Sept. 17, 1940. V. J. SIGODA 2,215,302

PINKING MACHINE

Filed Oct. 27, 1938 2 Sheets-Sheet 1

Fig. 1.

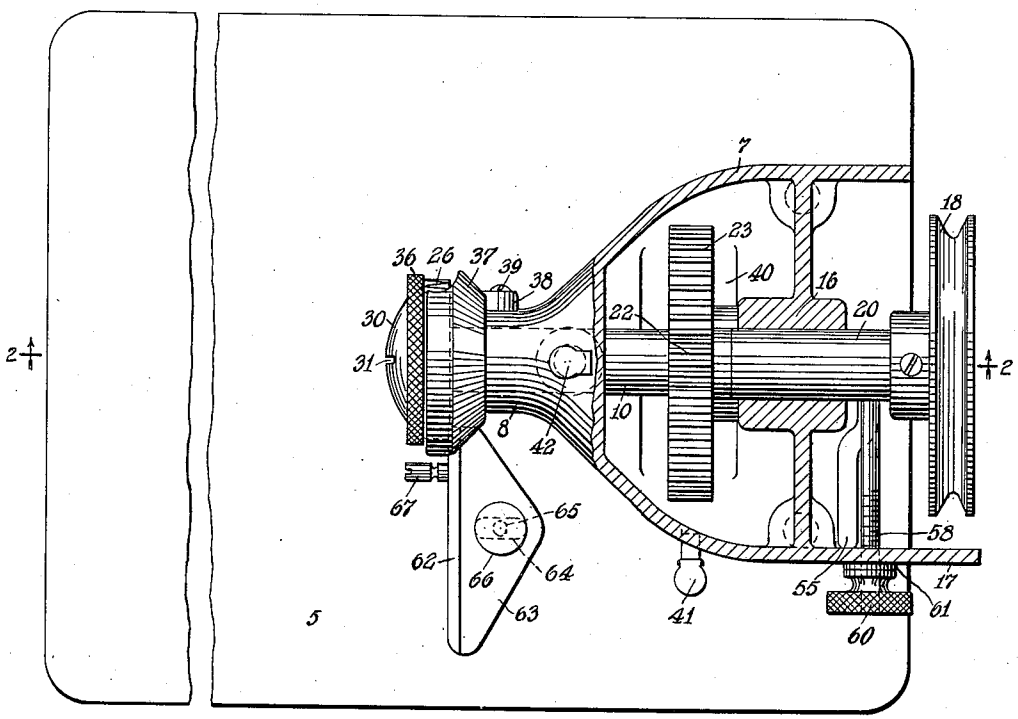


Fig. 6.

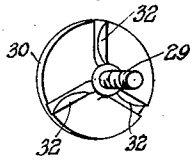


Fig. 2.

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Fig. 3.

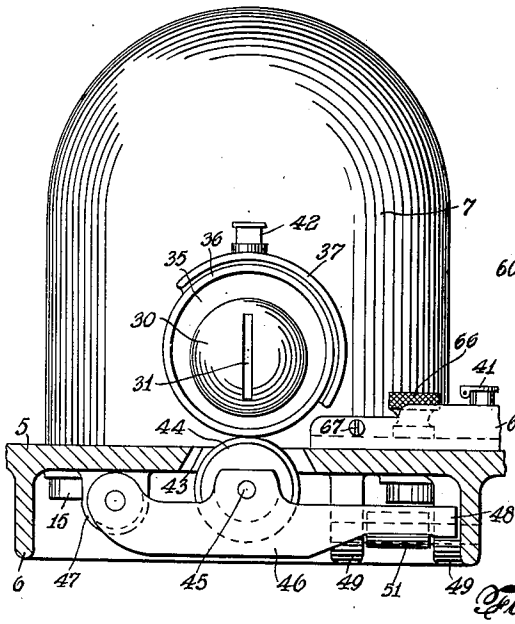


Fig. 4.

