A. A. LOVEJOY.

DISINTEGRATING AND DELIVERING MAGAZINE FOR TRAVELERS FOR RING SPINNING FRAMES.

APPLICATION FILED JUNE 22, 1908.

917,086.

Patented Apr. 6, 1909.

3 SHEETS—SHEET 1.

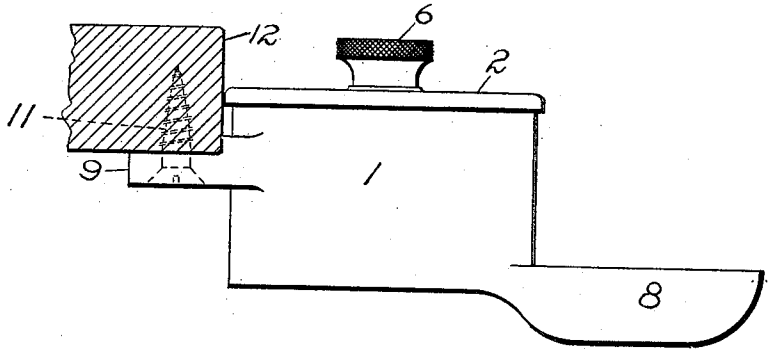


Fig. 1.

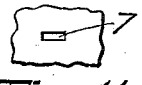


Fig. 11.

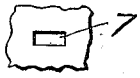


Fig. 12.



Fig. 13.

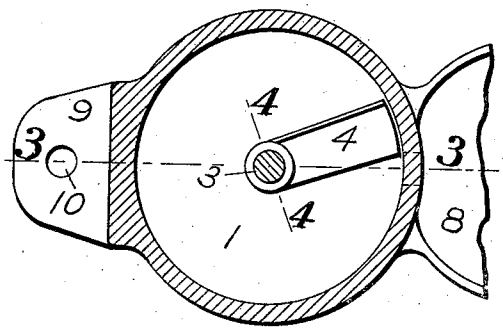


Fig. 2.

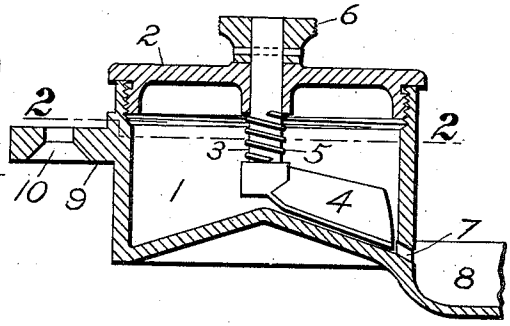


Fig. 3.

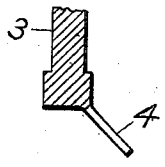


Fig. 4.

WITNESSES

Channing Whitaker

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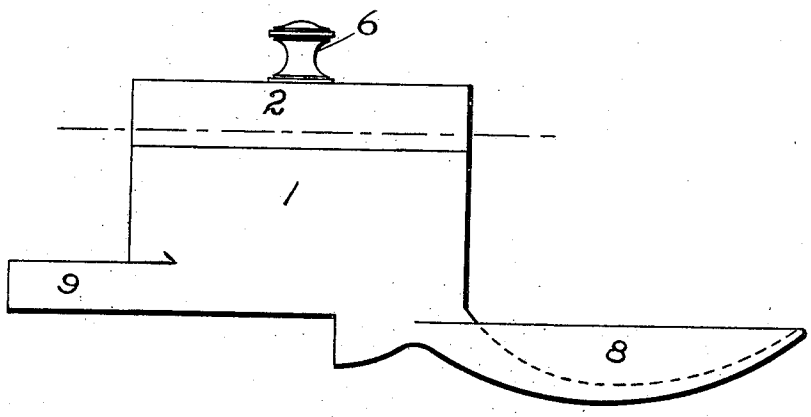


Fig. 5.

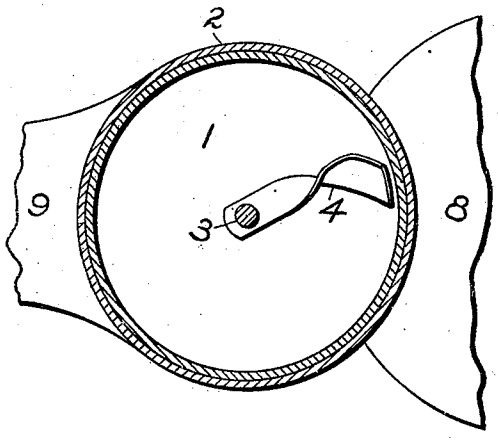


Fig. 6.

