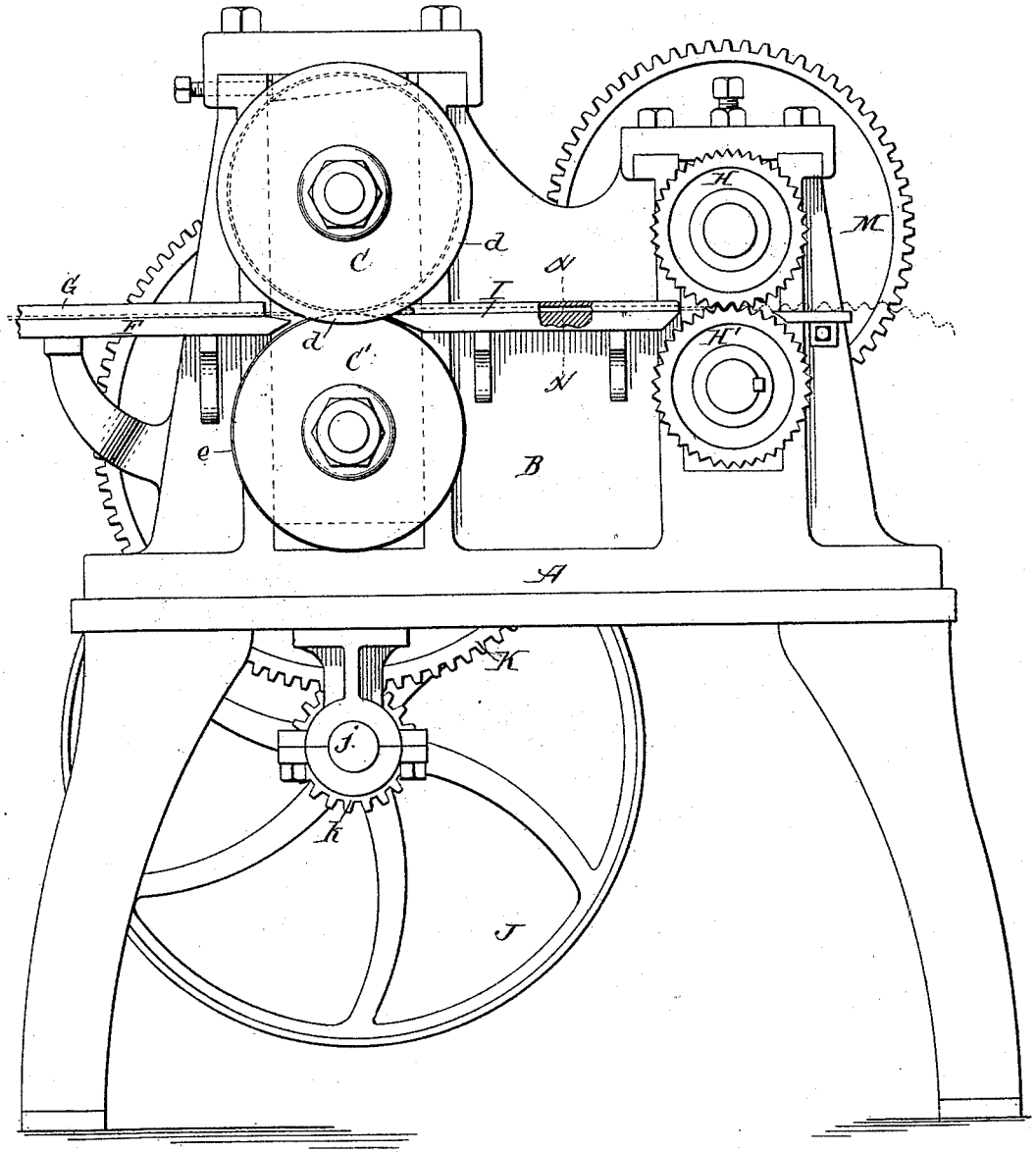
(No Model.) 3 Sheets—Sheet 1.

A. SAMSON.

MACHINE FOR MAKING CORRUGATED NAILS.