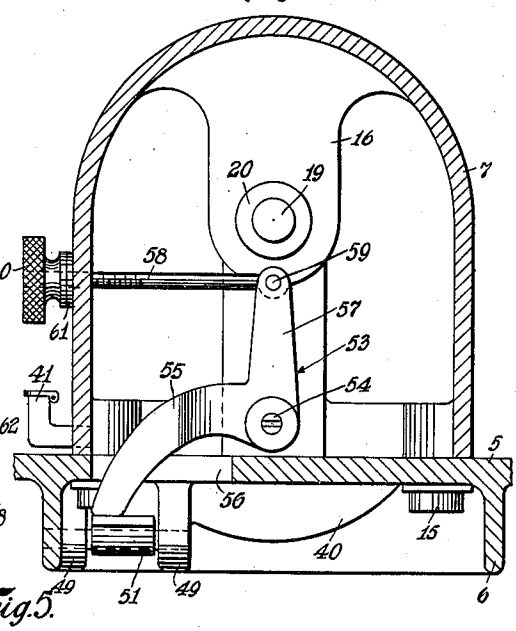
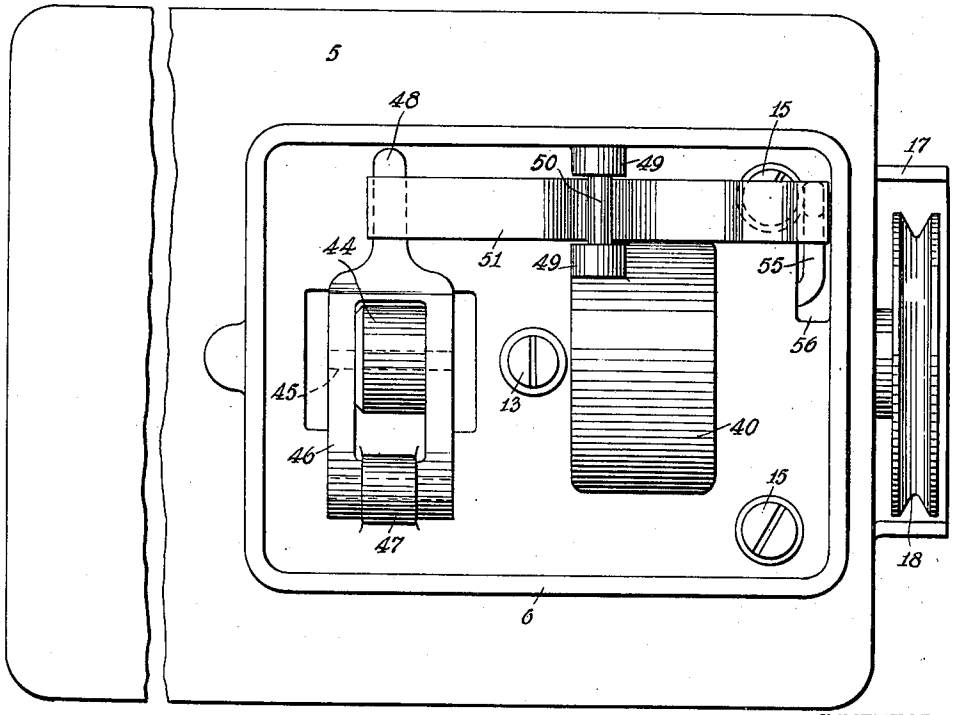


Fig. 5.



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UNITED STATES PATENT OFFICE

2,215,302

PINKING MACHINE

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Application October 27, 1938, Serial No. 237,243

5 Claims. (Cl. 164—64)

This invention relates to pinking machines and more particularly to a machine of the type disclosed in my pending application for patent Ser. No. 205,166 filed April 30, 1938, the present invention having for its general object and purpose to improve and simplify the construction of such pinking machines, and reduce manufacturing costs to a minimum, without sacrifice of operating efficiency or of quality and quantity production of the pinked fabrics.

In the invention of my prior application, the pinking cutter is mounted below the base plate while the pressure roller and pressure regulating means therefor is mounted above said plate. In the present improvements, this relation of the pinking cutter and pressure means with respect to the base plate is reversed, and it is an important object of the invention to provide an improved mounting of the cutter and its operating means together with the pressure regulating means in combination with an ornamental housing detachably secured upon the base plate.

Another object of the invention is to provide a simple and efficient adjusting means for the pressure roller which may be easily operated by the worker from one side of the housing.

