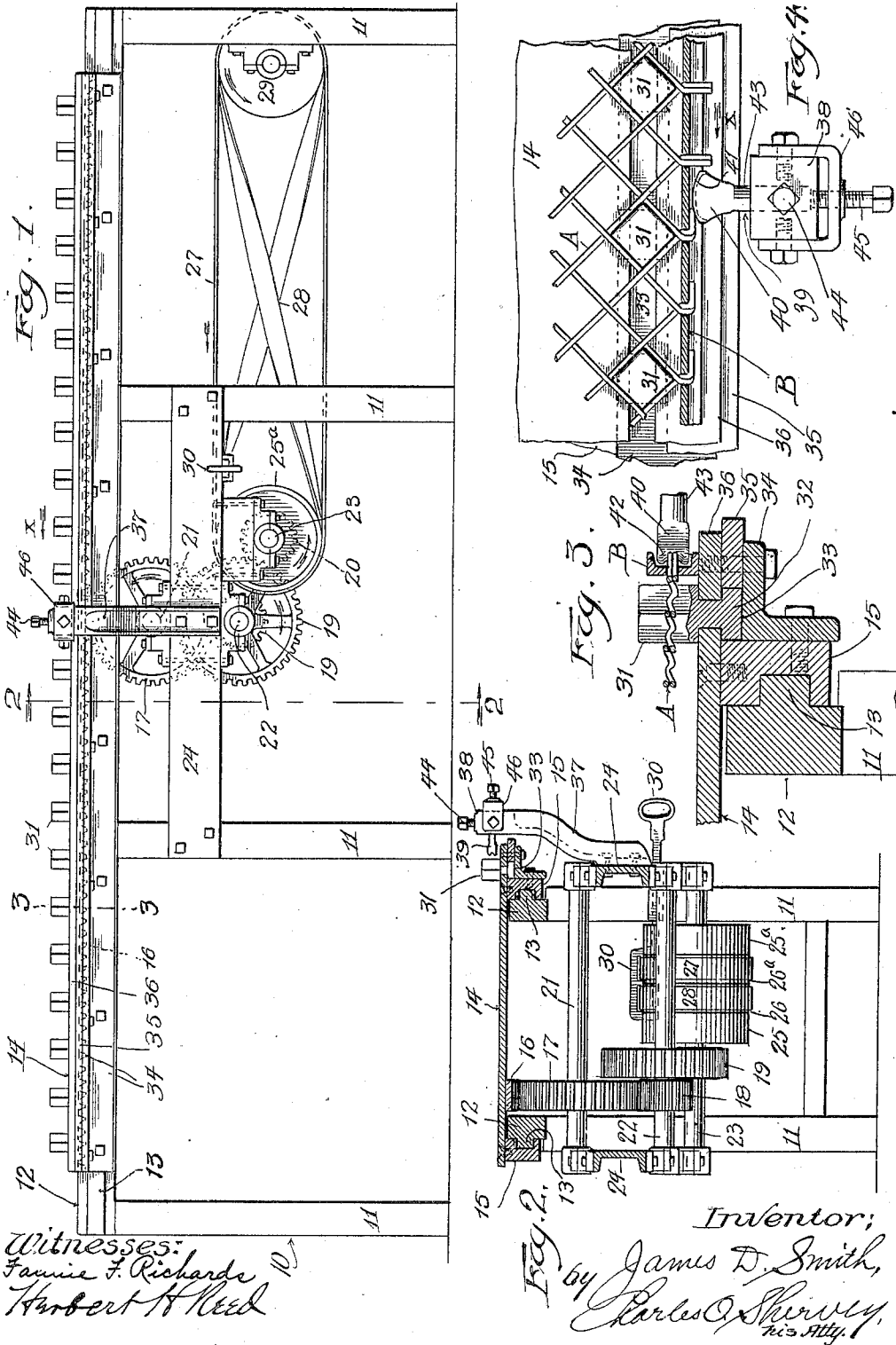


J. D. SMITH.
 CLENCHING MACHINE.
 APPLICATION FILED MAR. 25, 1912.

1,051,284.

. Patented Jan. 21, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES D. SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO FRANKLIN P. SMITH, OF CHICAGO, ILLINOIS.

CLENCHING-MACHINE.

1,051,284.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed March 25, 1912. Serial No. 686,072.

To all whom it may concern:

Be it known that I, JAMES D. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Clenching-Machines, of which the following is a specification.

This invention relates to machines adapted for use in clenching the wires or rods of metal fabric upon its frame or other member in which it is secured.

