

(No Model.)

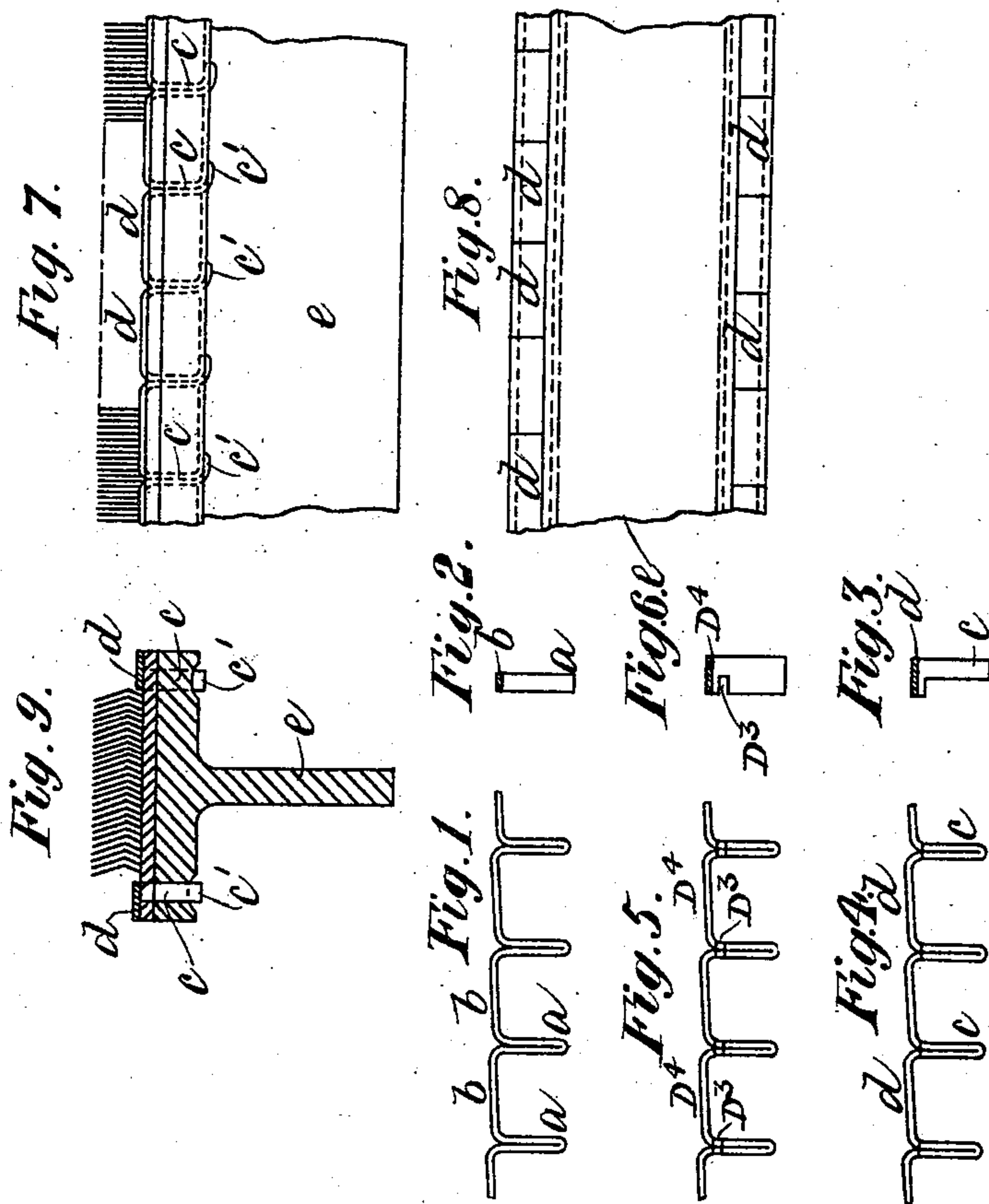
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STAPLE FOR SECURING CARD CLOTHING TO FLATS OF CARDING ENGINES.

No. 552,284.

Patented Dec. 31, 1895.



Witnesses:-  
George Barry.  
Robert Macdonald.

Inventors:-  
William Greaves  
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# UNITED STATES PATENT OFFICE.

WILLIAM GREAVES AND JOSEPH WARDLE, OF OLDHAM, ENGLAND; CHAS. L. STURTEVANT ADMINISTRATOR OF SAID GREAVES, DECEASED; SAID STURTEVANT ASSIGNOR TO THE PLATT BROTHERS & COMPANY, LIMITED, OF SAME PLACE.

## STAPLE FOR SECURING CARD-CLOTHING TO FLATS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 552,284, dated December 31, 1895.

Application filed October 31, 1892. Serial No. 450,492. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM GREAVES, foreman, and JOSEPH WARDLE, machinist, of Hartford Old Works, Oldham, in the county of Lancaster, England, have invented certain new and useful Improvements in Conjoined Staples for Securing Card-Clothing to the Flats of Carding-Engines, of which the following is a specification.

Our invention consists in improvements in conjoined staples for securing the "tops" or "cards" to the metal flats used or employed in carding-engines.

