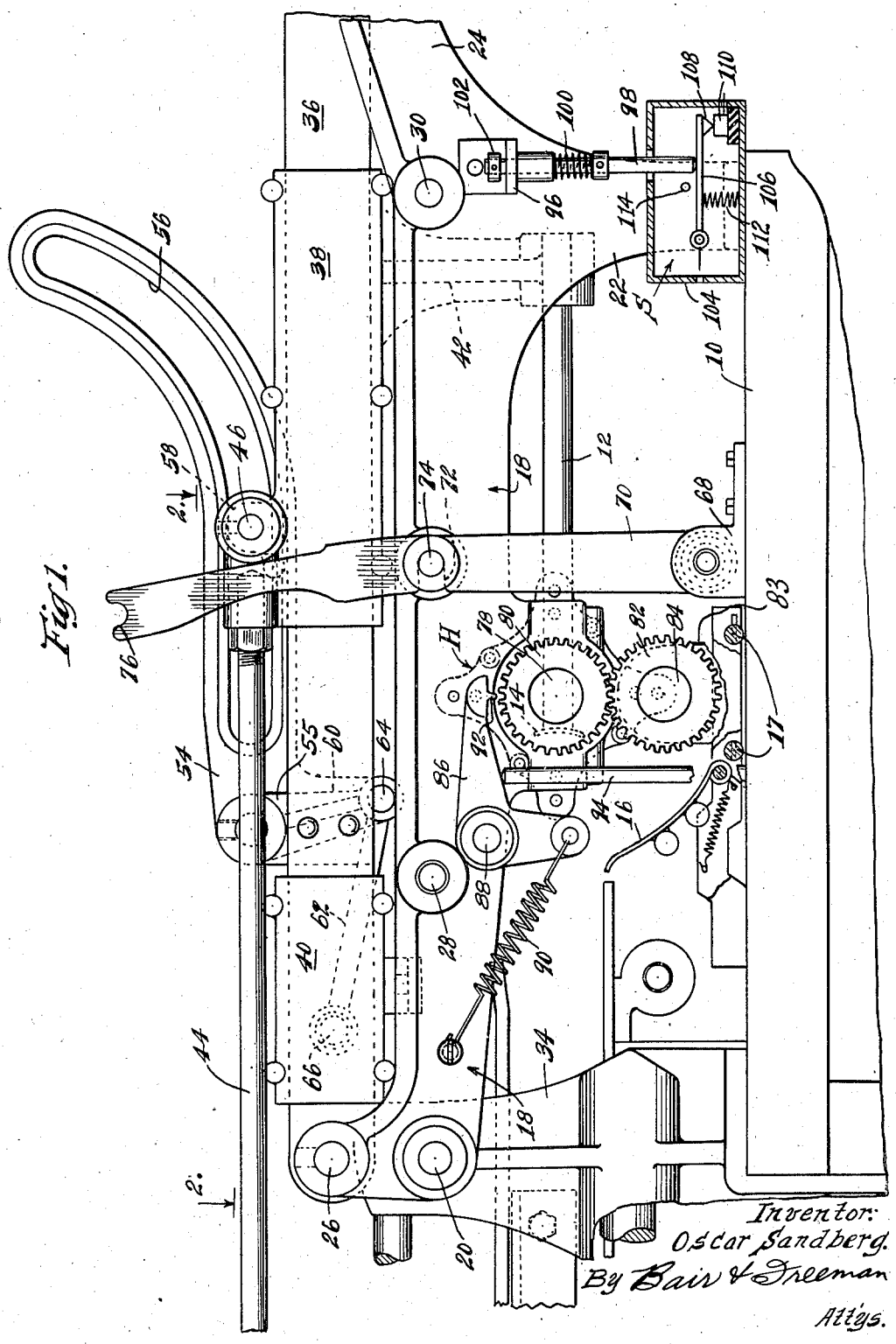
June 22, 1948. O. SANDBERG 2,443,992

FOLDING HEAD SUPPORT FOR WRAPPING MACHINES

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Filed Aug. 16, 1946 2 Sheets-Sheet 2

