312-319

W. LAMBERT & E. P. DOPPS.

SPRING DRAWER.

APPLICATION FILED FEB. 26, 1908.

905,544. Patented Dec. 1, 1908.

2 SHEETS—SHEET 1.

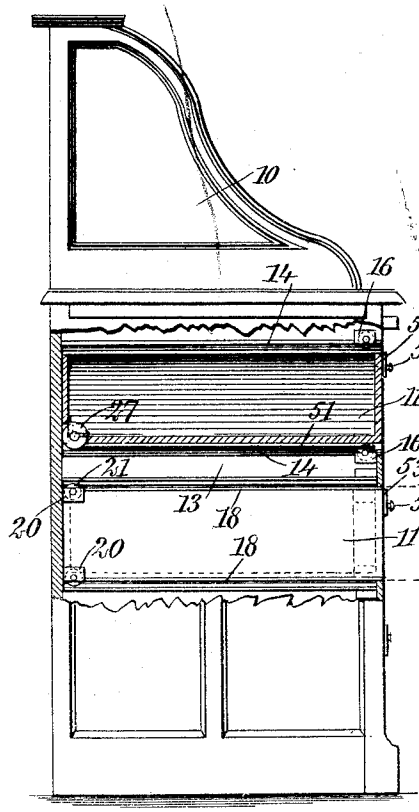


Fig. 1.

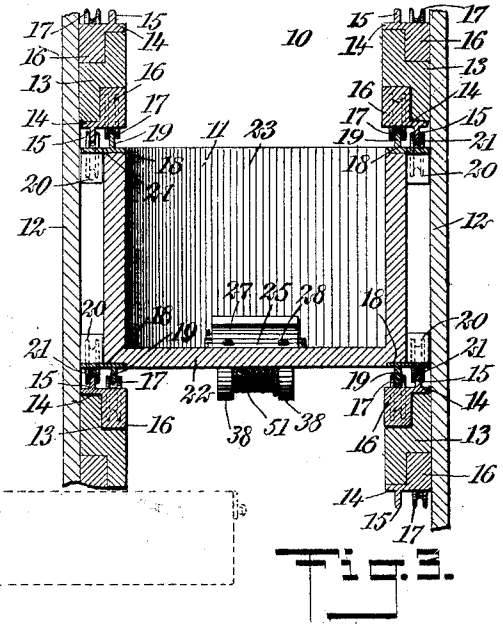


Fig. 3.

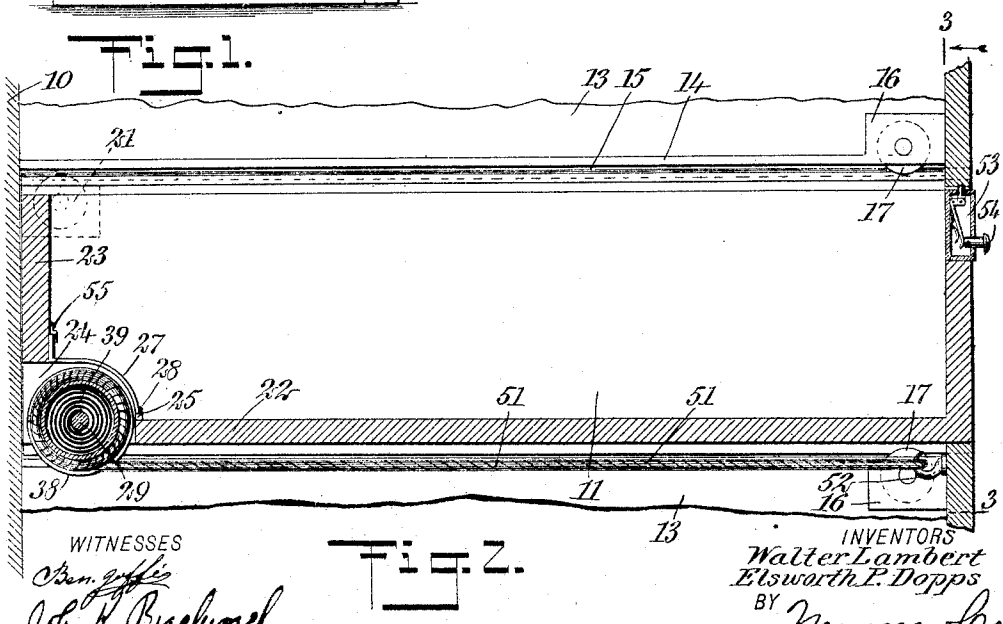


Fig. 2.