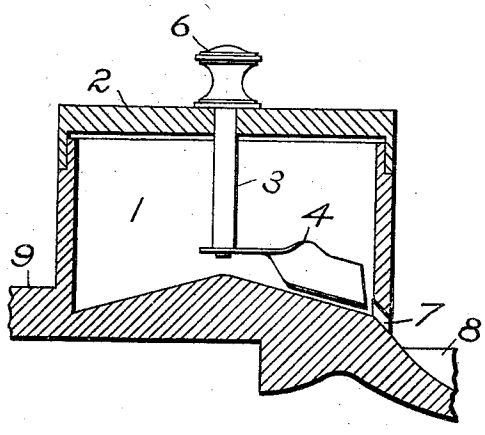


Fig. 7.

WITNESSES

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3 SHEETS—SHEET 3.

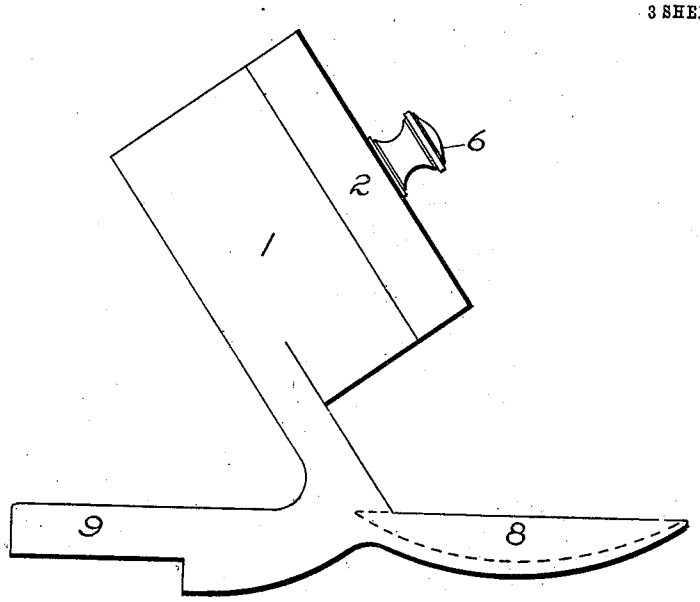


Fig. 8.

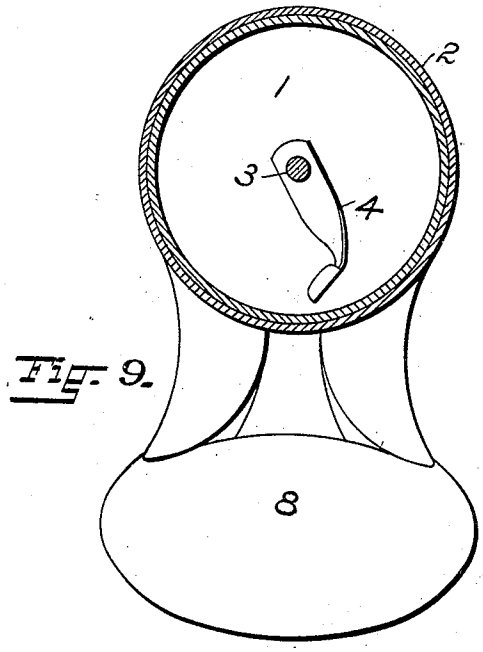


Fig. 9.

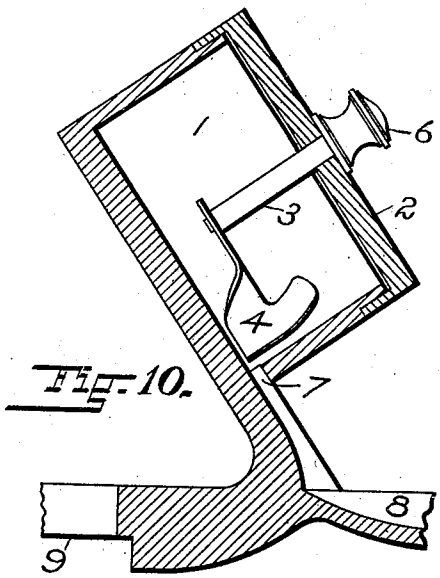


Fig. 10.

