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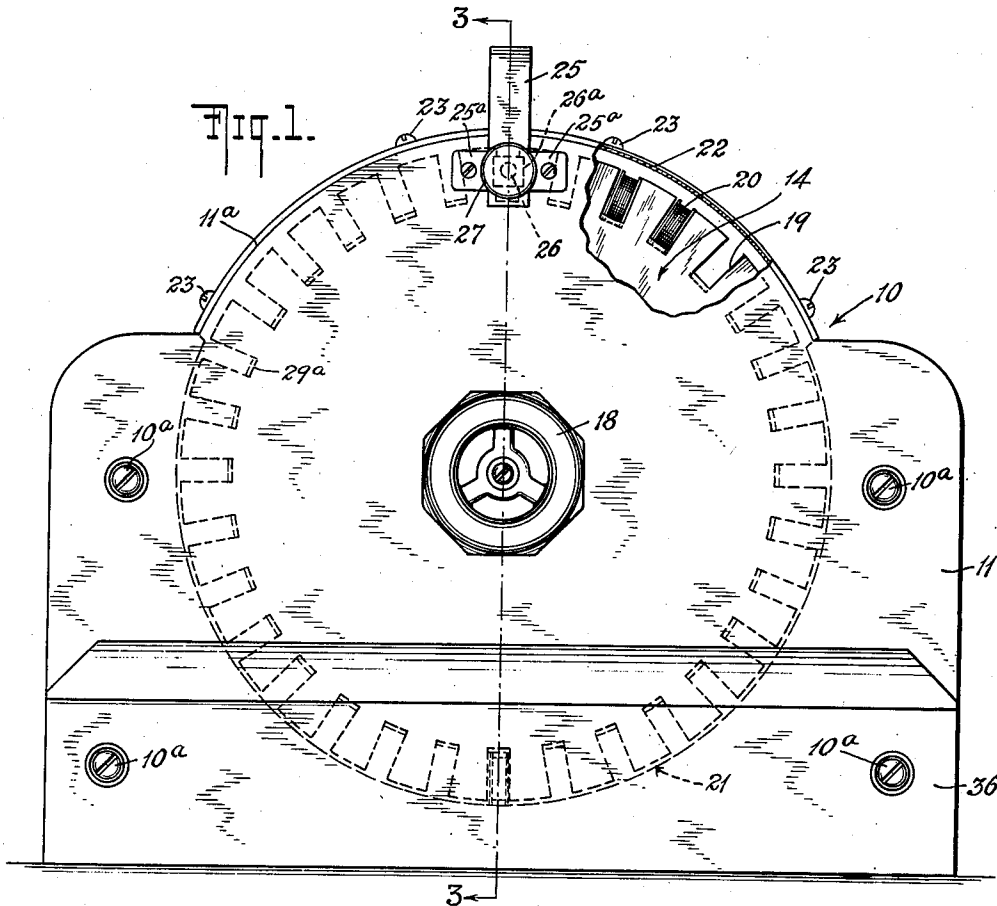
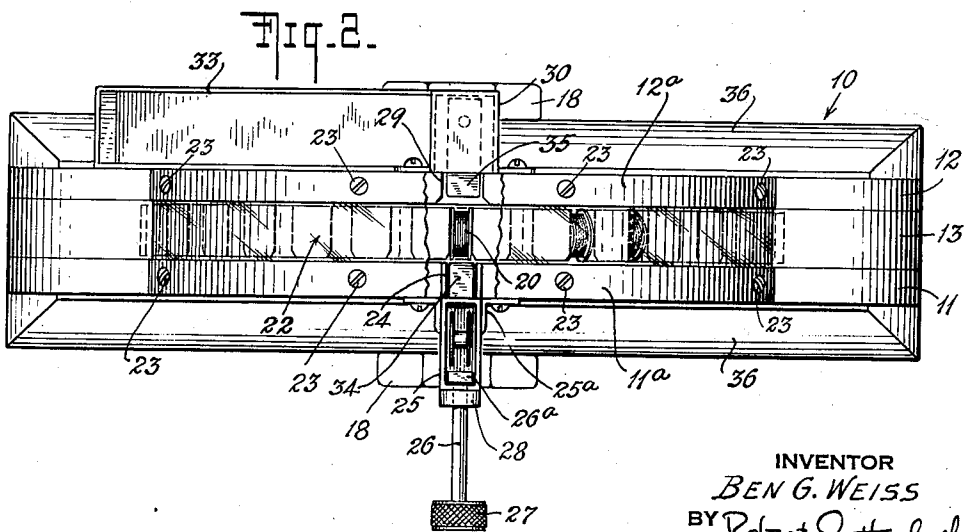
B. G. WEISS