No. 419,973. Patented Jan. 21, 1890.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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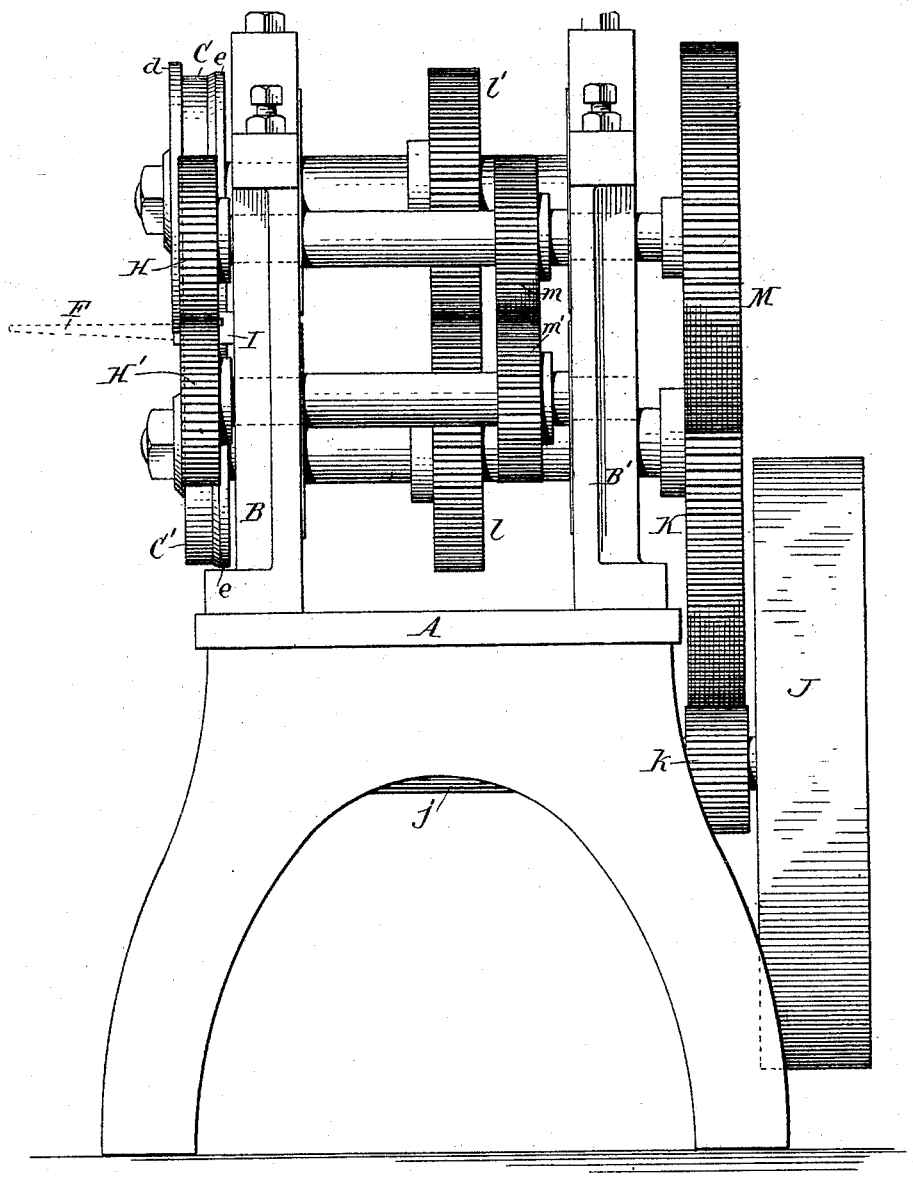
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

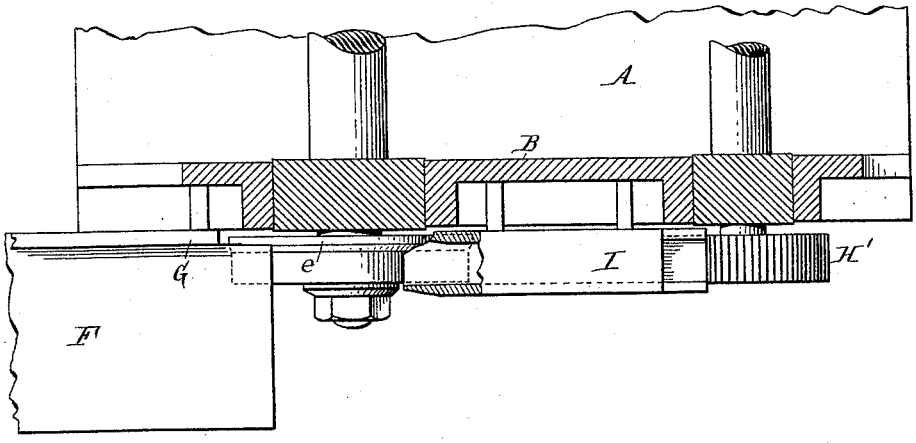


Fig. 4.

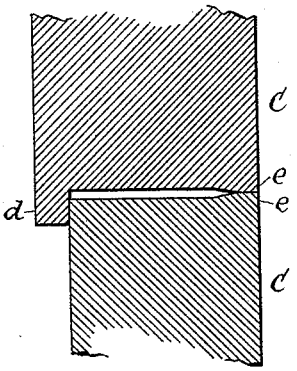


Fig. 5.

