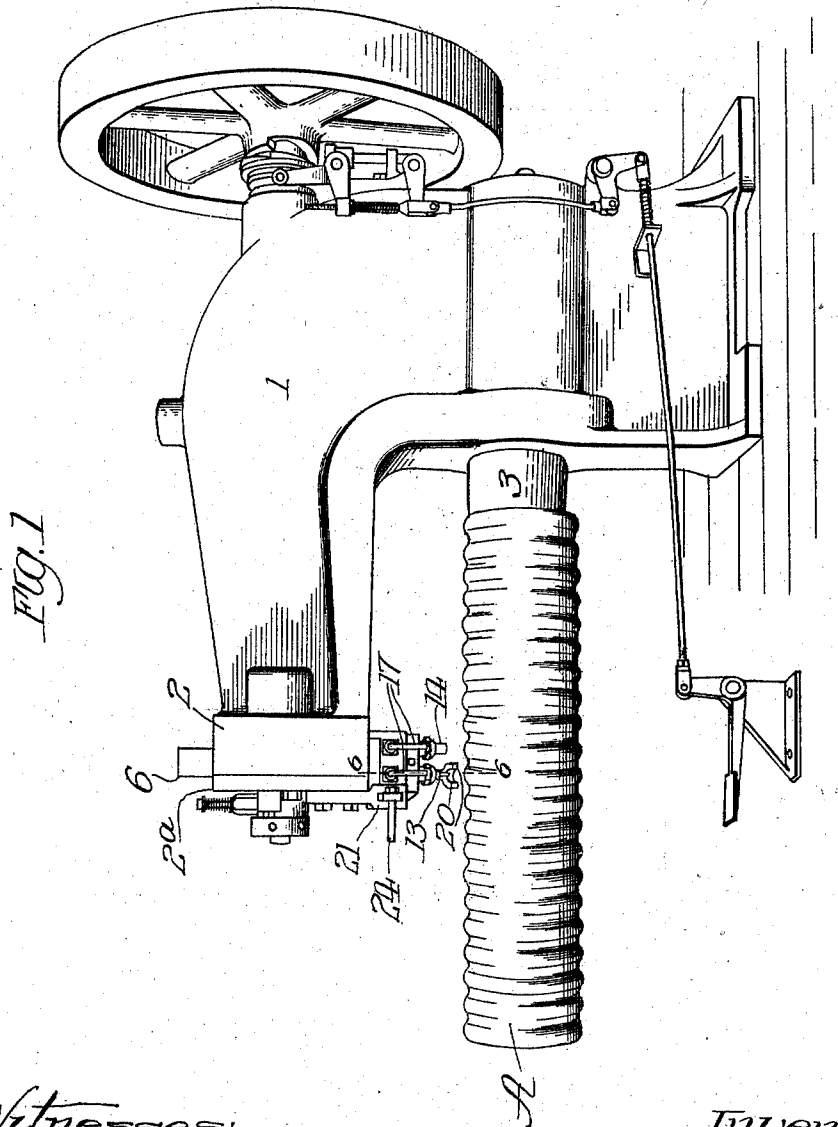


G. WHITING & P. PARCELLS.
PUNCHING AND RIVETING MACHINE.
APPLICATION FILED AUG. 17, 1908.

966,876.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses:
H. G. Barrett
Louis B. Erwin

