W. LONZO.

BOBBIN CLEANER.

APPLICATION FILED APR. 30, 1912.

1,067,614.

Patented July 15, 1913.

2 SHEETS—SHEET 1.

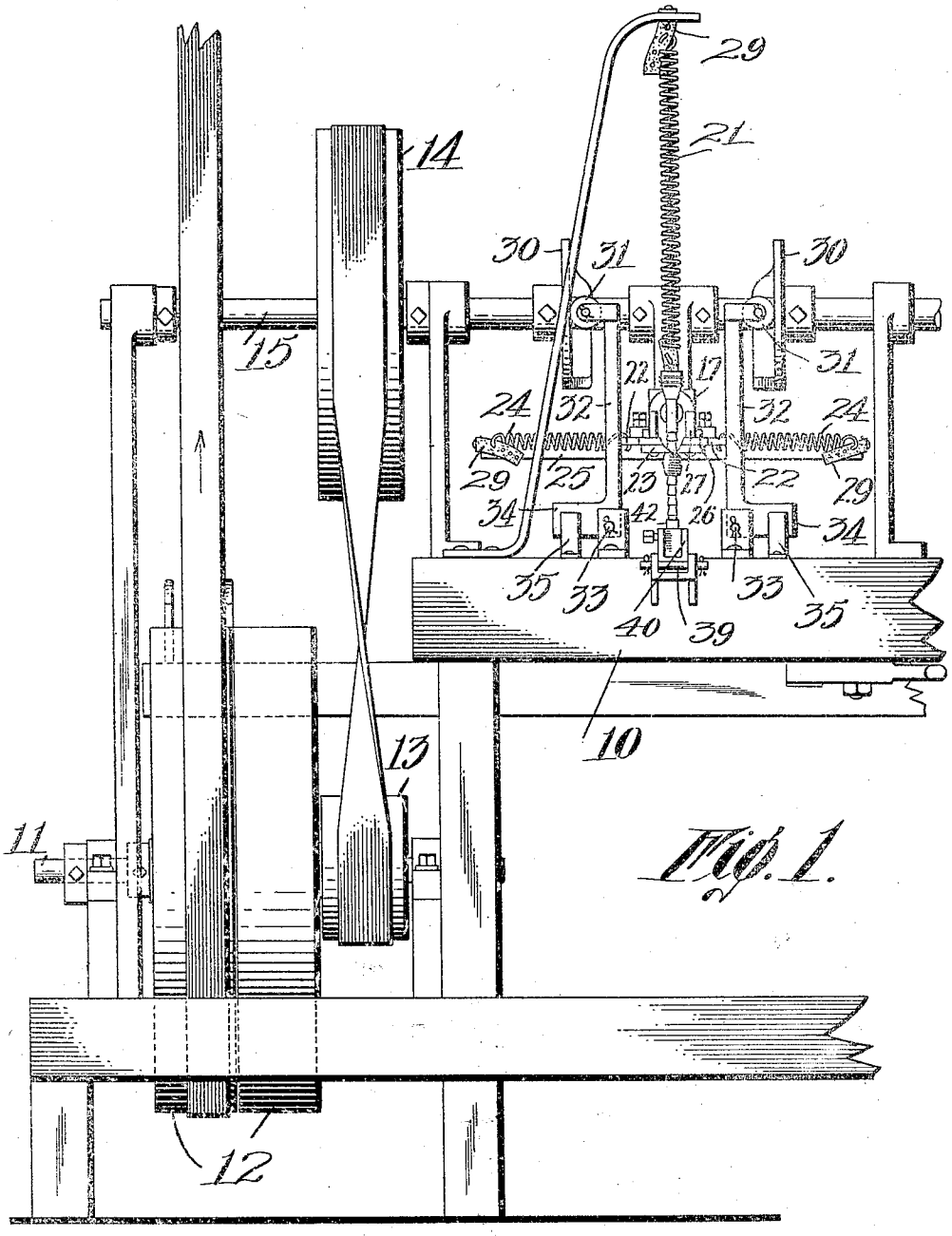


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 4.

