

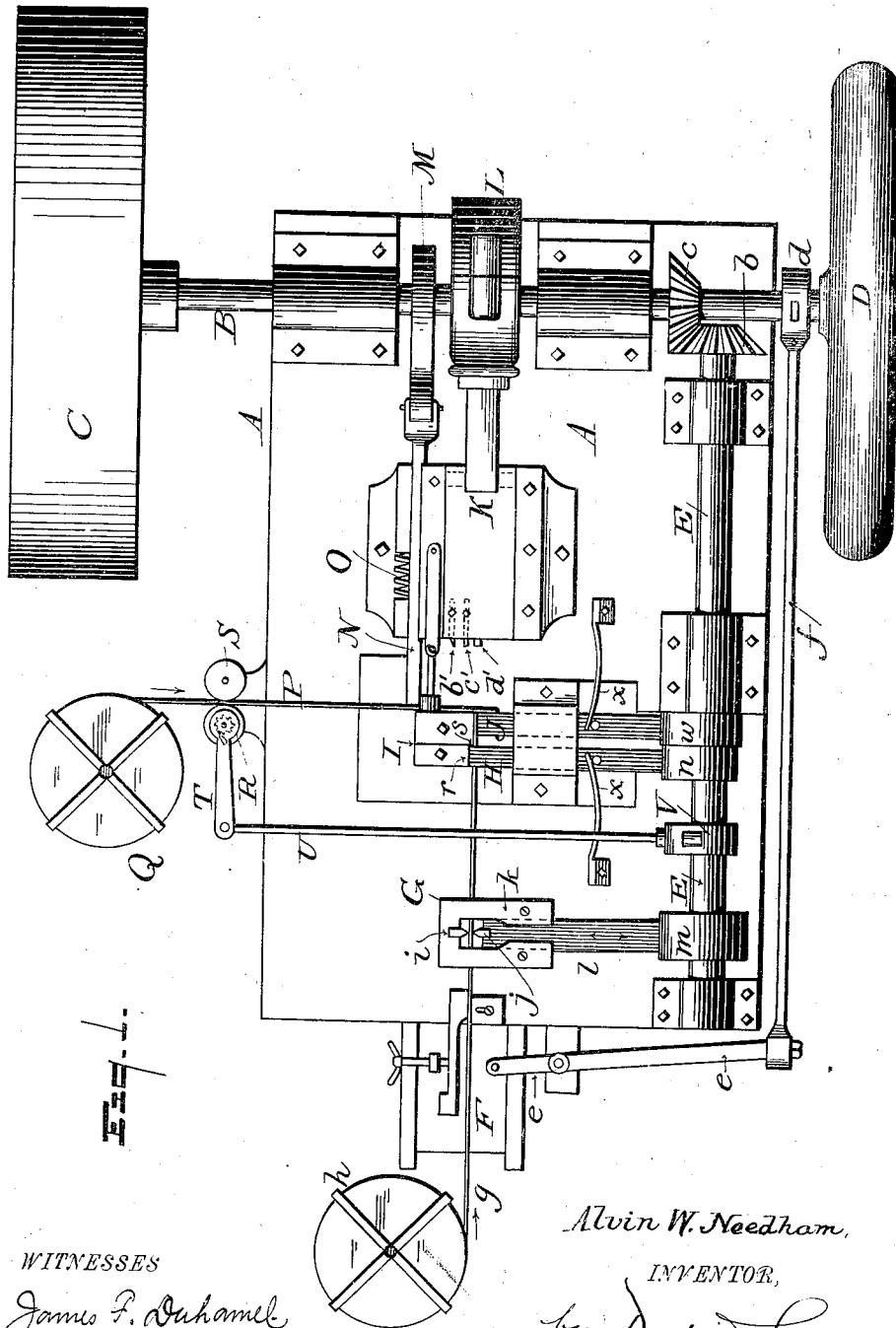
(No Model.)

3 Sheets—Sheet 1.

A. W. NEEDHAM.
MACHINE FOR MAKING CORE SUPPORTS.

No. 506,717.

Patented Oct. 17, 1893.



WITNESSES

James F. Bahamel
Grace A. Dodge.

