B. D. COURTS.

APPARATUS FOR SEVERING OR SEPARATING SHEETS OF MATERIAL.

APPLICATION FILED JUNE 3, 1909.

1,022,930. Patented Apr. 9, 1912.

Fig. 1.

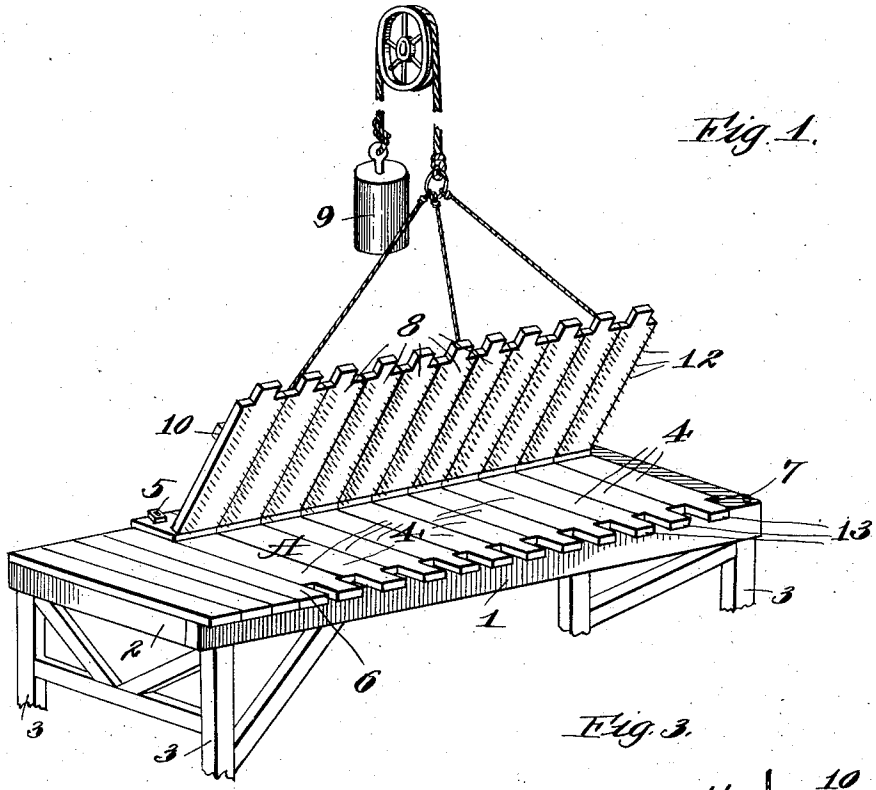
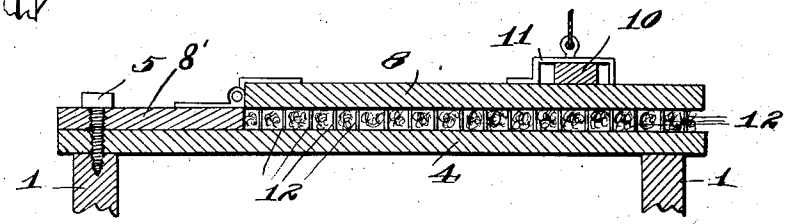


Fig. 3.



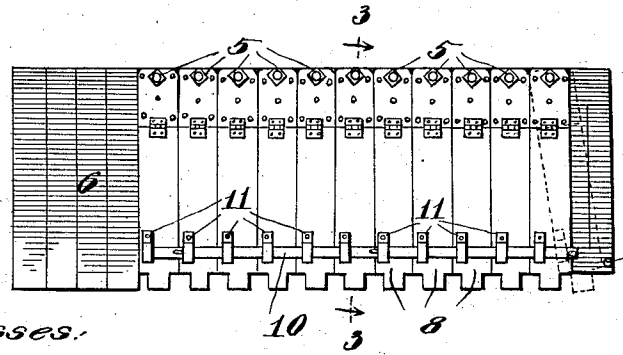


Fig. 2

A

Witnesses:

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UNITED STATES PATENT OFFICE.

BENJAMIN D. COURTS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO DIXIE COTTON FELT MATTRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

APPARATUS FOR SEVERING OR SEPARATING SHEETS OF MATERIAL.

1,022,930. Specification of Letters Patent. Patented Apr. 9, 1912.

Application filed June 3, 1909. Serial No. 499,953.

To all whom it may concern:

Be it known that I, BENJAMIN D. COURTS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Severing or Separating Sheets of Material, of which the following is a specification.

This invention relates to apparatus for severing or separating sheets of material, particularly bats of fibrous material, into strips or sections.

The primary object of the invention is to provide a simple and effective apparatus for this purpose, whereby such sheets of material may be thus severed or separated into strips or sections rapidly and at very slight expense.