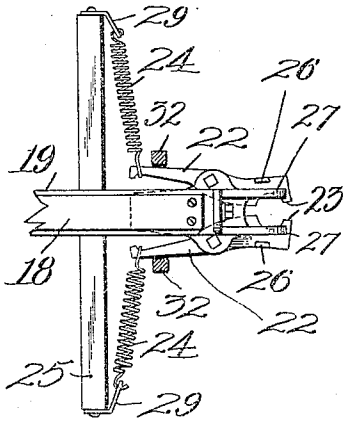
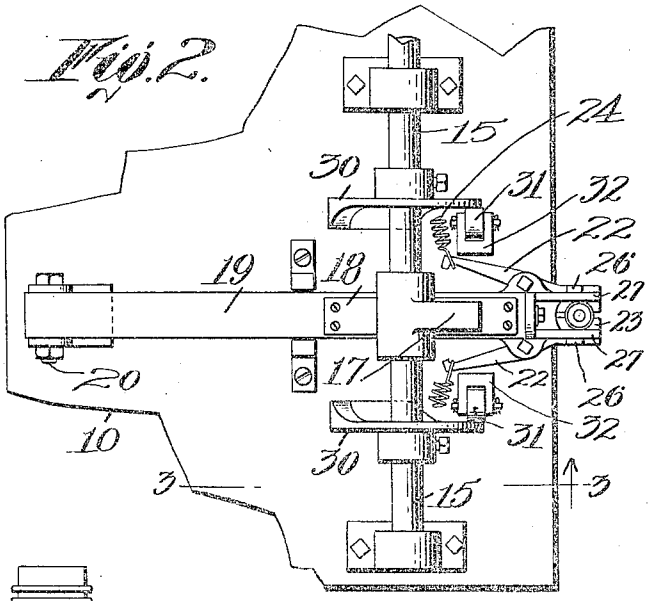


Fig. 2.



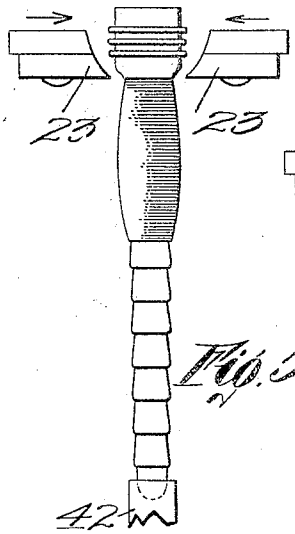


Fig. 5.

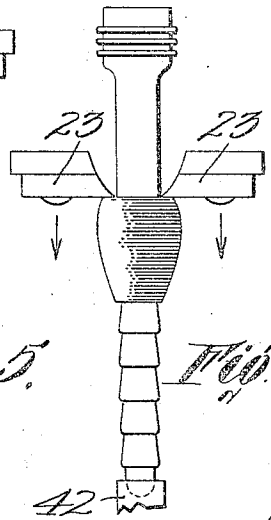


Fig. 6.

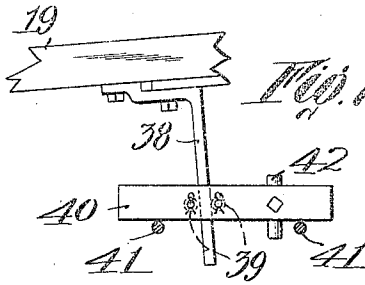


Fig. 7.

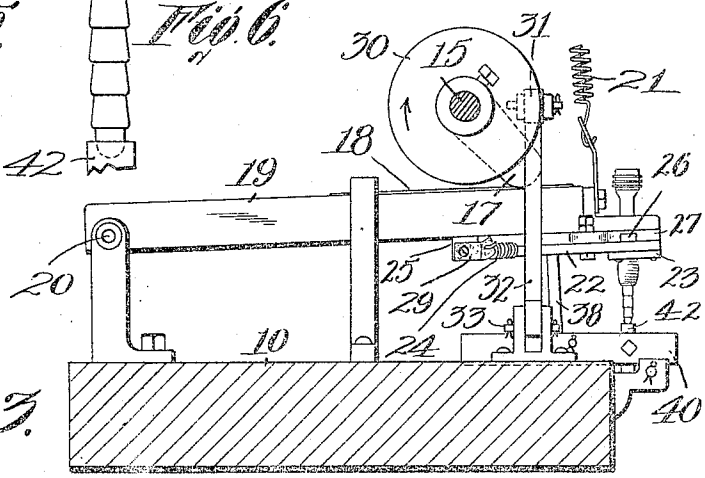


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM LONZO, OF FITCHBURG, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LYON MANUFACTURING COMPANY, OF FITCHBURG, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

BOBBIN-CLEANER.