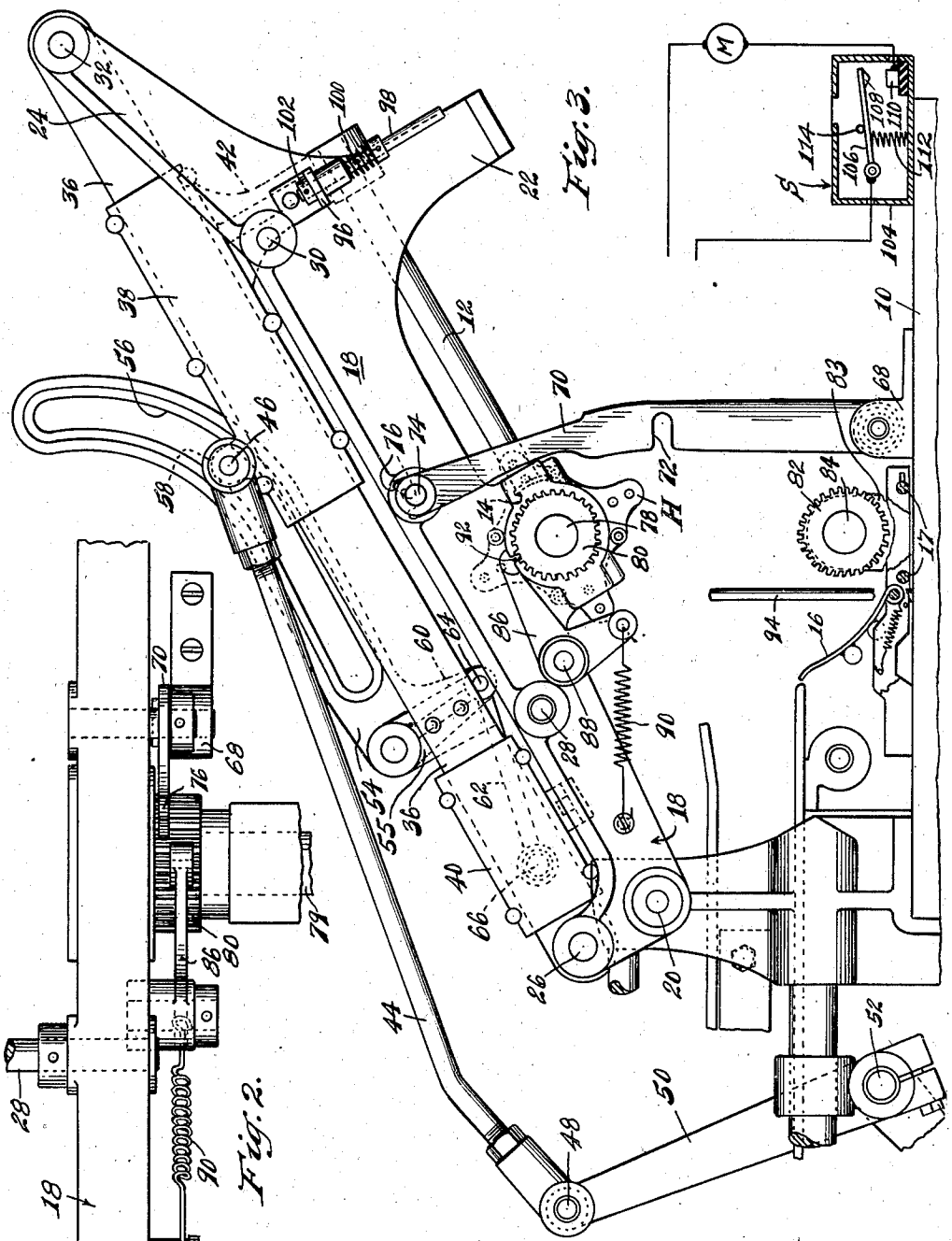


Fig. 3.

Fig. 2.

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Patented June 22, 1948

2,443,992

UNITED STATES PATENT OFFICE

2,443,992

FOLDING HEAD SUPPORT FOR WRAPPING MACHINES

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Application August 16, 1946, Serial No. 691,081

9 Claims. (Cl. 93—2)

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My present invention relates to a supporting means for a folding head of the rotary type disclosed in my copending application Serial No. 654,079, filed March 13, 1946.

