P. F. KLEINERT.

EYE HOPPER.

APPLICATION FILED SEPT. 30, 1911.

1,095,330.

Patented May 5, 1914.

2 SHEETS—SHEET 1.

Fig. 2

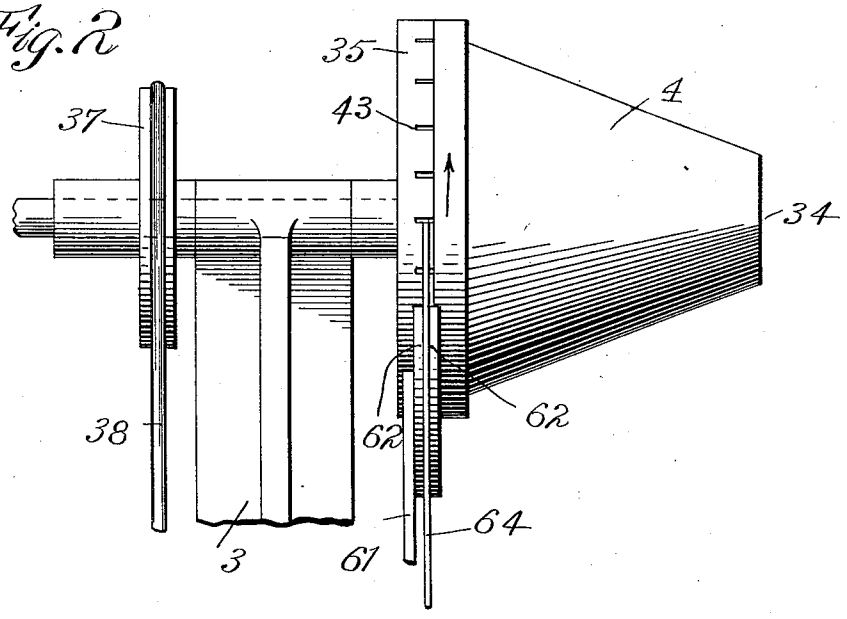
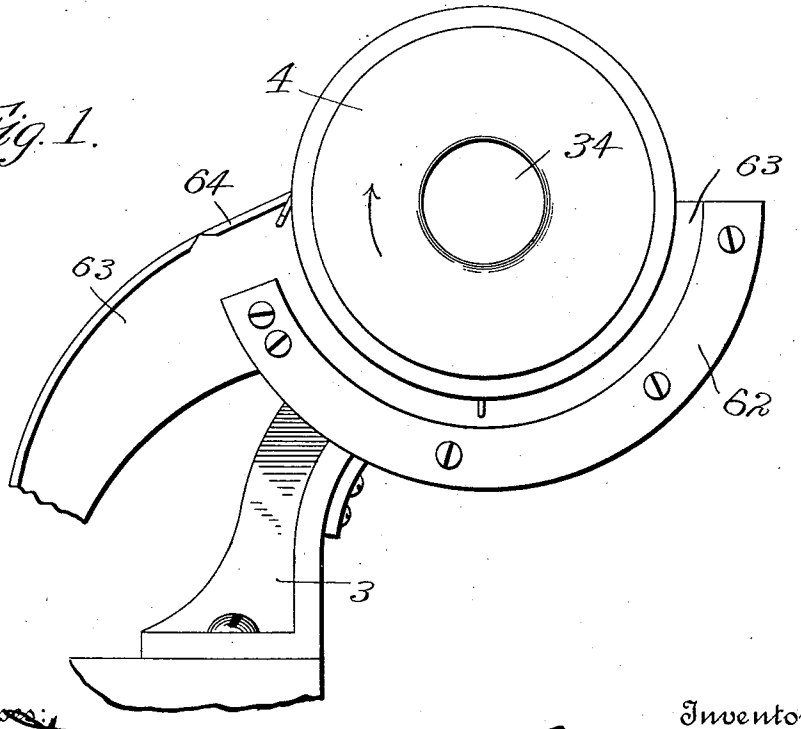


Fig. 1.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 4

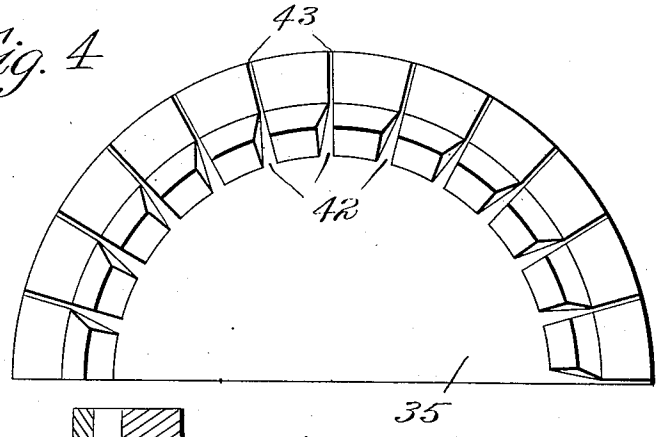


Fig. 3.