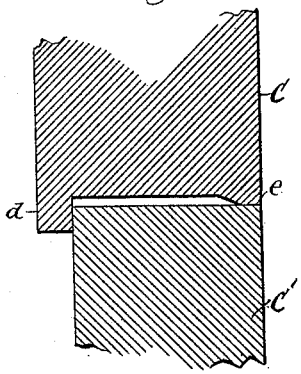


Fig. 6.

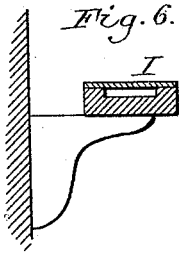
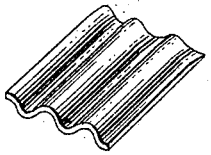


Fig. 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

ADOLPH SAMSON, OF BUFFALO, NEW YORK, ASSIGNOR TO PRATT & LETCHWORTH, OF SAME PLACE.

MACHINE FOR MAKING CORRUGATED NAILS.

SPECIFICATION forming part of Letters Patent No. 419,973, dated January 21, 1890.

Application filed November 2, 1889. Serial No. 329,024. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH SAMSON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Machines for Making Corrugated Nails or Fastenings, of which the following is a specification.

This invention relates to a machine for making corrugated nails or fastenings—such, for instance, as are shown and described in Letters Patent of the United States, No. 396,900, granted to F. W. Starr January 29, 1889. In producing these metallic fastenings a sheet of metal is cut into long narrow strips, and these strips are beveled or sharpened at one edge and corrugated transversely, the strips so constructed being afterward cut into lengths or sections to form fastenings of the desired size.

The object of my invention is to construct a simple machine whereby these fastenings are produced in an expeditious manner, so as to save time and labor and enable the fastenings to be manufactured at small cost.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of my improved machine, partly in section. Fig. 2 is a rear elevation thereof. Fig. 3 is a horizontal section of the machine, the plane of section being between the compressing and corrugating rollers. Fig. 4 is a fragmentary vertical section of the compressing-rollers on an enlarged scale. Fig. 5 is a similar view showing a modified construction of the compressing-rollers. Fig. 6 is a cross-section of the guide between the compressing and corrugating rollers in line x x, Fig. 1. Fig. 7 is a perspective view of the metallic fastening produced by the machine.

Like letters of reference refer to like parts in the several figures.

A represents the bed of the machine, supported upon suitable legs, and B B′ are parallel side frames surmounting the bed and secured thereto.

C C′ represent two horizontal compressing-rollers arranged near the front end of the machine, one above the other, and mounted on shafts journaled in bearings in the side frames B B′. The adjacent faces of these rollers are arranged at a sufficient distance apart to permit of the passage of the metallic strip between the same without compressing the body of the strip, as represented in Figs. 4 and 5. The upper roller is provided at its outer end with a marginal cutting-flange d, which overlaps the adjacent outer end of the lower roller and bears with its inner straight face against the end of the roller, so as to form with the roller a cutter which severs from the sheet of metal fed between the rollers a strip nearly equal in width to the rollers.

Each roller C C′ is formed at its opposite end with a projecting annular compressing rim or flange e, which extends concentrically around the entire circumference of the roller and runs in contact with the rim of the opposing roller. The inner edges of the compressing-rims e are beveled or inclined, as represented in Fig. 4, so as to form a tapering space between the two rims, whereby a corresponding beveled or sharpened edge is formed on the inner longitudinal edge of the metallic strip fed between the rollers. By forming the sharpened edge by compression in this manner the particles of the metal are compacted, and the edge is rendered very strong and durable. The cutting-flange d of the upper roller forms a shoulder or abutment, against which the outer longitudinal edge of the strip of metal bears, and whereby the strip is held against the beveled flanges of the rollers while its inner edge is being compressed.

F represents a horizontal feed-table arranged in front of the compressing-rollers in line with their meeting faces, and upon which the sheet of metal to be cut is placed. The feed-table is supported upon brackets formed on the adjacent side table, as represented in Fig. 1.

G represents a gage arranged at the inner longitudinal edge of the feed-table, against which the inner edge of the sheet of metal is placed, and whereby a strip of the proper width is cut from the sheet.

H H′ represent a pair of horizontal corrugating-rollers arranged in rear of the compressing-rollers C C′, and whereby the strip, after being cut from the sheet and beveled, is corrugated transversely. These corrugating-rollers are provided on their faces with suitable teeth or corrugations, and are mounted on shafts which are journaled in bearings in the side frames of the machine.

