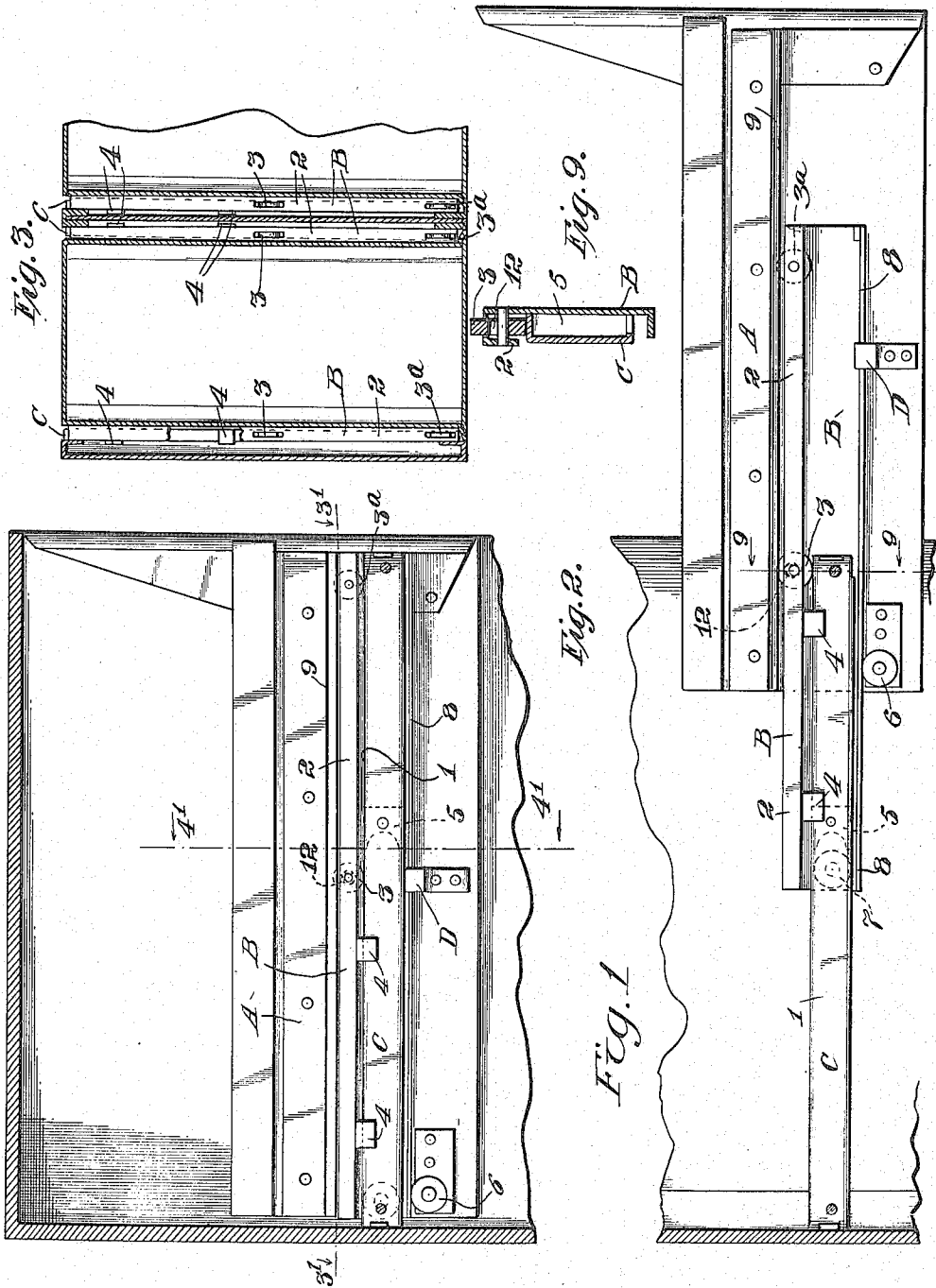


A. H. SCHAFFERT.
DRAWER FOR CABINETS AND OTHER ARTICLES OF FURNITURE.
APPLICATION FILED JAN. 27, 1912.

1,129,831.