WITNESSES

Wm. Griffin

John K. Bachmeyer

INVENTORS

Walter Lambert

Elsworth P. Dopps

BY Munn & Co

ATTORNEYS.

THE NORRIS PETERS CO., WASHINGTON, D. C.

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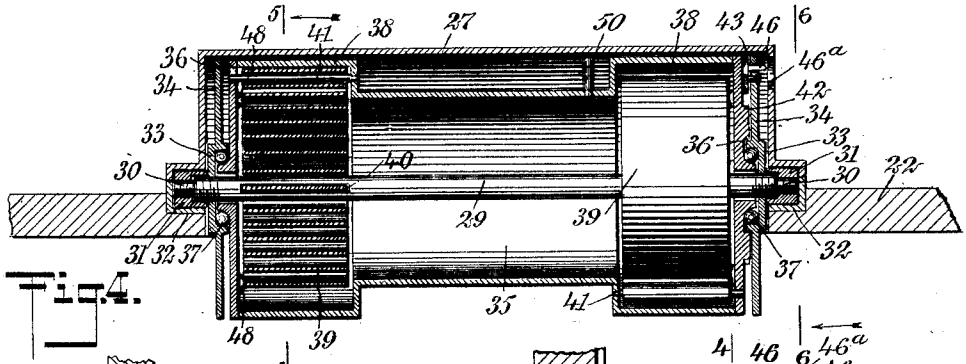


Fig. 4.

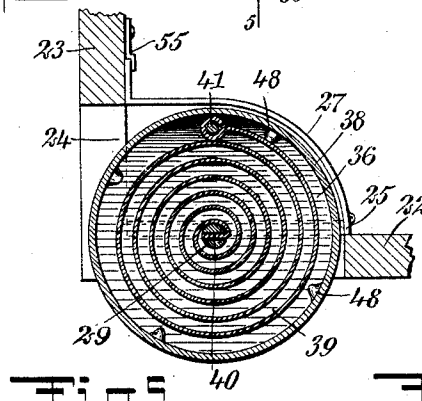


Fig. 5.

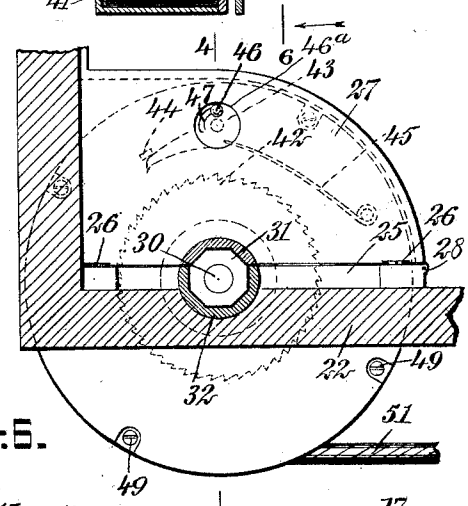


Fig. 6.

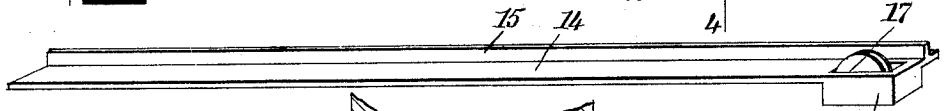


Fig. 7.

