

E. DRAPER.

GUIDE POCKET FOR RIVET SETTING MACHINES.

(Application filed Dec. 10, 1901.)

(No Model.)

2 Sheets—Sheet 1.

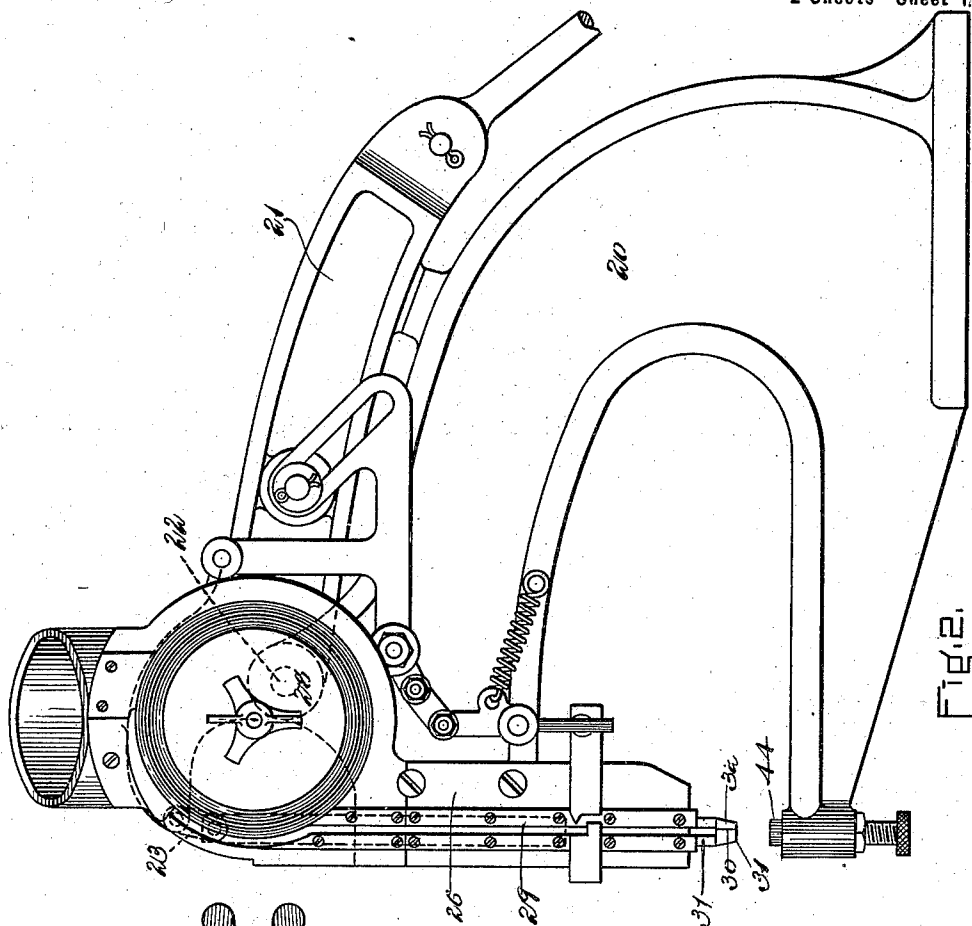


Fig. 2.

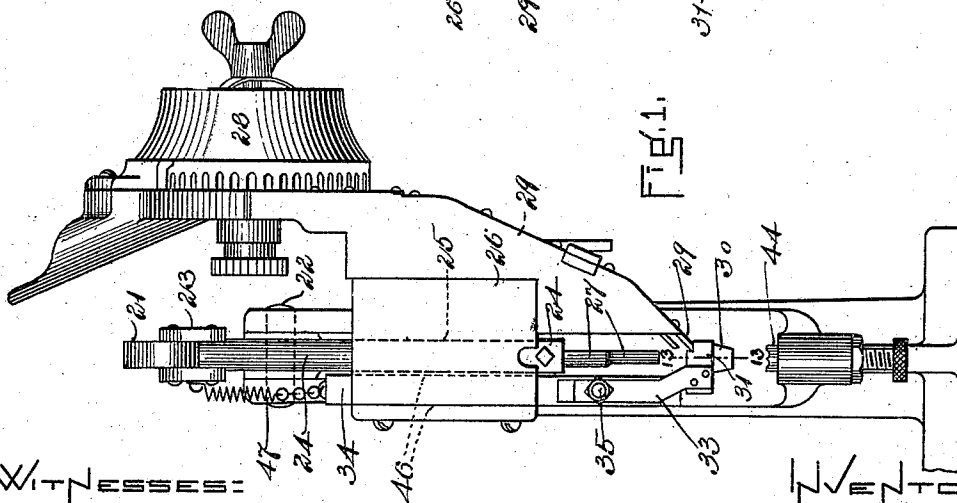


Fig. 1.