Patented Feb. 23, 1915.

2 SHEETS—SHEET 1.



Attest:
W. Mitchell
W. White

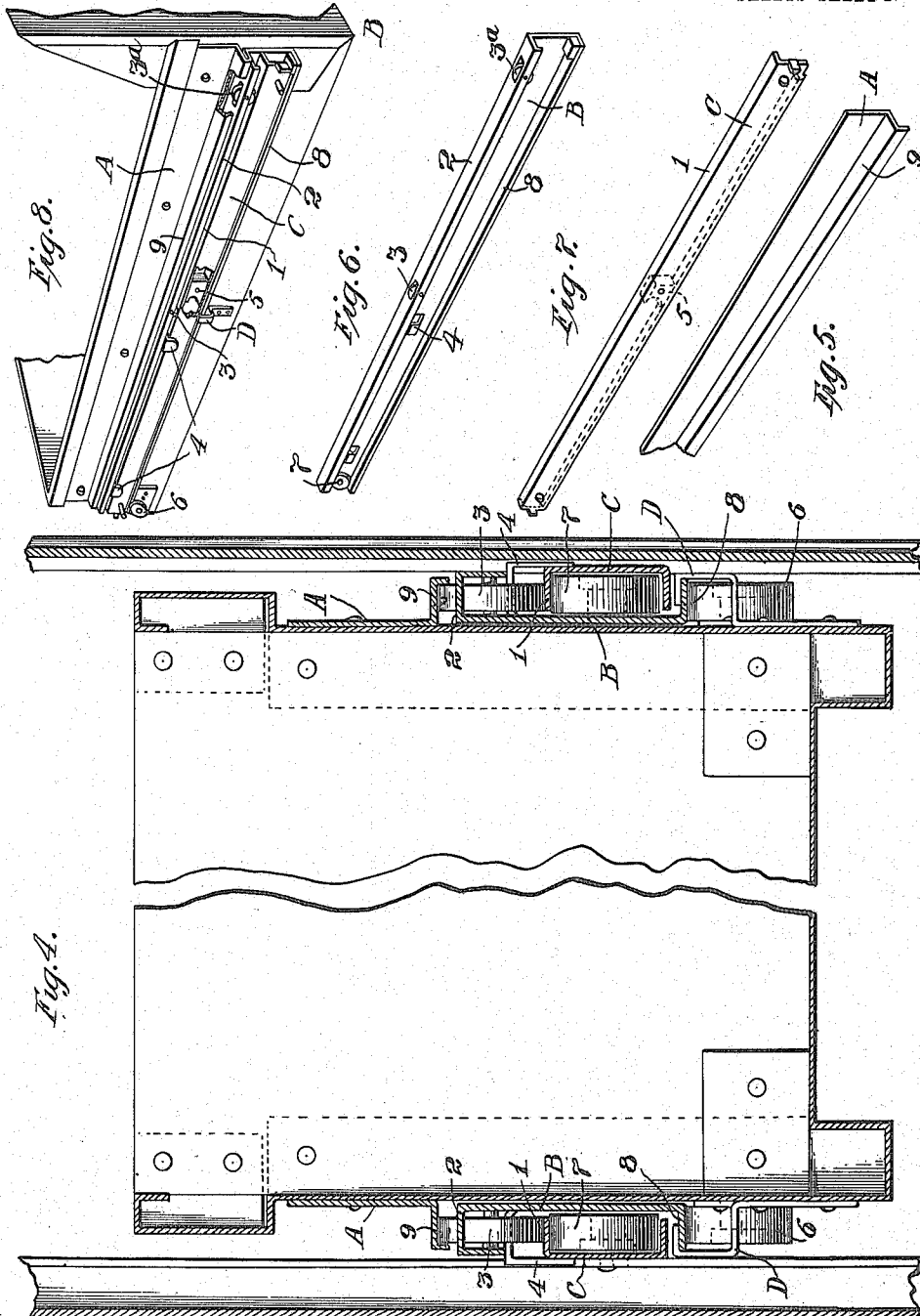
Inventor:
Adolf H. Schaffert

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Wm. H. White

Inventor:

