UNITED STATES PATENT OFFICE

2,427,705

PIN SETTING MACHINE

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Application March 18, 1944, Serial No. 527,379

5 Claims. (Cl. 1—47)

This invention relates to mechanisms for unit-
ing terminals to electric conductor wires, par-
ticularly such as are enclosed with a protective
sheath.

An object of the invention is to provide a
simple, pedally operated machine capable of
inserting a wedge-like plug into a collar, through
which the wires extend, to maintain them firmly
therein, the collar then serving as a wire termi-
nal.

A further feature is in the provision of means
for semi-automatically adjusting the collars, into
accurate registration with a revoluble head, car-
rrying the plugs, and also drivers, in alternat-
ne relation to seat the plugs.

Another purpose is to produce a machine of
such simplicity as to be easily operated by un-
skilled labor, in an effective, speedy manner
whereby the assembly of parts are accurately
accomplished.

These and other similar objects are attained by
the novel construction, combination and ar-
rangement of parts hereinafter described and
shown in the annexed drawings, forming a
graphical component of this disclosure, and in
which:

Figure 1 is a perspective view of a complete
embodiment of the apparatus.

Figure 2 is a top plan view of the same, par-
tially in section.

Figure 3 is a front elevational view of the same
in a downward position, partially in section, and
illustrating its application.

Figure 4 is a perspective view of the revoluble
head carried by the press, drawn to an enlarged
scale.

Figure 5 is an enlarged transverse sectional view
taken on line 5—5 of Figure 3, showing the
head in a raised position.

Figure 6 is a longitudinal sectional view of a
terminal lead assembly showing the work per-
formed by the press.

Figure 7 is a transverse sectional view taken on
line 7—7 of Figure 6, drawn to an enlarged
scale.

Figure 8 is a sectional view of a modified pin
holding die.

By reference to the drawings it will be seen that
the mechanism includes a common type of
pedally operated bench press, consisting of a
base 15, adapted to be secured upon a bench,
having a raised, forwardly reaching arm 16,
terminating in an expanded head 17 extending
over the base.

The head is recessed vertically to slidably re-
ceive a plunger or ram 18, of rectangular cross
section, held in place by a cap 19, and provided
with a rack 20 engaged by a spur gear 21, fixed
on the end of a shaft 22, journaled in the head
and extending laterally outward at the rear
where it has secured on it a cylindrical hub 23.

Passing through the hub is a bar 24 having
connected at its front portion a clevis 25, from
which extends a rod 26 leading to a foot lever
(not shown) below the bench; the opposite, up-
wardly bent rear portion 24' of the bar has at-
tached to it a coiled tension spring 27 by which
the plunger 18 is normally maintained in a
raised position, the opposite end of the spring
being engaged in an adjustable screw 28 set in a
bracket 29 carried by the base 15. A stop bar
30, set in the arm 16, limits the upward motion
of the plunger.

A bracket 31, fixed on the upper end of the
plunger 18, carries an adjustable stop screw 32,
which, upon contact with the upper surface of
the head 17, limits the downward movement of
the plunger.

The structure described in the foregoing is
well known and recited merely in that a
comprehensive understanding of the invention
be had.

The lower end of the plunger 18 is bored axially
to receive the shank 33 of a forked bearing 34
in which is rotatably mounted a transverse spind-
le 35, having fixed on its front extremity a
knurled knob 36 and on its opposite end a disc
37 having equally spaced notches 38 adapted for
engagement by a spring detent 39 carried by the
upper part of the bearing.

Keyed to the central portion of the spindle
35, between the forks of the bearing 34, is a
circular, non-magnetic wheel 40 having in its
periphery an even number of radial, evenly
spaced sockets 41, six being shown, in corre-
spondence with the notches in the disc 37.

Set in each alternate socket is a magnet 42,
and having an axial aperture 43, while in each
intermediate socket is a similar flat faced driver
die 44. In the modification shown in Figure 8,
the die 42 is not magnetized but provided with an
elastic collar 57, as rubber, having a small open-
ing to receive the shank of the pin 54 with suffi-
cient tension to retain it in position for insertion
in the bushing 53.