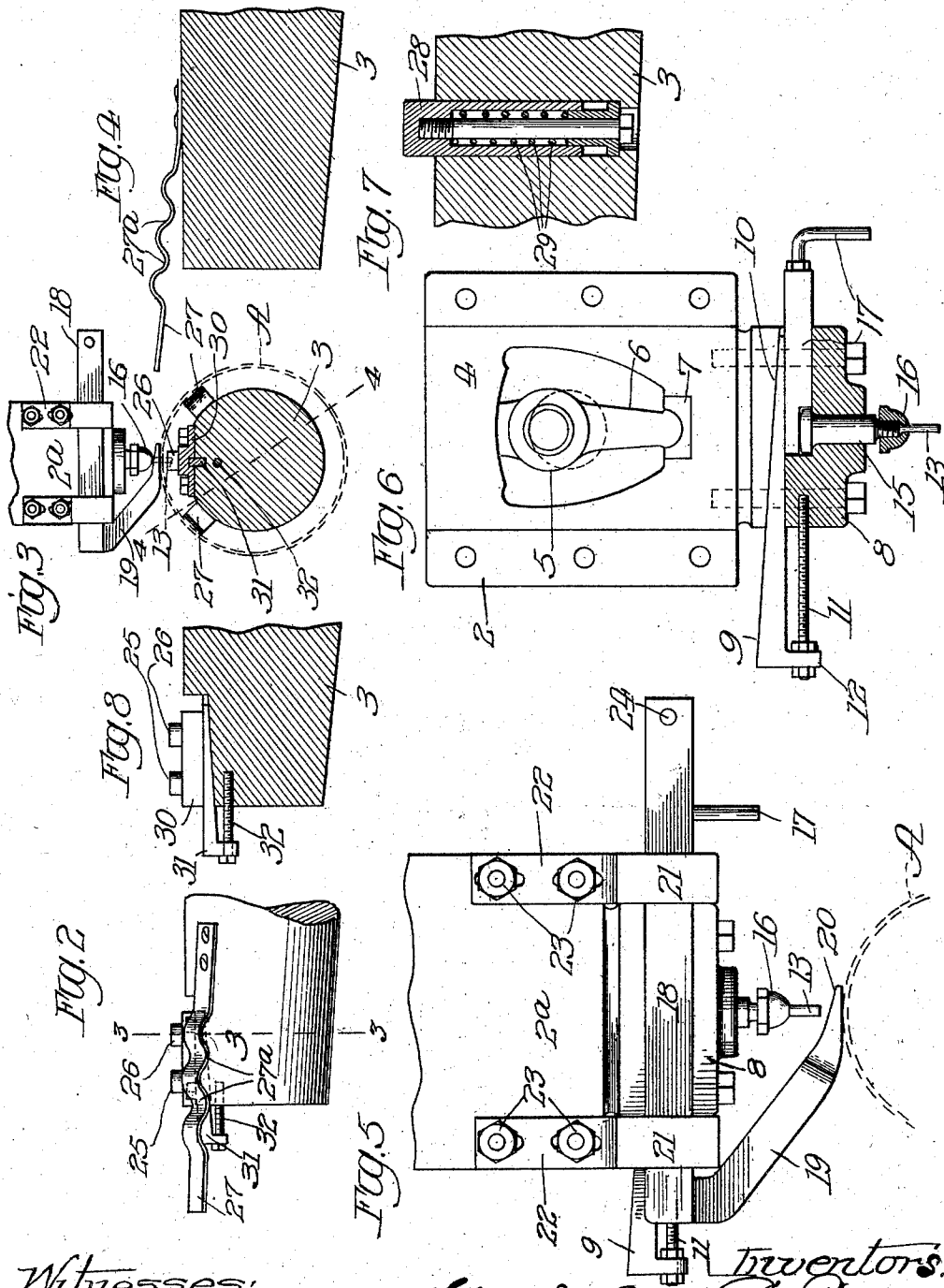
Inventors:
George Whiting and Paul Parcells
by Victor Hobbes Davis
Their Attys.

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Louis B. Emery

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UNITED STATES PATENT OFFICE.

GEORGE WHITING AND PAUL PARCELLS, OF CHICAGO, ILLINOIS, ASSIGNORS TO GEORGE WHITING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PUNCHING AND RIVETING MACHINE.

966,876.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed August 17, 1908. Serial No. 448,887.

To all whom it may concern:

Be it known that we, GEORGE WHITING and PAUL PARCELLS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Punching and Riveting Machine, of which the following is a specification.

Our invention consists of a machine capable both of punching and riveting for the purpose of first punching the work and then riveting the same without the necessity of changing the tools in the machine, to which end the usual head of a machine of this general character is made double, that is, provided with a punch and also a rivet set while the stake is correspondingly provided with a punching die and also with a rivet set box.

Our machine is more particularly designed for punching and riveting pipe, especially corrugated pipe in which it is desirable to first punch all of the holes as the work is fed inwardly upon the stake and to then rivet the work as the pipe is drawn outwardly upon the stake. However, if desired the punching and riveting operation may alternate for each rivet.

Our invention further contemplates the employment of means for holding the pipe elevated above the upper surface of the stake so that the rivets may be inserted from above instead of below, thereby attaining greater speed in the work.

Our invention also contemplates the employment of an adjustable stripper cooperating with the punch and capable of convenient manipulation by the operator whenever desired.

