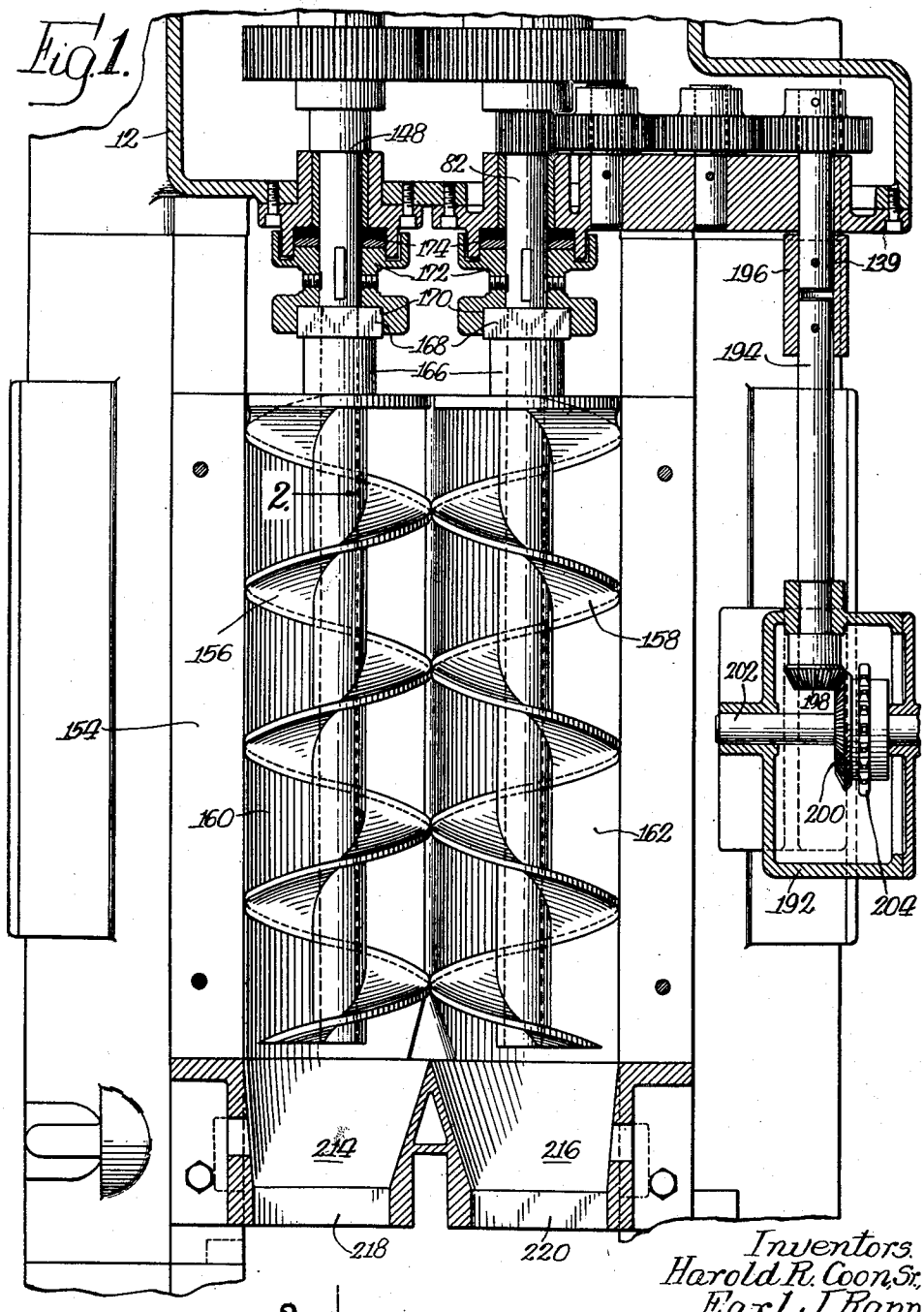
Nov. 16, 1954 H. R. COON, SR., ET AL 2,694,256

FEED MECHANISM FOR PRINTING MACHINES

Original Filed May 14, 1945 2 Sheets-Sheet 1

Fig. 1.