One object of the invention is to provide a supporting means for a rotary folding head arranged so that it can be lifted to a position that permits access to the folding head and parts of the wrapping machine thereadjacent when any trouble develops such as the parts becoming clogged with a wrinkled wrapper or when the necessity for cleaning undesirable deposits from a heating shoe occurs.

Another object of the invention is to provide a support which is pivotally mounted and normally locked in a lowered position, the pivotal mounting permitting lifting of the support after it is unlocked and the support carrying with it a rotary folding head, a novel means for preventing rotation of the folding head when the support is raised being provided and means also being provided to prevent accidental energization of the motor of the wrapping machine and thereby rotation of a gear that normally rotates the folding head when the support is raised.

Still another and more specific object is to provide means to automatically lock a gear of the folding head against rotation as the support is raised and before this gear unmeshes with a drive gear, and to provide switch mechanism which breaks the circuit of the motor of the wrapping machine prior to unmeshing of the gears.

A further object is to provide means for locking the folder head support in lowered position which means is also operable to serve as a prop to retain the support in raised position while removing crumpled wrappers or cleaning the parts of the wrapping machine ordinarily inaccessible when the folding head support is in lowered or normal operating position.

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

Figure 1 is a side elevation of a portion of a wraping machine showing my rotary folding head support associated therewith and in the lowered position.

Figure 2 is a plan view of a portion of Figure 1, and

Figure 3 is a side elevation of Figure 1 on a slightly reduced scale showing the parts in a different position, the folding head support being raised in this figure.

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On the accompanying drawings, I have used the reference numeral 10 to indicate a table onto which wrappers are adapted to be fed as disclosed in my above mentioned copending application. Also as disclosed therein there is a rotary folding head indicated generally at H adapted to receive a package of cookies and a wrapper and to partially wrap the cookies into a package, following which the rotary folding head is turned a quarter turn and the package ejected therefrom by means of an ejecting rod 12 having an ejecting plate 14. Since these parts are not the essence of the present invention they will not be described further except as to the means for effecting rotation of the head H and reciprocation of the rod 12.

During the 90° rotation of the head H it wipes the package across a heating plate 16 which serves to seal the package as the wrapper is of the type that will seal with the application of heat. The heating plate 16 sometimes becomes roughened by deposits of material from the wrappers and requires cleaning. Also there are times when wrappers do not feed properly under and between rods 17, becoming crumpled or wrinkled, and clog in the head H or adjacent parts of the wrapping machine. It is therefore desirable to mount the head H so that it can be lifted away from the table 10 as to the position in Figure 3 to gain access to the parts for removing deposits and/or removing crumpled wrappers.

I accordingly mount the head H on a support consisting of a frame 18 having a pivot shaft 20, a foot 22 and a rearward extension 24. Actually the frame 18 is in two parts, that is, it is formed of two similar side frames. These frames are connected rigidly together by cross rods 26, 28, 30 and 32. The cross rod 32 serves as a handle to lift the frame 18 from the position of Figure 1 to the position of Figure 3 with the frame swinging about the shaft 20 as a pivot. The shaft 20 is stationarily supported by means of brackets 34 extending upwardly from the table 10 to which they are secured.

The cross rods 26 and 32 carry a guide bar 36 on which is slidably mounted a pair of slides 38 and 40. The slide 38 has a depending arm 42 which supports the ejector rod 12. The slide 40 supports wrapper folding mechanism and corresponds to the slide 144 in my copending application.

The slide 38 is adapted to be reciprocated throughout a long stroke by means of a link 44

pivoted at its rear end thereto as indicated at 46 and pivoted to a pivot pin 48 at its front end. The pivot 48 is carried by a rock arm 50 which is oscillated by a rock shaft 52. The parts 50 and 52 correspond to parts 145 and 147 in my copending application.

The slide 40 is adapted to reciprocate through a shorter stroke than the slide 38 and this is accomplished by means of a bell crank 54 pivoted to a bracket 55 that is secured to the frame 18. The bell crank 54 has a cam slot 56 in which a roller 58 is adapted to travel. The roller 58 is carried by the pin 46 of the slide 38. The bell crank 54 has a depending arm 60 to which is pivoted one end of a link 62, the pivot being shown at 64. The other end of the link is pivoted at 66 to the slide 40.

