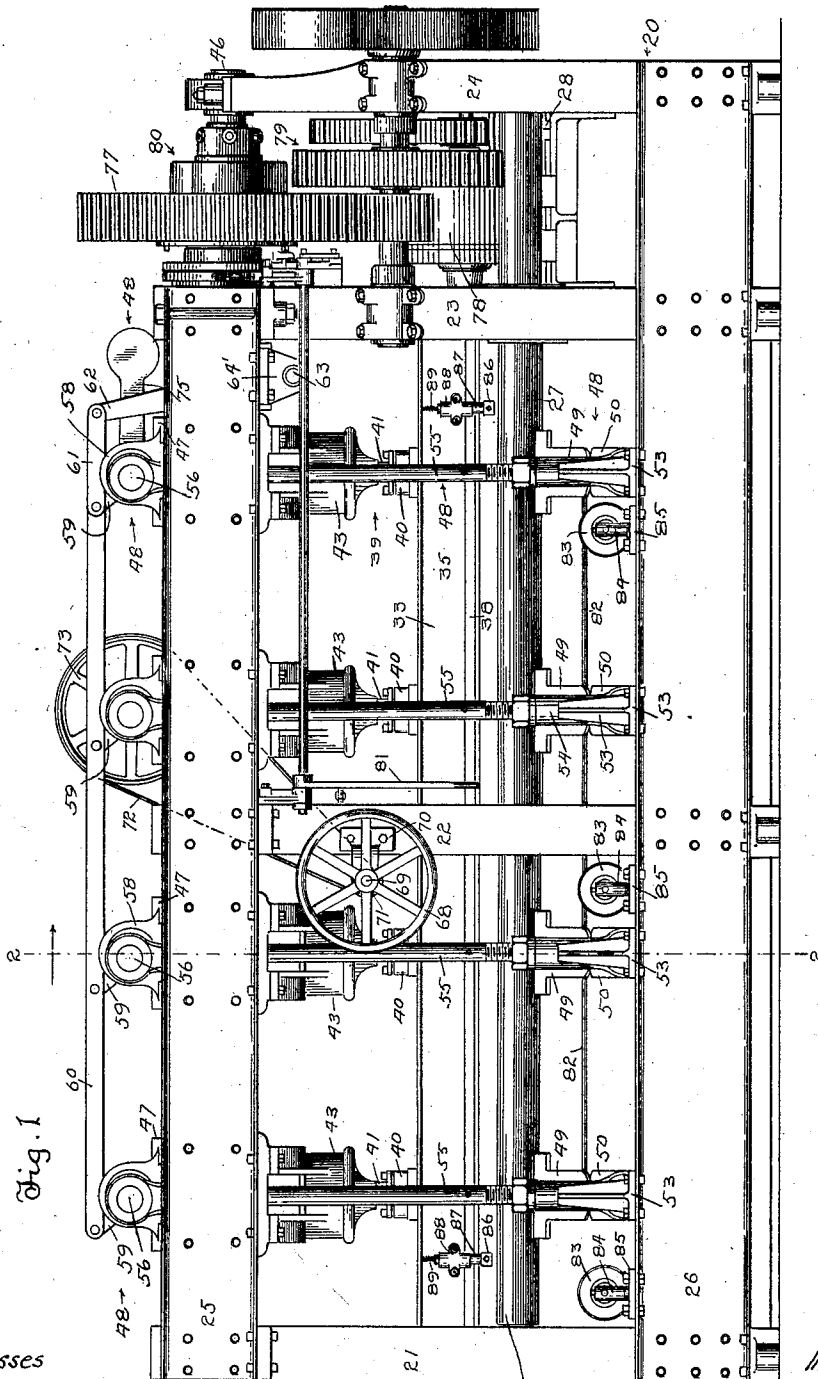


J. A. TALBOT & H. E. BRETT.
 MULTIPLE PLUNGER STAKE PRESS.
 APPLICATION FILED JULY 29, 1912.

1,047,853.

Patented Dec. 17, 1912.