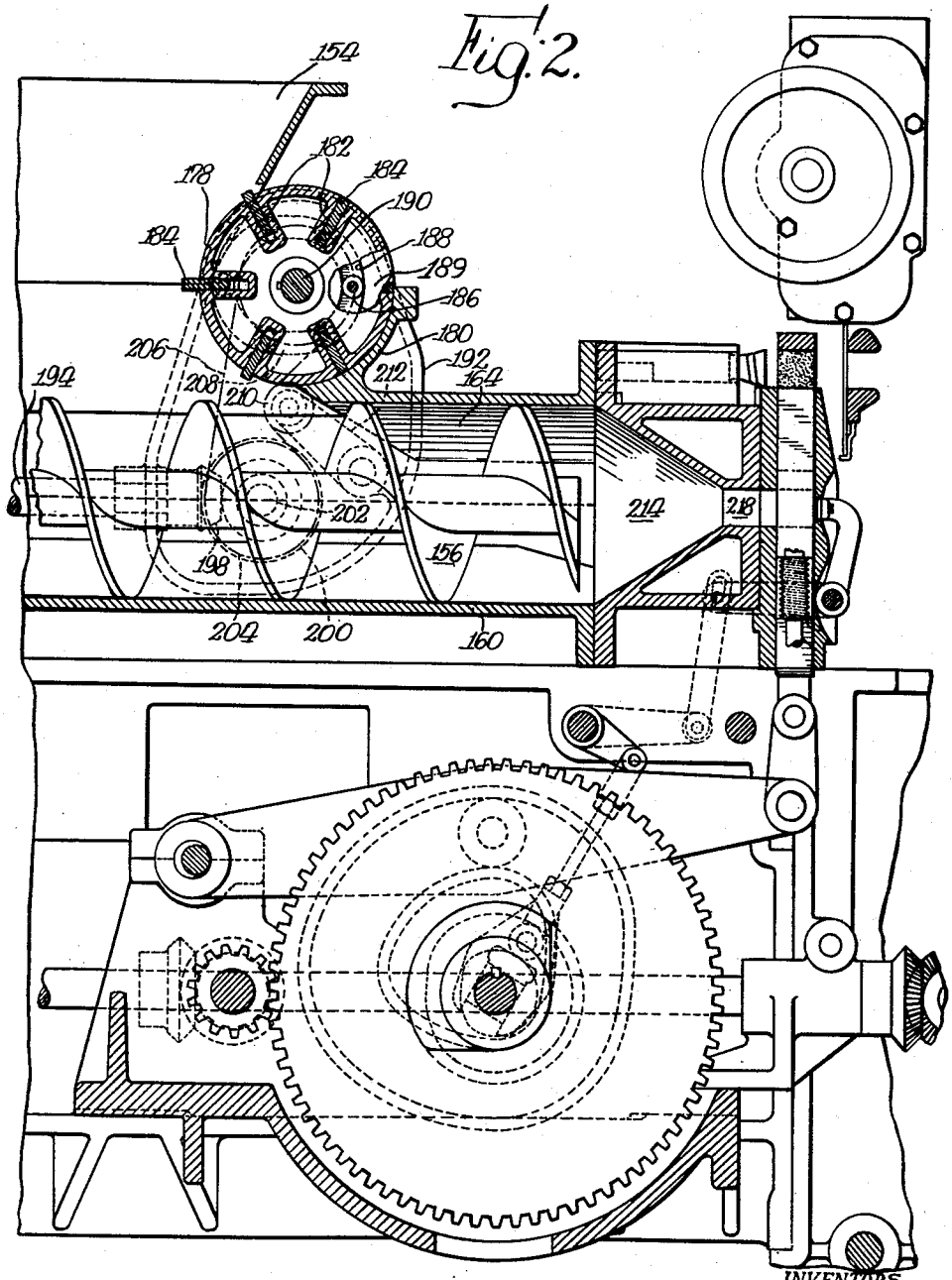
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Original Filed May 14, 1945 2 Sheets-Sheet 2

Fig. 2.



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FEED MECHANISM FOR PRINTING MACHINES

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Original application May 14, 1945, Serial No. 593,708, now Patent No. 2,592,793, dated April 15, 1952. Divided and this application September 21, 1951, Serial No. 247,930

2 Claims. (Cl. 31—14)

Our present invention relates to a printing machine for butter, oleomargarine, lard and similar products, the machine being entirely automatic in operation. This application is a division of our patent entitled Printing, Wrapping and Cartoning Machine for Butter and the Like, No. 2,592,793, issued April 15, 1952.

An important object is to provide butter feeding mechanism in the hopper of a machine of the type disclosed in our aforesaid patent, including a rotating drum at one side of the hopper having radially movable blades which project into the hopper for engaging the butter and feeding it to the printer feed worms, and which are retracted from the butter as they leave the hopper.

With these and other objects in view, our invention consists in the construction and arrangement and the combination of the various parts of our device whereby the objects contemplated are obtained, as hereinafter more fully set forth, pointed out in the claims and illustrated in the accompanying drawings wherein:

Figure 1 is a horizontal sectional view of a portion of the machine disclosed in our Patent No. 2,592,793, showing the printer worms for feeding the butter from the hopper into print forming cavities;

Figure 2 is a vertical sectional view of a portion of the machine shown in our said patent, on line 2—2 of Figure 1, showing our novel rotary hopper feed drum and related printer feed worm and print forming mechanism.