The curvature of the slot 66 is such that a long reciprocating stroke of the roller 58 will swing the long arm of the bell crank 54 a slight distance which distance is reduced by the short arm of the bell crank and transmitted to the slide 40. Thus the stroke of the slide 40 is considerably less than the stroke of the slide 38. The parts 38, 40 and 54—60 find their counterpart in parts 143, 144 and 157–158 of my copending application.

Pivoted to a bracket 68 mounted on the table 10 is a locking handle 70. The handle 70 has a locking notch 72 adapted to coact with a pin 74 projecting from the frame 18 as shown in Figure 1. The lever 70 is adapted to be unlocked from the pin 74 by swinging it toward the right in Figure 1. The frame 18 may then be lifted and the pin 74 re-engaged in a notch 76 in the upper end of the handle 70, as shown in Figure 2.

The rotary folding head H is mounted on a shaft 78 to which is secured a gear 80. The gear 80 normally meshes with a drive gear 82 mounted on a shaft 84. The shaft 84 is journalled in bearings 83 extending upwardly from the table 10, the bearings being shown broken at their lower ends on the drawings to permit illustration of the rods 17. The gear 82 corresponds to the gear 76 in my copending application wherein an intermittent drive for the shaft of this gear is fully disclosed.

During the lifting of the frame 18 to the position shown in Figure 2 it is desirable to lock the gear 80 against rotation before its teeth unmesh from the teeth of the gear 82. It is also desirable to de-energize the motor M of the wrapping machine so that it cannot be energized and thus rotate the gear 82 and get it out of time with the gear 80. De-energization of the motor is accomplished by a switch S shown diagrammatically in Figures 1 and 3.

The means for locking the gear 80 consists of a bell crank 86 pivoted to the frame 18 at 88 and normally tending to rotate clockwise under the action of a spring 90. The bell crank 86 carries a tooth 92 which engages between two teeth of the gear 80 as in Figure 3 when the frame 18 is elevated. Such engagement or meshing of the tooth 92 with the gear 80 occurs before the gear 80 unmeshes from the gear 82.

When the frame 18 is lowered, a stationary pin 94 engages the bell crank 86 and rotates it counter-clockwise relative to the frame 18 thus unmeshing the tooth 92 from the gear 80. The position of the parts are such that the unmeshing of the tooth 92 occurs after the gear 80 meshes with the gear 82 so as to insure proper retiming of the gears 80 and 82 in relation to each other. After the tooth 92 is unmeshed from the gear

80 the switch S closes by means of the following described mechanism:

The frame 18 carries a bracket 96 in which is slidably mounted a switch pin 98. The pin 98 is biased downwardly by a spring 100 and limited in its downward movement by a collar 102. The switch C consists of a housing 104 in which is pivoted a switch arm 106. The switch arm 106 carries a movable contact 108 normally disengaged from a stationary contact 110 by a spring 112 that moves the switch arm 106 to a position against a stop 114 as shown in Figure 3. The spring 100 of the switch pin 98 overcomes the spring 112 in the position of Figure 1 thereby closing the switch. After the contacts engage, the collar 102 moves away from the bracket 96, thus insuring contact of the switch and permitting slight additional downward movement of the frame 18 thereafter.

From the foregoing description, it will be obvious that I have provided a simple means to retain a folding head support in timed relation to the wrapping machine mechanism yet permit lifting of the support to a position for gaining access to mechanism that is normally inaccessible due to the folding head and the support therefor being in the way. At the same time I have provided means to prevent operation of the remaining part of the wrapping machine while the rotary head is in the lifted position.

The pivot at 48 permits the link 44 to swing upwardly when the frame 18 swings upwardly and this will slightly move the slide 38, but while the support is elevated it is undesirable to actuate the rock arm 50 as the slides 38 and 40 would slide to non-normal positions on the guide bar 36. The switch S being open at this time also insures that this will not occur and possibly cause damage to the machine.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. In a folding head support for a wrapping machine of the type having a rotary folding head, a supporting frame in which said head is journalled, said frame being pivoted to the wrapping machine and capable of elevation to a position for gaining access to that portion of the wrapping machine under the folding head, a drive gear for rotating said folding head, said folding head having a gear normally meshing therewith, means for locking said last gear against rotation, said means being operable when the support is elevated and inoperable when it is lowered, said locking means comprising a lever having a tooth for meshing with said last gear and spring biased to meshing position, and a stationary element engaging said lever to move it to unmeshing position as the support is lowered to operating position, and means to de-energize the motor of the wrapping machine to thereby prevent rotation of said drive gear whenever the support is moved away from said operative position, said last means comprising a switch normally open, and closed by the support as it is lowered to operative position.

