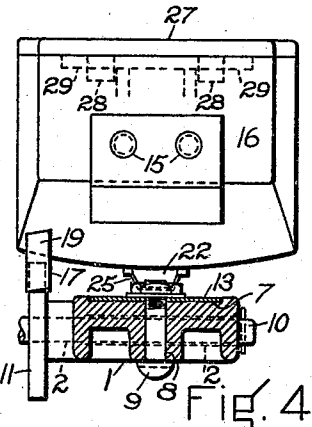
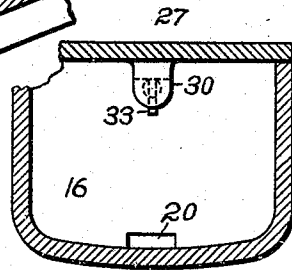
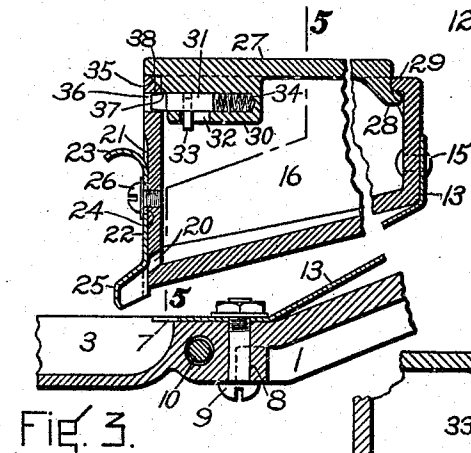
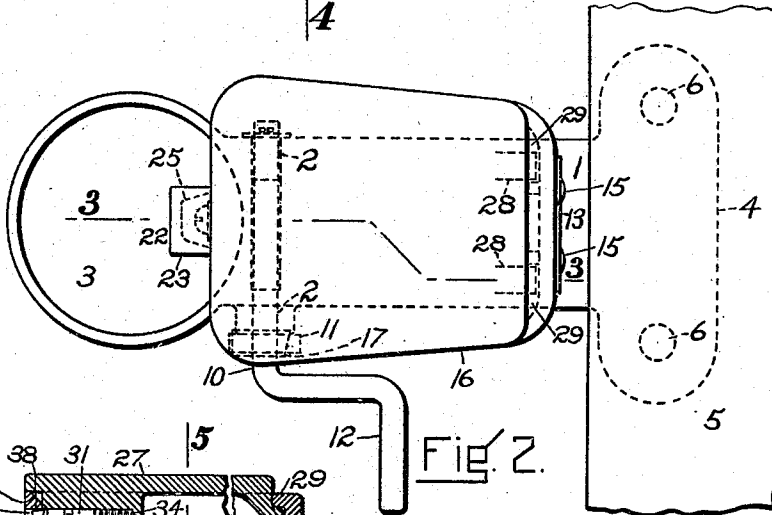
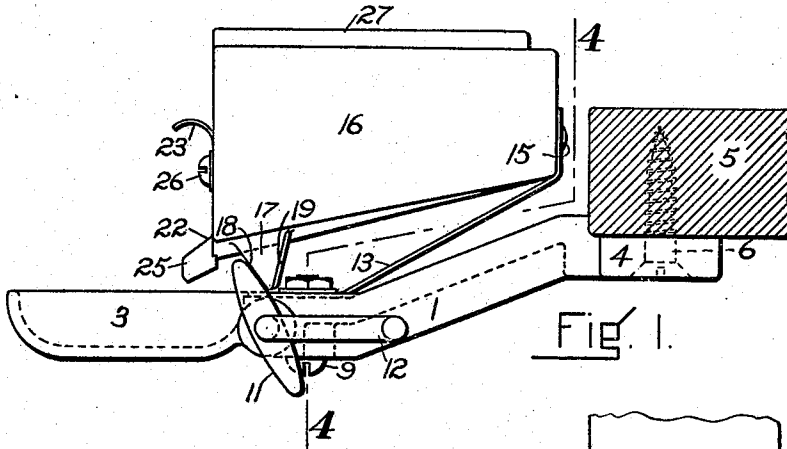


A. A. LOVEJOY.
ATTACHMENT FOR RING SPINNING FRAMES.
APPLICATION FILED MAY 28, 1909.

932,482.

Patented Aug. 31, 1909.



WITNESSES
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FIG. 5.

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ATTACHMENT FOR RING-SPINNING FRAMES.

932,482.

Specification of Letters Patent.

Patented Aug. 31, 1909.