Figures 1 and 2 of this application are substantially the same as Figures 6 and 7 of our Patent No. 2,592,793. For facilitating cross reference, the same numerals are used in this application as in the said patent to indicate the same parts. Reference is made to said patent for a complete description of parts not described in the present application.

In the accompanying drawing we have used the numeral 154 to indicate a butter hopper. Within the hopper a pair of printer worms or feed screws 156 and 158 are rotatably mounted. The worms 156 and 158 rotate in semi-cylindrical seats 160 and 162 of the hopper 154 with their forward ends rotating in tubular portions 164 of the hopper, as shown in Figure 2. The rear ends of the worms are suitably journaled in bearings 166, and the shafts for the worms terminate in square heads 168 (see Fig. 1). The heads 168 are received in square sockets 170 of coupling members 172, which coupling members are secured as by keying to the worm drive shafts 82 and 148. Suitable packings 174 are provided to prevent escape of transmission grease from the transmission housing 12 into the hopper 154.

A hopper feed mechanism is provided in the form of a drum 178 rotatable in a semi-cylindrical seat 180 (see Fig. 2). The drum 178 has radial slots 182 in each of which a feeder blade 184 is mounted for radial sliding movement. Opposite ends of the blades are provided with rollers 186 which travel in cam grooves 188. The grooves are formed in stationary cams 189 at each end of the seat 180 and are so shaped that the blades are retracted during the right-hand half of the revolution (in Fig. 2) and extended during the left-hand half of the revolution. The blades 184 thereby impinge the butter in the hopper 154 and feed it downwardly toward the printer worms 156 and 158.

The feeder drum 178 is mounted on a shaft 190 and the shaft is driven by suitable gearing mechanism in a housing 192 (see Figs. 1 and 2) into which housing an extension 194 of the countershaft 139 projects. The shafts 139 and 194 are connected together by a coupling 196.

The gearing within the housing 192 comprises a bevel gear 198 meshing with a bevel gear 200 on a shaft 202. The bevel gear 200 has a sprocket 204 connected by a chain 206 (see Fig. 2) with a sprocket 208 on the shaft 190. An idler sprocket 210 is mounted on an adjustable arm 212 to take up slack in the chain.

The printer worms 156 and 158 terminate just short of right and left-hand constricting nozzles 214 and 216 having outlet portions 218 and 220 which are of a size to form the length and height of a quarter pound print of butter or the like.

Practical operation

In the operation of our printing machine the butter or other product to be formed into prints is placed in the hopper 154. Actuation of a motor (not shown) effects rotation of the shafts 139, 82 and 148 through suitable gearing and a drive connection, in the manner shown and described in detail in our said patent. While the butter printer worms 156 and 158 are in operation, the feeder drum 178 is also operating. The blades 184 extend into the hopper 154 for feeding the butter downwardly toward the worms 156 and 158. These blades are retracted as they pass around the right half of the circular path, thus withdrawing them from the butter and projecting them again when they are in position to engage the butter and force it downwardly toward the worms.

As clearly seen in Fig. 2, the rotary drum 178 is positioned above the feeder worms so as to have its axis of rotation positioned at right angles to the longitudinal axes of the worms. In this manner, concurrent drive of the rotary drum and feeder worms effects a rotation of the drum in the direction of forward travel of the worms, thereby effecting an efficient compacting and feeding operation.

Some changes may be made in the construction and arrangement of the parts of our machine without departing from the real spirit and purpose of our invention, and it is our intention to cover by our claims such modified forms of structure or uses of mechanical equivalents as may be reasonably included within their scope.

We claim as our invention:

1. In a machine for forming prints of butter and the like, a hopper for said butter having a closed bottom, a feed worm in said hopper adjacent the bottom thereof, said hopper being formed with a discharge aperture aligned with said worm and with a side recess above said worm opening into said hopper, a rotary drum mounted in said recess with its axis of rotation being positioned above and at right angles to the longitudinal axis of said worm, means operatively connected with said drum for rotating said drum in the direction of forward travel of said worm, a plurality of radially slidable blades mounted in said drum, means operatively associated with said blades and actuated by the rotation of said drum to project into said hopper those blades facing said recess opening for forcing said butter towards said worm while retracting the remaining blades into said drum, said drum being spaced a sufficient distance above said worm to provide clearance between said drum and the projected blades of said worm.

2. A machine according to claim 1 in which said means for projecting and retracting said blades include stationary cam slots within said drum and rollers carried by said blades and traveling in said cam slots.

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