I represents a horizontal guide arranged between the compressing-rollers and the corrugating-rollers in line with the meeting faces thereof, and whereby the beveled strip is conducted from the compressing-rollers to the corrugating-rollers. This guide preferably consists of a closed rectangular channel, which is of the proper size to receive the strip. The closed channel keeps the strip flat and straight and prevents buckling or bending thereof in passing from the compressing to the corrugating rollers. The front end of the channel is arranged closely to the meeting faces of the compressing-rollers, and is preferably flared outwardly, as shown in Fig. 3, to facilitate the entrance of the strip into the channel. The guide or channel is supported by brackets formed on the side frame, as shown.

j is a horizontal driving-shaft supported in bearings underneath the bed A and having a driving-pulley J. The shaft of the lower compressing-roller C′ is driven from the driving-shaft *j* by a gear-wheel K, mounted on the shaft of the roller and meshing with a pinion *k*, secured to the driving-shaft. The shaft of the upper compressing-roller is driven from the shaft of the lower roller by spur-wheels *l l′*, mounted on the shafts of the two rollers.

M is a gear-wheel mounted on the shaft of the upper corrugating-roller H and meshing with the wheel K of the lower compressing-roller, and *m m′* are spur-wheels mounted, respectively, on the shafts of the upper and lower corrugating-rollers, whereby the lower corrugating-roller is driven from the upper corrugating-roller.

The sheet of metal from which the metallic fastenings are to be formed is placed against the gage of the feed-table by the attendant and fed between the compressing-rollers C C′. In passing between these rollers a strip is cut from the sheet by the cutting-flange *d*, and the inner edge of the strip is at the same time beveled and sharpened by the beveled compressing-flanges *e* of the rollers.

The end of the sharpened strip as it emerges from between the rollers enters the guide-channel I, and is conducted by the latter to the corrugating-rollers H H′, which corrugate the strip. The sheet of metal is then again placed against the gage and another strip cut therefrom, and so on until the entire sheet has been cut into strips. The strips so beveled and corrugated are then cut transversely into lengths or sections to form fastenings of the desired size. As the beveling-flanges of the compressing-rollers extend entirely around the rollers and are concentric therewith, the strips are operated upon immediately upon entering between the rollers, and are uniformly beveled throughout their entire length. The operations of cutting, beveling, and corrugating the strip are performed rapidly and continuously upon the same machine, whereby a great saving of time and labor is effected.

In the construction represented in Figs. 1 to 4 each compressing-roller is provided with a beveling-flange, so as to bevel the edge of the strip on both sides; but, if desired, only one roller may be provided with such a flange and the other be made smooth, as represented in Fig. 5, so as to bevel the strip on one side only.

I claim as my invention—

1. The combination, with a lower compressing-roller, of an upper compressing-roller provided with a continuous concentric beveling-flange having a beveled inner edge and running in contact with the lower roller and an abutment, whereby the strip of metal fed between the rollers is held against the beveled flange, substantially as set forth.

2. The combination, with a pair of compressing-rollers, each provided with a flange or rim having a beveled inner edge, of an abutment, whereby the strip of metal fed between the rollers is held against said beveled flanges, substantially as set forth.

3. The combination, with a lower compressing-roller, of an upper compressing-roller provided at one end with an annular beveling-flange having an inner beveled edge running in contact with the lower roller and at its opposite end with a cutting-flange overlapping the end of the lower roller and forming a shoulder or abutment, whereby the strip of metal fed between the rollers is held against said beveling-flange, substantially as set forth.

4. The combination, with a lower compressing-roller, of an upper compressing-roller provided with a continuous concentric beveling-flange having a beveled inner edge and running in contact with the lower roller, an abutment, whereby the strip of metal fed between the rollers is held against the beveling-flange, a pair of corrugating-rollers arranged in rear of the compressing-rollers, and a guide, whereby the strip of metal is conducted from the compressing-rollers to the corrugating-rollers, substantially as set forth.

5. The combination, with a lower compressing-roller, of an upper compressing-roller provided at one end with an annular beveling-flange running in contact with the lower roller and at its opposite end with a cutting flange overlapping the end of the lower

roller and forming a shoulder or abutment, whereby the strip of metal fed between the rollers is held against said beveling-flange, a pair of corrugating-rollers arranged in rear of the compressing-rollers and a closed guide or channel arranged between the two pairs of rollers, substantially as set forth.

Witness my hand this 19th day of October, 1889.

ADOLPH SAMSON.

Witnesses:
EDWARD W. KERR,
W. C. HOUCK.