Adolf H. Schaffert

UNITED STATES PATENT OFFICE.

ADOLF H. SCHAFFERT, OF YOUNGSTOWN, OHIO, ASSIGNOR TO THE GENERAL FIRE-PROOFING COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

DRAWER FOR CABINETS AND OTHER ARTICLES OF FURNITURE.

1,129,831.

Specification of Letters Patent.

Patented Feb. 23, 1915.

Application filed January 27, 1912. Serial No. 673,741.

To all whom it may concern:

Be it known that I, ADOLF H. SCHAFFERT, a citizen of the United States, residing in Youngstown, county of Mahoning, State of Ohio, have invented a new and useful Improvement in Drawers for Cabinets and other Articles of Furniture, of which the following is a specification.

My invention relates to sliding drawers and while it is particularly adapted for cases for filing and storing documents, it may be used in connection with a drawer in any article of furniture, more especially metallic furniture.

The object is to provide such drawers with movable means of support constructed in such a manner that the means of support shall occupy little space while at the same time holding and supporting the drawer in any position desired, as it is moved into and out of its casing.

As clearly indicated by the illustrations which are made a part of this specification, I accomplish the object by providing a frame consisting of parts some of which are rigidly attached to the drawer. The movable parts travel at different speeds so that the drawer is always properly supported as it is moved into and out of the casing.

A characteristic feature of the invention is the position of the supporting part with respect to other parts, so that the supporting device takes up little room. It is well known that economy of space is a very important consideration in the design of articles of this class.

In the designation of the different parts the same letters and numerals in different illustrations refer to the same parts.

Figure 1 is an illustration of the device comprising the invention as it appears when the drawer to which it is attached is closed. Fig. 2 is an illustration of the device comprising the invention as it appears when the drawer is pulled out of its casing. Fig. 3 is a cross sectional view on line 3'-3' of Fig. 1 on a reduced scale, showing end and middle portions. Fig. 4 is a cross sectional view on line 4'-4' of Fig. 1 showing the device on both sides of the drawer. Fig. 5 is a view in perspective of one of the three interfitting channel shaped supporting members, one of which is fastened to the side of the case. This is the member which is fastened to the case above the piece shown

by Fig. 6. Fig. 6 is a view in perspective of the second or middle interfitting channel shaped supporting member. This member is not fastened either to the drawer or the case and it is held in place by interfitting with the fastened pieces. Fig. 7 is a view in perspective of the third interfitting part. This piece is fastened to the side of the drawer, and fits into the recessed portion of the piece shown by Fig. 6. Fig. 8 is a view in perspective of a side of the drawer showing the three interfitting parts as they appear fitted together when the drawer is closed. Fig. 9 illustrates a detail in construction designed to prevent binding of the parts from frictional contact as hereinafter explained.

