No. 732,168. PATENTED JUNE 30, 1903.

W. S. CARLISLE.

AUTOMATIC LIFT AND DROP CABINET.

APPLICATION FILED APR. 14, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

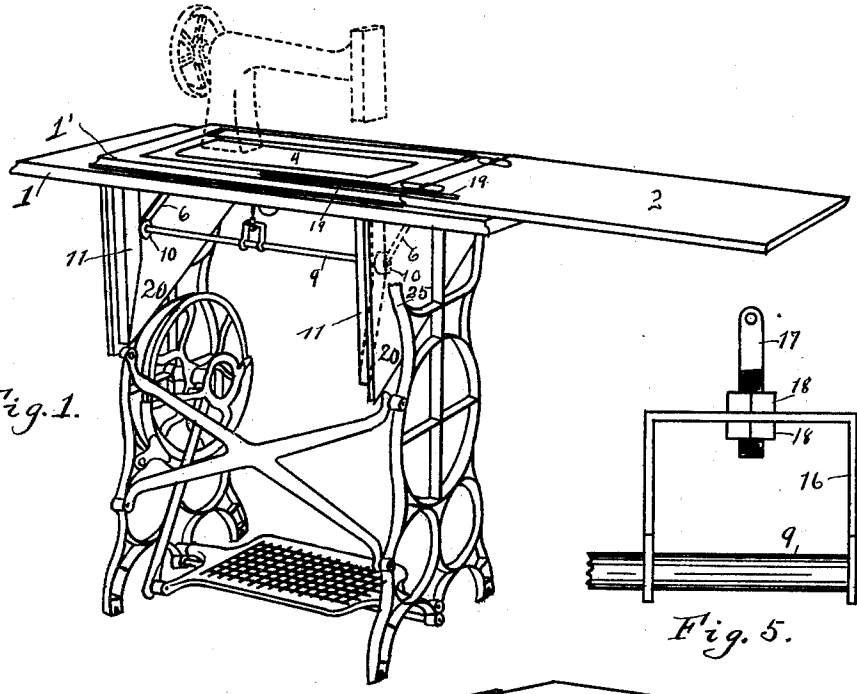

Fig. 1.

Fig. 5.

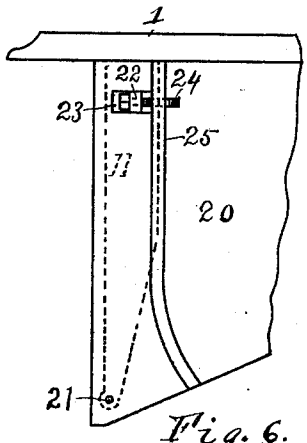

Fig. 6.

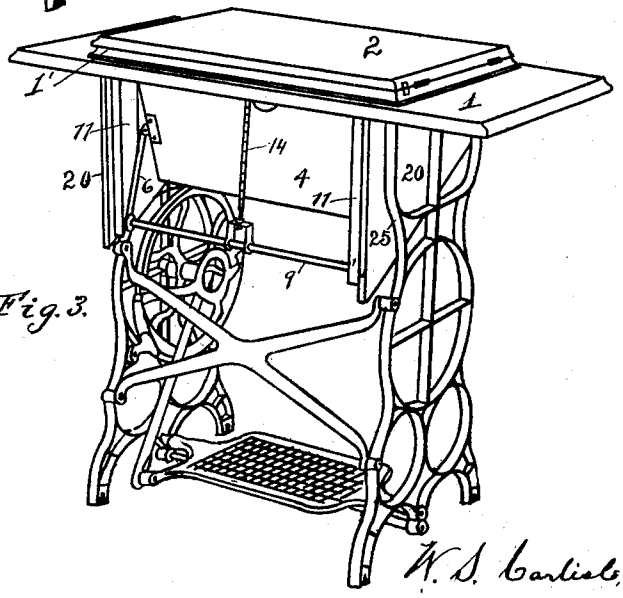

Fig. 3.

WITNESSES.
Matthew Seibler,
C. M. Theobald

W. S. Carlisle,
INVENTOR
By R. J. McCarty,
his ATTORNEY

No. 732,168. PATENTED JUNE 30, 1903.

W. S. CARLISLE.

AUTOMATIC LIFT AND DROP CABINET.

