

No. 697,477.

Patented Apr. 15, 1902.

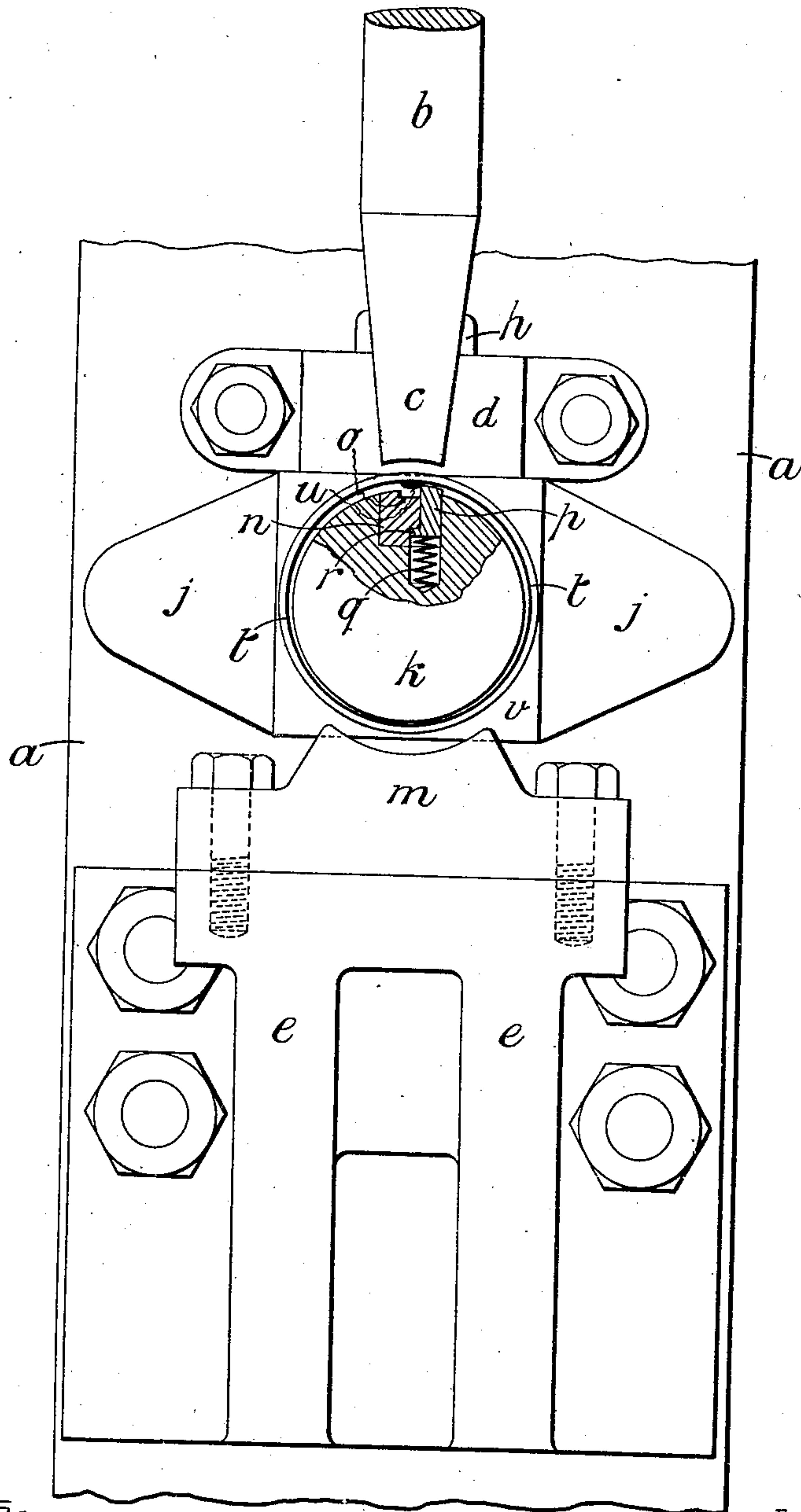
E. F. GRIFFIN & W. E. HIGGS.
PRESS FOR WORKING SHEET METAL.

(Application filed Dec. 26, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



WITNESSES.

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E. F. GRIFFIN & W. E. HIGGS.
PRESS FOR WORKING SHEET METAL.

(Application filed Dec. 28, 1901.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2.