WITNESSES

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UNITED STATES PATENT OFFICE.

ALFRED ADELBERT LOVEJOY, OF LOWELL, MASSACHUSETTS.

DISINTEGRATING AND DELIVERING MAGAZINE FOR TRAVELERS FOR RING-SPINNING FRAMES.

No. 917,086. Specification of Letters Patent. Patented April 6, 1909.

Application filed June 22, 1908. Serial No. 439,730.

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 Disintegrating and Delivering Magazines for Travelers for Ring-Spinning Frames, of which the following description, with the accompanying drawings, is a specification.

Like characters on the drawings denote like parts.

My improvements consist in certain new and useful combinations of parts which, taken together, constitute a disintegrator for chains or bunches of travelers, a deliverer of separated travelers, and a magazine for travelers for ring-spinning-frames.

Travelers for use in ring-spinning are furnished to the yarn-spinner in packages within which they are found more or less linked together, or entangled in chains or bunches. This linking or entangling is more serious in small than in large sizes, thus in the packages which contain the small sizes, 16/0 or 18/0, all of the travelers in an ordinary merchantable package may be found by the yarn-spinner to be united in a single bunch. In the use of such travelers, the operative takes a single one between the thumb and finger and springs it into a position where it nearly surrounds the upper flange of the spinning-ring. But operatives are frequently hurried or careless in taking the travelers from the package. It is quicker and easier to take more than one traveler between the thumb and finger from the package at a time, and, when the operative is hurried or careless, the travelers that are in excess of one do not always find their way back into the package. When a chain or bunch of travelers is removed from the package, the number lost is sometimes great. Hurried or careless operatives do not like to take the time and the pains to unlink, disentangle, unsnarl, or separate the travelers that are united in chains or bunches. Sometimes an operative in sheer fun will throw a small handful of travelers at another operative and a mechanical contrivance for making such throwing too difficult to be conveniently indulged in is of practical utility. The floors of ring-spinning rooms have quantities of travelers embedded therein, and the waste and sweepings from such floors contain travelers in quantities. The calendar rolls of picking and lapping machines which receive such waste after it has been put through a usual but imperfect cleansing process are badly scored with "traveler-marks". Some of the travelers which are thus embedded in floors or which have thus scored calender-rolls were broken before they did any mischief and my invention is not a remedy for such injuries by broken travelers. But so far as such injuries result from whole travelers, my invention is adapted to go far toward their prevention.

The objects of the invention are: to provide a mechanical disintegrator of chains or bunches of travelers; to deliver only a few entirely separated travelers at a time into a conveniently placed receiver from which the operative can easily and quickly take only a single traveler at a time; and, to retain travelers in bulk where they are comparatively inaccessible to unauthorized or playful persons, thus saving losses which commonly occur in travelers, in the time of their use, and in injury to cotton waste, to spinning-room floors, and to calender-rolls.

The construction of disintegrating-and-delivering traveler-magazine which embodies my invention, which I prefer, and which is adapted for travelers of size number 18/0 or larger, embodies a receptacle or box for the reception of travelers for ring-spinning having a smooth interior for the easier delivery of travelers therefrom and having an orifice for their escape which leads from the lowest part of the interior of the receptacle. That interior is bounded by: a hollow cylinder, with a vertical axis; a flat top, perpendicular to that axis; and, a conical bottom, having the axis of the cone coincident with that of the cylinder and the only slightly elevated apex of the cone in the center of the bottom. An uncovered receiver for the expelled travelers projects from the receptacle beneath the orifice. Its rim and bottom are connected by a double-curved surface that presents no corner into which a traveler may escape from the thumb or finger of the operative. A foot which is adapted to be secured to the creel-board of a ring-spinning-frame projects from the receptacle, and fastening means for securing the foot to the creel-board are furnished.

The cover is screwed to the receptacle and serves to exclude dirt and foreign substances

from the interior and to make the travelers that are contained therein comparatively inaccessible to unauthorized or playful persons.