2,245,841

BOBBIN DISPENSER

Filed June 6, 1940

2 Sheets-Sheet 1



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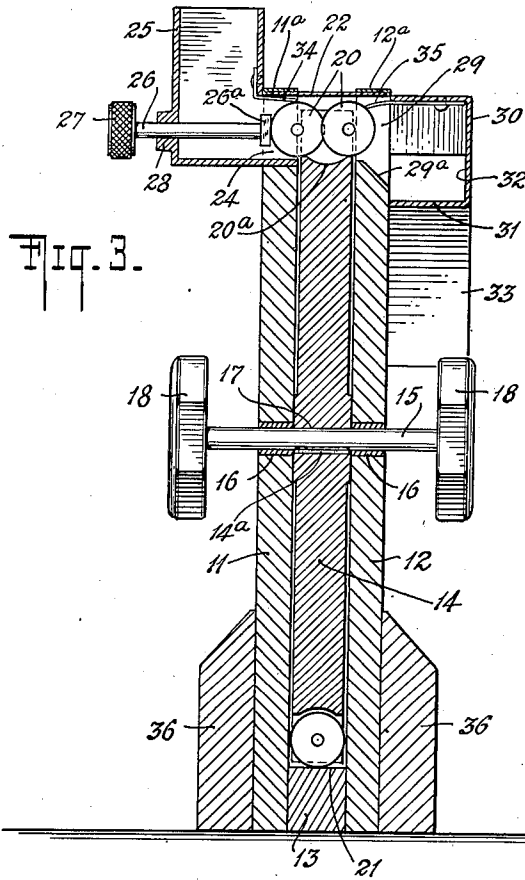
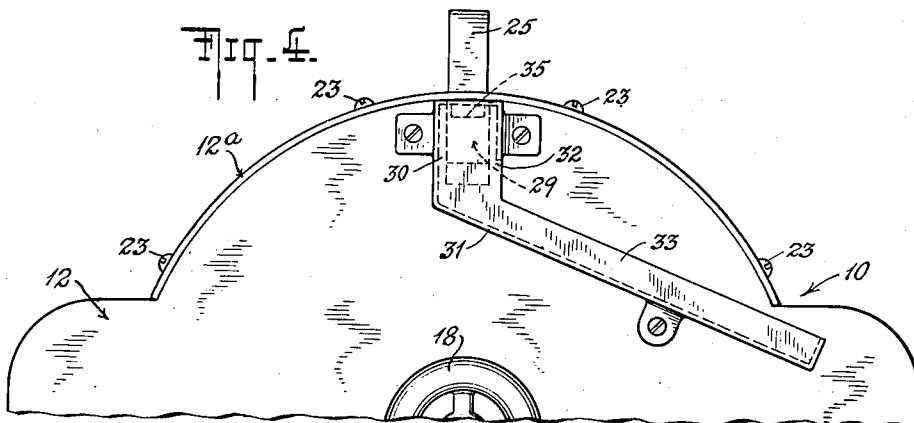
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UNITED STATES PATENT OFFICE

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BOBBIN DISPENSER

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7 Claims. (Cl. 312—72)

This invention relates to apparatus for storing and dispensing articles such as bobbins.

It has been found that in factories in which a great number of sewing machines are used, and in which the operators of such machines have free access to a supply of bobbins, there is occasioned an appreciable loss due to the fact that many of the bobbins, which are usually wound with thread at all times, are carried off or misplaced by the operators, or are otherwise lost. In addition to the direct monetary loss, the inconvenience and delay caused by the loss of bobbins are highly objectionable. Heretofore, this situation has been tolerated because of the fact that the operators, in many instances, must have ready access to a great number of bobbins, so that they may, as required, change the color or character of the thread used in their machines; and because of the expense and inconvenience involved in the maintenance and use of an attended stockroom.

The general object of the present invention is to provide a dispensing apparatus which, while making bobbins or the like readily available, will prevent their misplacement or loss, thus serving, in effect, as an automatic stockroom.

