

Dec. 25, 1962

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3,069,737

TWO-PIECE BINDER CLAMP

Filed July 15, 1960

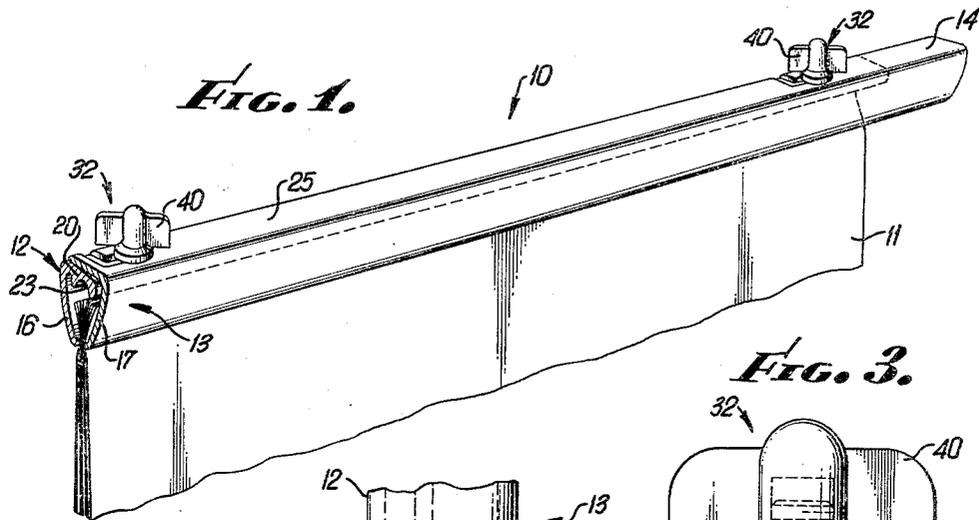


FIG. 2.

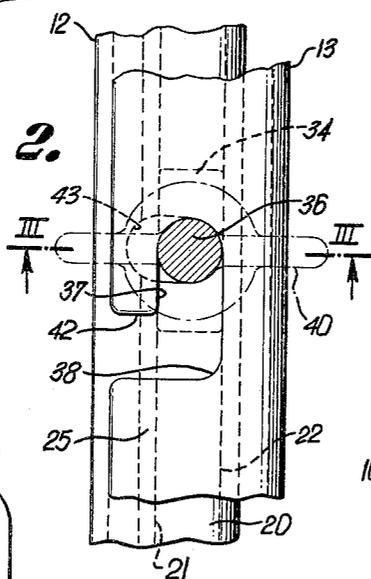


FIG. 3.

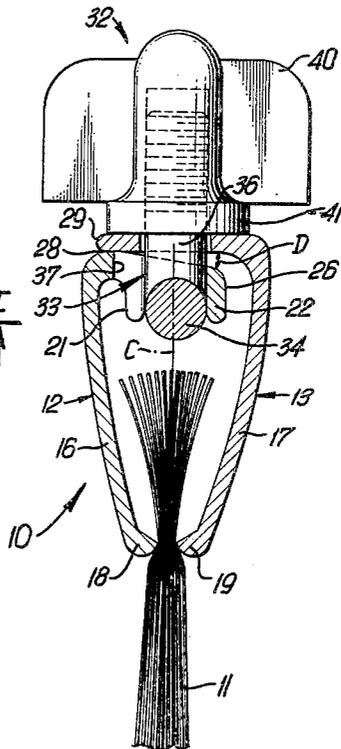


FIG. 5.

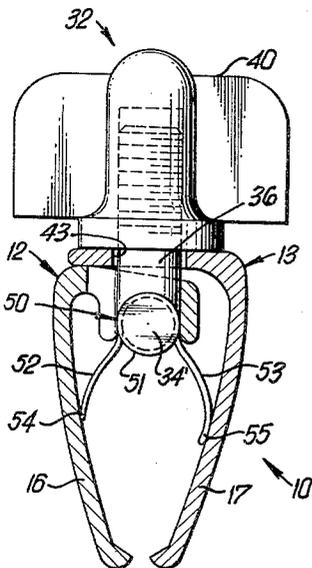
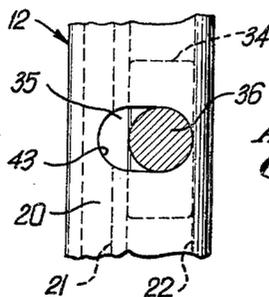


FIG. 4.