The delivering feature of the invention has a different operation when the size of the orifice is adapted to the size of the travelers that are to be discharged therethrough than when the size is not thus adapted. If large travelers are to be discharged and the orifice is too small for them to pass through, the delivering feature will be wholly inoperative. If small travelers are to be discharged and the orifice is too large for such travelers, they will pass through before they are entirely separated from one another and so many at a time that it will be comparatively difficult for the operative to take from the receiver only a single traveler at a time. But, if the size of the orifice is adapted to that of the traveler, only such travelers as are entirely separated from one another will pass through the orifice and so few will pass through at a time that the operative can easily take from the receiver only a single traveler at a time. It is only such an operation of the delivering feature of the device that is satisfactory. As a means for adapting the size of the orifice to the size of the travelers to be discharged therethrough I supply, with each cover and its attachments, a series of interchangeable receptacles each having an orifice of a size different from the size of the orifice of any other receptacle of the series. To make this adaptation: the cover with its attachments is unscrewed from the receptacle that has been in use and screwed upon the one that it is desired to use; and, the receptacle that has been in use is unfastened from the creel-board and the one that it is desired to use is fastened thereto. This means is preferred to an equivalent one which consists of a part or parts that are temporarily or permanently fastened to the receptacle near the orifice in an adjustable manner because it is convenient and inexpensive and because the part of the invention which is in actual use at any given time is more simple and free from parts which might interfere with the free delivery of travelers or with keeping the exterior of the receptacle clean.

A disintegrator and deliverer having a spindle is journaled in the cover with the axis of the spindle coincident with that of the hollow cylinder and the conical bottom. Fastened to the spindle outside of its journal and the receptacle is a thumb-knob having a milled cylindrical surface and having only circular cross-sections taken at right-angles with the axis of the spindle. This shape and milled surface, taken together, make it admirably adapted to be moved by the thumb and finger of the operative and at the same time to be easily kept free from flyings and dirt by means of "waste" in the operative's hand. A spiral spring is threaded upon the spindle, one of its ends pressing against the interior end of the journal and its other end pressing against the hub of the blade which is fastened to the spindle at its inner end. It tends to keep the blade near to the bottom of the receptacle, but permits it to recede therefrom. By means of the thumb-knob, the spindle and the blade may be given a motion of rotation or of translation in either direction. The preferable motion for ordinary operation is one of rapidly reversed rotation through a small angle. The blade is shaped much like a screw-propeller blade and a cross-section of the blade is inclined to the axis of the spindle. Its lower-edge nearly touches without scraping the conical bottom of the receptacle and its outer end nearly touches without scraping the cylindrical walls thereof. But more clearance is permissible between the end of the blade and the walls of the receptacle than between the bottom of the blade and the bottom of the receptacle. The blade is made narrow enough to permit it to pass beneath a chain or a bunch of travelers, and as the chain or the bunch moves up the incline of the blade and falls over the top thereof to the bottom of the receptacle, such movements tend to disintegrate the chain or the bunch. When travelers in chains or in bunches are in the receptacle, some part of a chain or a bunch will tend to get beneath the lower edge of the blade, and the continued rotation and translation of the blade, especially if it be reciprocatory will tend to disintegrate the chain or the bunch. This disintegration is assisted by the frictional resistance of the interior of the receptacle to the motion over it of the chain or bunch propelled by the blade and yieldingly pressed by the spiral spring. If a part of a chain or bunch gets caught in an orifice of the proper size the reciprocatory rotation and translation of the blade will detach such part from the remainder of the chain or bunch, and the blade will expel it through the orifice. When only entirely separated travelers are in the receptacle, they will not pass through the orifice unless they are agitated or stirred. But the continuous or reciprocating rotation of the blade will expel them through the orifice into the receiver, a few at a time.

The whole invention then embodies means for disintegrating chains or bunches of travelers by separating each traveler from every other traveler of a chain or of a bunch.

It also embodies means for expelling entirely separated travelers, a few at a time, into a conveniently placed receiver from which the operative can easily and quickly take only a single traveler at a time. And, it embodies means for retaining a quantity

of travelers where they are comparatively inacessible to unauthorized or playful persons.