In gratings, grilles, window guards and like articles, the woven metal fabric—that is, fabric comprising angularly disposed wires or rods interlaced together—is usually confined in a frame or binder secured to its edges, the ends of the wires, comprising the fabric, projecting through holes in the frame and being bent back on the outer face of the frame to clench and securely fasten the fabric and frame together into one solid unit. In the ordinary manufacture of such articles the fabric is first woven, then cut to the desired shape, after which the ends of the wire, forming the edges thereof, are thrust through holes in the marginal frame and bent over by hand; that is, the workman hammers the ends of the wires back against the outer faces of the frame. This task is exceedingly irksome and laborious and requires considerable time for its operation as each protruding wire must be clenching down to obtain the best results. With a machine embodying the present invention, I am able to clench down all of the protruding wires on any side of the fabric with one operation of the machine, thus facilitating the work and making it possible to form a more perfect and secure connection and as a result, a more substantial panel.

One of the principal objects of this invention is to eliminate the irksome and laborious operation heretofore found necessary in clenching or fastening the metal fabric to its frame, to effect a more uniform and secure clenching together of the parts and to greatly cheapen the cost of manufacture of articles of this kind.

Another object is the provision of means whereby fabrics of different mesh may be operated upon by one and the same machine, said means being capable of instant adjustment to accommodate the machine to fabrics of different mesh.

Other objects and advantages will be found in the course of this specification, and with all of said objects and advantages in view, this invention consists in the several novel features hereinafter set forth and particularly defined in the claims.

The invention is clearly illustrated in the drawing furnished herewith, in which—

Figure 1 is a front elevation of a machine embodying one form of the present invention, Fig. 2 is a vertical, transverse section taken on the line 2—2 of Fig. 1, Fig. 3 is a detail, vertical, transverse section taken on the line 3—3 of Fig. 1 and Fig. 4 is a fragmental plan of the machine showing a fragment of metal fabric and its frame in position upon the machine.

The drawing shows a simple form of the invention chosen to illustrate its application, and in the form illustrated, the machine has a frame-like support 10, comprising legs 11, and a pair of longitudinally extending rails 12, supported upon the upper ends of said legs. The rails 12, may be formed with laterally projecting ribs 13, for receiving guide bars of the fabric supporting table as will be hereinafter set forth. Resting upon said support 10, is a table 14, either stationarily supported upon said support, or as shown, slidably mounted thereon by means of guide bars 15, secured to the under side of the table 14, and having grooves into which project the ribs 13, of the rails 12. It is obvious that the table, thus described, may be reciprocated upon its support, and driving means are shown for accomplishing such reciprocatory movements. In the simple form of driving means illustrated, a rack bar 16, is employed, said rack bar being secured to the under side of the table and meshing with a gear wheel 17, of a train of gears 17, 18, 19, 20, carried by shafts 21, 22, 23, respectively, said shafts being journaled in bearing boxes here shown as mounted upon bars 24, secured to the intermediate legs 11, of the support 10. Tight and loose pulleys 25, 26, 26^a, 25^a, are mounted upon the shaft 23, the pulleys 25, 25^a, being the tight ones and the pulleys 26, 26^a, the loose ones. Belts 27, 28, are trained over said pulleys and run to a suitably driven pulley 29, one of said belts being a twisted belt for reversing the direction of movement of the train of gears, and the table. A simple

form of belt shifter 30, is carried by the support 10, and furnishes means for shifting the belts from the loose pulleys onto the tight pulleys. By shifting the belt 27, upon the tight pulley 25^a, the table is moved in the direction of the arrow X and by shifting the twisted belt 28, upon the tight pulley 25, the direction of rotation of the gears is reversed so that the table is moved in the opposite direction.

A series of fabric holding devices are carried by the table 14, and as here shown, comprise blocks 31, extending up from the base of the table, each block having a foot 32, slidably mounted in an overhung groove 33, that extends longitudinally of the table near its front edge, whereby the blocks may be slid from one end to the other of the groove to change their location therein. In plan said blocks are preferably of square or diamond shape and made to conform to and loosely fit in the interstices of the metal fabric as shown in Fig. 4. A simple and practical expedient for providing the overhung groove of the table, is shown in the drawing and comprises a longitudinally extending angle iron 34, and two longitudinally extending bars 35, 36, arranged above the same and spaced away from the front edge of the main plate of the table 14, and adjacent guide rail 15, as more clearly indicated in Fig. 3. These parts are bolted or otherwise rigidly secured together as shown.