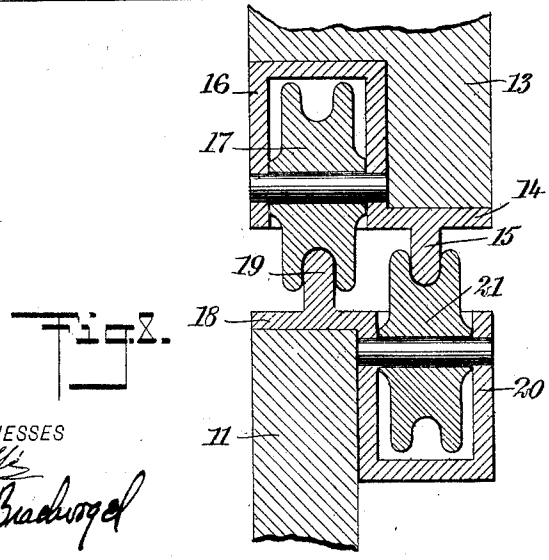


Fig. 8.

WITNESSES

Wm. Goepel

John L. Bradbury

INVENTORS

Walter Lambert

Elsworth P. Dopps

BY Munn & Co

ATTORNEYS.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WALTER LAMBERT, OF NORTH YAKIMA, AND ELSWORTH P. DOPPS, OF SUNNYSIDE, WASHINGTON.

SPRING-DRAWER.

No. 905,544. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed February 26, 1908. Serial No. 417,845.

To all whom it may concern:

Be it known that we, WALTER LAMBERT and ELSWORTH P. DOPPS, citizens of the United States, and residents, respectively, of North Yakima, in the county of Yakima and State of Washington, and of Sunnyside, in the county of Yakima and State of Washington, have invented a new and Improved Spring-Drawer, of which the following is a full, clear, and exact description.

This invention relates to spring drawers, and more particularly to drawers for use in connection with desks, writing-tables and the like, which are spring-operable, when the drawers are closed, automatically to project the same.

More specifically the invention relates to spring drawers, a plurality of which can be combined in one article of furniture such as a desk, and each of which has adjustable, spring-controlled mechanism for automatically projecting the drawer when the catch of the same is released, in which the spring mechanism is unwound as the drawer is projected, and in which it is rewound when the drawer is pushed back into a closed position.

An object of the invention is to provide a simple, efficient and inexpensive spring drawer mechanism which serves automatically to project the drawer when the latter is released, and which can be adjusted to alter the tension of the spring, according as the contents of the drawer are of greater or less weight.

A further object of the invention is to provide means for supporting and slidably or movably guiding spring-controlled drawers so that the latter can be operated with a minimum of friction and as silently as possible.

A still further object of the invention is to provide means for holding a plurality of spring drawers in position with respect to one another, and assembling them compactly and evenly in an article of furniture such as a desk, writing-table or the like.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which

Figure 1 is a side elevation of a desk having a side thereof broken away and showing in longitudinal section, spring drawers included therein; Fig. 2 is an enlarged longitudinal section of one of the spring drawers; Fig. 3 is a transverse section on the line 3—3 of Fig. 2; Fig. 4 is an enlarged longitudinal section on the line 4—4 of Fig. 6, showing the spring-actuating mechanism of the drawer; Fig. 5 is a transverse section on the line 5—5 of Fig. 4; Fig. 6 is an enlarged transverse section on the line 6—6 of Fig. 4; Fig. 7 is a perspective view showing a track or guide upon which the drawer is slidably mounted; and Fig. 8 is an enlarged transverse section showing the drawer-guiding means.