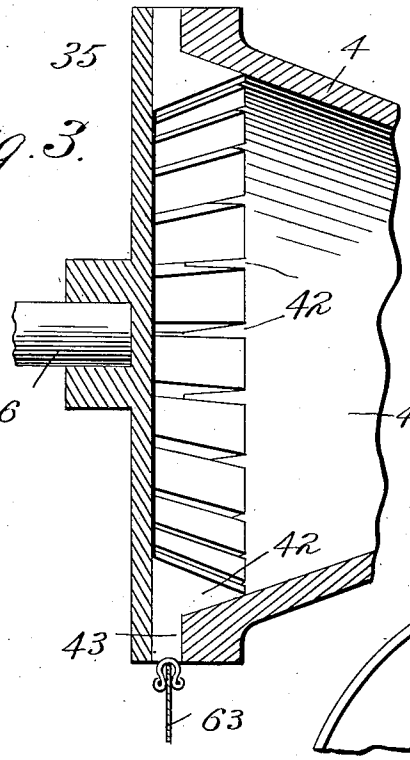
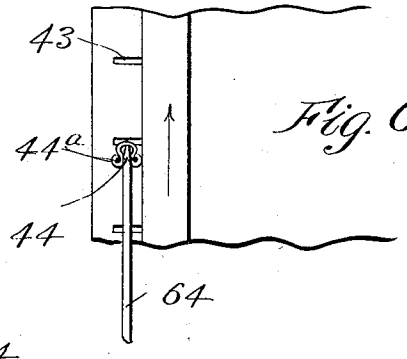


Fig. 6.



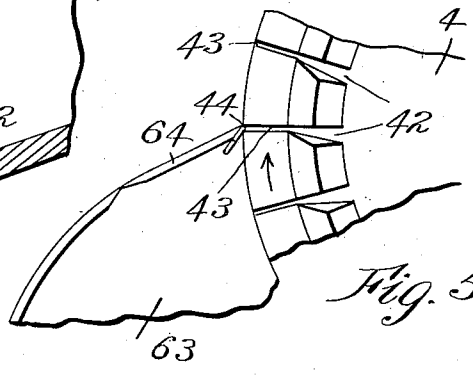


Fig. 5.

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UNITED STATES PATENT OFFICE.

PAUL F. KLEINERT, OF WATERBURY, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CONNECTICUT HOOK & EYE COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

EYE-HOPPER.

1,095,330. Specification of Letters Patent. Patented May 5, 1914.

Original application filed June 27, 1907, Serial No. 381,088. Divided and this application filed September 30, 1911. Serial No. 652,175.

To all whom it may concern:

Be it known that I, PAUL F. KLEINERT, a citizen of the United States, and a resident of Waterbury, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Eye-Hoppers, of which the following is a full and clear specification, illustrated in the accompanying drawings, the particular novel features of the invention being more fully pointed out in the annexed claims.

This invention relates to improvements in eye hoppers for discharging eyes singly from the bulk within the hopper.

My invention relates in particular to eye hoppers for discharging eyes such as are used with complementary hooks on garments, and the purpose of the hopper is to discharge eyes singly so that they may be received by suitable means and guided to a sewing mechanism where they are sewed engaged with hooks, onto cards in convenient number, for commercial distribution. A sewing machine of the above named character has been shown in my Patent No. 1,071,643 of August 26th, 1913, from which the present application has been divided.

In the accompanying drawings, which illustrate the hopper, only sufficient has been shown of the support and driving mechanism of the hopper, to enable one skilled in the art to understand the operation of the hopper.

In said drawings Figure 1 is an end view of the hopper and a side view of the eye rail attached to it. Fig. 2 is a full side view of the hopper and its driving means. Fig. 3 is a vertical section of a part of the eye hopper. Fig. 4 is a face view of Fig. 3 from the inside of the hopper. Fig. 5 is a fragmentary view showing how the eye is taken from the hopper by the eye rail, and Fig. 6 is an edge view of the portions shown in Fig. 5.