Associated with the table is a tool post 37, which may be either stationary or movable longitudinally of the table, here being shown as stationarily secured to the support 10, and projecting up in front of the table 14, where it is provided with a head 38, arranged to receive a clenching or wire bending tool 39, whose function is to clench or bend back the ends of the wires against which it strikes. The tool is shown as formed with a head 40, and having an outwardly bowed working face 41, preferably grooved as shown at 42, in Fig. 3. Back of the head 40, the tool is formed with a shank 43, which rests in a socket in the head 38, and is secured in place by set screws 44, 45. The set screw 44, is threaded in the head of the post and bears down upon the shank or stem 43, of the tool, whereas the set screw 45, is threaded in a yoke 46, secured to the head 38, and bears against the end of the tool. This simple expedient forms a very efficient one for rigidly holding the tool in place in the head 38.

In the use of this machine, a panel of metal fabric A, is first woven, after which the bars B, of its frame, are placed upon the edges thereof with the wires at said edges thrust outward through holes in the bars. The panel is then laid upon the table 14, with the fabric holding blocks 31, in place in certain of the interstices of the

fabric, as clearly indicated in Fig. 4, the tool having been adjusted in position where the outer face of the bar passes said tool in close proximity thereto. The table may be moved from its central position (see Fig. 1) to a position either to the right or to the left thereof to accommodate a long panel, so that when one belt is shifted to start the machine and thereby move the table, and the fabric thereon, past the tool, the latter engages the protruding wires and clenches or bends them back against the outer face of the binder frame B, as clearly seen in Fig. 4. After one edge of the panel has been run past the tool and the ends of the wire clenched down, the panel is turned over, bringing the other edge into position to be acted upon by the tool, after which the ends of the panel may be clenched down as heretofore set forth.

It is obvious that the work of clenching down the wires may be done very quickly with a machine embodying the invention set forth herein, and that a more uniform clenching of the wires may be had and consequently a more perfect, rigid connection afforded between the fabric and frame.

I realize the various alterations and modifications of this device are possible without departing from the spirit of my invention, and I do not therefore desire to limit myself to the exact form of construction shown and described.

I claim as new and desire to secure by Letters Patent:

1. A machine of the character described, in which is combined a table support, a metal fabric receiving table slidably mounted thereon, table moving means, a stationary tool post located adjacent to one edge of said table and carried by said support, and a clenching tool held by said tool post in position to engage the fabric.

2. A machine of the character described, in which is combined a support, a table, movable longitudinally of said support, table moving means, a stationarily supported tool post located adjacent to one edge of said table and carried by said support, a clenching tool slidably mounted in said tool post, and means for securing said tool in fixed position in said post.

3. A machine of the character described, in which is combined a table support, a table, slidably mounted on said support, fabric holding means on said table, a stationary tool post carried by said support, and a clenching tool held by said post in position to act on an edge of metal fabric panel held on said table.

4. A machine of the character described, in which is combined a table support, a table, slidably mounted thereon and having a longitudinally extending groove adjacent to one edge, a series of blocks secured in said groove

and adapted to hold in fixed position a metal fabric panel to be operated on, a tool post carried by said support, and a clenching tool held by said post in position adjacent to an edge of said metal fabric.

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5. A machine of the character described, in which is combined a pair of rails, supports therefor, a table having a pair of slide bars running on said rails, said table having an overhung groove located adjacent one edge thereof, a series of blocks, each having a foot slidably secured in said groove, a tool post carried by said support, and a clenching tool held by said tool post in position to engage and bend back the edge wires of the metal fabric carried by said table.

6. A machine of the character described, in which is combined a pair of rails, supports therefor, a table having an overhung groove located adjacent one edge thereof, a series of blocks, each having a foot slidably secured in said groove, a tool post carried by

said support, and a clenching tool adjustably mounted in said tool post in position to engage and bend back the edge wires of the metal fabric carried by said table.

7. In a machine of the character described, in which is combined a support, a table slidably mounted thereon and adapted to receive and hold a panel of metal fabric, a rack bar carried by said table, a train of power driven gears, one of which meshes with said rack bar, a tool post carried by said support, and a clenching tool held by said tool post in position to engage the wires at the edge of the panel.

In witness whereof, I have hereunto signed my name at Chicago, Cook county, Illinois, this 19th day of March, 1912.

JAMES D. SMITH.

Witnesses:

EDWARD McCLURE,
FRANKLIN P. SMITH.

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