FOR CANNELURING, TRIMMING, AND GAGING CARTRIDGE-CASES.

1,079,706. Specification of Letters Patent. Patented Nov. 25, 1913.

Application filed September 3, 1912. Serial No. 718,277.

To all whom it may concern:

Be it known that I, HOWARD DOUGLAS HODGE, a citizen of the United States, residing at Joyce House, Waltham Abbey, Essex, England, have invented a new and useful Machine for Canneluring, Trimming, and Gaging Cartridge-Cases, of which the following is a specification.

The object of this invention is to provide a machine for canneluring the heads of cartridge cases and trimming their front ends and for gaging or sorting them according to lengths.

In order that the invention may be the more readily understood it will be at once described with reference to the accompanying drawings which show one form of machine constructed in accordance with the invention.

Figure 1 is a plan of the whole machine and Fig. 2 a cross section; Fig. 3 is a cross section and Fig. 4 a longitudinal section showing certain parts to a larger scale; Fig. 5 shows one of the canneluring tools; Fig. 6 is an end view of part of the mechanism, and Figs. 7 and 8 are an elevation and plan of the gaging mechanism.

1 is the main shaft driven by spur gears 2 from the pulley shaft 3 and driving through bevel gears a vertical shaft 4 from which a belt 5 drives a spindle 6 fast on which is a feed disk 7 which by its rotation carries headed cartridge cases which have been placed head downward on the table 8 and then pushed onto the disk into a guideway 9. Agitators 10 driven by belts from the spindle 6 prevent cases jamming in the entrance of the guideway. The cases are thus fed into the guideway which is so shaped that the cases are gradually turned through a right angle and so assume a horizontal position with their heads to the right and their open ends to the left. They are allowed to escape from the mouth of the guideway one by one by a gate 11 on a spindle 12 rocked in fixed bearings against a coiled spring 13 by a rod 14 which bears against an arm 15 on the spindle 12 and is reciprocated by a bell crank 16 actuated by a cam 17 on the main shaft. As a case drops out of the end of the guideway it falls into a trough 18 pivoted at 19 to a slide 20 and kept in its normal position by a spring 21; the slide is then moved into the position in which it is shown in the drawings by means of an arm 22 on a rock shaft 23, the head of the arm engaging a block 24 capable of movement in a slot in the slide. The shaft 23 is rocked by a cam 25 on the main shaft actuating a bell crank 26 on the shaft 23 which bell crank is held up to its work by a spring 27. The case is now pushed to the left onto an expanding mandrel 28 by a pusher rod 29 a pin 291 fast with which projects downward into a groove in a cam 30 on the main shaft; an upwardly projecting pin 31 on the pusher works in a slot 32 in the casing 33 of the cam and assists in guiding the pusher. The mandrel 28 consists of a split tube carried by a spindle 34 which is constantly rotated in its fixed bearings by means of a belt passing around a pulley 35.

A rod 36 is thrust into the conical head of the mandrel by a spring 37, and is withdrawn at the proper time by a face cam 38 on the main shaft bearing against a roller 39 on an arm 40 secured to the rod; so soon as a case has been pushed onto the mandrel, the cam 38 allows the spring 37 to push the rod 36 forward; the mandrel is thus expanded within the case which is tightly held and revolved thereby. While the case is thus held the trough is withdrawn (tilting on its pivot 19 to clear the case) into a position to receive the next case.

The canneluring is effected by two grooved wheels 41 supported on centers in holders 42. One of these holders is carried by an arm 43 pivoted at 44 and carrying a roller 45 lying in the groove of a cam 46 and the other holder is carried by a lever 47 pivoted at 48 and linked by a link 49 to the arm 43 so that the cam causes the two wheels 41 simultaneously to approach and to press upon the head of the cartridge which as it rotates between them has cannelures formed in it. At the same time a knife 50 carried by a slide 51 is moved into contact with the case and cuts off the rough end thereof. This slide is actuated as follows:—A cam 52 on the main shaft (see Fig. 6) rocks an arm 53 fulcrumed on a fixed pivot and linked by a link 54 to an arm 55 fast on a rock shaft 56 on which is a cam 57 engaging a roller 58 on the slide 51.

When the operations of canneluring and trimming are complete a stripping finger 59 on a rod 60 reciprocated longitudinally by a cam 61 on the main shaft pushes the

case to the right off the mandrel from which the rod 36 has now been withdrawn and the case falls into a chute 62. As it rolls down this chute the head gets in front of the open end so that it falls head downward through a funnel 63 onto the beveled edge of a horizontal disk 64 rotated by a belt 65 from the spindle 6.

A fence 66 prevents inward movement of the cases but the periphery of the beveled edge is only fenced at certain places as can be readily seen from Fig. 8. The rotation of the disk carries the cases around until they come to a gateway 67 carrying a gate 68 the height of which above the disk can be accurately set by a screw 69. Should the case be longer than the normal, its open end is caught by the gate and as its head is still carried on by the disk, it is upset and rolls off the disk into a basket or the like set to receive it. Cases not longer than the normal proceed to a second gateway 70 the gate in which is set slightly lower than the first gate so that cases of normal length are upset by it while cases which are shorter than the normal are carried around until they meet the end of the fence 66 which sweeps them off into a third receptacle, the cases being thus sorted into long, normal and short.

What I claim is:—

1. In a machine for canneluring the heads of cartridge cases, a rotating mandrel, means for pushing a case thereonto, means for expanding the mandrel inside the case, a canneluring tool, and means for causing the tool to press upon the head of the case while it rotates.

2. In a machine for canneluring the heads of cartridge cases, a rotating mandrel, means for pushing a case thereonto, a rod capable of sliding within the mandrel, means for pushing the rod into the front of the mandrel, a canneluring tool, means for causing the tool to press upon the head of the case while it rotates, and means for withdrawing the rod from the front of the mandrel.

3. In a machine for canneluring the heads of cartridge cases, a rotating mandrel, a trough, means for supplying cases one by one to the trough, means for bringing the trough into line with the mandrel and for withdrawing it again, a pusher adapted to push the case from the trough onto the mandrel, means for expanding the mandrel inside the case, a canneluring tool, and means for causing the tool to press upon the head of the case while it rotates.

4. In a machine for canneluring the heads of cartridge cases, a rotating mandrel, means for pushing a case thereonto, means for expanding the mandrel inside the case, a canneluring tool, means for causing the tool to press upon the head of the case while it rotates, and means for pushing the case off the mandrel.

5. In a machine for canneluring the heads of cartridge cases, a rotating mandrel, means for pushing a case thereonto, means for expanding the mandrel inside the case, a canneluring tool, means for causing the tool to press upon the head of the case while it rotates, a tool adapted to cut off the open end of the case, and means for bringing this tool up against the case while it rotates.

HOWARD DOUGLAS HODGE.

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