Alvin W. Needham,

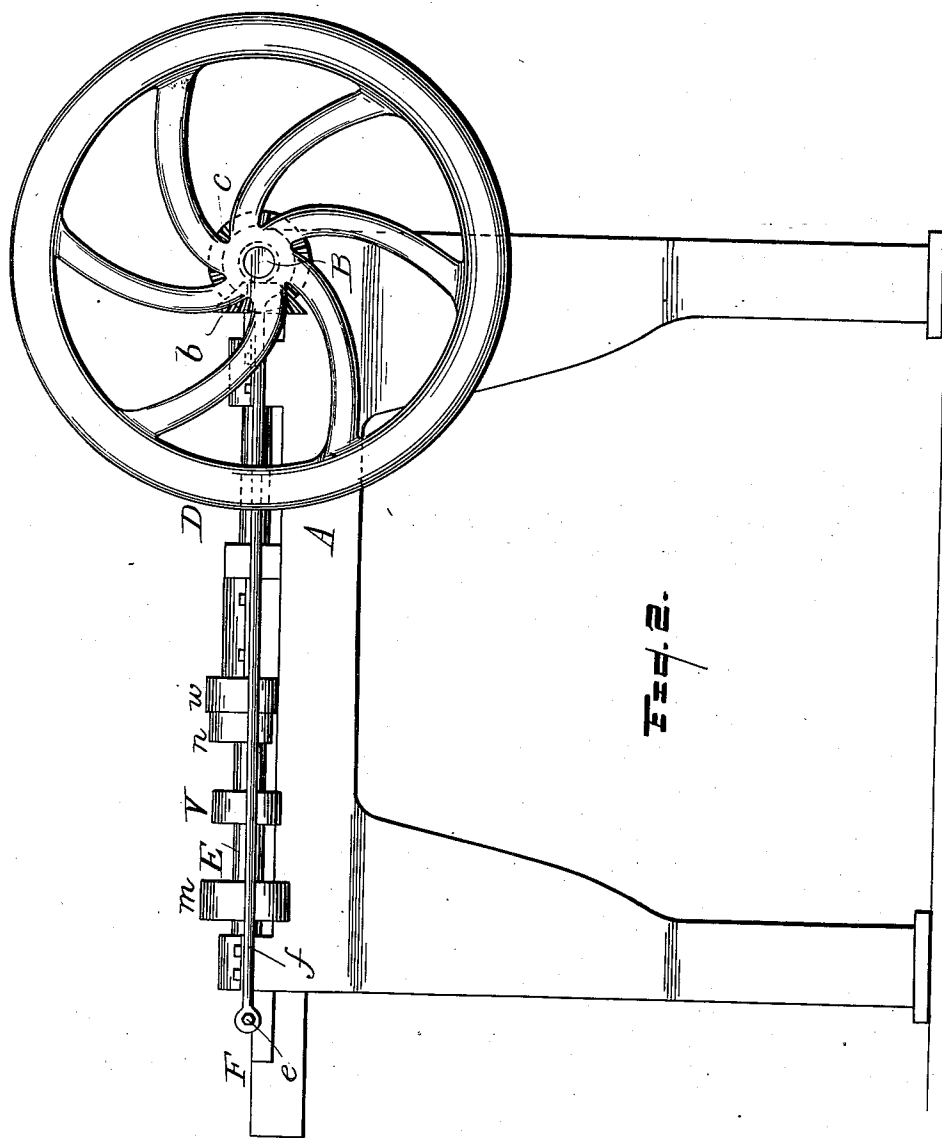
INVENTOR,

by Dodge Sons,
Attys.

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WITNESSES

James F. Duhamel
Horace A. Dodge.