It is another object of the invention to provide a dispensing apparatus from which a bobbin can be removed only by insertion of another substantially similar bobbin; which may be operated in a very simple and efficient manner; and which, in construction, is relatively simple and inexpensive.

Other objects, features and advantages of the invention will more fully appear from the following description, to be read in connection with the accompanying drawings of a preferred embodiment of the invention, in which drawings,

Fig. 1 is an elevational view of one side of the apparatus, partly broken away to show a part of the inner rotating member;

Fig. 2 is a view in plan of the apparatus of Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1; and

Fig. 4 is a fragmentary elevational view of the other side of the apparatus.

Referring to the drawings, the numeral 10 designates generally a casing which, in the preferred form of the apparatus illustrated, comprises side wall 11, side wall 12 and a centerpiece 13, disposed between the side walls 11 and 12 and suitably secured thereto in any desired manner, as by screws or the like 10a. Within casing 10 is disposed a rotating member 14, carried upon a

shaft 15 journaled at 16, 16 in side walls 11 and 12. Shaft 15 may be forced-fitted within the central opening 17 of member 14 or otherwise secured to the member 14, as by being keyed thereto, as at 14a, so that the member is rotatable therewith. To facilitate rotation of shaft 15, and hence of member 14, the shaft is preferably provided with wheels 18, 18.

Member 14 is circular, and its axial thickness is slightly greater than the diameter of the bobbins which are to be dispensed. Centerpiece 13 is slightly greater in thickness than member 14, to provide the clearance between the side walls 11 and 12 and the member 14 necessary for unimpeded rotation of the latter.

Member 14 is provided with a plurality of peripherally arranged spaced recesses 19. Each recess 19 is slightly larger than, and is adapted to contain, a bobbin 20, preferably in the manner indicated in the drawings, i. e., with the axis of the bobbin at a right angle to the axis of shaft 15. The bottom of each recess is preferably formed in the manner of a trough, as indicated at 20a, so that the bobbins will tend to be centered within their respective recesses and thus kept from contacting the inner surfaces of side walls 11 and 12.

Centerpiece 13, which is arranged substantially in coplanar relationship with member 14, is recessed to accommodate the latter, the edge 21 of centerpiece 13 being arcuate and following the contour of the periphery of member 14 throughout at least the lower half of said member. As indicated in the drawings, it is preferred that the edge 21 follow the contour of the periphery of member 14 to points above the axis of rotation of such member. The edge 21 is spaced slightly from the periphery of member 14 to provide the clearance necessary for unimpeded rotation of the latter. It will be seen that edge 21 of centerpiece 13 serves to prevent bobbins from falling downwardly out of their respective recesses.

Side walls 11 and 12 have upwardly extending arcuate edge portions 11a and 12a, which follow the contour of member 14. These edge portions support a transparent plate 22 of glass, celluloid or the like, secured thereto in any desired manner, as by screws 23. Thus, as the member 14 is rotated, one can see, in succession, all of the bobbins which are retained in the recesses thereof. For purposes hereinabove indicated, there is a slight clearance between the transparent plate 22 and the periphery of member 14.

Side wall 11 is provided with an opening 24

of such size as to permit the passage therethrough of a bobbin in the position, above described, in which such bobbin is to be received within one of the recesses 19. The opening 24 is arranged at a point past which the recesses of member 14 move when said member is rotated, and is adapted to register with such recesses; and while the opening may be arranged at any desired point between the extremities of transparent plate 22, it is preferably arranged, as illustrated, proximate the top of casing 10.

Communicating with opening 24, and secured to side wall 11 as by brackets 25a, is a chute 25, through which bobbins which are to be supplied to member 14 are delivered to such opening. The chute is large enough to permit the free fall of bobbins therethrough, but is sufficiently limited in size so that the bobbins are not permitted to turn or fall over as they pass through the chute in vertical position. Opening 24, similarly, is of such proportions and dimensions that the bobbins passing therethrough are not permitted to turn or fall over.