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To all whom it may concern:

Be it known that I, ALFRED ADELBERT LOVEJOY, of Lowell, in the county of Middlesex and the Commonwealth of Massachusetts, have invented certain new and useful Improvements in Attachments for Ring-Spinning Frames, of which the following description and claims, with the accompanying drawings, is a specification.

Like numbers on the drawings denote like parts.

This invention is an improvement in such attachments for ring-spinning-frames as embody hoppers, magazines, or receptacles, in which travelers may be placed in bulk and retained until the bunches or chains in which travelers-in-bulk are so often found, shall have been disintegrated and the travelers shall have been delivered, a few at a time, into a pan or receiver. It is adapted for the convenient reception, retention, and delivery of travelers of any size. It is especially adapted to the disintegration of bunches and chains of the smallest and lightest travelers in use.

Bunches and chains of travelers of the smallest size and of the lightest weight are particularly difficult of disintegration. I have found that such disintegration is readily effected by the sudden or concussive shaking of the bunches or chains in a suitable receptacle and I have invented a disintegrating-and-delivering traveler-magazine in which bunches or chains of travelers of the smallest size and of the lightest weight, as well as such as are larger and heavier, can be thus suddenly or concussively shaken and disintegrated with great efficiency.

It is essential to the simplest form of my invention that the receptacle for travelers-in-bulk shall be movable as an entirety with respect to its stand, and that its motion with respect to its stand shall be guided and controlled by mechanical means. I prefer to embody in my invention, as subordinate features thereof: mechanical means for moving as an entirety such receptacle with respect to its stand; mechanical means for suddenly starting such motion; and, mechanical means for suddenly stopping such motion.

The construction of my invention which I prefer, is represented in the accompanying drawings and described below.

The preferred construction can be departed from in many particulars without departing from my invention.

In the drawings: Figure 1 represents the invention in side-elevation, attached to the creel-board of a ring-spinning-frame, a part of which is shown in cross-section; Fig. 2 represents it in plan; Fig. 3 represents a section thereof taken at the broken line 3—3 of Fig. 2 and omitting certain parts; Fig. 4 represents the invention partly in rear-elevation and partly in section, taken at the broken line 4—4 of Fig. 1; Fig. 5 represents a partial section taken at line 5—5 of Fig. 3 with a part in elevation and shows the orifice from within the receptacle with the cover for the receptacle and its fastening-bolt.

In the figures: 1 represents the stand; 2 2, the bearings therein for the reception of the shaft; 3, the pan or receiver, for disintegrated travelers; 4, the foot, for attaching the stand to the spinning-frame; 5, a portion of the creel-board of the frame; 6 6, means for fastening the stand to the creel-board; 7, a flat recess in the stand having parallel sides for the reception of the flat spring; 8, a hole to receive means, such as a bolt, for fastening the spring to the stand; 9, the means for fastening the flat spring to the stand; 10, the cam-shaft; 11, the rotatable cam, mounted upon and fastened to the cam-shaft; 12, the crank, integral with the cam-shaft; 13, the flat spring fastened upon the stand and to the receptacle, for controlling the motion of the receptacle and for actuating it, when it is moved in opposition to the action of the cam; 15 15 means for fastening the flat spring to the receptacle; 16, the receptacle; 17, the cam-shaped projection from the receptacle, for co-acting with the rotatable cam 11; 18, the face of the cam-shaped projection for co-acting with the rotatable cam 11 having its rectilinear elements parallel to the axis of rotation of the cam-shaft; 19, the face of the cam-shaped projection for co-acting with the rotatable cam having its rectilinear elements inclined to the direction of such axis; 20, the orifice for the delivery of travelers a few at a time; 21, the recess in the receptacle having parallel sides for the reception of the adjustable mouth-piece; 22, the adjustable mouth-piece for the orifice; 23, the handle of the adjustable mouth-piece; 24, the adjusting slot of the adjustable mouth-piece; 25, the hood of the adjustable mouth-piece; 26, the securing means for the adjustable mouth-piece; 27, the cover for the receptacle; 28 28, fastening lugs projecting from and integral with the cover and con-

tacting with ledges of the receptacle; 29 29, ledges of the receptacle for receiving the said fastening lugs; 30, the lug projecting from the lower side of the cover and containing the bearings for the fastening-bolt; 31, the fastening-bolt; 32, the slot, looking downward and guiding and controlling the motion of the stop that projects from the fastening-bolt; 33, the stop, preferably, a projecting pin through the fastening-bolt, which prevents that bolt from moving too far forward by contacting with the lug at the end of the slot, and which prevents the rotation of that bolt; 34, the spring, pressing against the fastening-bolt 31 and the lug 30, which forces the bolt forward and controls its position; 35, the inclined-lip of the receptacle, that forces back the fastening-bolt in opposition to the spring 34; 36, the hole through the receptacle for the fastening-bolt.

