M. F. KEVLIN.

DRIER FOR TEXTILE STOCK, ETC.

APPLICATION FILED JUNE 21, 1920.

1,428,290.

Patented Sept. 5, 1922.

2 SHEETS—SHEET 1.

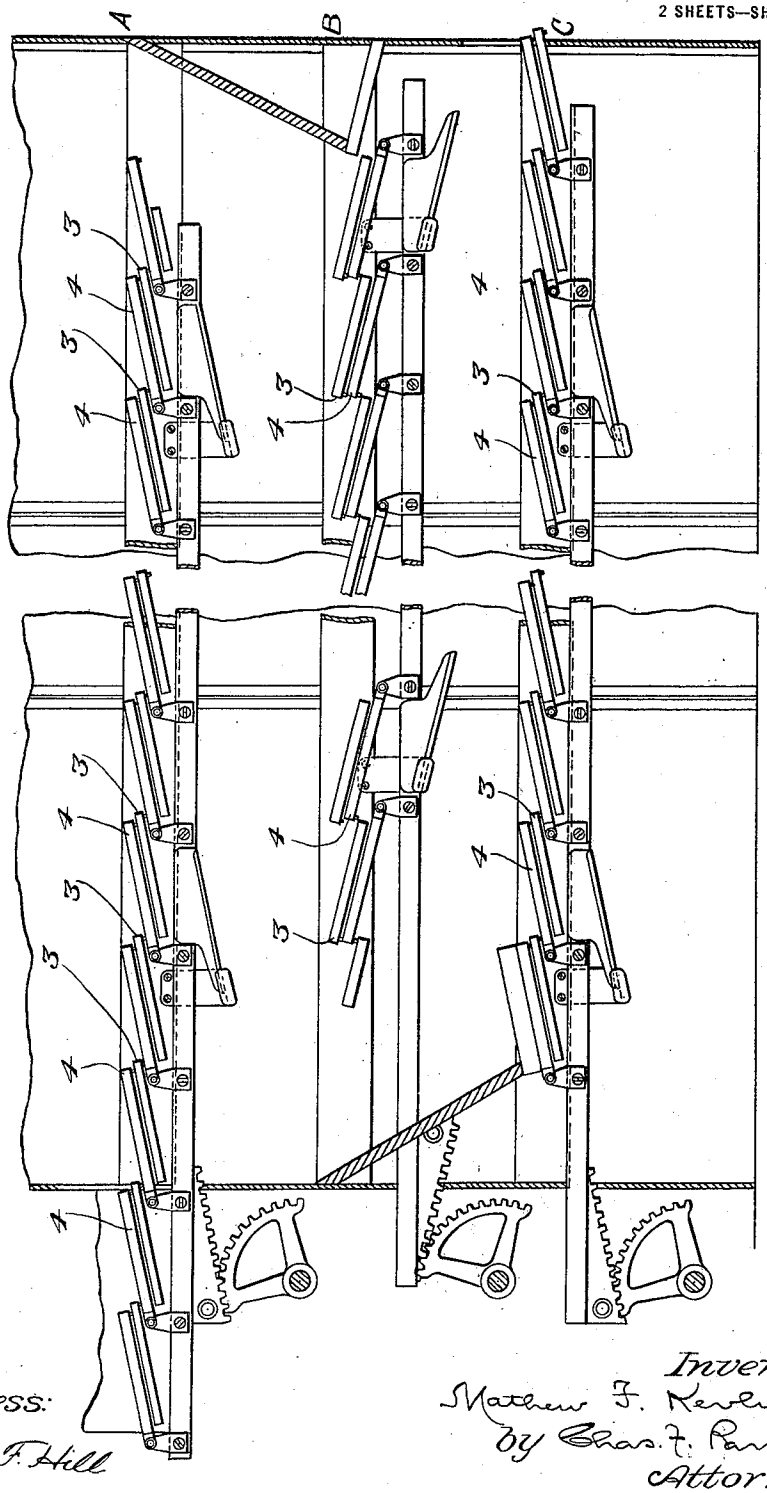


Fig. 1.