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INVENTOR:

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by his Attorney, Charles S. Ford.

E. DRAPER,
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2 Sheets—Sheet 2.

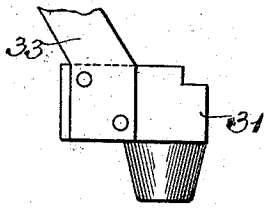


Fig. 3.

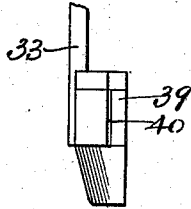


Fig. 4.

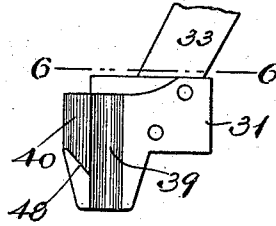


Fig. 5.

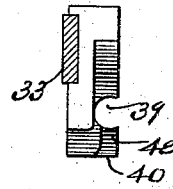


Fig. 6.

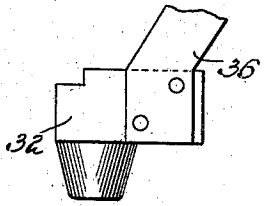


Fig. 7.

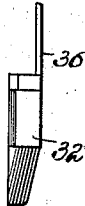


Fig. 8.

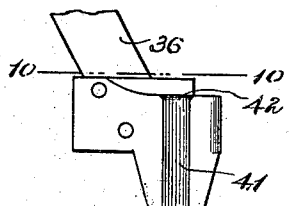


Fig. 9.

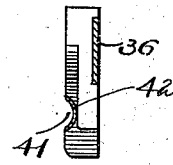


Fig. 10.

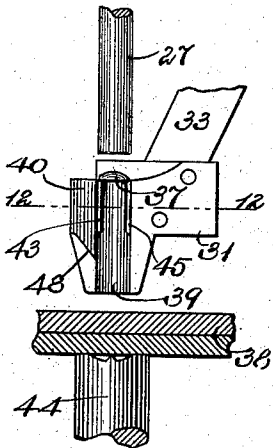


Fig. 11.

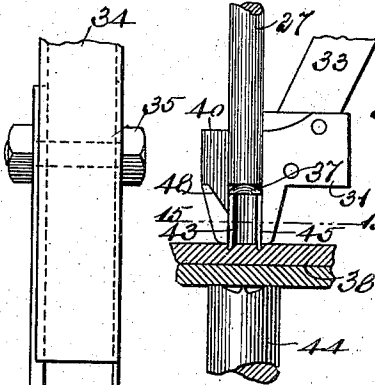


Fig. 12.

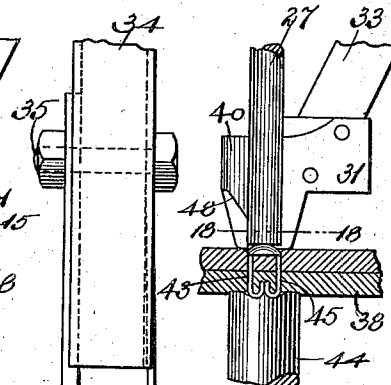


Fig. 13.

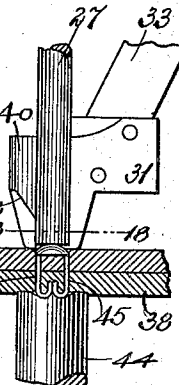


Fig. 14.

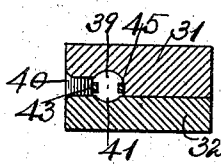


Fig. 15.

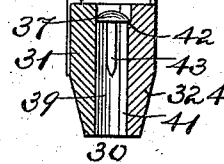


Fig. 16.

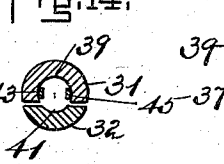


Fig. 17.

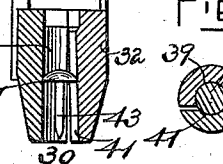


Fig. 18.

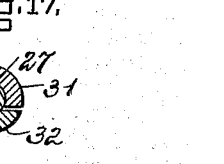


Fig. 19.

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UNITED STATES PATENT OFFICE.

EGBERT DRAPER, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO JUDSON L. THOMSON MANUFACTURING COMPANY, OF WALTHAM, MASSACHUSETTS, A CORPORATION OF MAINE.

GUIDE-POCKET FOR RIVET-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 709,002, dated September 16, 1902.

Application filed December 10, 1901. Serial No. 85,345. (No model.)

To all whom it may concern:

Be it known that I, EGBERT DRAPER, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Guide-Pockets for Rivet-Setting Machines, of which the following is a specification.