As is indicated by the illustrations my device comprises the three main supporting members. A, Fig. 5; B, Fig. 6; and C, Fig. 7. They are made by bending suitable strips of steel into the forms shown. A is rigidly fastened to the side of the drawer and C to the side of the case. C fits into the recessed portion between the flanges 2 and 8 of B so that the flange 1 of C goes under the rollers 3-3^a fixed in the flange 2 of B and moves against them. In short A and C serve as rigidly fixed tracks in which B moves. B is a "floating" member, that is to say a member not rigidly fastened to any other part. It is held in place by interfitting with A and C as explained. It will be noticed that the projecting arms 4 struck up from the back of B engage C by extending partly over the back of C as shown in Fig. 2. They serve as guides which hold B and C in their established relation. Also it will be seen that the rollers 3-3^a which are fastened to the flange of B fit behind the channeled flange 9 of A, which flange forms a track for these rollers and locks A and B together. As illustrated by Fig. 9, I prefer to make the axle bearing hole in the loose intermediate roller 3 (the roller shown directly under the numeral 9, Fig. 2) somewhat larger than the axle diameter, say one eighth of an inch larger. This is for the purpose of providing free play for the roller. It will be noticed that the axle carrying this roller is fastened to the floating member B and consequently, the free play in the roller permits the same free play in the movement of B. In other words B in its travel between A and C can move slightly upward

and downward. I have found that without this provision the tendency of the members B and C to bind as the drawer is opened and closed, is so great as to make the operation of the device very difficult. It will also be noticed that there is attached to B a rear roller 7 (Fig. 6). The diameter of this roller is adapted to make it fit snugly between the flanges of the member C as shown in Fig. 2. The lug 5, (Fig. 8) is a stop to arrest the movement of the "floating" member B when the drawer is out the full distance as shown in Fig. 2. It is desirable to make this stop 5 of leather, rubber or some other yielding substance so as to minimize the jar incident to the sudden stopping of the drawer when pulled out in its full distance.

When the parts are in position as shown by Fig. 1 which is their position when the drawer is closed, the rollers 3—3^a are pinched between the track A and the flange 1 of C and when the drawer is pulled out, the rollers 3—3^a are rotated causing the "floating" carriage B to move at half speed of the drawer itself on the same principle as a pinion between a stationary rack and a moving rack. The result is that when the drawer is all the way out (Fig. 2) only half of the "floating" carriage B is out,—that is to say, half of it will project beyond the case. As the carriage B moves away from its stationary partner C, it is desirable to provide support for the projecting portion and prevent the tilting of the drawer. This support for the projecting part of the carriage piece is provided for by the supporting guide D on the drawer, and the tilting of the drawer when extended is prevented by the supporting roller 6 adjacent the inner bottom corner thereof. These elements D and 6 in combination with the drawer track A loosely and slidably interlock the drawer to the carriage. It is not necessary that the part 6 be a roller. It may consist of an immovable piece but the rotating form is preferable on account of friction. Nor is it necessary for the part 7 Fig. 6 to be rotating member; it may be made in the form of a block, its chief function being that of an interlocking and fulcruming guide for the inner end portion of the carriage.

Other changes may be made without departing from my invention as for instance, the projecting arms 4—4 on the carriage B may be entirely dispensed with and the C member be adapted to go behind and under the flange 2 of B. This can be done by forming a depressed edge on C and extending the flange 2 of B to engage and overlap said depressed edge.

As already indicated, the improved drawer fitting described has special utility in its application to that class of metal furniture involving conditions which render