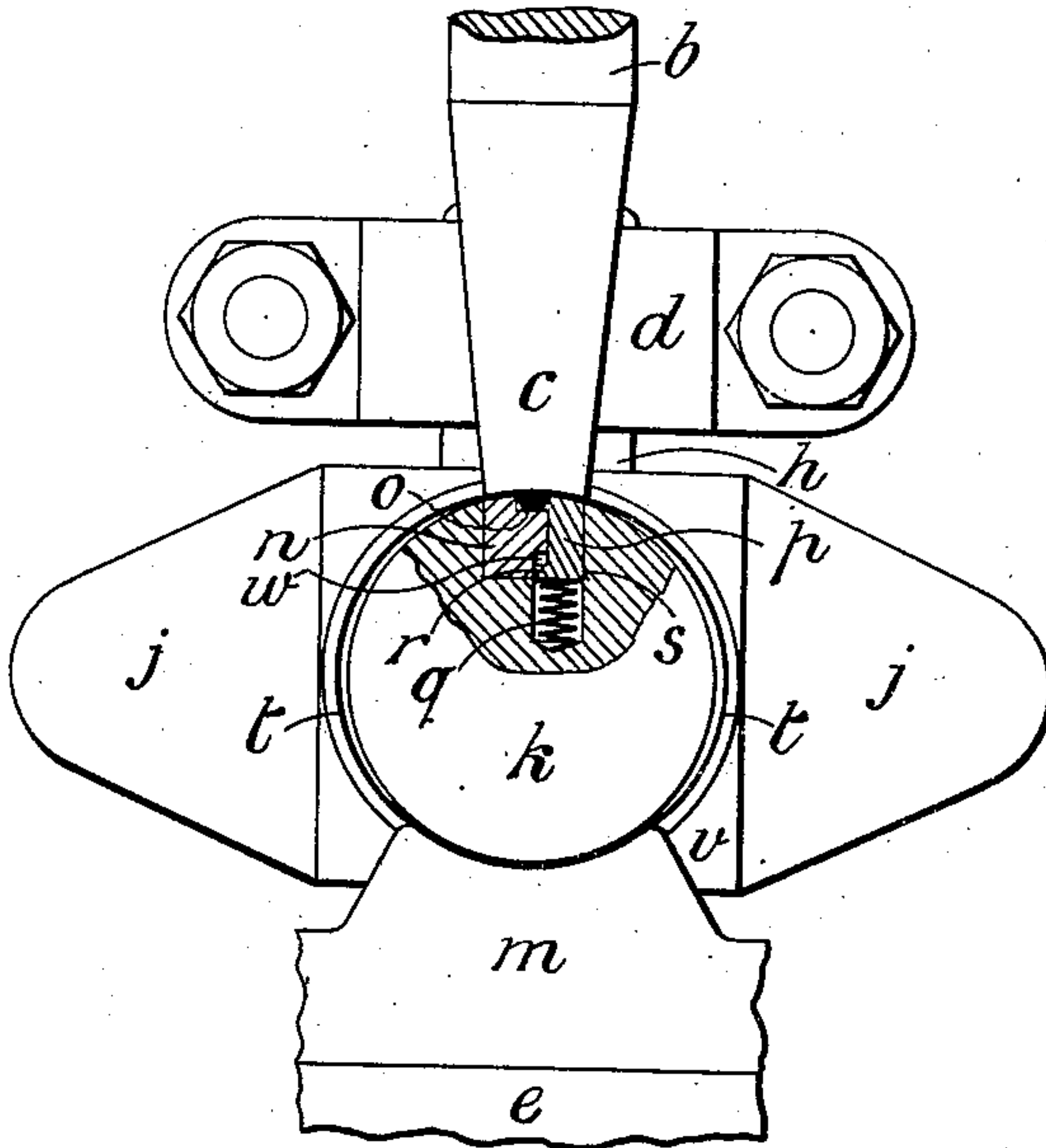