Referring more particularly to the drawings, 10 represents an article of furniture such as a desk, writing table or the like, which has a plurality of drawers 11 arranged one above the other. It will be understood that our invention is applicable to all articles of furniture, cabinets, safes and the like, which include drawers for the reception of papers or other articles. In the form of the invention shown in the accompanying drawings, the drawers 11 are arranged one above the other between walls 12 of the desk, and like the latter, are fashioned from wood, sheet metal or any other suitable material. The walls 12, at the adjacent sides, have mounted thereon, substantially horizontal cleats 13, at the upper and lower sides of which are fastened plates 14 having tracks or guides 15 formed integral therewith. At one end, each of the plates has a boxing 16, in which is revolubly mounted a peripherally grooved roller 17. The rollers 17 are arranged at the ends of the plates 14 adjacent to the front of the desk. At the upper and lower sides of each of the drawers are secured plates 18 similar to the plates 14 and each, likewise, is provided with a track or guide 19 and a boxing 20, in which is revolubly mounted a peripherally grooved roller 21. The arrangement is such that when the drawer is in position, the grooved roller 17 of each of the plates 14 engages a track 19 of one of the plates 18 carried by the drawer, and each of the rollers 21 correspondingly engages a track 15 of a plate 14. The rollers 21 of the drawers are arranged at the ends of the latter remote from the front of the desk. In this way the drawers are slidably

mounted and can be moved into and out of the drawer recesses of the desk, with very little difficulty and with little friction. The arrangement of the rollers at the front ends of the cleats and at the rear ends of the drawers, permits a firm engagement between the drawers and the cleats, and the rigid supporting of the drawer, even when the latter is fully projected from the desk.

Each drawer, near the middle has the bottom 22 and the rear wall 23 cut away to form a recess 24, at the lower edge of which is positioned a support or base 25 held in place by means of screws 26. A cover 27 of curved form is secured to the base 25 by hinges 28. A spindle 29 extends across the recess and has constricted threaded ends 30 upon each of which is mounted a head 31 of angular cross section. The heads 31 fit into sockets 32 formed in the base and the cover and of suitable shape to receive the heads. The ends of the spindle 29 adjacent to the constricted ends are threaded and have mounted thereon, roller races 33 extended to form end plates 34. A spool 35 is arranged upon the spindle 29 and has the ends 36 formed into roller bearing races adapted to coöperate with the races 33, and to carry therebetween roller or ball bearings 37, so that the spool is revolubly mounted and so journaled that it can rotate with a minimum of friction.

The end portions of the spool 35 are extended to form barrels 38 in which are arranged coiled springs 39. One end of each of the springs is inserted in a slot 40 of the spindle, while the other end is secured to a pin 41 of the barrel in which the spring is located. One of the spool ends 36 has formed thereon a ratchet 42 and carries adjacent to the ratchet a pivoted dog 43 formed to engage the ratchet and to prevent the rotation of the spool in one direction. A stop 44 limits the movement of the dog and a leaf spring 45 serves to control it. A finger 46 rigid with the dog, extends through a curved slot 47 in the end plate 34, and by means of the finger, the dog can be manipulated. When the dog is in engagement with the ratchet, the spring 45 is so positioned that it tends to maintain the engagement of the dog with the ratchet. When the dog is disposed against the stop 44 and out of engagement with the ratchet, the spring is inoperative to return it to the ratchet.

The ends of the spool are preferably formed separate therefrom, and are secured to the spool by means of screws 49 which are received by suitably recessed and threaded lugs 48 of the spool.

Between the barrels 38, the spool has a pin 50 to which can be secured the end of a line 51 consisting of a cord, chain, or the like. The line 51 is wound about the spool and has the free end secured to a hook 52 or some other support, at the front of the desk.

In moving the drawer from an open or projected position to the normal or closed position, the unwinding of the line from the spool rotates the latter and thus winds up the springs. When the drawer has been fully closed, a catch or lock 53 carried thereby engages a suitable keeper mounted upon the desk and thus locks the drawer in the closed or normal position. The catch can be released by means of a button 54 or in any other convenient manner. As soon as the lock is operated to release the drawer, the springs unwind, and thus through resilient action, wind the line 51 upon the spool. This projects the drawer from the normal position into the position shown in dotted outline in Fig. 1. The projection of the drawer is limited by the engagement of the spool with the front of the desk or in any other suitable manner by the provision of stops or the like. From the foregoing it will be seen that to open one or the other of the drawers of the desk, it is merely necessary to release the catch to permit the drawer automatically to slide outward into an open or projected position.