it difficult to construct and mount a drawer slide which will easily and freely move in and out of the casing without binding of parts or jerkiness of movement, and in which the frictional resistance can be reduced to a minimum. This difficulty arises from the fact that the track elements, and related parts, are struck up from dies and submitted to bending and other operations which inevitably leave surfaces offering opportunities for the binding or sticking of parts, as well as preventing the free travel and play of guiding and supporting rollers. To successfully meet this condition, and at the same time provide a construction possessing other advantages, the present applicant provides a carriage piece capable of a true floating movement within certain limits between the two track members. This carriage piece is so combined with an immediately-located loose and self-adjusting roller, and terminal roller elements, that it will positively and reliably be propelled to slowly follow the movement of the drawer, without striking or binding, so that the drawer is always properly and easily supported as it is moved into and out of the casing. Furthermore, the combination of rollers referred to, which includes the intermediate loose self-adjusting roller, provides, in connection with the track members, a means for making the drawer, no matter how heavily loaded, very easy to open, and in fact providing means which materially aid the opening of the drawer by giving it initial momentum and the aid of gravity. These desirable results are, as indicated, attained by the relation of the intermediate self-adjusting roller to the terminal rollers, and their relation in turn to the track members, so that the loose intermediate roller becomes the main tractor or propelling roller for the carriage piece. This roller permits relative vertical tilting of the carriage piece and of the track members as they adjust themselves to inequalities in the metal surfaces, and also as they adapt themselves to the novel opening movement of the drawer above referred to. In this connection, it is to be noted that the intermediate, or center roller, has the coöperation at all times of one of the end rollers regardless of the location of the center of gravity. This becomes important in the opening movement of the drawer. In explanation thereof, it will be observed that, when the drawer is closed within the casing, all of the parts have the position shown in Figs. 1 and 8 of the drawings, in which position the front terminal roller 3^a of the carriage piece, as well as the intermediate self-adjusting roller 3, are both in riding engagement with the fixed track member C carried by the casing, and both are likewise in engagement with the track member A

carried by the drawer. It will, of course, be understood that as the drawer moves in or out the center of gravity necessarily shifts and an automatic realinement of the various rollers is necessary in order to properly take care of this condition without undue binding or friction of the parts. Accordingly, it will be observed, by reference to Figs. 1 and 8 of the drawings, that, as the drawer is drawn out, the center of gravity passes beyond and forward of the intermediate self-adjusting roller 3. As this is occurring the front terminal roller 3^a drops off of the front end of the fixed track member C in the casing bringing about two very desirable conditions that greatly assist the drawer opening operation. The first of these conditions is that the forward roller 3^a, and hence the front end of the carriage piece, is permitted to drop to a slightly lower plane by reason of the loose mounting of the intermediate roller, thereby permitting the carriage piece to assume a slight forward inclination which will contribute the force of gravity to aid in the easy opening of the drawer, especially when heavily loaded. At the same time, the other condition which comes into play is that of placing practically the entire propelling force on the intermediate self-adjusting traction roller 3, which roller will maintain its firm frictional and tractional engagement with both of the track members A and C. On account of the floating characteristic which is given to the carriage piece by the loose play of this roller 3, and the front roller 3^a passing off of the fixed track member C, the said intermediate roller will closely follow any unevennesses and will positively propel the carriage piece outwardly at one half the speed of the drawer, and will thereby insure the drawer having the full supporting effect of the carriage piece in all positions thereof. In this opening movement, as described, the rear terminal roller 7 retains a loosely interlocked traveling engagement with the fixed track piece C and, in combination with the intermediate supporting provided by the intermediate roller 3, braces and sustains the carriage piece in its support of the projecting drawer. On the reverse movement, that is when the drawer is closed, the center of gravity constantly approaches the intermediate roller 3 and when the load passes well within the casing, the front terminal roller 3^a of the carriage piece rides up onto the fixed track member C again and combines with the other rollers to properly support the drawer on or above the level within the casing so that it will not move out of position without the assistance of the hand.

What I claim and desire to secure by Letters Patent is:—

1. A drawer support including a floating

carriage-piece carrying guiding and supporting elements and also carrying a loosely-mounted intermediate traction roller having a relative vertical play thereon, the drawer casing carrying a fixed track member loosely interlocking with the inner end portion of the carriage-piece and having a tractional engagement with said loose roller, and a drawer loosely and slidably interlocked with the carriage piece and carrying a track member having a rolling tractional engagement with said loose intermediate roller.

2. A drawer support including a floating carriage piece carrying guiding and supporting elements and also carrying a loosely mounted intermediate traction roller having a relative vertical play thereon, the drawer casing carrying a fixed track member loosely interlocking with the inner end portion of the carriage piece and having a tractional engagement with said loose roller, and a drawer loosely and slidably interlocked with the carriage piece and having means for imposing downward pressure on the front end portion of the carriage piece and upward pressure on the rear end portion of the carriage piece.