In the accompanying drawings, Figure 1 is a side view, and Fig. 2 an end view, of a portion of a continuity of conjoined staples as hitherto employed for securing the tops or cards to the metal flats used or employed in carding-engines. Fig. 3 is an end view, and Fig. 4 a side view, of a portion of a continuity of conjoined staples made according to our invention; and Fig. 5 is a side view, and Fig. 6 an end view, of a portion of a continuity of conjoined staples prepared for being operated upon by the machine which we have devised for the application of our invention to conjoined staples, and which forms the subject of Letters Patent No. 515,315, dated February 20, 1894. Fig. 7 is a side view, Fig. 8 a plan, and Fig. 9 a cross-section, illustrating the manner in which lengths of a continuity of conjoined staples made according to our invention are employed to secure the cards or tops to metal flats.

The conjoined staples hitherto in use for securing cards or tops to metal flats and illustrated in Figs. 1 and 2 of the accompanying drawings are formed of bent flat wire, and the double flat prongs or legs *a* of such conjoined staples are of the same width as the parts *b*, by which one double prong or leg *a* is connected to the next. It follows, therefore, that when conjoined staples of the form above described, and illustrated in Figs. 1 and 2, are used to secure the top or card to a metal flat by being inserted and clinched in holes formed through the said metal flat, portions of the foundation or back of the top or card project beyond the conjoined staples, and al-

though the top or card is securely held to the metal body of the flat the edges of the foundation or back of such top or card are not held close to the metal body of the flat and are liable to be chafed or roughened while the flat is in use.

Our invention consists in an improvement by which the objections or defects above described are remedied by the conjoined staples being made to hold the edges of the foundation or back of the tops or cards close to the edges of the metal bodies of the flats to which they are applied, while at the same time the prongs of the conjoined staples are passed through holes in the metal bodies of the flats in such manner that the tops or cards will be securely held upon the flats.

According to our invention we employ for securing tops or cards to metal flats used in carding-engines flat metal wire bent and folded at intervals into the form of a continuity of conjoined staples of a form which is an improvement upon that illustrated in Figs. 1 and 2 of the accompanying drawings, and in so doing we employ a metal wire rolled of such width that when bent into the form of a series of conjoined staples (the double prongs being reduced as hereinafter described) and inserted in the usual way in order to secure the tops or cards to the metal flats one of the edges of each of the series of conjoined staples inserted into each flat will be level or flush or in the same plane with the adjacent planed edge of such flat. In order that the legs or prongs of the conjoined staples may be inserted into the holes formed in the flats we reduce the width of such legs or prongs by removing portions from the said legs or prongs in the manner indicated in Figs. 3 and 4 of the accompanying drawings, which show that the legs or prongs *c* of the conjoined staples are of less width than the parts *d*, by which one leg or prong *c* is connected to the next. In Figs. 7, 8, and 9, which illustrate the manner in which lengths of a continuity of conjoined staples made according to our invention are employed to secure the cards or tops, it is shown that while the legs or prongs *c* of the continuity of conjoined staples are suffi-



ciently narrow to be passed through holes formed in the foundation or back of the card or top to be applied to a metal flat and in the metal flat itself and clinched at their ends *c'*, so as to be securely retained in the holes formed in the metal flat *e*, the wider parts *d*, connecting the legs or prongs *c* of the continuity of conjoined staples, extend so far as to be level with, flush with, or in the same plane as the adjacent planed edge of the metal body of the flat. Thus when the superfluous parts of the foundation or back of the card or top have been cut away in the usual manner such foundation or back will nowhere project beyond the continuity of conjoined staples at either edge of the flat, and, as is indicated in Fig. 8, the wider parts *d*, which connect the legs or prongs *c* of the continuity of conjoined staples to one another, will present a practically continuous strip of metal along each edge of the flat, so as to preserve the edges of the foundation or back of the top or card from being chafed or roughened while the flat is in use and cause the flat to present clean and neat edges.

In Figs. 5 and 6 of the accompanying drawings a portion of a continuity of conjoined staples made of a strip of flat wire of uniform width throughout its whole length is shown as formed with a nick or groove *D*<sup>3</sup> formed in each prong or leg, which may be accomplished by means of a circular saw or any other suitable device. This is to enable the portion between such nick or groove *D*<sup>3</sup> and the extremity of each prong or leg to be removed, leaving the part *d* between the prongs wider than the prongs themselves, as shown in Fig. 3. This removal may be effected by

any suitable means—as, for instance, by nippers forming part of the machine which is the subject of Letters Patent No. 515,315, hereinbefore mentioned. Although the said machine is specially adapted for operating upon conjoined staples in order that our present invention may be applied thereto such machine is not by any means essential to the purpose of this present invention, as our invention may be applied to conjoined staples by nippers operated by hand or by portions being ground in any suitable way from the sides of the prongs or teeth of such conjoined staples.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination with the cards or tops of carding engines and the flats to which they are secured, of conjoined staples consisting of a strip of flat wire bent and folded at intervals to form a series of double prongs or legs and having the portions intervening between said prongs or legs of greater width than the said prongs or legs themselves, the said double prongs or legs passing through holes in the foundation of the cards or tops and through corresponding holes in the flats and being clinched in the latter holes while the intervening wider portions lie upon the said foundation and project laterally beyond said double prongs or legs, substantially as herein described.

WILLIAM GREAVES.  
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Witnesses:

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