As the contents of the drawers may vary both in bulk and in weight, it is necessary to provide means for adjusting the springs of the projecting mechanism so that the force with which the drawer is projected can be regulated. For this purpose, we provide the ratchet 42 and the dog 43. By operating the finger 46 the dog can be thrown into engagement with the ratchet to permit the winding of the spool in one direction and to allow the springs to be wound up to a greater or less degree. The cover 27 can be swung upon its hinges to permit the operator to reach the spring projecting mechanism. When the spool has been turned sufficiently to wind the spring to the desired extent, the line is secured to the hook 52 and the drawer returned to its normal position. The dog is now swung into an operative position, where it is held by the spring 45, and the cover is then replaced in its original position. The cover has an aperture 46ª to permit the finger 46 to be reached and operated without removing the cover. A suitable catch 55 is also provided to hold the cover in a closed position.

It will be understood that the spindle 29 does not turn, but forms a support merely, to hold the flanges at one end. The angular cross section of the heads 31 permits an engagement with the base and cover which prevents the rotation of the spindle.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent:

1. In combination, a movable compartment, a support adjacent thereto, a guideway

on said support, and a second similar guideway on said compartment, each of said guideways having at one end a boxing, and a roller in each of said boxings and engaging the other of said guideways, said rollers being at opposite ends of said compartment and said support, respectively.

2. In combination, a movable compartment, a support adjacent thereto, a plate mounted upon said compartment and having a track and at one end a boxing, a roller in said boxing, and a second similar plate mounted upon said support and having a track and at one end a boxing, a roller in said boxing of said second plate, said roller of each of said plates engaging said track of the other of said plates, said rollers being at opposite ends of said plates, respectively.

3. In combination, a support, a movable compartment carried by said support and having a rigid member, a spool rotatable with respect to said rigid member, resilient connecting means between said rigid member and said spool, a line secured to said spool and to said support, and means for locking said compartment in a closed position.

4. In combination, a support, a movable compartment having a rigid member, a spool rotatable with respect to said rigid member, a spring connecting said spool and said rigid member, a line adapted to be wound upon said spool and having one end secured thereto, said line being secured at the other end to said support, means for adjusting said spool with respect to said rigid member, whereby the tension of said spring can be regulated, and means for locking said compartment in a closed position.

5. In combination, a support, a movable compartment carried thereby, a rigid spindle mounted near the rear of said compartment, a hollow spool journaled upon said spindle, a spring within said spool and secured to said spool and said spindle, said spool having a ratchet, a dog adapted to engage said ratchet to prevent the rotation of said spool in one direction, means for holding said dog inoperative, a line adapted to be wound upon said spool and having one end secured thereto, said line having the other end secured to said support, and means for locking said compartment in a closed position.

6. In combination, a support, a movable compartment carried thereby, a rigid spindle mounted near the rear of said compartment, a hollow spool, a roller bearing for journaling said spool upon said spindle, said spool having ends formed into barrels, springs arranged within said barrels and secured to said spindle and said spool, a flexible member having one end secured to said spool and adapted to be wound thereupon, said flexible member having the other end secured to said support at a point remote from said spool when said compartment is in a normal or closed position, and means for locking said compartment in a normal or closed position.

7. In combination, a support, a movable compartment carried by said support, a rigid spindle, a spool rotatably arranged with respect to said spindle, resilient connecting means between said spindle and said spool, flexible means secured to said spool and said support, a ratchet rigid with said spool, a dog adapted to engage said ratchet, and means for holding said dog in engagement with said ratchet, said last-mentioned means being inoperative in a predetermined position and automatically remaining in said predetermined position.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WALTER LAMBERT.
ELSWORTH P. DOPPS.

Witnesses:
GEO. F. MCAULAY,
A. W. CAMPBELL.