1,067,614. Specification of Letters Patent. Patented July 15, 1913.

Application filed April 30, 1912. Serial No. 694,138.

To all whom it may concern:

Be it known that I, WILLIAM LONZO, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Bobbin-Cleaner, of which the following is a specification.

This invention relates to a machine for stripping filling from bobbins.

The principal objects of the invention are to provide a machine of this character into which the bobbins can be introduced, and from which they can be removed, in a very simple and expeditious manner by an inexperienced operator, and which will hold the bobbins and strip from them the small amount of filling remaining thereon in a substantially automatic manner; to provide means whereby the filling can be cleaned from bobbins throughout the entire length thereof and whereby the irregularities on the surface of the bobbin will not interfere with the cleaning operation, and also applicable to bobbins of different sizes; also to provide a construction in which the bobbin holding and stripping devices can be operated conveniently by power if desired, although these parts of the machine are so arranged that they could be operated by turning a shaft by hand and certain results could be secured in that way.

The invention also involves means whereby the bobbin is guided so that the bobbin stripping members will travel along it in a uniform manner, and means for operating the parts accurately and effectively.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a front elevation of a power operated machine constructed in accordance with this invention; Fig. 2 is a plan of a portion thereof; Fig. 3 is a sectional elevation of the supporting member for the machine showing most of the operating connections in side elevation; Fig. 4 is a partial plan view showing the operation of the bobbin holding and cleaning jaws; Fig. 5 is a front elevation on enlarged scale showing how these jaws come into operation on the bobbin; Fig. 6 is a similar view showing a later stage in the operation; and Fig. 7 is a side elevation of a portion of the machine showing the guiding means for the bobbin.

In the form of the invention illustrated in the drawings, the machine is shown as mounted on a bench 10 or other support and as provided with a counter-shaft 11 with tight and loose pulleys 12 for receiving power. On this shaft 11 is a pulley 13 delivering power to a pulley 14 on the main shaft 15 of the machines. On this shaft is located a cam 17 for each machine which during each rotation of the shaft presses down on a metal plate 18 on the top of a member or frame 19 pivoted on a horizontal axis 20. This frame is yieldingly held up by a spring 21 or in any other desired manner, and it will be obvious that the rotation of the shaft results in positively lowering it and allowing it to rise by the action of the spring once during each revolution. On this frame are pivoted on vertical axes a pair of iron levers 22, each having a steel jaw 23 thereon. These levers are held normally in the position indicated in Fig. 2 by a pair of springs 24 mounted on arms 25 on the frame. In this position stops 26 on the jaws come into contact with plates 27 fixed on the frame and the jaws are held in such position that they will engage a bobbin, but can be moved outwardly by contact therewith in opposition to the springs. The springs 21 and 24 are adjustably connected at their ends with the supports which hold them by means of straps 29 which are provided with a plurality of perforations at different distances from their ends for receiving the ends of the springs.

Mounted on the shaft are a pair of opposite face cams 30. Each of these operates a cam roller 31 connected with a frame 32 which is pivoted at 33 on the support 10 and is adapted to work back and forth on this pivot. To keep the rolls in contact with the cams each frame is shown as provided with a counter-weight 34 operating between guides 35 on the base. These frames are in position to engage the arms of the levers 22 as indicated in Fig. 4 to open the jaws at predetermined times and allow the bobbin to be removed therefrom and a new one substituted.

In order to keep the bobbin always in proper contact with the jaws during the oscillating motion of the frame 19, this

frame is provided with a right angled projection 38 which engages between a pair of rolls 39 on a sliding carriage 40. This carriage slides on rolls 41 mounted on the base 10 and is provided with a cup 42 having a depression in the top for receiving the end of the bobbin. As the frame 19 moves down the carriage 40 moves in so that the cup is always at the same distance from the projection 38, and the bobbin is always parallel with that projection, that is, perpendicular to the body of the frame 19.