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TWO-PIECE BINDER CLAMP

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 Filed July 15, 1960, Ser. No. 43,133
 3 Claims. (Cl. 24-66)

This invention relates to a friction binder means and more particularly to a friction binder means having a pair of binder members arranged and constructed to provide a novel mode of operation and to reduce cost of manufacture of the binder means to a minimum.

Prior proposed friction binder means for use with large sheets of material (plans, specifications, maps, drawings and the like) for vertical filing thereof have generally included an arrangement of three elongated members, namely, a channel member having a longitudinal recess, and a pair of hinged interconnected clamping members carried by the channel member and movable into and out of said recess to open and close the clamp members (see Patent 2,859,210). Such types of friction binder means have been widely accepted for vertical filing and have been combined with filing cabinets of various styles and designs. Such friction binder means have also been used for other than vertical filing because of the convenient and facile manner in which loose sheets are frictionally held together adjacent one margin thereof.

The present invention contemplates a friction binder means adapted for use in vertical filing of sheet material and wherein the channel member of the above mentioned prior proposed devices is eliminated. The present invention contemplates a friction type binder means including a pair of elongated binder mean members having jaw portions cooperable to clamp material therebetween. The binder members are each of generally angle section, one binder member having dimensions and an included angle greater than the other binder member whereby the binder members may be disposed in opposite relation and inturned portions on the binder members disposed in overlapping cooperable relation. The inturned portions are provided longitudinal, pivotal line contact along one side of the pair of binder members and connector means are provided at a plane bisecting the binder means and cooperable with said overlapping inturned portions so that as the connector means is tightened pivotal movement will occur along the line of contact and the jaw portions of the binder members will be drawn toward each other. In the preferred embodiment of this invention the binder members are readily assembled and disassembled when the connector means is loosened. In another embodiment of the present invention spring means may be provided for urging the jaw portions of the binder members apart to release sheet material. The present invention, because of its simplified construction and operation, provides several advantages over the friction binder means of the prior art.

One of the primary objects of this invention is to provide a friction binder means of simplified construction and a novel mode of operation.

An object of the invention is to provide a friction binder means wherein manufacturing cost of the binder means is reduced to a minimum.

Another object of this invention is to disclose and provide a friction binder means wherein one of the pair of binder members may be readily separated or disassociated from the other binder member for insertion or removal of sheets of material.

A further object of this invention is to disclose and provide a novel friction binder means wherein a pair of binder members are normally unconnected except for a connector means which serves as an actuating means for

drawing the binder members together and wherein said connector means is provided a rockable seat on a portion of one of the binder members.

A still further object of the invention is to disclose a friction binder means having a construction readily adaptable for the inclusion of a spring means if such is desired.

Many other objects and advantages of this invention will be readily apparent from the following description of the drawings, in which embodiments of this invention are shown.

In the drawings:

FIG. 1 is a perspective view of a friction binder means embodying this invention;

FIG. 2 is a fragmentary top view of FIG. 1;

FIG. 3 is a sectional view taken in the plane indicated by line III—III of FIG. 2;

FIG. 4 is a fragmentary top view similar to FIG. 2 but when the wing nut is removed; and

FIG. 5 is a sectional view taken in the same plane as FIG. 3 and showing the friction binder means of FIG. 1 modified to include a spring means.

A friction binder means generally indicated at 10 and embodying this invention is adapted to clampingly engage and hold a plurality of sheets of material 11 such as drawings, plans, pages of sheet material and the like. While the friction binder means 10 is especially adapted for use with vertical filing systems for large sheets of material, it may also be used with small sheets of material, as for example, up to 18" in width, when it is desired to hold a plurality of such sheets of material together at one margin thereof. In such instance, it may not be desired to file the smaller sheets of material in a vertical arrangement and they may be filed in other suitable selected arrangements.

