

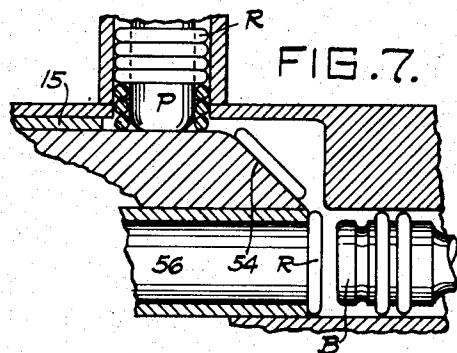
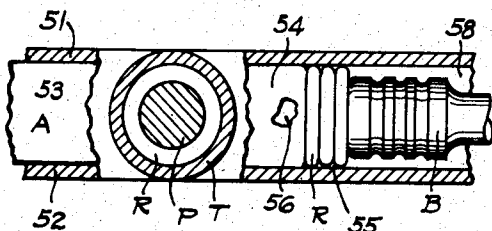
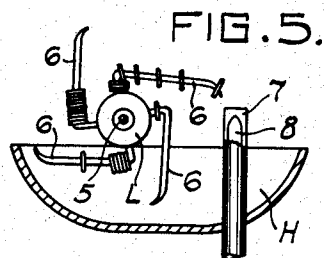
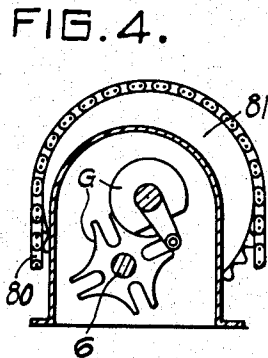
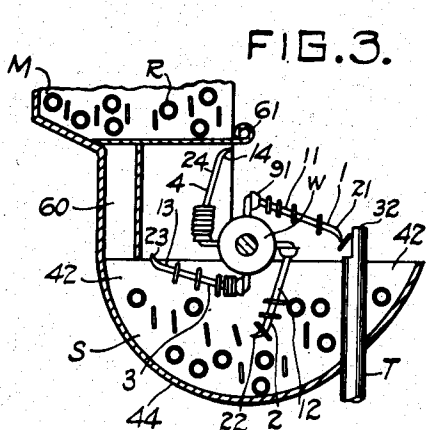
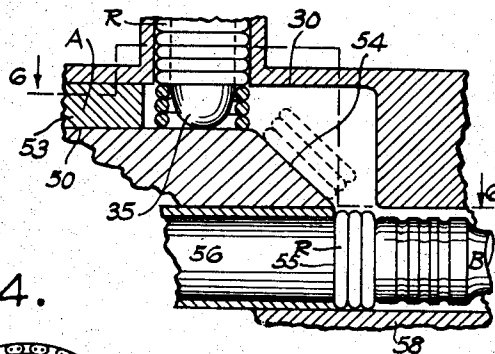
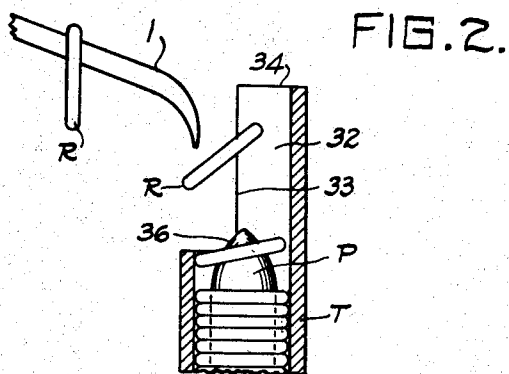
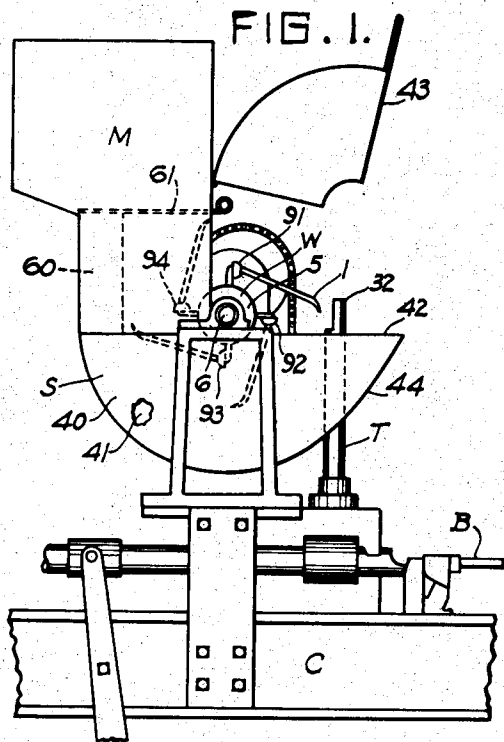
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FEED FOR MACHINES FOR PLACING RINGS ON BOBBINS

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FEED FOR MACHINES FOR PLACING
RINGS ON BOBBINS

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6 Claims. (Cl. 214—6)

This invention relates to devices for feeding metal rings, particularly those of the split type, to the heads of bobbins such as are generally used in automatic looms.