When it is desired to introduce travelers-in-bulk into the receptacle, the second-hand in charge of the frames introduces a tool into the hole 36, and, pressing back the fastening-bolt 31, removes the cover. The area of the cover is preferably large to facilitate the introduction of large bunches of travelers. The front portion of the fastening-bolt is sufficiently tapered to make it easy to enter it again into the hole 36 upon the replacement of the cover. The upper part 37 of the tapered portion of the bolt 31 contacts with the part 38 of the receptacle at the top of the hole 36, when the cover is in place and the pressure of the spring 34 wedges the receptacle tightly to the cover and tends to prevent the rattling thereof. The extreme front end of the bolt 31 is sufficiently large and flat to conveniently receive the tool that is used in forcing it backward. Preferably, the ledges 29 29, are reinforced on both sides but they may be the upper parts of sockets, holes opening entirely through the wall of the receptacle, or of other depressions in the walls of the receptacle. A great variety of shapes may be given to the receptacle without departing from my invention. Preferably, the bottom slants toward the orifice 20, which is preferably located in the lowest part of the receptacle.

The mechanical means for controlling the motion of the receptacle can be greatly varied. I prefer to use, as such means, a flat spring, mounted upon the stand 1 in a recess of the width of the spring and with parallel sides for preventing the spring from turning upon the fastening means 9 as upon a pivot. I prefer to secure the spring to the receptacle by two rivets 15 15 at the rear of the receptacle, as is shown in Fig. 4. This preferred means, the flat spring, is simple, inexpensive, and permits a slight lateral and an extended vertical movement of the receptacle. In some cases, I stop the downward motion of the receptacle by the face of

the rotatable cam as it approaches the receptacle to elevate it again, but I prefer to elevate the receptacle by means of the rotatable cam 11 and the face 18 of the cam-like projection 17, which tends to move the receptacle chiefly in a vertical direction, and to return the receptacle during the contact of the cam 11 with the face 19 of the cam-like projection 17 whereby a sidewise or lateral shifting, as well as a downward motion, is produced. When the mechanism is of the preferred construction, it is capable of being operated by turning the crank in either direction. When the crank is turned in such direction as will elevate the receptacle by the coöperation of the cam 11 with the face 19 of the cam-like projection, the lateral motion of the receptacle is much more energetic than when the crank is turned in the opposite direction and a reversal of the crank-motion will sometimes separate a number of travelers from the bunch. In the preferred means for arresting the motion of the receptacle, the downward motion is arrested and reversed by sudden contact with the cam 11 as it approaches the cam-like projection 17 to suddenly elevate the receptacle again, and the sidewise motion is arrested by the stiffness of the spring.

While I prefer to elevate the receptacle by means of the rotatable cam and to arrest the motion of the receptacle by contact with that cam as it rotates, I can, without change in the construction of the attachment, suddenly elevate and depress the receptacle wholly by hand, and, without the use of the cam, disintegrate the travelers from the bulk and discharge them through the orifice. I can also, without change in the construction elevate the receptacle by hand and allow the spring to snap it back until it is stopped by contact with the stationary cam, and thus disintegrate travelers from the bunch and discharge them through the orifice.

Ring-spinning-travelers vary very greatly in size and in weight. The standard (Wilson) sizes vary from #73 weighing 15.8 grains to the traveler to #23/0 weighing one-tenth of one grain to the traveler. The #1/0 size measures across the bow about .2312 inch and has a thickness of about .0624 inch, while the #21/0 size measures about .2135 inch across the bow and has a thickness of only about .0139 inch. I have invented an adjustable mouth-piece 22 for use in adjusting the size of the orifice to the size of the travelers to be discharged therethrough. It consists, preferably, of: a strip of sheet metal having a handle 23, bent toward the front; an intermediate part, through which the adjusting slot 24 is perforated; and the hood 25 which coöperates with the receptacle at the orifice. Preferably, the mouth-piece 22 slides in a recess of its own width and having parallel sides, milled in the receptacle, and