This invention relates to certain improvements in rivet-setting machines, and more especially to that portion of the rivet-setting machine known as the "guide-pocket," being that part which receives the rivet from the raceway and guides it immediately before and while it is being driven into and set in the stock.

While this invention may be used with any form of rivet, it is particularly adapted for use in setting a two-pronged rivet.

The object of the invention is therefore to provide a guide-pocket for a rivet-setting machine which shall possess the twofold advantage of a positive guide for the rivet while it is being driven and of a two-part pocket to adapt itself to slight variations in the size or shape of the rivet-head.

The invention consists in a guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical guiding-recess, one of said recesses being of larger area in cross-section than the other, the two recesses forming together a vertical cylindrical guide-passage for the rivet.

The invention again consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a front elevation of a rivet-setting machine with my improved guide-pocket attached thereto. Fig. 2 is a side elevation of the same, taken from the right of Fig. 1. Fig. 3 is a front elevation of the rigidly-supported guide-finger, the supporting-arm therefor being broken away to save space in the drawings and being an enlarged elevation from the same point of view as in Fig. 1. Fig. 4 is a side elevation of the same, taken from

the same point of view as Fig. 2. Fig. 5 is a rear elevation taken from the right of Figs. 2 and 4. Fig. 6 is a horizontal section taken on line 6 6 of Fig. 5. Fig. 7 is an enlarged rear elevation of the spring guide-finger, taken from the right of Fig. 2, the supporting spring-arm being broken off to save space in the drawings. Fig. 8 is a side elevation of the same, taken from the same point of view as in Fig. 2. Fig. 9 is a front elevation taken from the same point of view as in Fig. 1. Fig. 10 is a horizontal section taken on line 10 10 of Fig. 9. Fig. 11 is a rear elevation of the rigidly-supported guide-finger, similar to the view of Fig. 5 and showing the rivet in position therein and the driver and anvil, together with two strips of material to be riveted together, in their relative position with relation thereto. Fig. 12 is a horizontal section taken on line 12 12, Fig. 11, showing both the rigidly-supported and the spring-supported guide-fingers. Fig. 13 is a sectional elevation of the two guide-fingers and the carrier-slide to which they are attached, taken on line 13 13 of Fig. 1 looking toward the left in said figure. Fig. 14 is a view similar to Fig. 11, showing the relative location of the different parts as the prongs of the rivet are entering the stock. Fig. 15 is a horizontal section taken on line 15 15 of Fig. 14. Fig. 16 is a view similar to Fig. 13, showing the rivet in position to enter the stock and the spring-supported guide-finger pushed slightly away from the rigidly-supported guide-finger by the head of said rivet. Fig. 17 is a view similar to Figs. 11 and 14, showing the relative positions of the parts when the rivet is set in the stock. Fig. 18 is a horizontal section taken on line 18 18 of Fig. 17, showing the relative location of the guide-fingers and the driver when the rivet is being set in the stock. Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 20 is the frame of a rivet-setting machine of any desirable construction, and 21 is the setting-lever, pivoted at 22 to said frame and connected by links 23 to the driver-bar 24. Said driver-bar moves vertically in ways 25, provided therefor in

the head 26 of the machine. To the lower end of the driver-bar 24 is adjustably fastened a driver 27.

The rivets to be set in the machine are contained in a hopper 28 and are conducted by a raceway 29 to be delivered one by one in a manner well known to those skilled in the art to the guide-pocket 30. Said guide-pocket consists of two guide-fingers 31 and 32. (Particularly illustrated in Figs. 3 to 18, inclusive.) The guide-finger 31 is rigidly supported, by means of an arm 33, upon the pocket-carrier slide 34, to which it is attached by a bolt 35, the same bolt serving to attach to said carrier-slide a spring-arm 36, to the lower end of which the guide-finger 32 is fastened. The carrier-slide 34, to which the guide-fingers 31 and 32 are fastened, is guided in ways 46 in the head 26 of the machine and is raised and lowered by the lever 21, to which it is connected by a spring 47, attached to one of the links 23, said links being attached to the lever 21, as hereinbefore set forth. Each of the guide-fingers 31 and 32 has a rivet-guiding recess therein, the area of the two recesses in cross-section, as shown in Fig. 12, being substantially equal to the area of the rivet-head 37, which is guided thereby to the stock 38. The recess 39 in the guide-finger 31 extends from the top to the bottom of said guide-finger and is semicircular in outline, the periphery of said recess being greater than a semicircle and the area greater than one-half of the head of the rivet 37. An entrance-passage 40 leads into the recess 39 from the right, Figs. 1 and 3, of said guide-finger. This entrance-passage allows the rivet 37 when it arrives at the bottom of the raceway 29 to pass from said raceway into the recess 39, as shown in Figs. 11 and 12. The guide-finger 32 is fast to and supported upon the spring-arm 36 and has a recess 41 therein extending from the top to the bottom thereof, the area of said recess in cross-section being less than one-half the area of the head of the rivet 37. It will thus be seen that the recess 39 and the recess 41 form together a vertical cylindrical guide-passage for the rivet when being driven therethrough, as hereinafter set forth. At the outer end the recess 41 is slightly enlarged, forming a ledge 42, upon which the under side of the head of the rivet rests when it first enters the pocket, as shown in Fig. 13. The rivet being in the position shown in Figs. 11, 12, and 13, the driver descends, forcing the rivet 37 downwardly to the position shown in Fig. 14. In its passage from the position shown in Fig. 11 to that shown in Fig. 14 if the prongs of the rivet diverge from a position parallel to each other the prong 43 will project into the entrance-passage until it encounters in its descent the downwardly-beveled bottom wall 48 of said passage, when it will be bent inwardly to a position parallel with the other prong of said rivet, and from the lower end of