3. A drawer support including, in combination with a sliding drawer and its casing, track members respectively mounted on the drawer and the casing, a floating carriage-piece slidably interposed between the two track members and having a loosely interlocked fulcruming connection between its inner end portion and one track member, said carriage piece being slidably interlocked with the drawer and carrying an intermediate self-adjusting roller having a loose play on its axle and engaging both the track members to form a rolling traction member admitting of relative vertical tilting of the parts.

4. A drawer support, including in combination with a sliding drawer and its casing, track members respectively mounted on the drawer and the casing, a floating carriage-piece carrying terminal rollers, one of which has a loosely interlocked connection with one track member, and the other of which rollers is adapted to engage both track members, said carriage piece being slidably interlocked with the drawer and also carrying an intermediate loosely mounted self-adjusting traction roller engaging both track members and admitting of vertical tilting of the parts.

5. A drawer support including, in combination with a sliding drawer and its casing, separate track members respectively mounted on the drawer and the casing, a floating carriage piece carrying a rear roller having a constant loosely interlocked traveling engagement with one track member, and a front terminal roller maintaining a con-

stant engagement with one track member and having a temporary engagement with the other track member, said carriage piece being slidably interlocked with the drawer and also carrying an intermediate loosely mounted traction roller engaging both track members.

6. A drawer support including, in combination with a sliding drawer and its casing, separate track members respectively mounted on the drawer and the casing, a floating carriage piece carrying a rear roller slidably interlocked with one track member, and a front supporting roller arranged to automatically disengage and drop below the casing track member on the opening movement of the drawer, said carriage piece being slidably interlocked with the drawer and also carrying an intermediate loosely mounted traction roller engaging both track members.

7. A drawer support including, in combination with a sliding drawer and its casing, separate track members mounted respectively on the drawer and the casing, a floating carriage-piece slidably interlocked with the drawer and carrying an intermediate loosely-mounted self-adjusting traction roller and front and rear terminal rollers, the rear terminal roller constantly maintaining a traveling interlocked engagement with one track member, and the front terminal roller being arranged for disposition between and in engagement with both track members.

8. In combination with a sliding drawer and its casing, a drawer-slide fitting consisting of a stationary supporting track member fitted to the drawer, a supporting element fitted to the drawer and disposed below the stationary track member, and a floating carriage piece slidably interposed between and loosely interlocked with the two track members, said carriage piece having a movable bearing engagement on said supporting element below the stationary track member, and also having a roller engagement with the upper side of the sta-

tionary track member and the under side of said second track member.

9. In combination with a sliding drawer and its casing, a drawer-slide fitting consisting of a stationary track member, another track member fitted to the drawer, a supporting roller arranged on the drawer below the stationary track member, and a floating carriage piece slidably interposed between and interlocked with the two track members, and having a bearing engagement at its lower edge with said supporting roller, said floating carriage piece also carrying at its upper end portion a roller that bears against the under side of the track member on the drawer, and at an intermediate point carries a roller that bears against the under side of the track member on the drawer and on the upper side of said stationary track member.

10. In combination with a sliding drawer and its casing, a drawer-slide fitting consisting of a channeled stationary track member, provided within the channel thereof with a stop, a second flanged track member fitted to the drawer, and a floating carriage piece slidably interposed between the two track members and carrying at one end an element working within the channel of the stationary track member for engagement with the stop thereof, said floating carriage piece being further provided with keeper elements engaging the stationary track member and with an outer roller for engagement beneath the track member on the drawer, and an intermediate self-adjusting roller having a bearing engagement with the under side of the track member on the drawer and with the upper side of said stationary track member.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ADOLF H. SCHAFFERT.

Witnesses:

H. R. GLENN,
H. E. WHITE.