3 SHEETS—SHEET 1.



Witnesses

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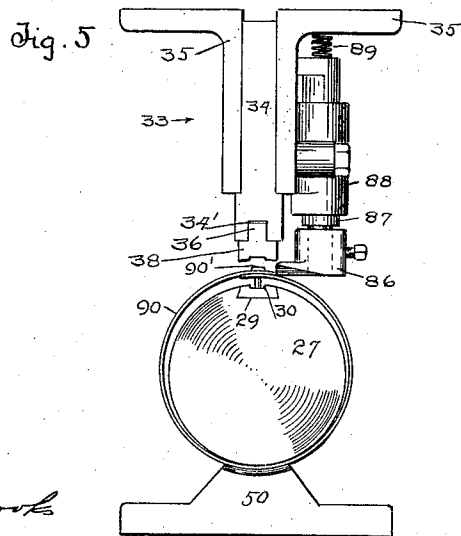
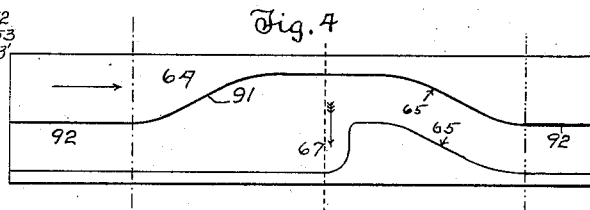
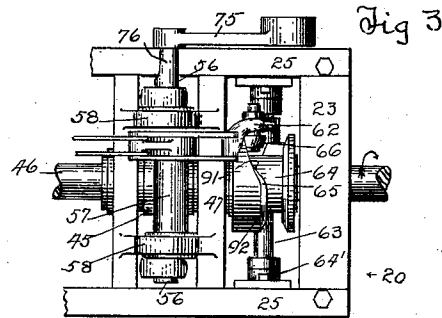
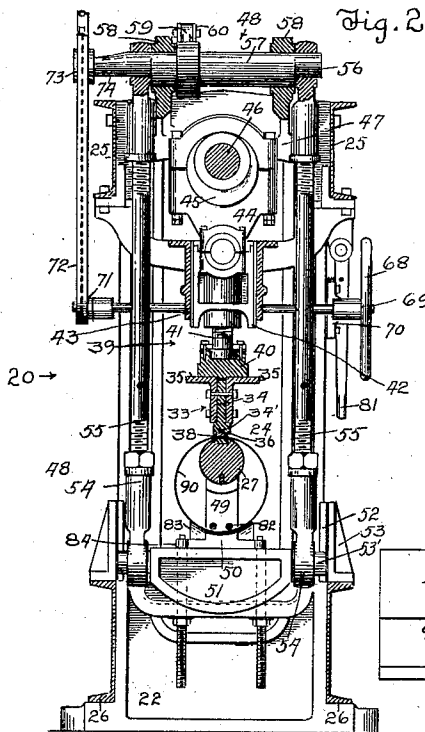
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3 SHEETS-SHEET 2.



Witnesses

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3 SHEETS—SHEET 3.

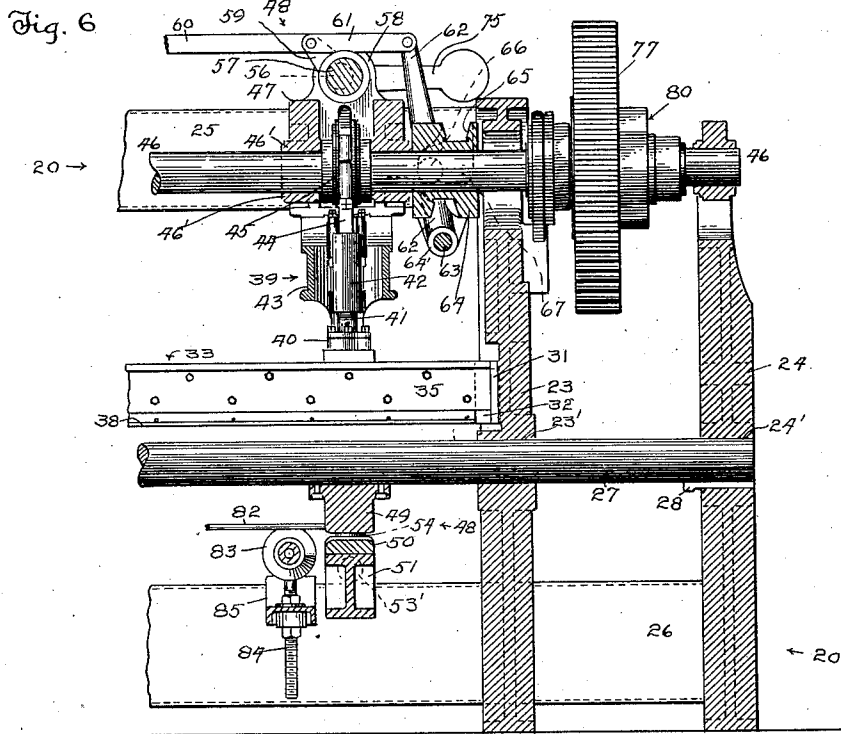
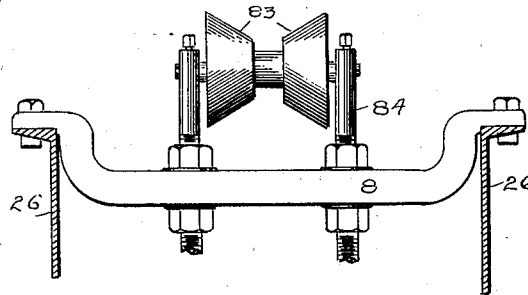