Our machine embodies other novel and advantageous features of construction which will be apparent from the description hereinafter given.

In the drawings Figure 1 is a side elevation of our machine showing a corrugated metal pipe as the work placed upon the stake of the machine; Fig. 2 an elevation of a somewhat larger scale of the front end of the stake; Fig. 3 a section on the line 3—3 of Fig. 2 and illustrating in addition the lower front end of the head of the machine; Fig. 4 a section on the line 4—4 of Fig. 3; Fig. 5 a front elevation of the lower portion of the head of the machine; Fig. 6 a sectional elevation on the line 6—6 of Fig. 1,

the upper portion of said figure being an elevation of the head after the removal of the face plate; Fig. 7 a detail view of a portion of the stake illustrating a modified form of construction of hold up device for the pipe; and Fig. 8 a detail view of a modified form of construction for relative adjustment of the tool members.

Referring to the present embodiment of our invention in which we employ a double head, that is, one punch and one rivet set, although a greater number of such tools might be employed, the frame 1 of the machine is provided with the usual head 2 and also a stake 3 upon which the work is placed. Within this head is arranged a slide 4 caused to move or slide vertically by means of an eccentric 5 operating through the medium of a pintle 6 and a pintle box 7. Upon the lower end of this slide is secured a punch block 8 carrying the tools proper and adjustable with respect to the slide by means of the adjustable wedge 9 cooperating with the complementary face 10 on the slide. This wedge is movable transversely of the slide by means of an adjusting screw 11, one end of which enters the punch block and the other of which engages the flange 12 of the wedge. By adjusting this wedge in one direction or the other the position of the tools, hereinafter described, with respect to the work is controlled.

The punch block, in the present instance, carries two tools, one of which is a punch 13 and the other a rivet set 14. These tools are similarly mounted so that the detail description of one will apply to both. As shown in Fig. 6 the punch is secured to the punch stock 15 by means of a coupling nut 16. This punch stock extends downwardly through a suitable opening in the punch block and is provided at its upper end with a head. To operatively connect the punch block and punch stock a laterally movable gag 17 is employed which when in its inwardly shifted position shown in Fig. 6 is positioned above the head of the punch stock with the result that when the slide and punch block move downwardly the punch will perform its work. However, when the gag is pulled outwardly clear of the punch stock, the punch will move upwardly in the space above its head and will perform no work. A gag is provided for each one of

the tools so that either one of the tools alone or both together may be caused to operate accordingly as the gags are adjusted.

The adjustable stripper which coöperates
 5 with the punch consists of an irregular-shaped bar comprising the straight or horizontal portion 18 and an angular portion 19 terminating in the two jaws 20 which when the stripper is in position are located on
 10 opposite sides of the punch. This stripper is supported by the head of the machine and is adapted to be adjustable thereon and to this end the horizontal portion 18 of the stripper is arranged to slide in depending
 15 supports or brackets 21 secured to the front of the face plate 2^a of the head. By preference these brackets or supports are made adjustable with respect to the face plate by bolt and slot connection therewith. In the
 20 present instance the slots 22 are formed in the brackets or supports and the bolts 23 are secured to the face plate. In order that the operator may conveniently operate or adjust the stripper we provide the same with
 25 a handle 24 within convenient reach. It will be observed that by moving the bar 18 in one direction or the other the stripper may be removed from position or brought into position, as the case may be. For the
 30 purpose of holding the work somewhat elevated above the punching die 25 and the rivet set box 26 on the stake and to thereby permit of the insertion of the rivets from above instead of below we provide metal
 35 strips 27 preferably two in number and located on either side of the punching and riveting elements on the stake. These metallic strips are secured at their inner end to the stake in any suitable manner and the
 40 same are bent upwardly so that they will have a tendency to hold the work, such as a metal pipe, above the upper surface of the stake, but will be free to give downwardly in the punching and riveting operation. When the work operated upon is a
 45 corrugated metal pipe as herein illustrated by A we prefer to provide these strips with a suitable number of corrugations 27^a corresponding and fitting with the corrugations
 50 of the pipe with the result that these strips will have a double function, that is, they will serve not only to hold the pipe upwardly above the upper surface of the stake but will also gage the pipe and thereby
 55 present the pipe accurately to the punching and riveting elements. Although we prefer to use the metallic strips just explained yet as indicated in Fig. 7 other means may be employed for holding the pipe above the
 60 top surface of the stake, as for instance the block or projection 28 arranged in a socket within and rising from the top of such stake, and held spring pressed outwardly by the spring 29.