APPLICATION FILED APR. 14, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

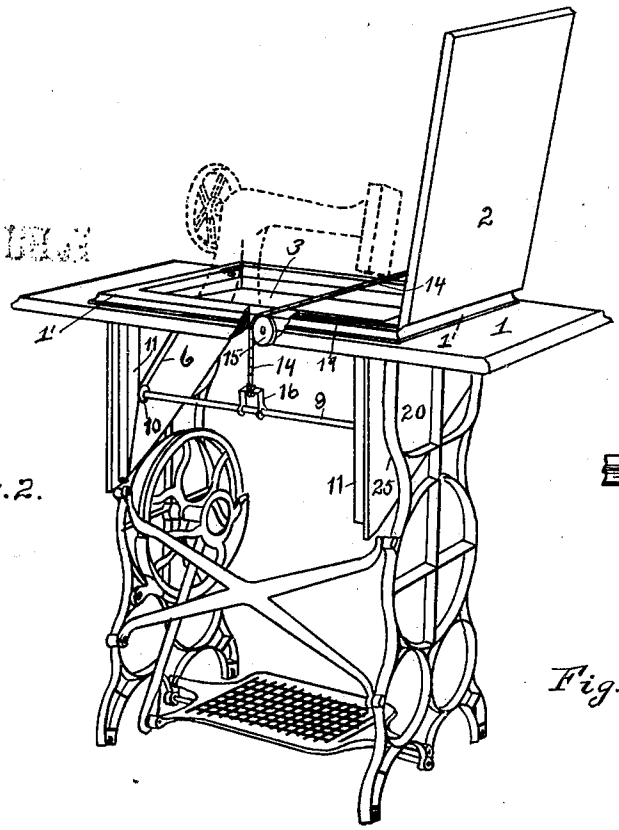

Fig. 2.

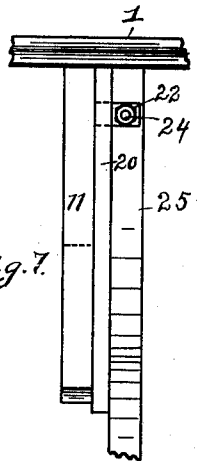

Fig. 7.

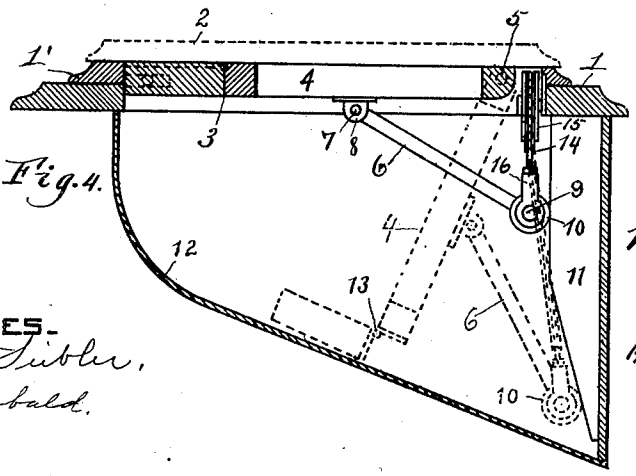

Fig. 4.

WITNESSES.
Matthew Tibler,
C. M. Theobald.

W. S. Carlisle,
INVENTOR
By R. J. McCarty,
ATTORNEY

No. 732,168. Patented June 30, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM S. CARLISLE, OF DAYTON, OHIO, ASSIGNOR TO THE DAVIS SEWING MACHINE COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

AUTOMATIC LIFT AND DROP CABINET.

SPECIFICATION forming part of Letters Patent No. 732,168, dated June 30, 1903.

Application filed April 14, 1902. Serial No. 102,700. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. CARLISLE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Automatic Lift and Drop Cabinets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in automatic lift and drop cabinets.

The object of the said invention is to provide simple and reliable means for lifting and holding into a rigid working position the movable machine-table upon which a sewing-machine, type-writer, or other machine may be secured and when desired dropping and covering the same into a dust-proof receptacle.

In order to hold the machine-table in working position free from vibration, I have devised means whereby a constant elastic pull is exerted on the chain, belt, or cable that is used in bringing into action the other portions of the lift mechanism, the said elastic action holding rigidly the movable machine-table against the stops that limit the upward position of the said table.

A further object of the invention is to provide lift and drop mechanism which is inclosed and is operated wholly within the dust-proof casing or drum which incloses the under part of the machine-cabinet. The space which said dust-proof casing or drum occupies is necessarily limited or circumscribed for two reasons: First, it is necessary that suitable and ample space be provided beneath the machine-cabinet for the operator's knees, and, secondly, it is essential that the pitman, through which motion is transmitted from the foot-treadle, be of sufficient length to avoid any tendency of the pitman to stop in passing over the center of its rotary movement. It is therefore obvious that the usual wheel with which the pitman is connected must be mounted on the iron frame of the machine in a proper position to permit of the employment of a suitable length pitman. Owing to these conditions it will be apparent that the lift and drop mechanism must be constructed and arranged to move entirely within the interior of a dust-proof casing of restricted dimensions.