2. In a folding head support for a wrapping machine of the type having a rotary folding head, a supporting frame in which said head is journalled, said frame being pivoted to the wrapping

machine and capable of elevation to a position for gaining access to that portion of the wrapping machine under the folding head, a drive gear for rotating said folding head, said folding head having a gear normally meshing therewith, and means for locking said last gear against rotation, said means being operable when the support is elevated and inoperable when it is lowered.

3. In a folding head support for a wrapping machine of the type having a rotary folding head, a supporting frame in which said head is journalled, said frame being pivoted to the wrapping machine and capable of elevation to a position for gaining access to that portion of the wrapping machine under the folding head, a drive gear for rotating said folding head, said folding head having a gear normally meshing therewith, and means for locking said last gear against rotation, said means being operable when the support is elevated and inoperable when it is lowered, said locking means comprising a lever having a tooth for meshing with said last gear and spring biased to meshing position, and a stationary element engaging said lever to move it to unmeshing position as the support is lowered to operating position.

4. In a folding head support for a wrapping machine of the type having a rotary folding head, a supporting frame in which said head is journalled, said frame being pivoted to the wrapping machine and capable of elevation to a position for gaining access to the wrapping machine under the folding head, a driving gear for rotating said folding head, said folding head having a driven gear normally meshing therewith, means for locking said driven gear against rotation, said means being operable when the support is elevated and inoperable when it is lowered, and means to de-energize the motor of the wrapping machine whenever the support is moved away from said operative position.

5. A folding head support for a wrapping machine comprising a supporting frame mounted for movement relative to the wrapping machine to a position for gaining access to parts of the wrapping machine, a driving gear for operating said folding head, said folding head having a driven gear normally meshing therewith, and means operable when the support is elevated and inoperable when it is lowered for locking said driven gear against rotation, said means comprising a lever having a tooth for meshing with said driven gear when the support is raised and out of mesh therewith when the support is lowered to operating position.

6. A folding head support for a wrapping machine comprising a supporting frame mounted for movement relative to the wrapping machine to a position for gaining access to parts of the wrapping machine, a driving gear for operating said folding head, said folding head having a driven gear normally meshing therewith, means operable when the support is elevated and inoperable when it is lowered for locking said driven gear against rotation, said means comprising a lever having a tooth for meshing with said driven gear when the support is raised and out of mesh therewith when the support is lowered to operating position, and means to render the wrapping machine and thereby said driving gear inoperable whenever the support is moved away from said operative position.

7. In a device of the class described, a folding head support for a wrapping machine, said support being mounted on the machine for movement to a position of access to parts of the machine, a folding head supported on said support for rotation and geared to the wrapping machine, means to lock the gear of the head against rotation when the support is elevated, and means operative by the position of the support to energize the motor for the wrapping machine only when said support is in its lowered operative position and said gearing means is in proper operating mesh.

8. In a device of the class described, a folding head support for a cyclically operable wrapping machine, said support being pivotally mounted on the machine for movement to a position of access to parts of the machine, a folding head supported on said support for rotation and geared to the wrapping machine for predetermined rotation each cycle thereof, and means to lock the gear of the head against rotation when the support is elevated and unlock it for rotation from the wrapping machine when the support is relowered to operative position.

9. In a device of the class described, a folding mechanism support for a cyclically operable wrapping machine, said support being movably mounted on the machine for access to parts of the machine normally covered by said mechanism, folding mechanism supported on said support for operation and geared to the wrapping machine for predetermined rotation each cycle thereof, and means to lock the gearing of the mechanism against rotation when the support is elevated and to unlock it when the gearing is remeshed with that of the wrapping machine when said support is lowered.

OSCAR SANDBERG.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
907,577	Diehl	Dec. 22, 1908