it is secured to the receptacle in the desired position of adjustment by the clamping-screw 26. The inner face of the mouth-piece is preferably a plane surface and the distance of the lower edge of the plane surface from the lower edge of the orifice can be greatly varied to accommodate varied sizes of travelers. The hood of the mouth-piece is an important feature thereof. It prevents the travelers from being thrown far forward and directs them into the pan or receiver. The inner face of the front part of the hood is preferably at least as far in front of the receptacle at the orifice as the traveler measures across the bow. For travelers varying in size from #1/0 to #23/0 this distance should be a little greater than about .2312 inch. That is a little greater than one-quarter of an inch, and this distance will not require adjustment, except for travelers larger than #1/0. But the height from the bottom of the plane surface of the mouth-piece to the lower edge of the orifice of the receptacle should be a little more than .0624 inch, or a little more than one-sixteenth of an inch for #1/0 travelers, while it should not be much more than .0139 inch or about 1/32 of an inch for #21/0 travelers. The most forward part of the hood is preferably connected with the rearward and plane part of the mouth-piece by a top and sides all, preferably, integral and its extreme lower part is slightly bent toward the rear. The hood is open at the bottom for the escape of travelers and prevents travelers from shooting over the edge of the pan on to the floor.

I claim:

1. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having an orifice for their discharge and movable as an entirety with respect to its stand; a stand therefor; and, mechanical means, intermediate the receptacle and the stand, controlling the motion of the receptacle with respect to the stand.

2. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having an orifice for their discharge and movable as an entirety with respect to its stand; a stand therefor; mechanical means, intermediate the receptacle and the stand, controlling the motion of the receptacle with respect to the stand; and, mechanical means for suddenly arresting such motion.

3. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having an orifice for their discharge and movable as an entirety with respect to its stand; a stand therefor; and, a spring, intermediate the stand and the receptacle, mounted upon the stand and upon which the receptacle is mounted.

4. In an attachment for ring-spinning-frames, in combination: a receptacle for

travelers-in-bulk, having an orifice for their discharge and movable as an entirety with respect to its stand; a stand therefor; a spring, intermediate the stand and the receptacle, mounted upon the stand and upon which the receptacle is mounted; and, a contact-piece, for suddenly arresting the motion of the receptacle.

5. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having an orifice for their discharge and a bottom inclined toward such orifice; a flat spring, upon which the receptacle is mounted; mechanical means for moving the receptacle; and, mechanical means for arresting its motion.

6. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having an orifice for their discharge; a flat spring, upon which the receptacle is mounted; and, a rotatable cam, for moving the receptacle in opposition to the spring and for suddenly reversing its return motion.

7. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having a cam-shaped projection; mechanical means for controlling the motion of the receptacle; and, mechanical means for suddenly moving the receptacle.

8. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk, having a cam-shaped projection with a face for co-acting with a rotatable cam and having its rectilinear elements parallel to the axis of rotation of such cam and having another face for co-acting with such cam having its rectilinear elements inclined to the direction of such axis.

9. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk having an orifice for their discharge; a stand therefor; mechanical means, intermediate the receptacle and the stand, controlling the motion of the receptacle with respect to the stand; and, a crank-operated cam, mounted in the stand, for giving motion to the receptacle.

10. In an attachment for ring-spinning-frames, in combination: a stand having: a foot for securing it to the spinning-frame; a shaft-bearing therein; a pan for travelers; a flat recess having parallel sides for the reception of a flat spring; and, a hole to receive means for fastening such spring to the stand.

11. In an attachment for ring-spinning-frames, in combination: a receptacle for travelers-in-bulk having an orifice and a recess for a mouth-piece; an adjustable mouth-piece, having a handle, an adjusting slot, and a hood closed at the top, on both sides, and in front; and, means for adjustably securing the mouth-piece to the receptacle in the recess.

12. In an attachment for ring-spinning-frames, in combination: a stand having: a foot for securing it to the spinning-frame; a shaft-bearing therein; and, a receiver for
5 travelers; a flat spring, secured to the stand and to a receptacle for travelers-in-bulk; means for securing the flat spring to the stand; means for securing the flat spring to the receptacle; a receptacle for travelers-in-
10 bulk, having an orifice for the discharge of travelers, a bottom inclined toward such orifice, an adjustable mouth-piece for such orifice; a cover for the receptacle having a projecting lug and a fastening bolt for locking
15 the cover upon the receptacle; and, a crank-actuated cam journaled in the stand for actuating the receptacle.

13. In an attachment for ring-spinning-

frames, in combination: a stand having: a foot for securing it to the spinning-frame; 20 and, a receiver for travelers; a flat spring, secured to the stand and to a receptacle for travelers-in-bulk; means for securing the flat spring to the stand; means for securing the flat spring to the receptacle; a receptacle for
25 travelers-in-bulk, having an orifice for the discharge of travelers, a bottom inclined toward such orifice, an adjustable mouth-piece for such orifice; and, a cover for the receptacle. 30

In testimony whereof, I affix my signature in the presence of two witnesses.

ALFRED ADELBERT LOVEJOY.

Witnesses:

CHANNING WHITAKER,
IRVING D. KIMBALL.