As shown, it is used in connection with what is known as the Choquette ring placing machine wherein the rings are generally placed in large numbers upon a long rod which is suspended vertically over a slide in which slide there operates a ring pushing means which removes any number of rings at a time from the bottom of the rod and carries it or them along until it or they drop from the horizontal part of the slide into a position vertically between the ring placing device and the head of a bobbin on which the rings are successively to be placed. The bobbin is generally moved towards the rings and the pushing device moves the rings to and onto the bobbin in their proper places.

I do not claim anything new on the ring placing devices but this invention takes the place of the long rod. Its purpose is to permit a large number of rings to be dropped into a hopper from which they are moved by a revolving spider wheel and delivered to the top end of a relatively short floating rod inside of a receiving tube. Those rings which land on the rod automatically rest evenly one on top of the other so that the ones at the bottom are always horizontal and are always in the correct position in the slide. If the rod is filled, the rings drop back into the scoop hopper and if there are any rings which do not land on top of the rod, these fall back into the scoop hopper.

In the drawing,

Fig. 1 is a side elevation showing my ring feeding device attached to or connected with a well-known mechanism for placing rings on bobbins.

Fig. 2 is a longitudinal vertical section enlarged showing the relation between the arms of the feed wheel and the receiving post and tube together with some parts of the machine for placing the rings on bobbins.

Fig. 3 is a longitudinal vertical section showing the inside of a hopper and the feed wheel.

Fig. 4 is a longitudinal vertical section of the Geneva motion.

Fig. 5 is a view similar to Fig. 3 of a modification of the device.

Fig. 6 is a horizontal section looking down on the line 6, 6 of Fig. 2.

Fig. 7 is a view similar to Fig. 2 of a modification.

In the drawing, C represents a machine for placing rings R on bobbins B including a slide A having a bottom 50 and sides 51 and 52 together with a pushing device 53 for pushing any number of rings R, R along the slide until the rings slip over to where the slide bends down at 54 and enters a pocket 55 between well-known ring plac-

ing devices 56 and a bobbin B supported by a carrier 58, there being suitable mechanism to bring the parts 56 and 58 together to place the rings R, R on a bobbin.

M represents a main receiving hopper or bin into which rings R, R are dropped. Its sides and bottom slope down to an outlet 60 which leads to a scoop hopper S. Preferably there is a closure slide 61 in outlet 60 which can be used to regulate the quantity of rings in the scoop hopper S.

As shown, hopper S has parallel sides 40 and 41 with an open top 42 which can be closed by a cover 43, shown as hinged, and a concave bottom 44.

T is a receiving tube with a bottom end 30 which spans the walls 51 and 52 of the slide A whereby there is room underneath for the number of rings R to be pushed along the slide by the pushing means 53. The top end 32 of tube T extends up inside the scoop hopper S and is fixed proximate one end thereof and is cut away at 33 near the top 34 on the inner side.

P is a floating ring rod located in the receiving tube T. It has a rounded base 35 which rests on the bottom 50 of slide A and a pointed top 36 which extends up proximate the cut away part 33 of the top end 34 of the receiving tube T.

W is a revoluble spide wheel carried by a shaft 6 and comprising a hub 5 and a plurality of radial arms shown as 1, 2, 3 and 4. Each of said radial arms such as 1 is bent at an angle to form a forearm such as at 11, 12, 13 or 14 and each forearm terminates in a finger such as 21, 22, 23 and 24.

The forearms and fingers are both bent in the direction of rotation of wheel W and as each finger moves down back and up, it picks up a number of rings. These rings remain on the arm until it continues over forward and down to a certain point when they slip down and off. That point is a little above and beyond the pointed top 36 of rod P.

As shown, the tip of each finger passes down and out through the cut away part 33 of tube T.

There is also, preferably at the bend or elbow, on each arm, a ring stop such as 91, 92, 93 and 94. These arms are located in the plane which passes through the axis of the rod P. The arms and fingers are so long that as the wheel revolves, the tip of the fingers on the end of each arm moves in a curve proximate to and above the pointed top 36 of the ring rod P.

Each arm projects radially from the hub and the forearm is bent in such a way that when the radial part of the arm is vertical, the forearm slopes down at such an angle that the rings on it will slide down and off the end of the finger onto the top of the rod P.

Preferably, I use driving means which include a chain 80 and sprocket wheel 81 which drives a

Geneva motion G which imparts to the shaft 6 which carries the wheel W an intermittent motion so timed that the tip of each finger will stop just as it is delivering rings to the ring rod P.

6 The fore-arm and finger tip of each radial rod are both so bent that before one arm comes to an intermittent stop, with the end of its finger near and above the top 36 of rod P, the fore-arm of that rod has been moving and sloping downward so that the intermittent stop, on account of centrifugal force and gravity, throws one or more rings off the finger tip through the cut away top front part 33 of receiving tube T against the back of tube T and on to the top 36 of ring rod P.