Fig. 7



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES A. TALBOT AND HENRY E. BRETT, OF LOS ANGELES, CALIFORNIA.

MULTIPLE-PLUNGER STAKE-PRESS.

1,047,853.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed July 29, 1912. Serial No. 712,206.

To all whom it may concern:

Be it known that we, JAMES A. TALBOT and HENRY E. BRETT, both citizens of the United States of America, both residing at Los Angeles, in the county of Los Angeles, State of California, have invented a certain new and useful Multiple-Plunger Stake-Press; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to multiple-plunger stake press, more particularly to such a press provided with means for supporting the stake against the pressure of the die mechanism, and it may be said to consist in the provision of the novel features and in the novel and improved construction, arrangement and combination of parts, members, means, mechanism, and devices as will be apparent from the description and claims which follow hereinafter.

One object of the invention is to provide an apparatus of this character that shall be capable of operating on long hollow pieces of work of comparatively small diameter.

It is also an object of the invention to provide an apparatus in which the operating stresses are localized and not transmitted to the frame of the apparatus.

It is a further object of the invention to provide means whereby the apparatus may be readily adapted to work of various sizes.

Other objects and the advantages of the invention will be apparent to those skilled in the art to which it appertains from a consideration of the following description of one form of construction—an apparatus for riveting pipe—wherein the invention may be embodied, taken in connection with accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus; Fig. 2 is a transverse section on line 2—2 of Fig. 1; Fig. 3 is a plan view partly broken away; Fig. 4 is a flat projection of the peripheral surface of the cam; Fig. 5 is an enlarged detail in elevation of the end of the stake and the guide finger; Fig. 6 is a partial central longitudinal section with parts in elevation, and Fig. 7 is an enlarged detail in elevation of the guide rollers.

The frame 20 of the apparatus may consist of the castings 21, 22, 23 and 24, and of upper side channels 25 and lower side

channels 26. Upper channels 25 connect castings 21, 22 and 23 while the lower channels 26 are attached to all four of the castings. Castings 23 and 24 are spaced comparatively close together and are provided with openings 23' and 24' through which passes the rear part of stake 27 rigidly held in place by key 28 in casting 24. The stake 27 is preferably provided with a wear-resisting portion 29 as shown in Fig. 5, and for the particular apparatus under consideration this portion 29 is provided with a groove 30 the purpose of which will be apparent when the method of operation of the apparatus is explained.

Casting 23 carries a plate 31 having a rib 32 projecting in the direction of casting 22, and casting 21 carries a similar plate with its rib 32 projecting in the direction of casting 22. These ribs 32 form guides for a die holder 33 the central part 34 of which lies between them while the ends of the side pieces 35 project and embrace the sides of the ribs. In a groove 34' at the lower portion of part 34 is held in this case the tang 36 of a suitable die 38.

Means 39 for forcing the die holder 33 toward the stake 27 may preferably consist of a plurality of thrust bearings 40 attached by means of adjusting screws 41 to crossheads or plungers 42 sliding in guides 43, said plungers in turn connected by eccentric rods 44 to eccentrics 45 rigidly mounted on main shaft 46 journaled in bearings 46' carried by stress receiving members 47 bolted to channels 25.