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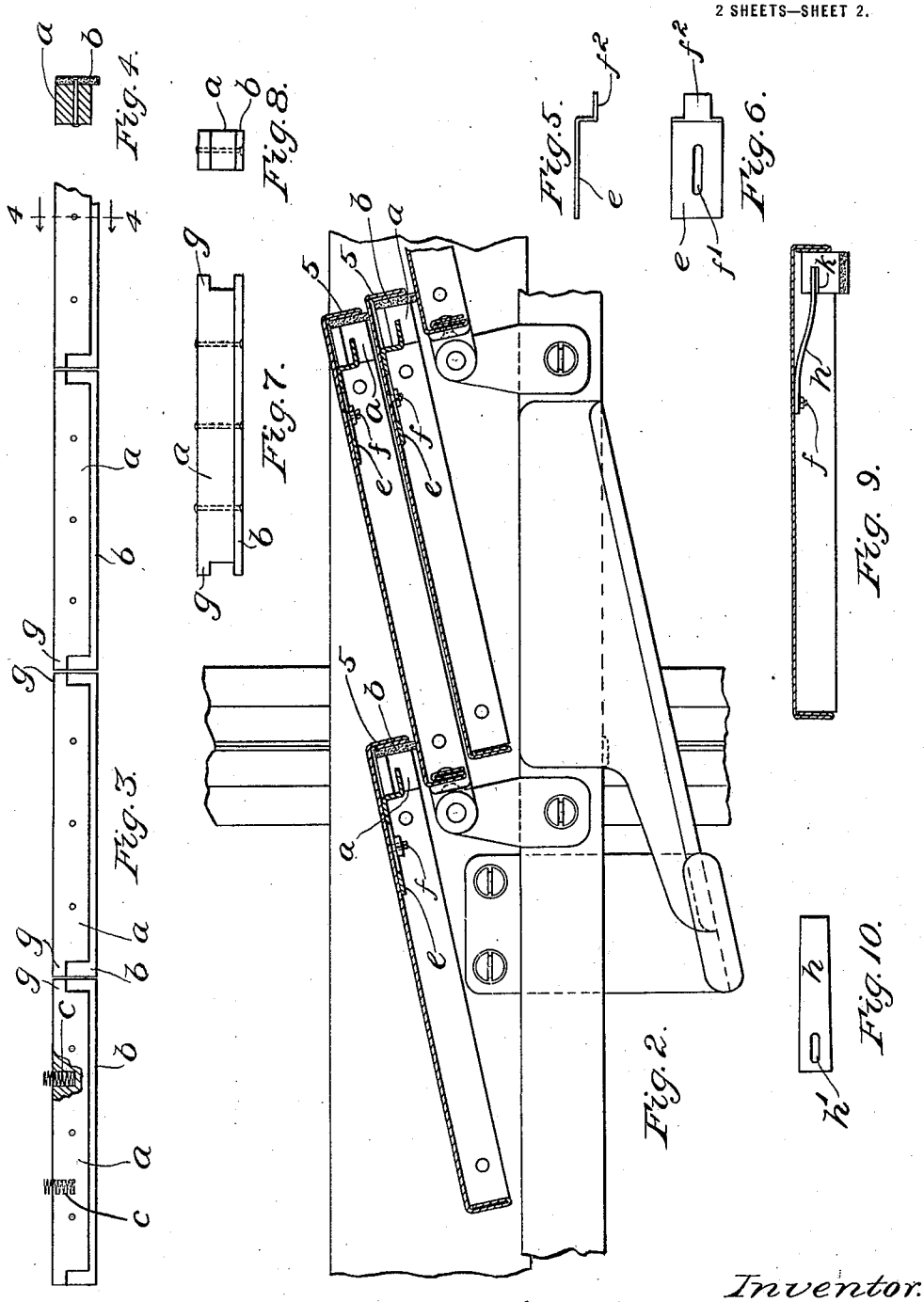
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UNITED STATES PATENT OFFICE.

MATHEW F. KEVLIN, OF SPRINGFIELD, VERMONT.

DRIER FOR TEXTILE STOCK, ETC.

Application filed June 21, 1920. Serial No. 390,415.

To all whom it may concern:

Be it known that I, MATHEW F. KEVLIN, a citizen of the United States, residing at Springfield, in the county of Windsor, State of Vermont, have invented a certain new and useful Improvement in Driers for Textile Stock, Etc., of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has relation to driers for wool, rags, cotton, and other loose material, more especially textile stock. More particularly, it relates to driers having movable shelves or tables receiving and supporting the stock for and during the drying.

The invention comprises sectional guard-strip or wiper-devices arranged to coact with the shelves or tables.

The invention is more especially applicable in connection with the tables or shelves of a drier embodying the invention of former Letters Patent No. 1,249,771, granted under date of Dec. 11, 1917, upon my application therefor.

Fig. 1 of the drawings is a sectional view of certain portions of a drier on the order of that shown in the Letters Patent aforesaid.

Fig. 2 is a view on a somewhat larger scale than Fig. 1, showing, partly in vertical section in a plane extending longitudinally of the drier, certain parts of the drier with an illustrative embodiment of the invention applied thereto.

Fig. 3 is an elevation, partly broken away, of a partial set of the sectional wipers.

Fig. 4 is a view in section on line 4, 4, of Fig. 3.