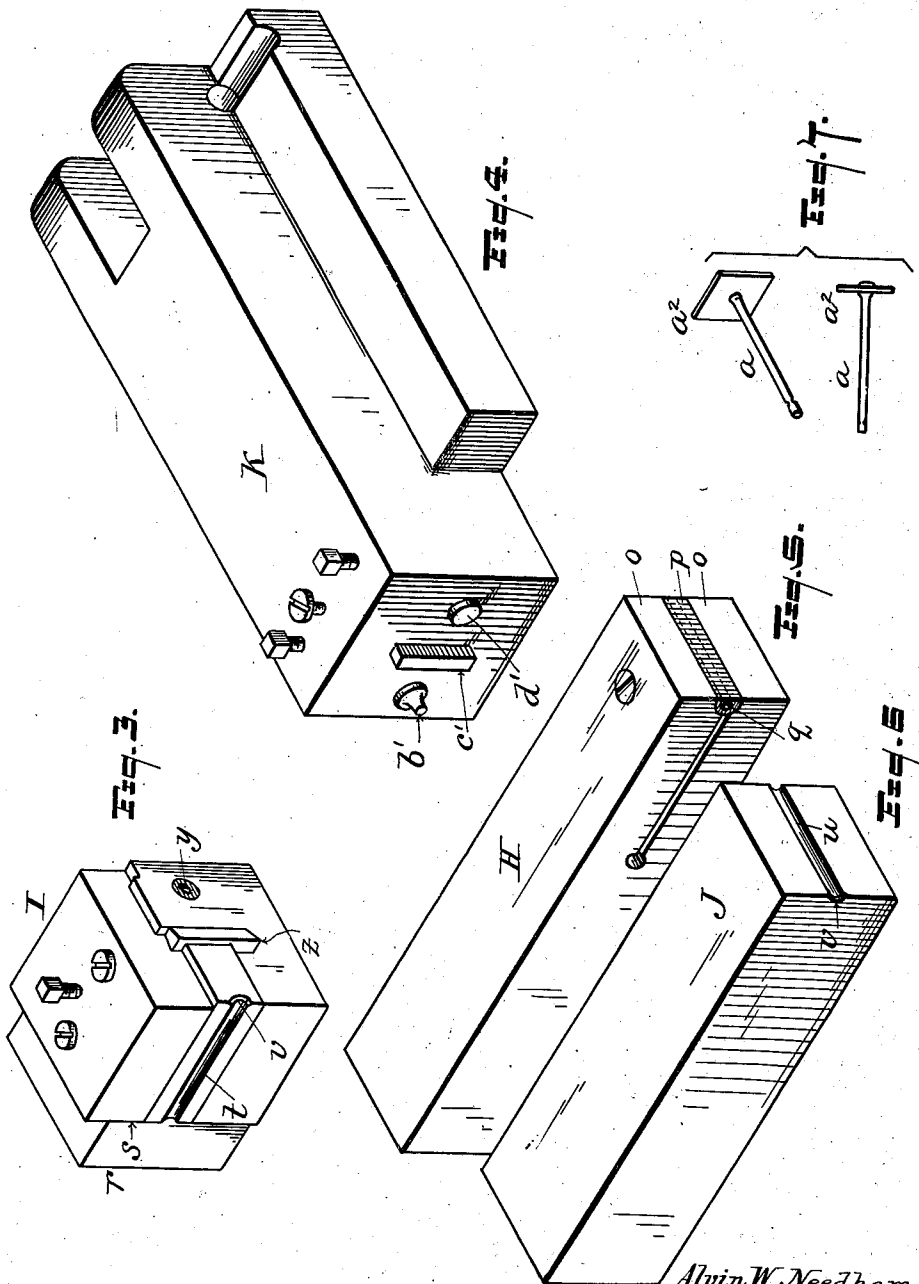
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UNITED STATES PATENT OFFICE.

ALVIN W. NEEDHAM, OF DETROIT, MICHIGAN.

MACHINE FOR MAKING CORE-SUPPORTS.

SPECIFICATION forming part of Letters Patent No. 506,717, dated October 17, 1893.

Application filed December 27, 1892. Serial No. 456,475. (No model.)

To all whom it may concern:

Be it known that I, ALVIN W. NEEDHAM, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Machines for the Manufacture of Core-Supports, of which the following is a specification.

My invention relates to a machine designed for the manufacture of core-supports at one operation. These core-supports, chaplets, or anchors, as they are variously termed, have heretofore been made by machinery, but generally upon two or more machines, each performing one or more distinct operations, and rendering necessary the assemblage of the parts of the chaplet by hand. Under the present construction, the chaplet is made complete at one operation in one machine.