Preceding a detail description of my invention, reference is made to the accompanying drawings, in which the cabinet is attached to the usual iron stand of a sewing-machine.

Figure 1 is a perspective view showing the movable machine-table elevated to the upper position. Fig. 2 is a similar view showing the movable machine-table in an intermediate position. Fig. 3 is a similar view showing the movable machine-table in the dropped position with cabinet closed. Fig. 4 is a cross-sectional view through the upper portion of the cabinet, showing the path of movement of the lift and drop mechanism. Fig. 5 is an enlarged detail of the adjusting device connecting the chain to the lift-bar. Figs. 6 and 7 are detail views showing means for adjusting the roll-tracks.

In the several views of the drawings similar reference characters indicate corresponding parts.

1 designates the usual top table of a sewing-machine cabinet, type-writer cabinet, or similar cabinet.

2 is a hinged leaf or cover.

The stationary table 1 has a suitable rectangular opening 3 therein of proper dimensions to receive the movable machine-table 4, which is hinged in the rear of said opening at 5 to a suitable raised portion 1′, which surrounds the rectangular opening 3. The raised portion 1′ is approximately the same thickness as the hinged leaf 2, and the said hinged leaf 2 is hinged to said raised portion 1′. Upon the movable table 4 is secured the machine, which in this case is a sewing-machine.

6 6 designate two arms or braces which have their upper ends pivoted at 7 to the under side of the movable table 4, at or near the ends of said table, by means of journal-pieces

8. The lower ends of said arms are connected to a horizontal bar 9. This bar has mounted on its ends adjacent to the arms 6 two rollers 10 10, which ride against tracks 11 11, which tracks are secured in upright positions at the rear side of the cabinet and in this case to the side pieces 20 of the drum 12. The construction of the movable machine-table is well known. Much of the material is cut out of the body to provide the usual opening for the bed of the machine. Therefore said movable table has much the appearance of a frame and is of a frail nature. It is therefore obvious that a swinging frame which has a connection with such table at opposite ends thereof will provide a support for said table that will prevent vibrations of the same when the machine is in operation. The horizontal bar 9 is made of such material and size that when the movable machine-table 4 is raised to the upper position an elastic pull or tension is transmitted by the said bar 9 through the chain 14 to the arms 6 6 and rollers 10 10 against tracks 11 11, thus holding the movable table 4 against suitable stops (not shown) in a rigid position. The tracks 11 11 have their inner surfaces, or the surfaces with which the rollers engage, tapered, so as to allow a proper rearward movement of the bar 9 in descending to the position shown in Fig. 4 in order that the movement of said bar 9 and the attached arms 6 6 may operate within the limit of the drum or dust-proof case 12. This drum or dust-proof casing 12 is a well-known feature of sewing-machine cabinets and is important in protecting the machine from dust when said machine is lowered or dropped. The movable machine-table 4 has a brake-joint 13 in the nature of a hinge at its forward side, which enables said table to drop within the space inclosed by said drum 12. The said movable table operates against a suitable stop to locate its upward position, and the brake-joint hinged piece has simple devices to likewise hold it in its upward position.

14 designates a chain, belt, or cable connection between the bar 9 and the hinged leaf 2. One end of this chain is secured to said hinged leaf 2 near its rear edge and passes over a roller 15, mounted in the rear portion of the stationary table 1 in such position that the chain takes its pull from the longitudinal center of the bar 9. The lower end of the chain 14 is connected to a threaded adjusting-screw 17, which by means of adjusting-nuts 18 18 has adjustable connection to the bar 9 through the stirrup 16. The stirrup has a self-adjusting movement both longitudinal and rocking on the bar 9. The chain lies in a suitable groove 19 in the leaf 2 and the stationary table 1 when the movable table 4 is raised to its highest position.

It will be understood that in opening or closing the hinged leaf 2 the lift and drop devices, consisting of the arms 6 6, the bar 9, and the movable table 4, will be raised or lowered thereby through the chain connection between the said hinged leaf and the said lift and drop devices. The connection of the chain being at the longitudinal center of the bar 9, equal pressure will be automatically given to each end of the table when supported in its upper and operating position, and the elasticity of the bar 9 will hold the parts locked securely from rattle or vibration.

The act of opening or closing the hinged leaf 2 automatically compels the several members to perform their functions in a certain and effective manner.