On account of the comparatively great length and relatively small transverse dimensions of the stake 27 and of the nature of the work performed thereon, it is desirable that means be provided to enable it to resist the pressure of the die mechanism without bending or other deformation which would prevent effective coöperation of the die mechanism and stake and tend to effect poor results on the work.

Means 48 for supporting the stake against the pressure of the die 38 may consist of a plurality of stake blocks 49 removably attached to the lower side of the stake 27; these blocks, however, not being used on the smallest sizes of work for which the apparatus may be used. Below stake blocks 49 are positioned saddle blocks 50 resting on yokes 51. Each of yokes 51 may have its ends grooved so that the ribs 52 of guides

53 entering the grooves may prevent lateral or longitudinal displacement of the yoke. Upon the end portions 53' of yokes 51 are mounted the lower ends 54 of connecting rods 55 the upper ends of which are mounted upon the eccentrically reduced portions 56 of toggle shafts 57. By means of right and left hand screws on connecting rods 55 their length may be adjusted. Toggle shafts 57 are rotatively mounted in bearings 58 carried by members 47. The axes of the eccentric portion 56, when the yokes 51 are in their lowered position, may preferably be about on a level with the axes of the toggle shafts and may turn in a position vertically over the axes of the shafts when the yokes are in their upper position. The shafts 57 may be rotated simultaneously by means of rocker levers 59 mounted one on each shaft and connected by means of bars 60 and 61 to a cam lever 62 whose lower end is mounted on shaft 63 carried by bearings 64' attached to channels 25.

Lever 62 may be automatically oscillated by cam 64 mounted on shaft 46 and the working faces 65 of the cam may be engaged by a roller 66 mounted on the lever 62.

To permit of the stake supporting means 48 being manually operated cam 64 may be provided with a recess 67 into which roller 66 may be moved when the said means 48 is operated by turning hand wheel 68 rigidly attached to a shaft 69 carried in bearings 70 bolted to casting 22. The end of shaft 69 remote from wheel 68 has keyed thereon a sprocket pinion 71 connected by sprocket chain 72 to sprocket wheel 73 keyed on an extension 74 of one of the toggle shafts 57. A counterweighted lever 75 may be attached to an extension 76 of another of the toggle shafts to render the operation of the supporting means 48 easier of accomplishment.

Main shaft 46 may be rotated by means of a gear 77 loosely mounted thereon and operatively connected with a suitable motor 78 by gear train 79. A suitable clutch 80 tripped by lever 81 serves to operatively engage gear 77 with shaft 46.

Guide bars 82 carried by stake blocks 49 and guide rollers 83 (see Fig. 7), said rollers vertically adjusted by means of threaded rods 84 passing through castings 85 carried by channels 26, aid in the rapid placing on the stake of the material to be operated on.

In order that the work may be positioned accurately in the apparatus, guide fingers 86 (see Fig. 5) may be provided on plungers 87 carried by brackets 88 affixed to side pieces 35 near the ends of the die-holder 33, and springs 89 may yieldingly hold the fingers 86 in a downward position.

It will be noted that main shaft 46 and toggle shafts 57 being carried by the members 47, the heaviest working stresses of the apparatus are localized and are not trans-

mitted to the frame 20 of the machine which therefore may be comparatively light, effecting economy in the construction of the apparatus.

In the operation of this apparatus, assuming that the parts are in the position shown in Figs. 1 and 5, a length of pipe 90, previously having a row of holes punched along its seam and having rivets 90' dropped into the holes, preferably with their heads up—see Fig. 5—may be placed upon stake 27, with the edge of the seam pressing against guide fingers 86. Lever 81 now being drawn outwardly, clutch 80 locks gear 77 to shaft 46 causing rotation of the shaft in the direction of the arrow in Fig. 3. When the part 91—see Figs. 3 and 4—of cam 64 presses against roller 66, by the means previously described, the yokes 61 carrying saddle blocks 50 are raised until the said saddle blocks press against the lower side of the pipe 90, as shown in Fig. 5. As previously described, the yokes may be manually raised if desired previous to engaging the clutch. During the above operations, the die 38 has been descending and while the part 92 of cam 64 holds the stake supporting means stationary, the die 38 contacts with the heads of the rivets and forces them and the upper side of the pipe downwardly until the lower ends of the rivets are upset and headed in groove 30 which is of such depth and proportions that the upset portions rest therein while the outer sides of the die press the edges of the seam down smooth. Further rotation of the shaft raises the die and lowers the yokes whereupon the pipe 90 may be removed.