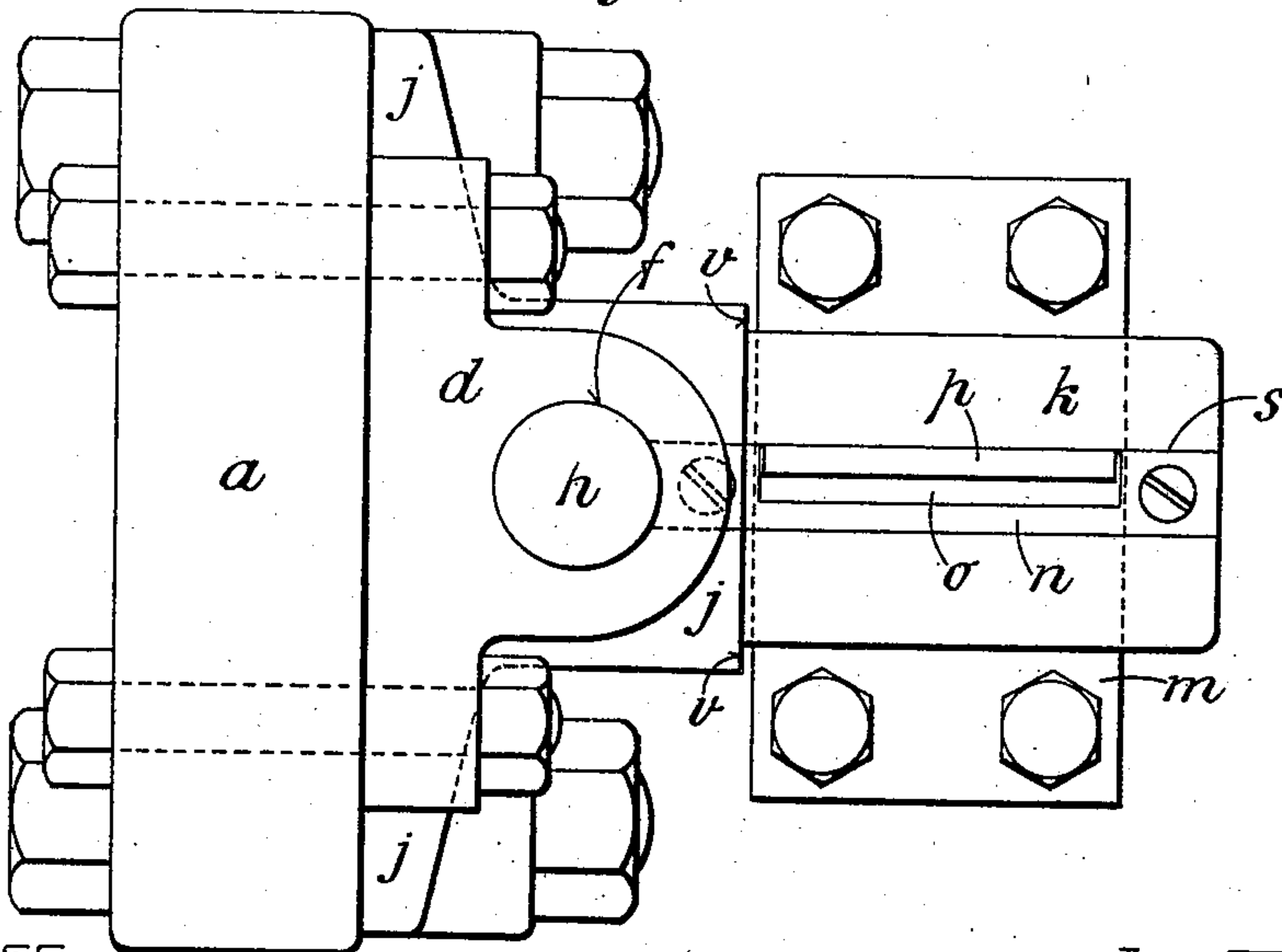