Chute 25 is provided, proximate its lower end, with a reciprocable plunger 26, arranged in alignment with opening 24 and adapted to reciprocate at a right angle thereto. Plunger 26 has an enlarged end portion 27 which may be grasped to facilitate operation of the plunger and which, by abutting shoulder 28 of chute 25, limits the travel of the plunger. The effective length of plunger 26 is such that when the enlarged end portion 27 abuts shoulder 28, the operative end 26a of the plunger will be approximately at the inner end of opening 24 and prevented from traveling therebeyond in the direction of member 14. Plunger 26 should not be substantially longer, as it would then be possible to dislodge, at least partially, a bobbin from its recess in member 14 without first having supplied another bobbin to the apparatus. The operative end 26a of the plunger is preferably enlarged, so as to engage the flange portions of the bobbins actuated thereby, and to prevent total withdrawal of the plunger from the chute 25.

To supply a bobbin to the apparatus, one drops the bobbin, in vertical position, into chute 25, while the plunger is withdrawn as far as possible, and then presses the plunger. The operative end of the plunger is thus caused to bear against the bobbin and force it through opening 24 into a recess which, by suitable rotation of member 14, has been arranged in registry with opening 24. It is in this way that the various recesses 19 of the apparatus, or any of them, are "charged," that is, initially supplied with bobbins.

Side wall 12 is provided with discharge opening 29 in juxtaposition with opening 24. Opening 29 is of substantially the same size and shape as opening 24. Preferably, however, the bottom of opening 29, designated 29a, slopes downwardly toward the outer surface of side wall 12, as best seen in Fig. 3.

The opening 29 is covered by a protective casing 30 which is of sufficient size to receive a bobbin therewithin. The bottom 31 of casing 30 is arranged at or below the lowermost end of the bottom 29a of opening 29, so that a bobbin passing through opening 29 falls downwardly into the casing 30. The casing 30 is closed except for a discharge outlet 32 formed in one of the walls of said casing, said outlet being at a lower level than opening 29 and preferably being at a right angle thereto. Outlet 32 is of sufficient size to permit the free passage of a bobbin therethrough. The

bottom 31 of casing 30 is slopingly arranged and constitutes, in effect at least, an extension of a downwardly sloping delivery trough 33 into which bobbins may be discharged through outlet 32. Thus any bobbin which passes through opening 29 will fall freely through casing 30 and outlet 32 to the lower end of trough 33.

To prevent lateral displacement of bobbins from the recesses 19 of member 14, except by the application of substantial force, there are provided resilient means, such as springs 34 and 35, in openings 24 and 29 respectively. Spring 34 is preferably attached, in any desired manner, to one of the inner surfaces of chute 25, and spring 35 is preferably attached to the inner surface of the top wall of casing 30.

The apparatus may be secured in position in any desired manner, as by the use of brackets, for example. In the preferred embodiment of the invention which is illustrated, base members 36, 36 are provided to insure the stability of the apparatus in its normal, upright position.

In operation, the apparatus is first charged with bobbins in the manner indicated above. Thereafter, whenever it is desired to obtain a bobbin from the apparatus, this can be done only by supplying another bobbin to the apparatus. Thus, the operator of a sewing machine, if she wishes to change bobbins, removes from her machine a bobbin for which she has no further immediate use and, after withdrawing plunger 25, inserts such bobbin in chute 25. Then, or before the insertion of a bobbin in chute 25, she rotates member 14 by means of one or both of wheels 18, until, as determined by looking through transparent plate 22, the bobbin which she desires is arranged opposite the plunger 26. The plunger is then pressed in, causing the bobbin inserted in chute 25 to displace the desired bobbin from its recess 19, and to be substituted therefor in such recess. The desired bobbin, forced through opening 29, falls to the bottom of casing 30 and is delivered through outlet 32 thereof to the lower end of inclined trough 33, from which it may be removed by the operator.

Each sewing machine includes means for rewinding thread upon a bobbin, and it is common practice to wind thread upon an empty, or partly empty, bobbin during the time in which another bobbin in the machine is used for sewing. The bobbin which the operator inserts in the apparatus hereinabove described is, in each case, one upon which thread has been thus wound, so that the apparatus continues to be charged with fully wound bobbins.

It will be observed that while the bobbins contained in the apparatus are readily available and may easily be examined, they are protected against excessive handling and consequent soiling of the thread wound thereon. The casing 10 is, moreover, in the preferred embodiment of the invention hereinabove described, substantially dust-proof, and the thread wound on the bobbins contained therein is thus kept clean and fresh. While a solid plate 22 of transparent material is preferred, it is to be understood that the invention contemplates the use of any material permitting vision therethrough, such as a screen or the like, although in such event, dust and other foreign matter may freely enter the casing and soil the thread wound on bobbins therein.