Fig. 5 is an edge view, and Fig. 6 is a plan view, of one of the retainers that are employed with the wiper-sections of Figs. 2 and 3.

Fig. 7 is a side elevation, and Fig. 8 an end view, of a wiper-section having its facing strip attached to the lower side of such section.

Fig. 9 is a sectional view of a shelf or table having another embodiment of the invention combined therewith.

Fig. 10 is a plan view of the form of retainer which is shown in Fig. 9.

A drier on the order of that shown and described in the Letters Patent aforesaid comprises, as indicated by Fig. 1 of the accompanying drawings, a plurality of platforms arranged one above another, as at A, B, C, each platform comprising a group of shelves or tables composed of stationary slightly inclined shelves or tables 3, 3, and movable similarly inclined shelves or tables 4, 4, in an alternating succession, as indicated. The movable shelves or tables are reciprocated slowly edgewise between the stationary shelves or tables. When the movable shelves 4, 4, 4, of a series or platform occupy the fully projected portions in which they are shown in the case of the top platform A in Fig. 1, and in the case of the movable shelf 4 in Fig. 2, the layer of stock, which has been placed upon the platform for the drying operation rests upon the said movable shelves, it extending down from the leading edge of one movable shelf to the rear portion of the next succeeding movable shelf. As the movable shelves 4, 4, 4, are retracted inward between the stationary shelves 3, 3, 3, the layer of stock is carried back slightly, but the continued withdrawal of the movable shelves from under the layer permits the latter to rest upon the stationary shelves. As the movable shelves next are projected outward from under the stationary shelves, they slip in under the layer of material again, lifting and separating the material from the stationary shelves. In this movement, they partly push and partly carry the layer of material a short distance in the direction of the length of the series or platform, so that the effect of successive reciprocating movements is to shift the layer of stock gradually along the platform from the receiving end of the discharging end thereof. Thereby, the stock deposited upon the left-hand end of the platform A is caused to travel slowly in the direction of the length of such platform until it falls from the right-hand end thereof upon the platform B, along which it is caused to travel until it falls from the left-hand end of platform B upon the platform C, the latter delivering the dried stock from its right-hand end.

The Letters Patent just mentioned show and describe guard-strips mounted in connection with the leading or forward edges (the elevated edges in Fig. 1 hereof) of the shelves or tables, both fixed and movable, in the same relations as the wiper-sections *a*, *b*, Fig. 2, of the present invention, the guard-strip carried by one shelf making contact with the surface of the shelf next below, substantially as in the case of said wiper-sections *a*, *b*, and serving to prevent

the stock from working in between the shelves or tables during the back and forth movement of the moving ones.

The guard-strips of the said Letters Patent correspond in length to the length of the shelves or tables. The latter are of considerable length, at least 5 or 6 feet. They are made of thin sheet metal, which often cannot be obtained free from warped or buckled spots, and they have a tendency to become warped and bent in the course of the use of the drier. In consequence, the edge of a continuous guard-strip such as heretofore employed fails to fit uniformly close to the surface of the shelf or table with which it coacts, and touches only the high spots. From this it results in practice that at the low places of the shelf or table portions of stock enter and work through the openings or spaces between the guard-strip and the said surface. This in many cases, is objectionable. For instance, in running successive batches of different colored stock through the drier, such working through results in the stock from a subsequent batch of a different shade or color upon an upper platform dropping upon the batch upon a lower platform and becoming mixed therewith. In the case of the bottom platform, the portions of stock which pass through beneath the guard-strip and fall upon the floor under the drier form a general mixture of bits of all the various colors or materials passing through the drier. The accumulation becomes dirty, and sometimes fills up the space beneath the said platform so as to impede the upward flow of air through the latter, and even in some instances interferes with the movement of the shelves. In this location the material often is injured by prolonged subjection to heat.

The object of my invention is to provide guard-strips or wiper-devices of an improved character which shall not be subject to the drawbacks just described, and which shall operate more perfectly.

The invention consists in the combination with shelves or tables such as aforesaid of wiper-means comprising a series of sections connecting with an upper shelf or table and contacting with the top surface of the adjoining underlying table, and which are independently movable relative to one another and to the underlying shelf or table, so that each section is adapted to conform its position to that portion of the latter shelf or table with which it coacts, thereby guarding against failure to perform the intended function.

In other words, in accordance with the invention, I employ for cooperation with each shelf or table sectional wiper-devices comprising short independently-movable guard-strip or wiper-sections combined in a series which extends across the width of the drier. In virtue of each section being movable independently of the others, each section is capable of accommodating itself to either an elevation or depression of the shelf or table. Hence the various sections work at all times in contact with the different portions of the shelf or table, and separation of a guard-strip from the shelf or table at a depression of the latter is prevented.