Fig. 4.



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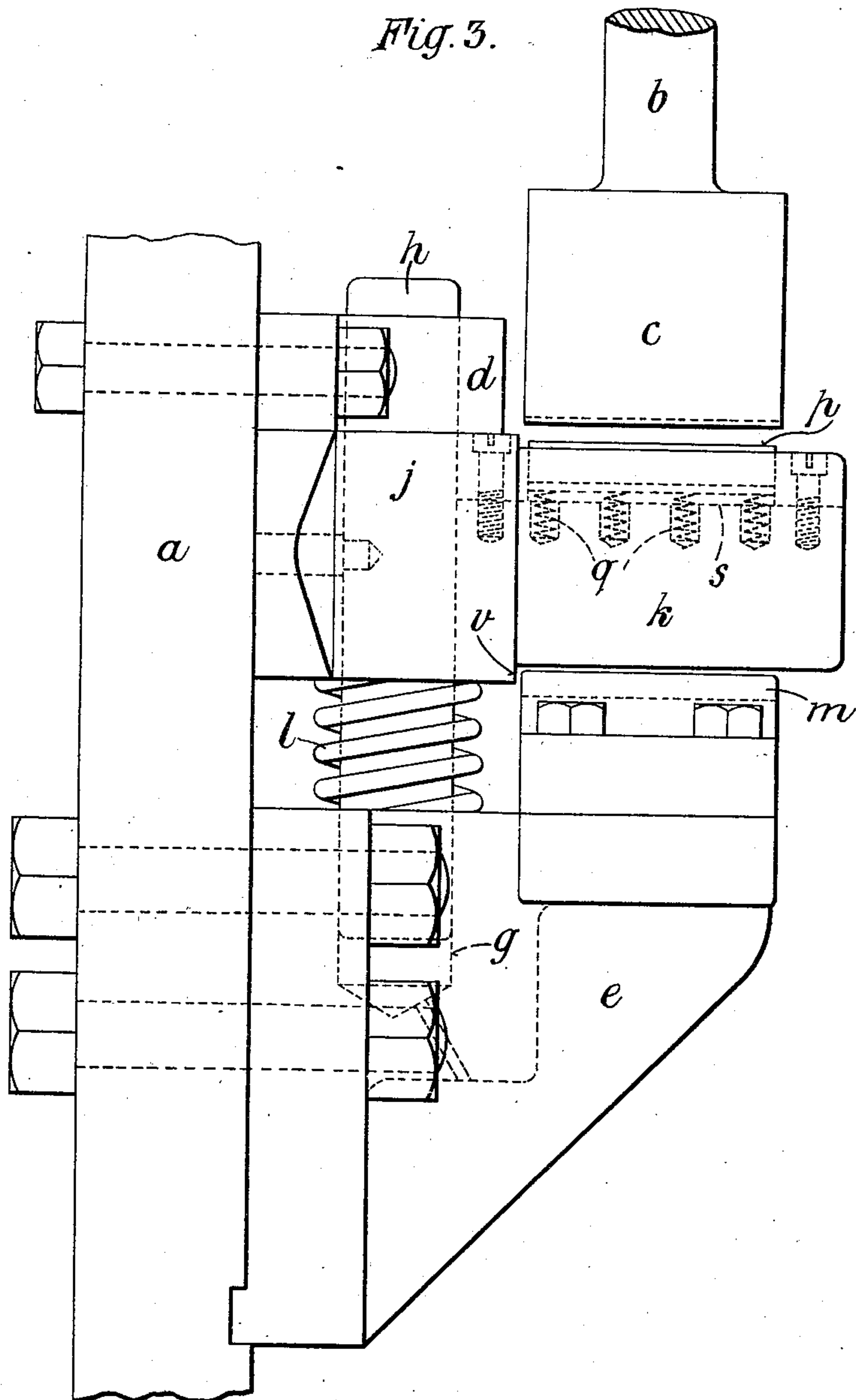
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3 Sheets—Sheet 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ERNEST FEATHERSTONE GRIFFIN, OF FINCHLEY, AND WALTER EDWARD HIGGS, OF LONDON, ENGLAND.

PRESS FOR WORKING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 697,477, dated April 15, 1902.

Application filed December 26, 1901. Serial No. 87,142. (No model.)

To all whom it may concern:

Be it known that we, ERNEST FEATHERSTONE GRIFFIN, residing at Finchley, and WALTER EDWARD HIGGS, residing at London, England, subjects of the King of Great Britain, have invented certain new and useful Improvements in Presses for Working Sheet Metal, of which the following is a specification.

10 Our invention relates to presses for working sheet metal, and is chiefly designed to enable the side seams of sheet-metal boxes or cans to be compressed by impact, so as to form a fluid-tight joint.

15 An important feature of our said invention consists in the employment of a yielding supported horn onto which an article—such, for example, as a can-body—can be placed, this horn being arranged to remain normally at a short distance above an anvil or cradle shaped to fit the under side of the said horn. Above the said horn is arranged a vertically-reciprocating punch for acting on the outside of the seam. By this means when 25 the punch strikes the seam on a can-body or other object placed on the horn the said can-body together with the horn are moved downward until they come to rest on the anvil or cradle above mentioned, when a dead blow is struck on the seam, thereby compressing 30 the same into a recess in the horn and bringing the several folds of metal into close contact with each other.

Our said invention also comprises means 35 for enabling a can-body to be easily placed in position on the horn to bring the inwardly-projecting side seam into registration with the recess in the horn. For this purpose the metal forming one edge of the said recess is made in the form of a spring-supported blade, 40 against which one edge of the seam can be placed. When the punch descends, the said blade descends with it until its upper surface is flush with the adjacent surface of the horn, whereupon the said upper surface acts similarly to the remainder of the surface of the horn.