In the drawings,—Figure 1 is a top plan view of a machine embodying in its simplest form the principles of my invention; Fig. 2, a side view of the same; Figs. 3, 4, 5 and 6, views illustrating certain details hereinafter referred to; and Fig. 7, perspective and side views of the chaplet or core support.

The chaplet or core support comprises a stem or shank *a*, nicked at or near one end, and a head or disk *a*² which fits upon the opposite end of the stem; the said stem being headed or upset above and below the disk as shown in Fig. 7.

In Figs. 1 and 2 *A* represents the main frame or bed of the machine, on one end of which is mounted a shaft *B* carrying a band pulley *C* and a balance wheel *D*. Extending at right angles to shaft *B* is a second shaft *E*, which is provided with a bevel pinion *b* to mesh with a similar pinion *c* on shaft *B*, as shown in Figs. 1 and 2. Shaft *B* is provided with a cam *d* which is designed to impart motion to any suitable wire or rod feeding devices *F*, through the lever *e* and link or rod *f*. The wire or rod-feeding devices may be constructed in any suitable manner so long as they are adapted to impart an intermittent or step-by-step feed to the rod or wire *g* which will preferably be wound upon a reel *h*.

The wire *g*, which forms the stem or shank of the chaplet, is fed from the reel *h* at the side of the machine and passes to the nicking device or nicker *G*, shown in Fig. 1. This device comprises a stationary nicking die *i*, a movable nicking die *j*, and a frame or block

k which serves not only to support the dies *i* and *j*, but also to guide and support the wire. The die *j* is carried by a rod or bar *l*, which is reciprocated toward and from the stationary die *i* and at right angles to the line of feed of the wire, by means of a cam *m* which latter, as shown in Figs. 1 and 2, is secured to shaft *E*. The nicking mechanism *G* is designed to be adjusted relatively to the bed or frame for a purpose presently explained. The wire after being nicked, is passed through a reciprocating plunger *H*, which is actuated by a cam *n* on shaft *E*, as shown in Fig. 1. This plunger *H*, shown in Fig. 5, is slotted at its end to form two yielding arms *o o* between which is held the removable die *p*.

Die *p* is provided with a hole or opening *q* to receive the wire *g* as it passes from the nicker, and is designed to act, in conjunction with a fixed die-block *I*, as a cutter, to sever the wire or rod into pieces of predetermined lengths; that portion *r* of the die block *I* which is directly opposite the plunger *H* being offset as shown in Figs. 1 and 3, so as to form a sharp cutting edge *s*. Now, the wire being passed through the hole *q*, projects a predetermined distance beyond the side of the plunger, as shown in Fig. 1. The cam *n* now moves the plunger inward toward the fixed block *I* and carries the projecting end of the wire against the sharp edge *s*, where the wire is severed. That portion of the stock from which the piece is cut, remains in the hole *q*, while the severed portion is held against the die block by a plunger or die *J*, as shown in detail in Fig. 6. The die block *I* and the plunger *J* are provided respectively with semicircular grooves *t* and *u*, which are enlarged at one end as at *v*, the construction being such that when the plunger *J* is moved inward against the die block *I*, the grooves *t u* will form a channel to receive and hold the severed section of the wire. Plunger *J* is actuated by means of a cam *w* on shaft *E*, said cam being so set relatively to cam *n* as to cause the plunger *J* to grasp and hold the wire while it is being cut by plunger *H*, and while being upset by means hereinafter set forth.

In the drawings I have shown the plungers as being held in contact with the cams *n* and *w* by means of springs *x*; but I do not wish to be understood as limiting myself to this construction, which is merely illustrative.

The die block *I* is provided on that upright

face which is at right angles to the face containing groove *t*, with a hole or female die *y*, and a sharp cutter or cutting die *z*, as clearly shown in Fig. 3. Moving in a right line toward and from these dies *y* and *z*, is a plunger or head K which carries a male punching die *b'*, a cutter or cutting die *c'*, and a header or upsetting die *d'*; the said plunger being actuated by means of a cam L secured to shaft B as shown in Fig. 1.