The friction binder means 10 may comprise a pair of elongated binder members 12 and 13, said binder members being of extruded metal material, as for example aluminum; may be coextensive in length and may extend beyond the side edges of sheets 11 so as to provide end supporting portions 14 for hanging from a pair of parallel support rails such as described in Patent No. 2,869,210. The friction binder members 12 and 13 may be of angle section and, as shown, are of generally corresponding shape with the included angle of binder member 13 and the dimensions of the angle section of binder member 13 being slightly greater than those of the angle section of member 12 so as to permit member 12 to be cooperably accommodated, while oppositely disposed, within the included angle formed by the angle section of member 13.

The binder members 12 and 13 include, respectively, jaw portions 16 and 17 which may be slightly curved in section and which terminate, respectively, in jaw edges 18 and 19 for clamping frictional contact with marginal portions of the sheets 11 to be held thereby. While line contact is shown by way of example, other jaw constructions having frictional contact over selected areas may be used as shown in said Patent No. 2,869,210 and copending application Serial No. 723,307, now Patent No. 2,990,961. The binder member 12 includes a transversely or laterally extending inturned portion 20 which extends for the length of the binder member and includes a pair of longitudinally extending downwardly directed spaced ribs 21 and 22 which define a longitudinally extending groove 23 which may have a generally semi-cylindrical configuration. The width of portion 20 is less than the width of a similar transverse or lateral inturned portion 25 provided on the friction binder member 13 and which overlies the inturned portion 20 of member 12. It will be noted from FIG. 3 that the free longitudinal edge 26 of portion 20 terminates in spaced relation to the vertex of the angle formed by portions 17 and 25 of member 13, and also that the por-

tion 20 forms an included angle with jaw portion 16 which is smaller than the included angle formed by portions 25 and 17 of member 13.

When the friction binder means is employed for vertical filing and the sheets 11 depend therefrom in a vertical plane, the plane or zone defined by said sheets generally bisects the friction binder means 10 and such plane indicated at line C, FIG. 3 is intersected by the transverse portions 20 and 25 of the binder members 12 and 13. Zone C is also the plane or zone in which clamping occurs.

The members 12 and 13 are provided pivotal movement relative to each other about a longitudinal pivotal line of contact at 28, said line of contact being laterally offset from said clamping plane C. The line of contact 28 may extend for the entire length of the friction binder members and is provided by surface contact of the free longitudinal edge 29 of the transverse portion 25 of member 13 upon the opposed surface of transverse portion 20 adjacent the vertex of the angle formed by portions 20 and 16. It is contemplated that the contact line 28 need not be continuous but may be formed by spaced contacting portions of members 12 and 13. Since pivotal movement between the members 12 and 13 is provided about line 28 it will be noted that the reduced included angle defined by the portions 16 and 20 of member 12 provides ample clearance or space at D for permitting the jaw edges 18 and 19 to clamp and hold only a few sheets of material.

Connector means 32 are provided for holding the members 12 and 13 in assembly and for providing actuating means in a plane of the clamping zone to move the members 12 and 13 into clamping position. The connector means 32 may comprise two or more longitudinally spaced bolts 33 each having a T-head 34 of cylindrical cross-section so that ends of the T may be received in groove 23 on opposite sides of a laterally enlarged opening 35 provided in transverse portion 20 of member 12. As best seen in FIG. 3, the T-head 34 is positioned in said groove adjacent the outer depending rib 22 and shank 36 of the bolt extends through opening 35 in ample spaced relation to the edge wall 43 of opening 35 so as to permit selected rocking or pivotal movement of the member 12 about the T-head 34. Thus, the semi-cylindrical groove 23 provides a rockable seat for the T-head 34.

The shank 36, in assembly, extends through a longitudinal slot portion 37 of an L-section slot 38 provided in transverse portion 25 of member 13. A wing nut 40 having threaded engagement with the shank 36 may be provided with an integral washer 41 for bearing against the top surface of transverse portion 25 for drawing the transverse portion 20 toward portion 25 so as to pivot member 12 about line 28 and thus urge the jaw members 18 and 19 toward each other.