65 As shown in Fig. 8, the adjustment be-

tween the tool members may be obtained by having the wedge device act on the lower or fixed members on the stake instead of on the movable members. In this modification, these fixed members are mounted on a block
 70 30 below which the wedge 31 is placed with the result that when the adjusting screw 32 is turned the tool members are raised or lowered according to the direction of rotation of said screw. This adjusting device
 75 may be used in lieu of or as supplementary to the similar device for the upper or movable members.

Owing to recent developments in the pipe industry including both the plain pipe and
 80 corrugated pipe but more particularly the latter, it has become necessary to perform the work of punching and riveting with the greatest speed and economy and with the least amount of handling of the work and
 85 particularly without the necessity of changing tools in the machine. To meet these requirements the present machine has been designed which is itself capable of both the punching and riveting operations so that
 90 the work may be punched as it moves inwardly and riveted as it moves outwardly or if desired the punching and riveting operations may alternate in respect to each rivet. Furthermore, the adjustable stripper is of
 95 simple and efficient design and capable of being readily and conveniently operated so as not to delay or interfere with any of the operations. In addition the metallic strips 27 also contribute to the speed and
 100 economy of the operations inasmuch as they enable the rivets to be inserted from above instead of from below which is not only a slow but an expensive operation inasmuch as it takes considerable more time. Fur-
 105 thermore, when the metallic strips are corrugated for corrugated pipe work the same accurately gage and position the pipe with respect to the punching and riveting elements.

We claim:

1. In combination with a punching machine and the head piece and the punch thereof, a stripper mounted loosely upon
 115 such head piece and capable of instant movement laterally and bodily toward and away from the work; substantially as described.

2. In combination with a punching machine and the head piece and the punch
 120 thereof, a stripper mounted to slide at all times loosely upon the head piece and capable of instant movement laterally and bodily toward and away from the punch; substantially as described.

3. In combination with a punching machine and the head piece and the punch thereof, a stripper mounted to slide at all
 125 times loosely upon the head piece and capable of instant movement bodily toward
 130

and away from the punch, and a handle secured to said stripper for the hand manipulation thereof; substantially as described.

4. In combination with a punching machine and the head piece and the punch thereof, a stripper mounted upon the head piece and arranged for both horizontal and vertical adjusting movement with respect to the work; substantially as described.

10 5. In combination with a punching machine and the head piece and the punch thereof, a stripper comprising a horizontal portion mounted upon the head piece and an angular portion adapted to cooperate with the work; substantially as described.

15 6. In combination with a punching machine and the head piece and the punch thereof, a stripper cooperating with the punch and adjustable with respect thereto, and adjustable brackets in which the stripper is mounted to slide, said stripper being capable of instant movement laterally and bodily toward and away from the punch; substantially as and for the purpose described.

20 7. In combination with a punching machine and the head piece and the punch thereof, a stripper cooperating with the punch and adjustable with respect thereto, and brackets which are secured to and adjustable upon the head piece and in which the stripper is mounted to slide; substantially as described.

30 8. In combination with a punching machine and the head piece and the punch thereof, a stripper comprising a horizontal

bar 18 adapted to slide on the head, and an angular portion 19 terminating in jaws 20 on opposite sides of the punch; substantially as described.

40 9. In a machine of the class described, the combination, with the stake, of means for holding the work raised above the surface of the stake, comprising a plate secured to the stake and extending upwardly therefrom; substantially as described.

45 10. In a machine of the class described, the combination, with the stake, of means for holding the work raised above the surface of the stake comprising resilient strips acting as springs and secured to the stake; substantially as described.

50 11. In a machine of the class described, the combination, with the stake, of means for holding the work raised above the surface of the stake comprising resilient metallic strips secured at one end to the stake and inclined upwardly and forwardly of the stake; substantially as described.

55 12. In a machine of the class described, the combination, with the stake, of means for holding the work raised above the surface of the stake comprising resilient strips secured to the stake and provided with corrugations to fit the corresponding corrugations of a pipe to gage the latter in the machine; substantially as described.

60 GEORGE WHITING.

PAUL PARCELLS.

Witnesses:

LEE SHEPARD,
JOHN SOBIESKI.