said bottom wall both of said prongs will be guided in the recess 39 parallel to each other to enter the stock, as shown in Fig. 14. Upon a further descent of the driver the rivet will be driven through the goods and clenched against the anvil 44, as shown in Fig. 17. The rivet 37 is supported upon the ledge 42 of the spring-supported guide-finger 32, as hereinbefore set forth. When in the position shown in Figs. 11 and 13 and when the driver forces said rivet downwardly, as hereinbefore set forth, the spring-supported guide-finger will spring outwardly to the right, Fig. 13, sufficiently to allow the head of the rivet to pass downwardly in the guide-recesses 39 and 41. It will be seen that as the rivet is driven downwardly through said guide-recesses the prongs 43 and 45 of said rivet are guided entirely in the recess 39 of the rigidly-supported guide-finger 31 and that as the spring-supported guide-finger 32 is forced away from the rigidly-supported guide-finger, as hereinbefore set forth, it will not cause said rivet to diverge from a straight line in its descent, said rivet being guided entirely, except as to the pressure upon the side of the head by the spring-finger 32, by the recess 39 in the rigidly-supported guide-finger 31.

The operation of the mechanism hereinbefore described as a whole is as follows: Assuming the parts to be in the position shown in Figs. 1 and 2 and a rivet held between the fingers 31 and 32, as shown in Fig. 13, the head of said rivet resting upon the ledge 42, the lever 21 is rocked upon its pivot, carrying the driver-bar 24 downwardly, together with the carrier-slide 34, from the position shown in Fig. 1 to that shown in Fig. 14. Upon a further motion of the lever 21 the rivet will be driven out of the pocket and through the goods, clenching upon the anvil 44, as hereinbefore set forth. It will be obvious that any slight inequalities in the size or shape of the head of the rivet will be compensated for in its descent through the guide-pocket by the spring-supported finger 32, and hence it will be seen that my improved guide-pocket possesses all the advantages as to correct guiding of the rivet attained by a solid pocket and in addition thereto the advantage as to accommodating itself to different shapes or sizes of the rivet-head possessed by a divided pocket.

Having thus described my invention, what I claim, and desire by Letters Patent to secure, is—

1. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical rivet-guiding recess, one of said recesses being of larger area in cross-section than the other, and the two recesses forming together a cylindrical guide-passage.

2. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical

rivet-guiding recess, the periphery of one of said recesses being greater than a semicircle and the periphery of the other recess being less than a semicircle, the two recesses forming together a cylindrical guide-passage.

3. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, one of said fingers provided with a vertical rivet-guiding recess of sufficient area to receive more than one-half the head of one of said rivets, the other of said fingers provided with a vertical recess of an area in cross-section less than one-half the head of one of said rivets, the two recesses forming together a vertical cylindrical guide-passage.

4. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical rivet-guiding recess, one of said recesses being of larger area in cross-section than the other, the two recesses forming together a cylindrical guide-passage, one of said fingers rigidly supported upon said machine and the other finger spring-supported thereon.

5. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical rivet-guiding recess, the two recesses forming together a cylindrical guide-passage, and

a lateral entrance-passage leading into one of said recesses.

6. A guide-pocket for rivet-setting machines comprising two rivet-guiding fingers, each of said fingers provided with a vertical rivet-guiding recess, the two recesses forming together a cylindrical guide-passage, and a lateral entrance-passage leading into one of said recesses, the bottom wall of said entrance-passage being beveled downwardly into said recess for the purpose specified.

7. A guide-pocket for a machine for setting rivets comprising two rivet-guiding fingers, one of said fingers provided with a recess of sufficient area in cross-section to receive more than one-half the head of one of said rivets, the other of said fingers provided with a recess of an area in cross-section less than one-half the head of one of said rivets and having a rivet-supporting ledge at the upper end in said recess.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EGBERT DRAPER.

Witnesses:

WILLIAM P. BARTEL,
CHARLES S. GOODING.