It is to be noted also that the disposition of casing 30 and the outlet 32 therein, at the discharge side of the apparatus, and the disposition of chute 25 at the inlet side of the apparatus,

render it impossible, for all practical purposes, to obtain a bobbin from the apparatus except in the manner hereinabove explained. The fact that the length and travel of plunger 26 are limited, and the provision of springs 34 and 35, also contribute to the attainment of this result. If the chute 25 or protective casing 30 were not provided, it might be a simple matter to remove a bobbin from the apparatus by means of tweezers or the like, or to force a bobbin from the apparatus by the insertion of a finger or an object such as a pencil. If springs 34 and 35 were not provided, the bobbins might be rolled out of their respective recesses 19, through openings 24 and 29, by tilting or striking the apparatus. If plunger 26 were not limited as to its length and travel, it might be used to force a bobbin from its recess without the insertion in the apparatus of a replacement bobbin. And the fact that outlet 32 of casing 30 is at a lower level than discharge opening 29, and is at a right angle thereto, makes it particularly difficult to remove a bobbin through such outlet otherwise than by operation of the apparatus in the intended manner.

Since many changes may be made in the invention without departing from the scope thereof, it is intended that the foregoing description and accompanying drawings be regarded as illustrative only and not in a limiting sense.

I claim:

1. In an apparatus of the character described, a casing, a member rotatably mounted within said casing and having a plurality of peripherally arranged recesses formed therein, means for rotating said member, said casing having formed therein a first opening and a second opening, said openings being arranged in juxtaposition on opposite sides of the peripheral portion of said member and proximate the top of said casing, and adapted to register with different of said recesses when said member is rotated into various predetermined positions, a chute communicating at its lower end with said first opening, the axis of said chute being disposed substantially at a right angle to the axis of said openings, a plunger reciprocally mounted at the lower end of said chute in alignment with said first opening and at a right angle thereto, means for limiting the travel of said plunger so that the operative end thereof cannot travel substantially beyond said first opening in the direction of said member, a protective casing covering said second opening and having a discharge outlet formed therein, and resilient means tending to prevent displacement of articles from said recesses through said openings.

2. An apparatus as set forth in claim 1 in which the outlet formed in said protective casing is disposed at a right angle to the opening covered by such protective casing.

3. An apparatus as set forth in claim 1 in

which the outlet formed in said protective casing is disposed at a lower level than the opening covered by such protective casing.

4. An apparatus as set forth in claim 1 in which said resilient means consist of springs disposed at said openings and tending to prevent the passage of articles therethrough.

5. In an apparatus of the character described, a casing, a member rotatably mounted within said casing and having a plurality of peripherally arranged recesses formed therein, means for rotating said member, said casing having formed therein a first opening and a second opening, said openings being arranged in juxtaposition on opposite sides of the peripheral portion of said member and proximate the top of said casing, and adapted to register with different of said recesses when said member is rotated into various predetermined positions, a chute communicating at its lower end with said first opening, the axis of said chute being disposed substantially at a right angle to the axis of said openings, a plunger reciprocally mounted at the lower end of said chute in alignment with said first opening and at a right angle thereto, means for limiting the travel of said plunger so that the operative end thereof cannot travel substantially beyond said first opening in the direction of said member, and a protective casing covering said second opening and having a discharge outlet formed therein.

6. An apparatus as set forth in claim 5 in which the lower portion of said chute, and the opening with which said chute communicates, are of substantially the same width as each said recess.

7. In combination, a casing, a member within said casing having a plurality of recesses formed therein, means for adjustably positioning the recessed portions of said member within said casing, said casing having formed therein a first opening and a second opening, said openings being arranged in juxtaposition on opposite sides of said member and adapted to register with different of said recesses when the recessed portions of said member are adjusted into different predetermined positions, a chute communicating at its lower end with said first opening, the axis of said chute being disposed substantially at a right angle to the axis of said openings, a plunger reciprocally mounted at the lower end of said chute in alignment with said first opening and at a right angle thereto, means for limiting the travel of said plunger so that the operative end thereof cannot travel substantially beyond said first opening in the direction of said member, and a protective casing covering said second opening and having a discharge opening formed therein.

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