In the drawings: Figure 1 represents the preferred form of the invention in elevation, with a portion of the creel-board of a ring-spinning-frame in cross-section; Fig. 2, in sectional-plan on the line 2 2 of Fig. 3, with a part of the receiver removed; and, Fig. 3, in sectional-elevation on the line 3 3 of Fig. 2, with a part of the receiver removed. Fig. 4 represents a vertical section of the spindle and blade at line 4 4 of Fig. 2. Figs. 5, 6, and 7 represent a modification in which the spindle and blade are not integral and in which the cover is secured upon the box by a simple frictional joint. Figs. 8, 9, and 10, represent a modification in which the bottom of the receptacle is flat but inclined to the horizontal. Figs. 11, 12, and 13 represent portions of a series of interchangeable receptacles having orifices varying in area.

In the figures: 1, represents the receptacle; 2, the cover; 3, the spindle; 4, the blade; 5, the spring; 6, the thumb-knob; 7, the orifice; 8, the receiver for travelers that have been discharged through the orifice; 9, the foot or projection from the receptacle; 10, the hole in the foot or projection for the attaching screw or bolt; 11, an attaching screw; and 12, a portion of the creel-board of a ring-spinning-frame to which the disintegrating and delivering traveler-magazine may be attached.

I claim—

1. Means for disintegrating chains and bunches of travelers, embodying, in combination: a receptacle for travelers; a journal supported thereupon; a spindle mounted in the journal and adapted for reciprocatory rotation and translation relatively to the receptacle; and, a blade fastened to the spindle, coöperating with the interior of the receptacle, and adapted for the disintegration of chains and bunches of travelers.

2. Means for disintegrating chains and bunches of travelers, embodying, in combination: a receptacle for travelers; a journal supported thereupon; a spindle mounted in the journal and adapted for reciprocatory rotation and translation relatively to the receptacle; a handle fastened to the spindle; and, a blade fastened to the spindle, cooperating with the interior of the receptacle, and adapted for the disintegration of chains and bunches of travelers.

3. In combination: a receptacle for travelers having an orifice; a journal supported thereupon; a spindle mounted in the journal and adapted for reciprocatory rotation and translation relatively to the receptacle; and, a blade located within the receptacle and adapted to expel travelers through the orifice.

4. In combination: a receptacle for travelers having an orifice; a journal supported thereupon; a spindle mounted in the journal and adapted for reciprocatory rotation and translation relatively to the receptacle; a handle fastened to the spindle; and, a blade located within the receptacle and adapted to expel travelers through the orifice.

5. A receptacle for travelers: having an interior that is bounded by a hollow cylinder with a vertical axis, a flat top that is perpendicular to that axis, and a conical bottom having the axis of the cone coincident with that of the cylinder and having the slightly elevated apex of the cone in the center of the bottom; having an orifice that leads from the lowest part of the interior of the receptacle; having a receiver projecting therefrom beneath the orifice and having no corner into which a traveler can pass; having a cover screwed thereto and integral with a journal that is adapted to receive the spindle of a disintegrator and deliverer with its axis coincident with the axes of the hollow-cylinder and the conical bottom; and having a foot projecting therefrom which is adapted to be fastened to the creel-board of a ring-spinning-frame.

6. In combination: a receptacle for travelers having an orifice, a receiver, and a cover secured thereto and having a journal; a spindle mounted in the journal and adapted for reciprocatory rotation and translation therein; a thumb-knob fastened to the outer end of the spindle; a blade fastened to the spindle, contained within the receptacle, and adapted to expel travelers from the orifice and in coöperation with the interior of the receptacle to disintegrate chains and bunches of travelers; and a spring adapted to yieldingly press the blade toward the bottom of the receptacle.

7. Means for disintegrating chains and bunches of travelers, embodying, in combination: a receptacle for travelers; a journal supported thereupon; a spindle mounted in the journal and adapted for rotation relatively to the receptacle; and, a blade: fastened to the spindle; extending to that part of the bottom of the interior of the receptacle which is most distant from its center; having its lower edge constructed to nearly touch the bottom of the receptacle in any angular position of the blade; having its cross-section inclined at an angle with the axis of the spindle; and, having a distance between the upper edge of the blade and the under side of the cover of the receptacle.

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

ALFRED ADELBERT LOVEJOY.

Witnesses:
CHANNING WHITAKER,
IRVING D. KIMBALL.