In Figs. 6 and 7 I have shown means for adjusting the tracks 11 11 to obtain a proper position relative to the rollers 10 10. This means consists in pivoting the lower ends of said tracks to the side pieces 20 of the cabinet, said pivots being at 21. (See Fig. 6.) The tracks 11 11 have projecting from their outer sides lugs 22, which pass through slots 23 in the sides 20 of the cabinet. 27 designates an adjusting-bolt which passes through said lugs 22 and thence through said slots 23 and thence through a portion 25 of the ribbon-frame or iron standard of the machine or any other suitable fixed portion of the cabinet. By turning the bolt 27 it will be seen that the position of the tracks 11 11 will be affected accordingly. The word "cabinet" as used in this specification refers to the wood furniture of a sewing-machine, type-writer, or other machine operating-table, whether an iron stand supports the cabinet-work or not.

Having described my invention, I claim—

1. In an automatic lift and drop cabinet, a movable machine-table, a frame consisting of arms pivotally connected to the opposite ends of said table, a lifting-rod approximately the length of said table and to the ends of which the said arms are connected, rollers mounted on the ends of said frame, a track mounted in a plane coinciding with the plane of movement of each of said rollers and against which the said rollers ride, a stirrup mounted on said lifting-rod, said stirrup having a combined horizontal and rocking movement on said lifting-rod, and an adjustable connection between said stirrup and the hinged top leaf of the cabinet, through which movement is transmitted from said top leaf to the opposite ends of said movable machine-table, substantially as set forth.

2. In an automatic lift and drop cabinet, a movable machine-table, an arm pivotally connected at each end of said table, a horizontal bar to the ends of which said arms are connected, the said bar being essentially of a length which approximates the length of the movable table so that said bar will have an elastic nature, the said arms and bar constituting a frame having a combined lateral and arc movement, rollers mounted on the ends of said frame, tracks against which said roll-

ers ride, said tracks each having a vertical and inclined riding-surface which permit of the said combined lateral and arc movement of the frame, and means connected with the hinged leaf of the cabinet and the middle portion of said horizontal bar through which the movable machine-table is raised or lowered during the movement of said hinged leaf, and whereby the actuating parts are kept in elastic tension when the movable machine-table is raised to its highest or operative position.

3. In an automatic lift and drop cabinet, a movable machine-table, arms pivotally connected to and near the ends of said table, a horizontal cross-bar connecting said arms, said arms and bar constituting a frame which is adapted to a combined lateral and arc movement, rollers mounted on said frame, tracks against which said rollers ride, said tracks being pivotally connected at their lower ends, and means for adjusting said tracks at their upper ends, so that the positions of the same can be changed.

4. In a lift and drop cabinet, a movable machine-table, arms pivotally connected to opposite ends of said table, a horizontal bar connected to said arms, said bar and arms constituting a swinging frame which supports the movable machine-table at two points and thereby prevents undue vibrations thereof, and receding tracks in the rear of said swinging frame and upon which said frame rides in the swinging movements thereof.

5. In an automatic lift and drop cabinet, the combination with a movable machine-table, of a lift and drop frame consisting of arms pivotally connected to opposite points of said table, a horizontal bar connecting said arms, and receding tracks in the rear of said frame and against which said frame rides in the lift and drop movements, said frame being located and movable wholly within the dust-proof casing.

6. In a lift and drop cabinet, a movable machine-table, arms pivotally connected to opposite ends of said table, a horizontal cross-bar connected to said arms, said arms and cross-bar constituting a frame which is movable wholly within the dust-proof casing, rollers mounted on said frame, and tracks located in the rear of said frame and against which said rollers ride, the said tracks having tapering surfaces which permit the frame to move rearwardly and thereby complete its drop movement within the dust-proof casing.

7. In a lift and drop cabinet, the combination with a hinged leaf and a movable machine-table, of a frame located and movable wholly within the dust-proof casing, said frame consisting of arms pivotally connected to opposite points of said movable machine-table, a horizontal bar to which said arms are connected, the said bar being approximately the length of said table, rollers mounted on said frame, tracks mounted in the rear of said rollers and against which said rollers travel in the lift and drop movements of the frame, said tracks terminating at their lower ends in rearward inclinations which permit the frame to move rearwardly in completing its drop movements, and a connection between the horizontal bar and the hinged leaf whereby movement is imparted to said frame in the movements of opening and closing the hinged leaf, substantially as and for the purposes specified.

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

WILLIAM S. CARLISLE.

Witnesses:
R. J. McCARTY,
JOHN W. KALBFUS.