A further object of the invention is to provide an improved lubricant supply means for the cutter operating mechanism embodying an oil receiving sump integrally formed on the base plate, to which access may be readily had by the detachment of the housing and said operating mechanism so that said sump as well as the pressure means mounted beneath the base plate can be easily cleaned without removal of the base plate from the work bench or table.

Like the invention of my prior application, I also provide a feed disk associated with the pinking cutter and eccentrically movable relative thereto. It is one of the detail objects of my present improvements to provide concealed means constantly urging the feeding disk into frictional engagement with the cutter for rotation as a unit therewith, so that in addition to protecting this means against possible injury the device as a whole will present a neat and attractive appearance.

With the above and other objects in view, the invention consists in the improved pinking machine and in the form, construction and relative arrangement of its several parts, as will hereinafter be more fully described, illustrated in the accompanying drawings and subsequently incorporated in the subjoined claims.

In the drawings wherein I have illustrated one simple and practical embodiment of the invention and in which similar reference characters designate corresponding parts throughout the several views:

Fig. 1 is a top plan view of a preferred construction, the housing being shown in section.

Fig. 2 is a vertical sectional view substantially on the line 2—2 of Fig. 1, with a fragment of the side wall of the housing shown in elevation.

Fig. 3 is a transverse sectional view substantially on the line 3—3 of Fig. 2.

Fig. 4 is a similar sectional view taken substantially on the line 4—4 of Fig. 2.

Fig. 5 is a bottom plan view and,

Fig. 6 is a detail perspective view of the retaining member for the material feeding disk.

Referring in detail to the drawings, 5 designates a base plate of suitable dimensions having integrally cast therewith a continuous depending flange 6 defining a rectangular wall in plan, which is adapted to be received in an opening in a work bench or table (not shown). Any suitable means, such, for instance, as that shown in my prior application, may be employed for the purpose of rigidly securing this base plate in position upon the bench or table.

Upon the base plate 5, a housing, generally indicated at 7, is adapted to be detachably mounted. The walls of this housing have a graceful external longitudinal contour terminating at the forward end thereof in a neck portion 8 of reduced diameter. This neck portion is provided with a bore 9 receiving the bearing bushing 10, for a cutter operating shaft 11.

At the inner end of the neck 8, the housing wall 12 below said neck rests upon the base plate 5 and has a threaded opening receiving the threaded securing bolt 13 which is inserted upwardly through an opening 14 in the base plate. Similar securing screws 15 extend upwardly through openings in the base plate and are threaded into suitably threaded openings provided in the lower end of a vertical web 16 at each side of the housing. The housing wall projects rearwardly from the web 16, as at 17, to partially enclose the power driven wheel 18 fixed on one end of the shaft 19 extending through the bushing 20 mounted in the web 16 and secured in fixed relation thereto by the set screw 21.

Pinion teeth 22 are cut on the other or forward end of the shaft 19 and are in constant mesh with the gear 23 fixed to the shaft 11. The rear end of this shaft is supported in the bearing bushing 24 mounted in the web 16.

The front end of the shaft 11 is formed with a

reduced axial extension 25 upon which the pinking cutter 26 is fixed. This end of the shaft is also provided with the threaded bore 28 to receive the stem 29 of a retaining member 30. This member has a circular head with a convex outer face provided with the kerf 31 to receive an adjusting bit. The inner face of said head is formed with a plurality of radially extending grooves 32. The base walls of these grooves extend in concave arcs from the stem 29 to the outer periphery of the member 30 and each of said grooves houses and conceals a leaf spring 33. The outer ends of these springs are reversely curved in an inward direction as at 34 for bearing contact against the outer face of a feeding disk 35 so that said springs constantly urge said disk into close frictional contact against the side face of the cutter 26. Obviously, by adjusting the member 30 relative to the end of shaft 11, this frictional coaction between the feeding disk and the cutter may be regulated as required.