Preferably, as in the case of the different embodiments of the invention which are shown in the drawings, each section is composed of a bar or plate carrying a strip of suitable flexible wiping material. The said strip may be composed of fiber (so-called) or of asbestos, or of a combination of suitable character preferably of material of the nature of brake-lining. In Figs. 2, 3 and 4, *a*, *a*, are the bars or plates of wiper-sections of one construction, and *b*, *b*, are flexible strips attached to the vertical faces of said bars or plates and projecting below the latter so as to present the lower edges of the flexible strips for action against the underlying shelf. The wiper-sections are caused to make yielding contact with the platform surface with which they coact, either by utilizing gravity, or gravity aided by springs. In Figs. 2, 3 and 4, *c*, *c*, are expanding coil-springs that are interposed between a bar or strip *a* and the under side of the shelf or table above that with which the wiper-section coacts.

Wiper-devices are located at the forward edge of a shelf or table, for cooperation with the shelf or table next below, and are arranged to be guided in their vertical movements, preferably, by means of the downturned flange 5 of the shelf or table first mentioned, and by coacting devices that are attached to such shelf or table. In Figs. 2, 3 and 4 the coacting devices consist of clips *e* which are adjustably attached by bolts *f* to such shelf or table. One of such clips is shown separately in Figs. 5 and 6. Slots *f'* in the body-portions of the clips *e* permits the clips to be shifted toward and from the said downturned flange 5 as may be required, to fit the wiper-sections. In order to prevent said wiper-sections from falling away from the shelf in connection with which they are mounted, upon occasions when such shelf is out of the drier, as for instance prior to and at the time of assembling the parts of the drier, and whenever in fact the shelves require to be taken out of the drier, the downturned portion of each clip is formed with a projection f^2, Fig. 6, and the ends of the wiper-sections are notched as shown in Fig. 3 to form over-hanging portions *g*, *g*, to fit over the projections of the clips, there being one clip at each end of the series of sections composing a wiper, and also one between every

two sections. The notching of the ends of the sections provides for permitting free play of the wiper-sections up and down to an extent sufficient to permit said sections to cooperate properly with the shelves upon which they rest.

As an alternative construction, the wiper-sections may be mounted upon the shelves in the manner shown in Fig. 9, namely, by means of flat springs *h*, (Figs. 9 and 10) each having a slot *h'* through one end thereof for the colt *f* by which it is attached to the supporting shelf, and having its free end engaged in a pocket *k* in the back of the wiper-section *a*. In the case of this construction, the wiper-sections are kept in contact with the surface of the shelf with which they coact by the tension of the springs *h*; or if desired, may be provided as described above with springs formed of wire of round or other suitable cross-section, and made with or without coils as deemed desirable.

The wiping strip *b* may, if preferred, be applied to the under side of the bar *a*, as shown in Figs. 7 and 8, so as to present the flat face of the strip instead of its edge, for action against the surface with which it coacts.

What is claimed as the invention is:—

1. A drier for loose stock, having a horizontal feeding and supporting platform comprising a plurality of shelves or tables having relative movement, and wiper means comprising a series of wiper-sections combined with an upper shelf, contacting with the top surface of the adjoining underlying shelf, and movable relatively to said upper shelf and also relative to one another whereby they respectively automatically maintain contact with said top surface.

2. In a drier for loose stock, in combination, a series of stationary and movable shelves or tables movable one with respect to the other and each provided along its leading edge with a line of wiper-sections for coaction with the adjoining shelf or table, said wiper-sections movable relative to said leading edge and also independently of one another, automatically remaining in contact with the surface over which said line is traversed and adapted to conform to any irregularities therein.

3. A drier, for loose stock, having a feeding and supporting platform comprising a plurality of fixed and movable shelves or tables, alternated, said shelves or tables each having mounted in connection therewith wiper-means for coaction with the next adjoining shelf or table, such wiper-means comprising an alined series of wiper-sections having wiping surfaces of flexible material, springs which press the wiper-sections into contact with the surface which they wipe, and clips applied to a shelf or table, retaining the corresponding wiper-sections in working connection therewith, and preventing accidental disconnection of the wiper-sections from the shelf or table when the latter is disassembled.

4. A drier, for loose stock, having a feeding and supporting platform comprising a plurality of relatively movable shelves or tables, respectively having a flange, an alined series of wiper-sections combined with each shelf or table, guided by its flange, coacting with the surface of the next adjoining shelf or table, movable relative to one another and to the first mentioned shelf or table and thereby automatically remaining in contact with such surface, and means retaining the wiper-sections in working relations with said flange and preventing disconnection from the shelf or table.

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

MATHEW F. KEVLIN.

Witnesses:
NATHAN B. DAY,
CHAS. F. RANDALL.