The friction binder means 10 may be used as follows. When it is desired to introduce sheets 11 between the clamping jaw portions 12 and 13 the members 12 and 13 are disassembled by loosening wing nut 40 until the member 13 can be first moved longitudinally so as to position shank 36 opposite opening 42 and then moving member 13 laterally so that member 13 is completely separated from member 12. Longitudinal margins of sheets of material 11 may then be laid over the jaw edge 18. The binder member 13 is then assembled with binder member 12 by placing member 13 so that opening 42 will permit reception of shank 36 into the L-shaped slot 38 and then the member 13 may be moved longitudinally so as to position shank 36 adjacent the end of the longitudinal slot portion 37. During this operation it will be understood that the connector means 32 is not disassembled from the binder member 12 but is merely loosely engaged therewith. When the wing nut 40 is then tightened relative pivotal movement occurs between transverse portions 20 and 25 about the line of contact at 28 and the jaw portions 12 and 13 are urged toward each other for clamping engagement of the sheets 11 by jaw edges 18 and 19. It will be apparent that as the wing nut is tight-

ened the T-head 34 is permitted slight rocking engagement with the groove 23 in portion 20 of member 12.

It should be particularly noted that in the above-described embodiment of this invention no spring means are provided for urging or biasing the jaw portions 16 and 17 of the binder members apart to facilitate release and insertion of sheets 11. In FIG. 5 a modification of the prior embodiment is shown in which spring means are provided for this purpose. Since the structure of the embodiment in FIG. 5 is identical to that of FIG. 1 with the exception of the spring means, only the differences in structure will be described.

In FIG. 5 a spring means 50 is provided for each connector means 32. Each spring means 50 may comprise a circular central portion 51 which may be sleeved and positioned over the cylindrical T-head 34 and may include end portions 52 and 53 which extend outwardly into spring-biased engagement at 54 and 55 with internal adjacent surface portions of the jaw portions 17 and 16 respectively. To accommodate the passage of legs 52 and 53 of the spring the opening 35 in portion 20 may be slightly enlarged so that such legs may pass therethrough without frictional binding. It will be readily apparent that since the spring means 50 is secured to the T-head 34 that if desired the binder member 13 may be removed from cooperable association with binder member 12 in the manner as described above. It will also be apparent that upon loosening of the wing nuts 40 the jaw portions will tend to be spread apart by the action of the springs to facilitate insertion of additional sheets 11 or the withdrawal of sheets 11 from the friction binder means.

It will be understood that the friction binder means 10 may be employed with any suitable support means such as a pair of parallel support bars upon which the end support portions 14 may rest. Likewise, the binder member 13 may be provided with a pair of spaced oppositely facing clip-like holding means on the top surface of transverse portion 25 and in longitudinal spaced relation. With such spaced holding means on member 13 it will be readily understood that the friction binder means of this invention may be associated with the filing device described in copending application Serial No. 723,307.

Various modifications and changes may be made in the friction binder means described above which come within the spirit of this invention, and all such changes and modifications coming within the scope of the appended claims are embraced thereby.

We claim:

1. A friction binder means for one or more sheets of material comprising: a first binder member of extruded section having an elongated uninterrupted jaw portion and a flange portion in angular relation thereto, said portions having internal surfaces defining an included angle; a second binder of extruded section of reduced size for cooperable assembly with the first binder member, said second member having an elongated uninterrupted jaw portion and a flange portion in angular relation thereto with an included angle smaller than the included angle of the first member and opposite thereto; said jaw and flange portions of the second member having external surfaces, the free edge of the internal surface of the flange portion of the first member having continuous fulcrum contact with the external surface of the flange portion of the second member adjacent the included angle of the second member, the flange portion of the second member extending away from said fulcrum contact in increasing spaced relation to the internal surface of the flange portion of the first member and terminating in spaced relation to the internal surface on the jaw portion of the first member; an operable means extending through said flange portions between said jaw portions and having an external section seated on the external face of the flange portion of the first member to hold the members in assembly and to selectively

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clamp said jaw portions by drawing said flange portions toward each other. 555,603

2. A binder means as stated in claim 1 including spring means carried by the operable means at one of said flange portions in biased contact with at least one jaw portion. 908,256
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3. A binder means as stated in claim 1 including longitudinally extending inwardly directed rib means on the flange portion of the second binder member, said rib means serving as seating means for one end of said operable means. 2,708,299
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