10 While I prefer an intermittent motion and stops such as at 91, 92, 93 and 94, I can, as shown in Fig. 5, use a hopper H of dish shape with a wheel L which revolves steadily on a shaft 5 and carries arms 6, 6, 6, with no stops, which arms throw the rings off their tips into a tube 7 in which is a post 8, the tube and post being substantially the same as tube T and post P.

As shown in Fig. 7, by using a proper slide indicated by 15, for one ring, and other parts corresponding, a single ring can be placed on a bobbin by the well-known motion hereinbefore described.

I claim:

1. In an automatic device for feeding rings to bobbins, the combination of a scoop hopper; with a horizontal ring slide and ring pushing means therein, a receiving tube, the bottom end of which spans the slide and the top end of which is fixed proximate one end of and in the scoop hopper and is cut away at the top on the inner side of the hopper; a floating ring rod in the receiving tube with a rounded base which rests on the bottom of the slide and which has a pointed top which extends up proximate the cut away part of the top end of the receiving tube; a revoluble spider wheel comprising a hub and a plurality of radial arms being bent at an angle and terminating in a finger the wheel being so mounted that the fingers on its arms can pass through the hopper when the wheel is revolved; a ring stop on each arm; and means to revolve the wheel intermittently so that just before each intermittent stop, the tip of the finger on the end of each arm moves proximate to and above the pointed top of the ring rod so as to throw a ring on the ring rod whereby the rings are collected on the rod parallel with the slide.

2. In an automatic device for feeding rings to bobbins, the combination of a scoop hopper; with a horizontal ring slide and ring pushing means therein, a receiving tube, the bottom end of which spans the slide and the top end of which is in the scoop hopper; a floating ring rod in the receiving tube with a rounded base which rests on the bottom of the slide and which has a pointed top which extends up proximate the top end of the receiving tube a revoluble spider wheel comprising a hub and a plurality of radial arms carried by the hub, each of said radial arms being bent at an angle and terminating in a finger the wheel being so mounted that the fingers on its arms can pass through the hopper when the wheel is revolved; a ring stop on each arm; and means to revolve the wheel intermittently so that just before each intermittent stop, the tip of the finger on the end of each arm moves proximate to and above the

pointed top of the ring rod so as to throw a ring on the ring rod whereby the rings are collected on the rod parallel with the slide.

3. In an automatic device for feeding rings to a floating ring rod, the combination of a scoop hopper, with a receiving tube, the top end of which is fixed proximate one end of and in the scoop hopper and which is cut away at the top on the inner side of the hopper; a floating ring rod free to move in the receiving tube, which rod has a pointed top which extends up proximate the cut away part of the top end of the receiving tube; a revoluble spider wheel comprising a hub and a plurality of radial arms carried by the hub, each of said radial arms being bent at an angle and terminating in a finger, the wheel being so mounted that the fingers on its arms can pass through the hopper when the wheel is revolved; a ring stop on each arm; and means to revolve the wheel intermittently so that just before each intermittent stop, the tip of the finger on the end of one of the arms moves proximate to and above the pointed top of the ring rod and stops.

4. In an automatic device for feeding rings to a ring rod, the combination of a scoop hopper, with a receiving tube, the top end of which is fixed proximate one end of and in the scoop hopper and which is cut away at the top on the inner side of the hopper; a ring rod which has a pointed top which extends up proximate the cut away part of the top end of the receiving tube; a revoluble spider wheel comprising a hub and a plurality of radial arms carried by the hub, each of said radial arms being bent at an angle and terminating in a finger, the wheel being so mounted that the fingers on its arms can pass through the hopper when the wheel is revolved; and means to revolve the wheel intermittently so that just before each intermittent stop, the tip of the finger on the end of one of the arms has been moving down proximate to and above the pointed top of the ring rod.

5. In an automatic device for feeding rings to bobbins, the combination of a scoop hopper, with a horizontal ring slide and ring pushing means therein; a floating ring rod with a rounded base which rests on the bottom of the slide and extends up vertically in a receiving tube and has a pointed top; and automatic means for picking rings from the hopper and intermittently throwing them on to the top of said rod whereby the rings are collected on the rod parallel with the slide.

6. In an automatic device for feeding rings to a ring rod, the combination of a scoop hopper, with a receiving tube, the top end of which is fixed proximate one end of and in the scoop hopper and which is cut away at the top on the inner side of the hopper; a revoluble spider wheel comprising a hub and a plurality of radial arms carried by the hub, each of said radial arms being bent at an angle and terminating in a finger, the wheel being so mounted that the fingers on its arms can pass through the hopper when the wheel is revolved; and means to revolve the wheel intermittently so that just before each intermittent stop, the tip of the finger on the end of one of the arms has been moving down proximate to and above the cut away top of the receiving tube, whereby a ring is thrown from the tip of the finger of that arm into the tube.

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