A specific application of an apparatus embodying my invention, contemplated by me, is for severing or separating bats of cotton and the like into strips or sections in forming "felt" for use in filling mattresses of the type comprising a plurality of compartments, in accordance with a process of filling such mattresses invented by me, as fully set forth and described in an application for U. S. Letters Patent therefor filed by me on June 3, 1909, and numbered serially 499,952. Obviously, however, my improved apparatus admits of a wide range of application and in specifying this particular use, I desire it to be understood that I do not thereby limit myself to such use.

To effect the objects of my invention, my improved apparatus consists of the various features, combinations of features and details of construction hereinafter described and claimed.

In the accompanying drawing, in which my invention is fully illustrated—Figure 1 is a perspective view of my improved apparatus. Fig. 2 is a top plan view thereof; and Fig. 3 is an enlarged sectional view thereof, taken substantially on the line 3—3 of Fig. 2, showing a bat or sheet of material in the apparatus, so as to be separated into sections thereby.

My improved apparatus comprises a suitable table, indicated as a whole by A, said table being mounted on a suitable frame consisting, as shown, of connected longitudinal and transverse frame members 1 and 2 supported on legs 3 of proper length to bring the top of the table A into convenient position for handling material resting thereon and for maintaining the movable parts of the apparatus.

The table A comprises a plurality of separate leaves or sections 4 supported on the frame of the apparatus so as to be movable relatively to each other. As shown, said leaves or sections 4 are pivoted, as by lag screws 5, at their rear ends to the rear longitudinal frame member 1, so that their front ends will be freely movable laterally in the plane of said table.

Pivotal movement of the leaves or sections 4 is preferably limited by means of suitable stops which define their closed and separated positions, respectively. As shown, pivotal movement in a direction to close said leaves or sections, is limited by means of a fixed extension 6 of the table A, which forms a convenient support for a roll of material while an unwound section thereof is being separated into strips by the operator, as presently described, and pivotal movement of said leaves or sections to effect separation thereof is limited by means of a stop 7 on the front frame member 1.

Overlying each of the leaves or sections 4 of the table A is a pressure plate 8, said pressure plates being supported in such manner that they will be movable toward and from the table leaves or sections 4 so that they may be lowered into contact therewith or raised above the same so as to expose the surface thereof and so, also, that they will be movable with the table leaves or sections 4 which they respectively overlie. In the preferable construction shown, said pressure plates 8 are hinged at their rear ends, one to each table leaf or section 4, preferably at a distance in front of the pivots of said leaves or sections to insure desired bodily movement of said pressure plates with the table leaves or sections to which they are secured relatively to the adjacent pressure plates and leaves to effect separation of the bat or layer of material into strips, as presently described. As shown, said pressure plates 8 are hinged directly to raised portions 8^1 of the table leaves or sections 4, formed, as shown, by separate plates or pieces nailed or otherwise rigidly secured to the rear ends of said table leaves or sections.

For convenience, the pressure plates 8

are connected to each other to provide for raising and lowering the same together and as a single operation, said pressure plates being preferably counterbalanced, as by a counterweight 9 applied thereto, adapted for supporting the same in any desired pivotal position or adjustment. As shown, said pressure plates 8 are all connected to a bar 10 by means of suitable guide loops 11 on said pressure plates through which said bar 10 extends, said bar being loosely fitted to said guide loops to provide for desired pivotal movement of said pressure plates with the table sections 4. As shown, the counterweight 9 is applied directly to said bar 10 by means of a cord which passes over an intermediate sheave, thus providing for the use of a single counterweight for all of said pressure plates.

Projecting from the under sides of the pressure plates 8 adjacent to the lateral edges thereof are series of teeth 12, which are adapted to penetrate a sheet of material on the table A when said pressure plates 8 are depressed into contact therewith.

The table leaves or sections 4 and the pressure plates 8 are preferably made of wood, and the teeth 12 may be conveniently formed by pins or brads driven through the pressure plates A so as to project a desired distance at the under side thereof. Other forms of teeth may, however, be used, and I do not, therefore desire to limit myself to the specific form of pin teeth shown.

The length of the teeth 12 is proportioned to the thickness of the sheet of material on which the apparatus is designed to operate, and, where the material to be separated is loose and elastic, as, for example, a bat of cotton, said teeth will preferably be of such length that, before they penetrate through the material and come into contact with the surface of the table A, the material will be subjected to a considerable pressure by the depression of the pressure plates 8 which, in connection with said pins 12, will operate to confine the sections of material between the different table leaves or sections 4 and their respective pressure plates 8, whereby movement of said table leaves or sections and said pressure plates relatively to adjacent leaves or sections and pressure plates will operate to tear or sever said sheet of material on the lines between such adjacent table leaves or sections.

To provide for conveniently manipulating the table leaves or sections 4 and the pressure plates 8, they are preferably provided at their front ends with suitable handles. As shown, said handles are formed by reduced portions 13 at the front ends thereof.