50 In the accompanying drawings, Figure 1 is a front elevation of the essential parts of our improved press with the punch and horn in their raised positions, the horn being shown

partly in transverse section. Fig. 2 is a similar view to Fig. 1, showing the punch and horn in their lowermost positions. Fig. 3 is a side elevation corresponding to Fig. 1, and 55 Fig. 4 is a plan with the punch removed.

Like letters indicate corresponding parts throughout the drawings.

a is the vertical standard of a press.

b is the shank of a punch *c*, which shank is 60 secured in the vertically-reciprocating head of the press, which can be of any usual construction, operated by a rotary crank and connecting-rod or by a rotary cam or in any other suitable manner.

On the standard *a* are mounted brackets *d* *e*, 65 in which are formed vertical bearings *f* *g* to receive a shaft *h*, capable of sliding freely therein. On the shaft *h* is fixed a laterally-extended shoe *j*, which has a faced surface 70 or surfaces sliding against a faced surface or surfaces on the front of the standard *a* and which bears a horn *k*. A spring *l* normally holds the horn *k* in its uppermost position, with the shoe *j* in contact with the bracket *d*. 75 The above construction insures that the horn when raised and lowered will move parallel to itself.

The bracket *e* is made larger and stronger than the bracket *d* and bears an anvil or 80 cradle *m*, on which the horn *k* comes to rest when forced down by the punch *c*, thus enabling a dead blow to be struck on an object on the said horn.

The horn *k* is provided in its upper part 85 with a hardened-steel block *n*, in which there is formed a depression *o* to receive the seam to be compressed. One side of the depression *o* is formed by a blade *p*, which is yieldingly supported on springs *q* and is provided 90 with a lateral projection or stop *r* for engaging with the outer wall of a recess *w* in the block *n* in order to limit the outward travel of the blade. In the innermost position of the said blade its upper surface is flush with 95 the external surface of the horn *k*, Fig. 2.

The operation of our improved apparatus is as follows: Assuming the parts to be in the position illustrated in Figs. 1 and 3, a can-body *t*, for example, is slid on the horn *k*, with 100 its side seam *v* over the recess *o*, this being easily effected by keeping the corresponding

edge of the side seam in contact with the edge of the blade *p* as the can-body is slid on. The longitudinal location of the side seam *u* relatively to the ends of the recess *o* is determined
 5 by placing the inner end of the said recess at such a distance from the face *v* of the shoe *j* that when the end of the can-body abuts against the said face the ends of the side seam *u* will not extend beyond the ends of the
 10 recess *o*. On the descent of the punch *c*, which can have a smooth surface of corresponding curvature to the external surface of the horn *k*, the blade *p* is first depressed by the can-body *t*, whereupon the seam *u* is
 15 struck a slight blow, due to the resistance offered by the spring *l* and by the inertia of the horn *k*. On the further descent of the punch *c* the horn *k* and can-body *t* descend with it until they come to rest on the anvil
 20 or cradle *m*, when a dead blow is struck on the seam *u*, whereby the layers of metal forming the same are brought into close contact with each other and the layer of metal on the inner side of the can-body molded to the
 25 contour of the recess *o*, while the width of the joint on the outside of the can is reduced to a minimum by the smooth surface of the punch.

It is obvious that the punch, horn, and anvil or cradle can be made of different shapes to
 30 suit can-bodies of square, hexagonal, or other cross-sections and that other suitable devices can be employed for yieldingly supporting the horn *k* without departing from the nature of our said invention.

What we claim is—

1. The combination, in a press, of a standard, a punch, a horn, guide-surfaces on said horn, guides on said standard for guiding said horn, a spring acting on said horn, and a cradle arranged in the path of said horn, substantially as, and for the purpose, hereinbefore described. 35 40

2. The combination, in a press, of a punch, a standard, guide-brackets on said standard, a shaft in said brackets, a shoe on said shaft, a spring acting on said shoe, guide-surfaces on said shoe, corresponding guide-surfaces on said standard, a horn on said shoe, and a correspondingly-shaped cradle arranged in the path of said horn, substantially as described. 45 50

3. The combination, in a press, of a standard, a punch, a horn, a recess in the surface of said horn, a movable blade forming one edge of said recess, springs acting outwardly on said blade, a stop for limiting the outward travel of said blade, guide-surfaces on said standard and on said horn, a spring acting on said horn, and a cradle arranged in the path of said horn, substantially as described. 55 60

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ERNEST FEATHERSTONE GRIFFIN.
 WALTER EDWARD HIGGS.

Witnesses:

GEORGE HARRISON,
 HENRY W. LYNDEN.