In adapting the apparatus to different sizes of work, various sizes of saddle blocks and stake blocks may be used; or as has been stated the stake blocks may be removed entirely for small work.

While one form of construction in which the invention may be embodied has been particularly illustrated and described, there are many changes and modifications thereof that will readily occur to those skilled in the art, wherefore, the right is reserved to all such changes and modifications as do not depart from the spirit and scope of the invention as defined in the appended claims.

We claim:—

1. In a stake press, in combination, a stake, a holder for carrying a die, means for forcing said holder toward said stake, means movable in a contrary direction to the movement of said holder and adapted to support said stake longitudinally thereof against the pressure of the die and means to operate the last means.

2. In a multiple plunger press, in combination, a stake, a shaft, a plurality of plungers operatively connected to said shaft, parts carried by said plungers, and means

also operatively connected to said shaft for supporting said stake against the pressure of said parts.

3. In a stake press, in combination, a stake, a device adapted to operate on work placed on the stake, a stress receiving member, means carried by said member for forcing said device toward said stake and means also carried by said member for supporting said stake against the pressure of the said device.

4. In a press, in combination, a stake, a device adapted to operate on work placed on the stake, means for forcing said device toward said stake, and means movable toward said stake to support the same longitudinally thereof against the pressure of said device.

5. In a press, in combination, a stake, die mechanism, means for actuating said die mechanism to operate on work placed on said stake, means automatically movable toward the said stake to support the same against pressure of the die mechanism, and means including a cam to manually operate the last mentioned means, said cam provided with a recess for the purpose set forth.

6. In a multiple plunger press, in combination, a plurality of stress receiving members, a shaft supported by said members, eccentrics mounted on said shaft, a stake, parts operatively connected with said eccentrics and adapted to operate on work placed on the stake, and means for supporting said stake at different points longitudinally thereof against the pressure of said parts.

7. In a multiple plunger press, in combination, a plurality of stress receiving members, die holding devices, a stake, means carried by said members for forcing said devices toward said stake, toggle shafts also carried by said members, connecting rods attached to said toggle shafts, yokes, attached to said connecting rods, and blocks interposed between said yokes and the stake.

8. In a press, in combination, a stake, a die holding device adjacent thereto, means for forcing said device toward said stake, supporting means for said stake movable in a direction contrary to the movement of said device, and means on the die holding device for guiding work to place on said stake.

9. In a stake press, in combination, a stake, die mechanism for operating on work placed on said stake, means for operating the mechanism to force the die toward said stake, means for supporting said stake, and means for intermittently operating said

supporting means, said operating means being so constructed that the opening between the stake and the supporting means during its nonoperative interval may be made a predetermined distance from the working face of the stake.

10. In a multiple plunger stake press, in combination, a plurality of stress receiving members, a shaft carried thereby, a plurality of eccentrics mounted upon said shaft, eccentric rods connected to the eccentrics, plungers attached to the eccentric rods, die mechanism connected to the plungers, a stake positioned below said die mechanism, toggle shafts mounted on said pressure receiving members, rocker levers mounted on said toggle shafts, a cam mounted on said first mentioned shaft, and a cam lever adapted to be operated by said shaft, bars connecting said cam lever with said rocker levers, a plurality of yokes positioned beneath the stake, and rods operably connecting said yokes and said toggle shafts.

11. In a press, a stake, die mechanism adapted to operate on work placed on the stake, means automatically movable toward said stake to support it against the pressure of the die mechanism, and means including a cam to manually operate the last means, said cam provided with a recess for the purpose set forth.

12. In a multiple plunger stake press, the combination of spaced castings, a stake having one end portion thereof passing through and supported by said spaced castings, mechanism adapted to operate on work placed on the stake, and means forwardly of the castings adapted to support the stake against the pressure of the mechanism of the stake.

13. In a press, a stake, die mechanism adapted to operate on work placed on the stake, means movable toward said stake to support it at different points longitudinally thereof against the pressure of the die mechanism, and means to manually operate the last means.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses at Los Angeles, county of Los Angeles, State of California, this 23rd day of July A. D. 1912.

JAMES A. TALBOT.
HENRY E. BRETT.

Witnesses:

A. H. LIDDERS,
DAVE F. SMITH.