Secured on the raised forwardly extending
portion of the base 15 is a plate 45 having a
narrow extension 46 reaching beyond the edge of
the base and provided with an open recess 47
in register with the plunger 18.
Rigidly fixed on the plate is a bracket 48 having, in its raised upper portion, a V-shaped guide notch 49 adapted to align a work-part with the dies carried by the wheel 40.

The work, as indicated in Figures 3, 6, 7 and 8, consists of a cable 50 having a plurality of wires 51 and fitted with an insulating terminal 52, provided at its outer end with an opening suited to receive and retain a flanged metallic bushing 53, through which the wires pass to be secured thereto at their bent ends, as by a wedge-like, hard steel pin 54 having a sharply tapered point 55.

In operation, a flanged collar 56 is loosely drawn over the cable (see Figures 3 and 5), below the cable terminal 52, to rest on the plate 45—46, in the recess 49, the terminal being further guided and aligned by the angular notch 49, to register with the dies in the revolve wheel 40.

Steel pins 54 are inserted in the magnets 42 with their points outward, the pins being retained by magnetism. Upon the first downward stroke of the plunger, a pin is inserted sufficiently into the bushing 53 to be retained by friction upright therein.

The second operation is to turn the wheel 40, bringing one of the driver dies 44 into position to set the pin, and then, by action of the press treadsle, force it into the bushing, thereby clamping the wires therein, as indicated in Figure 7, allow the wheel carrying plunger to rise, remove the cable with its attached terminal and repeat the performance as required.

It is found in practice advisable to group the several wires at one side of the bushing 53 and bend their projecting ends sharply outward, as indicated in Figure 6, previously to the insertion of the pin.

Although the foregoing is descriptive of a specific purpose, it will be understood that the invention is not so confined, as it is apparent many other uses of a similar nature can be accomplished by the mechanism included in the appended claims.

Having thus described the invention and set forth the manner of its construction and use, what is claimed as new and sought to be secured by Letters Patent of the United States is:

1. In mechanism for setting pins in apertured elements, a reciprocably slideable, rotatable wheel having holding means to carry pins and partially drive them, means to rotate said wheel to a position to fully drive said pins, means to rotate said wheel to a position to fully drive said pins, driver dies intermediate of said first named dies to fully drive the pins, and means on said base to register the elements with the axes of said dies.

2. In combination with a stamp press having a base, a plunger, and means to actuate the plunger, a work-part positioning device on said base, a non-magnetizable wheel rotatable in a vertical plane on said plunger, said wheel having radial peripheral sockets equally spaced therearound, a magnetic die set in each alternate socket adapted to engage a pin and partially drive said pin, driver dies set in the intermediate sockets to fully force such pin into the work-part, a knob to turn said wheel, a star wheel corresponding to the first named wheel, and a spring detent to engage said star wheel.

4. In combination with a stamp press having a base, a plunger, and means to actuate the plunger, means on said base to locate a work-part in register with the plunger, wheel of non-magnetic material mounted for rotation in said plunger, an even number of uniformly spaced radial sockets formed in the periphery of said wheel, means to rotate the wheel to bring any selected socket into alignment with a work-part on said base, a magnetized die fixed in each alternate socket to maintain a pin therein until partially entered in the work-part, and driver dies fixed in the intermediate sockets to fully force the pin into its final position in the work-part.

5. In mechanism for setting pins in apertured elements, the combination of a rotatable wheel having a plurality of spaced apart apertures, resilient means on the wheel provided with apertures aligned with said spaced apertures, said resilient means being arranged to grip and retain pins inserted into said spaced apertures until partially driven into the work-part, means to rotate said wheel to a position to fully drive said pins, means intermediate said spaced apertures adapted to fully drive the pins, means to locate the elements in position to receive the pins, means for supporting the wheel for rotation and means to reciprocate said supporting means.

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