Secured to shaft B is another cam or eccentric M which is designed to actuate a gripping or clamping plunger N arranged by the side of the plunger K, said plunger N being held in contact with the cam by means of a spring O, see Fig. 1. Plunger N is adapted to move periodically toward and from the block I, to clamp and to release the stock or strip P of hoop iron used in forming the disk of the chaplet, the said strip P being unwound from a reel Q and fed edgewise into the machine at right angles to the line of feed of the wire stock. In order to cause the proper feed of the strip P, any suitable feeding devices may be employed. In Fig. 1, I have shown a very simple arrangement comprising two rollers R and S, one of which is actuated intermittently by means of an arm T mounted loosely upon the axis of the roll and carrying a pawl to engage a ratchet wheel; a reciprocating motion being imparted to the arm T through rod U, and a cam V on the shaft E.

The operation of the machine is as follows: The shafts B and E are set in motion and by means of the cams *d* and V, the rod and strip feeding mechanisms are put into action. The rod or wire *g* passing through the nicker G will be nicked as shown in Fig. 7, and the end of the wire passed through the hole *q* in the plunger H with the said end projecting from the right hand side of said plunger a distance equal to the length of the stem or shank desired. The plungers H and J begin to move inward toward stationary block I, and while the projecting end of the wire is being severed, the plunger J in connection with the stationary block I, holds the wire in the channel formed by the grooves *t* and *u*, and retains its hold upon the severed shank during the heading. During the operation of these devices, the strip-feeding devices have been at work, and have fed the strip P to such point as to cover the female die *y* on block I. As soon as this point is reached, the clamping plunger N moves inward and holds the strip against the face of block I while the plunger K also moves inward. The said plunger K which carries the male punch or die *b'* moves up to the strip, and allows the punch *b'* to puncture the latter and form a hole to receive the end of the shank or stem. Plungers K and N now recede and free the strip so that the intermittently acting rollers R, S, may feed the strip forward the predetermined distance, in other words so far as to bring the hole or opening in the strip directly opposite the end of the wire shank held by the two

part die I J. With the perforation in the strip P opposite the end of the wire shank, and with the severed wire shank held by the two part die, the plunger H recedes slightly so as to bring the wire stock back into line with the severed section. Plungers N and K now advance, the plunger N grasps or clamps the strip against the die block I, and the tools of plunger K move up to the stock. The punch *b'* makes a second hole (in the next head or disk) the cutter *c'* severs enough metal from the strip to form a head or disk for the chaplet, while the heading die *d'* upsets the wire stem or shank on both sides of the chaplet disk, as shown in Fig. 7, the upset metal running into the annular enlargement *v* of the two part die I J. Plungers J N and K now recede, and the operations are repeated continuously in order as above specified. By moving the cam *m* along shaft E, and shifting the nicking devices G, the nick may be formed in the rod or stem at any point throughout its length.

I am aware that a machine for upsetting a rod upon opposite faces of a flat bar or plate has before been devised, and of course make no broad claim herein to a machine having these functions.

Having thus described my invention, what I claim is—

1. In an organized machine for the manufacture of chaplets, the combination with wire feeding, cutting, and holding devices constituting a shank-forming mechanism; of strip-perforating and feeding devices co-operating therewith to bring the perforated chaplet disk or head thus made over the end of the shank; and a heading device for upsetting the stem on each side of the head.

2. In a machine of the class described, the combination with means for feeding a rod, cutting it into lengths, and holding the severed section; of means for feeding a strip and punching a hole therethrough; and a plunger or bunter for upsetting the end of the severed wire; and for cutting off the strip.

3. In combination with a die or holder for the wire stem or shank of a chaplet; a strip feeding mechanism; and a plunger provided with punch *b'*, cutter *c'* and a header *d'*.

4. In combination with block I having the shoulder or edge *s*; the reciprocating plunger H provided with a die block *p* which latter has hole or opening *q*.

5. The herein described die or plunger H having the yielding arms *q o*, and the removable die *p* clamped therein.

6. In combination with block I having cutting edge or die *z*, and female die *y*, the reciprocating plunger provided with male die *b'*, and cutting blade *c'*.

In witness whereof I hereunto set my hand in the presence of two witnesses.

ALVIN W. NEEDHAM.

Witnesses:

JNO. B. CORLISS,
WILLIAM J. RUGLES.