The outer edge of the feeding disk is provided with an annular flange 36, the outer face of which is suitably milled or knurled for gripping engagement with the material to be fed to the cutter. It will be noted that the internal diameter of the disk 35 is materially greater than the inner end porion of the head of the adjustable member 30 so that said disk may eccentrically shift relative to the cutter 26 to the extent required for the proper feeding of a plurality of layers of material or the feeding of different kinds of material to said cutter disk. In any case, a proper gripping contact of the feeding disk with the material in its unitary rotation with the cutter will be obtained so as to secure an evenly progressive non-slipping feeding action.

An ornamentally shaped guard member 37 extends over the top and front side portions of the cutter disk 26 to prevent accidental contact of the operator's fingers therewith. In the present instance, I have shown said guard member provided at its rear side with a laterally projecting lug 38 which is secured to the neck portion 8 of the housing by a suitable screw 39.

For the purpose of supplying lubricant to the cutter operating mechanism, an oil sump 40 is integrally cast with the base plate 5, and one side wall of the housing 7 is provided with a suitable feed inlet 41 therefor. As seen in Fig. 2 of the drawings, the gear 23 rotates in the oil contained in said sump. The gear teeth, of course, carry this oil upwardly to the pinion 22 so that oil films will be thus supplied to the shafts 11 and 19. In the event that additional lubrication for the shaft 11 may be further necessary, the oil cup 42 is provided on the housing through which additional lubricant may be supplied to the bearing 10.

Beneath the cutter 26 and feed disk 35 the base plate 5 is provided with a slot or opening 43 which accommodates the vertically movable pressure roller 44. This roller is rotatably mounted on the shaft 45 fixed at its opposite ends in the spaced arms of a cradle 46 pivoted at one of its ends upon the lug 47 integrally cast on the underside of the base plate 5. The other end of this cradle is formed with a central longitudinal extension 48, the purpose of which will be presently explained.

The underside of the base plate is also provided with transversely spaced depending lugs 49 in which the ends of a fulcrum rod 50 are fixed. A comparatively heavy leaf spring 51 has an intermediate curved or bowed section 52 extending between the base plate and the rod 50 and having bearing contact upon the latter. One end of this spring, as seen in Figs. 2 and 5, exerts upward bearing pressure against the extension 48 of the cradle 46 and therefore tends to urge the pressure roller 44 upwardly through the opening 43, said pressure being applied against the cutter 26 and feed disk 35 and the interposed material in a direction which is perpendicular to the axis of said cutter and disk.

I also provide simple and easily adjustable means for regulating or varying the upward pressure of the spring 51 against the roller cradle 46. In the present instance, this adjusting means is in the form of a bell-crank lever 53 fulcrumed at the juncture of its arms upon the bolt 54 threaded in the vertical wall or web 16 of the housing 7. One arm 55 of this lever is arcuately curved and extends downwardly through a slot or opening 56 in the base plate 5 to apply a downward bearing pressure upon the other end of the spring 51 as clearly seen in Fig. 2 of the drawings. This arm 55 is slightly offset from the plane of the other lever arm 57 which extends vertically upward from the fulcrum bolt 54 and to the upper end of which one end of a rod 58 is pivotally connected as at 59. This rod extends transversely of the housing 7, the other end portion thereof being threaded and projecting externally of the housing through an opening in one side wall of said housing. Upon this outer threaded end of the rod 58, the adjusting wheel 60 has threaded engagement, said wheel having contact as at 61 with a suitable bearing surface provided on the housing wall.

It will be apparent from the above description that when the wheel 60 is rotated in the direction indicated by the arrow in Fig. 2, rod 58 is drawn outwardly to rock lever 53. The arm 55 of this lever is thereby moved downwardly through the opening 56, said lever arm, in effect, constituting a cam exerting a downward pressure on the end of the spring member 51 and moving transversely across its upper surface. Said spring member is thus placed under greater tension as it urges the pressure roller 44 upwardly into contact with the cutter 26 and disk 35. In this manner, a very sensitive regulation or adjustment of the pressure action of roller 44, in accordance with the particular character of fabric material being operated upon, can be obtained.

The above described means for adjusting the pressure roller 44 is not claimed herein as it forms the subject matter of a divisional application for patent, filed May 21, 1940, Ser. No. 336,327.