The hopper body 4 has a conical shape as shown in Fig. 2 with an opening 34 at the tapered end as may be seen in Figs. 1 and 2, through which it is charged. The other end of the hopper is closed by cover 35, the particular features of which will be described presently. Cover 35 which is shown in Figs. 2, 3 and 4, is fastened centrally to shaft 36 journaled in a bracket 3, suitably mounted on the machine in which the hopper is being used. Shaft 36 is driven by a pulley 37 through belt 38 from a suitable source of power. When the hopper has been charged with eyes of the form as shown for instance in Fig. 6 at 44^a, these eyes which extend in substantially only one plane, will drop during the rotation of the hopper into the beveled or inwardly flaring slots 42 of cover 35, the particular shape of which is shown in detail in Figs. 3, 4 and 5. On approaching the outer diameter of cover 35, these slots are contracted and assume a rectangular cross section as shown for instance at 43 in Fig. 6. Now if an eye drops into one of these slots it will fall down into the contracted portion 43 of the slot and would commence to fall out of the hopper when the slots arrive beneath the axis of rotation of the hopper if rail 63 were not provided which surrounds the lower half of cover 35 in the middle line of slots 43 as close as mechanical reasons will allow. The location of the rail may be seen for instance in Figs. 1, 3 and 6. Rail 63 is thin enough to pass freely between the sewing eyes of the eye so that if one of these eyes tends to fall through one of slots 43 with the sewing eyes first, this eye will straddle rail 63, shown in Fig. 3. As may be seen from this figure, the eye will not drop out of slot 43 entirely owing to the close position of rail 63 to cover 35, but will be carried along on rail 63 and by the edges of slot 43 until it arrives at the bead 64 of the rail which is suitably shaped at end 44 (Fig. 6), to cause the lower edge of slot 43 carrying the eye, to slip same over the bead as may be seen in Figs. 5 and 6, whereafter the eye drops entirely out of slot 43 so that it can slide on the downwardly inclined bead 64 of the rail as shown in Figs. 1 and 5 to the sewing mechanism (not shown). It will be seen without further discussion that no eye is thus able to drop out of the hopper unless it is in proper position to be received by the rail, that is, with the sewing eyes first. Any eye having another position in the slot 43 cannot straddle rail 63 and will thus be simply carried along in the slot until it drops back into the hopper by gravity as soon as its slot arrives at the upper half of disk 35.

While I have shown in the drawings rail

63 where it surrounds the hopper of equal thickness throughout so that it may receive an eye from the slots with the sewing eyes first at any point, I do not wish to limit the scope of this invention to this particular structure. The spirit of this particular invention as claimed later on, is that suitable means are provided close to the hopper at places where an eye may drop out of the slots, and that these means, owing to their structure may also normally prevent the dropping of the eyes out of their slots entirely, even if in proper position, and that only at most suitable places these means may be of such shape as to allow a drop of the eyes only in predetermined position and to receive same in such position. The structure of these means, as shown in the drawings, is merely a specific form in which these articles may drop out of their slots in their predetermined position at any point of the means surrounding the slots.

What I claim is:

1. In a machine of the character described, the combination of a circular hopper adapted to receive eyes in bulk and disposed to rotate on its longitudinal axis in an approximately vertical plane; of radial slots disposed at the periphery in a plane normal to the axis of rotation of said hopper, said slots shaped at their inner ends to receive eyes from said bulk and shaped at their outer ends to contain a single eye, means surrounding the lower portion of said hopper and close to its periphery to prevent the premature discharge of eyes, and shaped to receive the eyes ready to be discharged in predetermined position.

2. In a machine of the character described, the combination with a circular hopper adapted to receive eyes in bulk and disposed to rotate on its longitudinal axis in an approximately vertical plane; of radial slots disposed at the periphery in a plane normal to the axis of rotation of said hopper, said slots flaring at their inner ends to receive eyes from said bulk and contracted at their outer ends to contain a single eye, and a rail adjacent to said hopper disposed to surround the lower half of said hopper periphery in a plane through the middle of said radial slots causing the slots to discharge the eyes only with the sewing eyes first and causing the vertex of each eye loop to remain in its slot and adapted to receive one sewing eye of said eyes on each side, and means on said rail for receiving the loops of said eyes when presented by the slots during rotation of said hopper to convey the eyes away from said hopper.

3. In a machine of the character described, the combination with a circular hopper adapted to receive eyes in bulk and disposed to rotate on its longitudinal axis in a substantially vertical plane and having radial slots disposed at the periphery in a plane normal to the axis of rotation of said hopper, said slots flaring at their inner ends to receive a plurality of eyes from said bulk and contracted at their outer ends to contain a single eye; of a rail adjacent to said hopper disposed to surround the lower half of said hopper periphery in a plane through the middle of said radial slots causing the slots to discharge the eyes only with the sewing eyes first and causing the vertex of each eye to remain in its slot, said rail also adapted to receive one sewing eye of said eyes on each side and a bead on said rail extending from said slots and suitably shaped to receive the loops of said eyes when presented by the slots during the rotation of said hopper.

4. In a machine of the character described, the combination of a circular hopper adapted to receive eyes in bulk and disposed to rotate on its longitudinal axis, having radial slots in its periphery suitably shaped to receive eyes singly at the periphery of said hopper and means adjacent to the hopper for causing said slots to discharge the eyes only when in a predetermined position, and receiving said eyes thus discharged to convey same away.

5. A hollow cylindrical rotatable eye feeding hopper, having means for discharging eyes therefrom through the cylindrical wall thereof at each rotation with their legs projecting outwardly, and for dropping all eyes not presented in that position back into the hopper.

PAUL F. KLEINERT.

Witnesses:
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A. J. BARNES.

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