The operation of the device will be obvious from what has been said heretofore. The cam 17 forces the frame down and allows it to rise during a part of a revolution, but during more than half of the time the frame preferably is at rest at its uppermost position, so the attendant can replace the bobbin very easily. While the frame is up at its topmost position the jaws are opened by the cams, the bobbin is removed by hand, and a new one substituted, and then the frame starts to move downwardly which closes the jaws from the position shown in Fig. 5. The further downward movement of the frame causes the jaws to engage the filling and push it off the bobbin, as indicated in Fig. 6, the bottom of the bobbin being moved slightly by the carriage 40 to keep it in proper relation to the jaws. As the frame rises the jaws are held by spring pressure against the bobbin, but do not injure it and they are removed from it automatically by the cams when the frame reaches its upper limit.

Although I have illustrated and described a preferred embodiment of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the spirit of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but

What I do claim is:—

1. In a bobbin cleaning device, the combination of a frame adapted to move up and down, resilient means for holding it up, positive means for forcing it down, means on said frame for holding a bobbin upright and stripping the filling therefrom as the frame moves down, and means for causing the bobbin to move as the frame moves to keep the bobbin in the same relative position thereto.

2. In a machine for cleaning bobbins, the combination of a pivoted frame, a pair of arms transversely pivoted thereon, yielding means for moving the operative ends of said arms toward each other, said arms being provided with surfaces for engaging a bobbin, and means for swinging the frame on its pivot to move the pair of arms along the bobbin to clean the filling therefrom.

3. In a bobbin cleaning device, the combination of a pivoted frame adapted to swing up and down about its pivot, resilient means for holding it up, a rotary cam for forcing it down, and means on said frame for holding a bobbin in substantially vertical position and stripping the filling therefrom as the frame moves down.

4. In a bobbin cleaning device, the combination of a pivoted frame adapted to swing up and down about its pivot, a spring for holding it up, a rotary cam for forcing it down, means on said frame for holding a bobbin upright and stripping the filling therefrom as the frame moves down, and means for causing the bobbin to move as the frame swings to keep the bobbin always in the same relative position thereto.

5. In a bobbin cleaning device, the combination of a pivoted frame adapted to swing up and down about its pivot, means on said frame for holding a bobbin and stripping the filling therefrom as the frame moves down, a holder for the lower end of the bobbin, slidable transversely to the length of the bobbin, and means connected with the frame for moving said holder as the frame moves to keep the bobbin perpendicular to the plane of the frame.

6. In a bobbin cleaning device, the combination of a frame, means on said frame for holding a bobbin and stripping the filling therefrom as the frame moves, a slidable holder for the end of the bobbin, and means connected with the frame for moving said holder as the frame moves to keep the bobbin perpendicular to the plane of the frame.

7. In a bobbin cleaning device, the combination of a frame pivoted to swing, a pair of arms pivoted on said frame, resilient means for operating said arms to cause them to engage and hold a bobbin, means for swinging said frame about its pivot, a movable carriage for the end of said bobbin, said support having a pair of rollers having a space between them, and a projection on the frame entering said space to cause the carriage to move to keep the end of the bobbin at a constant distance from said projection as the frame moves.

8. In a bobbin cleaning device, the combination of a frame pivoted to swing on a horizontal axis, a pair of arms pivoted on vertical axes on said frame, resilient means for operating said arms to cause them to engage and hold a bobbin, power-operated means for swinging said frame about its pivot, a movable carriage for the end of said bobbin, said support having a pair of rollers having a space between them, and a projection on the frame entering said space to cause the carriage to move to keep the end of the bobbin at a constant distance from said projection as the frame moves.

9. In a bobbin cleaning machine, the com-

bination of a movable frame, a pair of arms pivoted on said frame and having jaws thereon for engaging a bobbin and stripping the filling therefrom, resilient means for holding said jaws together, a power shaft having means thereon for operating said frame, and a pair of cams on said power shaft for opening the jaws.

10. In a machine for cleaning bobbins, the combination of a movable member having a pair of arms for engaging and holding a bobbin, means for moving said member longitudinally of the bobbin to cause the arms to clean the filling therefrom, resilient constantly acting means for holding said arms against the bobbin, and means for positively forcing said arms apart periodically against the resistance of said resilient means.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM LONZO.

Witnesses:
JOHN J. SHEA,
NOEL CLEMENT.

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