In advance of the cutter 26, a work guide member is arranged upon the base plate 5, said member comprising an angular plate have a vertically disposed work engaging flange 62 and a horizontal base flange 63. The latter is provided with a slot 64 receiving the threaded stud 65 fixed in the base plate 5, whereby said work guiding member may be adjusted relative to the cutter and then securely clamped and fixed in such adjusted position by means of the nut 66 threaded upon the stud 65. The vertical flange 62 of the work guiding member at the end thereof adjacent the cutter 26 carries a horizontally disposed pin 67. The end of this pin is disposed in the plane of the feeding disk 35 and acts as a guard to prevent contact of the fingers of the

worker with the knurled periphery of said feeding disk.

From the foregoing description considered in connection with the accompanying drawings, the construction, manner of operation and several advantages of my present invention will be clearly understood. Thus it will be apparent that the adjusting device for the pressure applying means mounted beneath the base plate is so mounted and arranged that it will not obstruct the free manipulation and movement of the fabric materials over the base plate 9, and the operating member 60 therefor is conveniently located for easy and quick operation, without interruption in the feeding of the material to the pinking cutter.

Another important advantage of the invention is obtained by mounting said adjusting means within the housing 7 which carries the pinking mechanism. Thus, after the base plate 5 with the pressure applying device has first been mounted upon and secured to the work table or bench, the housing may then be easily and quickly and rigidly fixed upon said base plate by means of the three screws 13 and 15 which simultaneously properly positions the pinking cutter in operative relation with the pressure roller 44 and the arm 55 of lever 53 in cooperative relation with the end of the pressure regulating member 51. Also, of course, the driven gear 23 of the pinker actuating means is properly located for movement through the oil bath contained in the sump 40. By the removal of these housing attaching screws, said housing and the parts carried thereby may be separated from the base plate, affording free access to the oil sump 40 when cleaning is necessary and also permitting the application of lubricant, if required, to the bearings of the roller 49 and cradle 46.

The housing 7 provides complete protection for the moving parts of the pinker operating mechanism, and by reason of its form, in conjunction with the feeding member 35 and the retaining element 30 therefor, together with the guard 37, provides a novel and attractive structure in a machine of this kind.

In the foregoing description and accompanying drawings, I have disclosed a practical embodiment of the invention which has given excellent results in practise. However, it is to be understood that my present improvements might also be exemplified in various other alternative structural embodiments, as to the form, construction and relative arrangement of the several elements. Accordingly, I reserve the privilege of incorporating the essential features of the present disclosure in such other equivalent embodiments thereof as may fairly be comprehended within the spirit and scope of the appended claims.

I claim:

1. In a pinking machine, a rotary cutter, an operating shaft therefor, an eccentrically shiftable work feeding disk at one side of said cutter, a retaining member for said disk concentric with the shaft, and means concealed between said member and disk coacting with the latter to hold said disk in frictional contact with the cutter for unitary rotation therewith.

2. In a pinking machine, a rotary cutter, an operating shaft therefor, an eccentrically shiftable work feeding disk having one side face in contact with said cutter, means engaged with the opposite face of said disk and urging the same into frictional contact with the cutter for rotation as a unit therewith, and means establishing a positive driving connection between said first named means and the operating shaft.

3. In a pinking machine, a rotary cutter, an operating shaft therefor, an eccentrically shiftable work feeding disk having one side face in contact with said cutter, means engaged with the opposite face of said disk and urging the same into frictional contact with the cutter for rotation as a unit therewith, and means adjustably connected with said operating shaft for modifying the frictional coaction between said disk and cutter and establishing a positive driving connection between said first named means and the operating shaft.

4. In a pinking machine, a rotary cutter, an operating shaft therefor, an eccentrically shiftable work feeding disk having one side face in contact with said cutter, means engaged with the opposite face of said disk and urging the same into frictional contact with the cutter for rotation as a unit therewith, and a retaining member connected with the end of said operating shaft and having a positive driving connection with said means.

5. In a pinking machine, a rotary cutter, an operating shaft therefor, an eccentrically shiftable work feeding disk having one side face in contact with said cutter, a retaining member connected with the end of said operating shaft, and a plurality of spring elements interposed between the opposite side face of said disk and said member, interlocking relation with the latter, urging said disk into frictional engagement with the cutter for unitary rotation therewith.

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