My improved apparatus may be made of almost any desired length, while the operative width thereof will preferably be equal to the width of the widest sheet upon which the apparatus is designed to operate. Thus, for separating bats of cotton to form cotton felt for filling mattresses, the operative width of the table A will preferably be slightly wider than the width of the widest mattress which it is desired to make. For making standard mattresses, a desirable width is about 5½ feet. In severing or separating bats of cotton, also, I have found that a complete severance of the bat may be effected by pivoting the pressure plates 8 to the table leaves or sections 4 at substantially 1½ feet from the pivots of said table leaves or sections. In like manner, the table leaves are sections 4 and the pressure plates 8 are made of widths corresponding to the widths of the sections of material which it is desired to form. In forming felt for cotton mattresses, a desirable width for said table leaves and pressure plates is about 9 inches.

The process of using my improved apparatus is as follows:—The table leaves or sections 4 are first moved into closed position, as best shown in full lines in Fig. 2; the pressure plates 8 are then swung upwardly into the position shown in Fig. 1; the sheet of material to be severed, as a bat of cotton, is then laid flatwise upon the surface of the table A; the pressure plates are then swung downwardly to cause the pins 12 to penetrate said sheet of material, the relation being preferably such, also, that said sheet of material will be subjected to pressure. Beginning with the table leaf or section 4 at the end of the apparatus farthest from the fixed section 6 thereof, said table leaves or sections, with the pressure plates 8 attached thereto, respectively, are moved pivotally in succession substantially into the position shown in dotted lines in Fig. 2, which will operate to tear or sever the sheet of material between said table leaves or sections into strips, which will be confined between said table leaves or sections and their respective pressure plates. The pressure plates 8 are then again raised, and the severed sections of material removed from the table. This completes the operation, which may be repeated indefinitely.

Where the material to be severed is in the form of rolls, as is usually the case, said material is unwound in such manner that, while severing the portion thereof which has been unwound, said roll will rest upon the fixed section 6 of the table A.

I claim:—

1. In an apparatus for severing or separating sheets of material into strips or sections, the combination of a table comprising leaves or sections movable relatively to each other, pressure plates which overlie the different sections of the table and are movable therewith, and which are also movable to-

ward and from said table, and means adjacent to the lateral edges of said table sections and pressure plates adapted for engaging a bat or layer of material confined between the same, substantially as described.

2. In an apparatus for severing or separating sheets of material into strips or sections, the combination of a table comprising leaves or sections movable relatively to each other, pressure plates which overlie the different sections of the table and are movable therewith, and which are also movable toward and from said table, and means adjacent to the lateral edges of said table sections and pressure plates comprising teeth in one thereof adapted for engaging a bat or layer of material confined between said table sections and said pressure plates, substantially as described.

3. In an apparatus for severing or separating sheets of material into strips or sections, the combination of a table comprising leaves or sections movable relatively to each other, pressure plates which overlie the different sections of the table and are movable therewith, and which are also movable toward and from said table, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

4. In an apparatus for severing or separating sheets of material into strips or sections, the combination of a table comprising leaves or sections pivoted at their rear ends so that their front ends will be movable laterally in the plane of the table, pressure plates hinged to said table leaves or sections at their rear ends, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

5. In an apparatus for severing or separating sheets of material into strips or sections, the combination of a table comprising leaves or sections pivoted at their rear ends so that their front ends will be movable laterally in the plane of the table, pressure plates the rear ends of which are hinged to said table leaves or sections at a distance from their pivotal points, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

6. In an apparatus for severing or separating sheets or strips of material into sections, the combination of a table comprising leaves or sections pivoted at their rear ends so that their front ends will be movable laterally in the plane of said table, pressure plates the rear ends of which are hinged to said table leaves or sections, respectively, a counterbalance for said pressure plates, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

7. In an apparatus for severing or separating sheets or strips of material into sections, the combination of a table comprising leaves or sections pivoted at their rear ends so that their front ends will be movable laterally in the plane of said table, pressure plates the rear ends of which are hinged to said table leaves or sections, respectively, connection between said pressure plates, whereby they may be raised and lowered simultaneously, a counterbalance for said pressure plates, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

8. In an apparatus for severing or separating sheets or strips of material into sections, the combination of a table comprising leaves or sections pivoted at their rear ends so that their front ends will be movable laterally in the plane of said table, pressure plates hinged to said table leaves or sections, respectively, means for connecting said pressure plates so that they may be raised and lowered simultaneously, said connecting means comprising guide loops on said pressure plates and a bar which extends loosely through said guide loops, and series of teeth which project from the under sides of said pressure plates adjacent to their lateral edges, substantially as described.

In testimony, that I claim the foregoing as my invention, I affix my signature in presence of two subscribing witnesses, this 29th day of May, A. D. 1909.

BENJAMIN D. COURTS.

Witnesses:
K. A. COSTELLO,
W. H. JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."