B. S. ELDER.

PUNCHING MACHINE, DRILLING MACHINE, AND THE LIKE.

APPLICATION FILED JAN. 22, 1919.

1,313,277.

Patented Aug. 19, 1919.

Fig. 1.

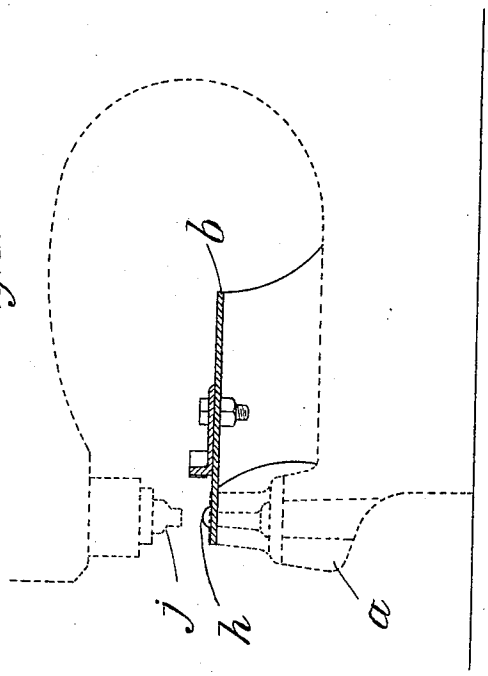


Fig. 4.

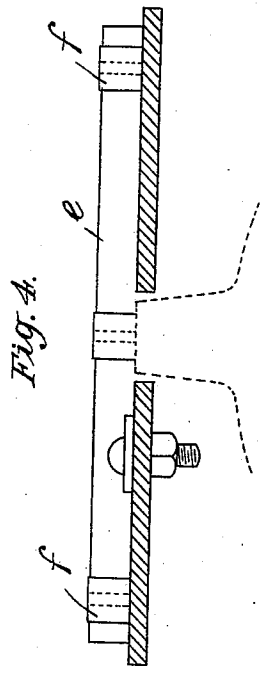


Fig. 2.

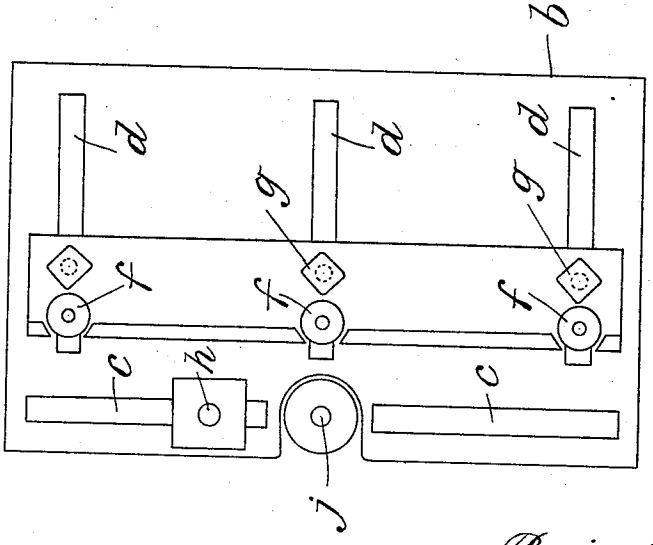
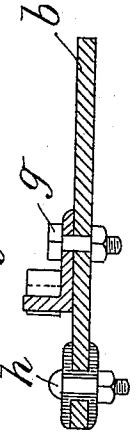


Fig. 3.



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BENJAMIN SCOTT ELDER, OF DURHAM, ENGLAND.

PUNCHING-MACHINE, DRILLING-MACHINE, AND THE LIKE.

1,313,277. Specification of Letters Patent. Patented Aug. 19, 1919.

Application filed January 22, 1919. Serial No. 272,499.

To all whom it may concern:

Be it known that I, BENJAMIN SCOTT ELDER, residing at Shire Hall, Durham, in the county of Durham, England, chief inspector of weights and measures, have invented certain new and useful Improvements in or Relating to Punching-Machines, Drilling-Machines, and the like, of which the following is a specification.

This invention relates to punching machines, drilling machines and the like. The object of this invention is to provide means whereby the distance between the holes is truly and accurately spaced so that when two or more plates are superimposed the holes will register truly, and thus allow the rivets or bolts passing through the holes to enter without the necessity of reaming or drifting as is necessary when the spacing is not accurately effected.

Hitherto it has been usual to mark the plate or material to be punched or drilled by chalk or paint to indicate where the hole is to be placed. This has resulted in irregularities, as, however, skilful the operator may be, he is unable to punch holes in the correct positions, and with the necessary expedition required. The result is that when the work is assembled, holes are found partially out of line or blind, the irregularities preventing the true entrance of the rivets or bolts and consequently reaming or drifting is resorted to. The result, however, is never so satisfactory as would have been had each hole been in an exact line, and opposite the holes in the adjacent ply of material.

According to this invention I mount a table or platform on the base of the machine on which is disposed an adjustable fence to regulate the distance between the line of holes and the edge of the plate and an adjustable stud to regulate the distance between the holes.

I will describe my invention as applied to a punching machine as ordinarily adapted in shipbuilding establishments as by so doing it will be shown how it can be readily adapted in punching and drilling machines of other kinds.

Referring to the drawings filed herewith:—

Figure 1 is a diagrammatic side elevation of a punching machine showing my invention applied thereto.

Fig. 2 is a plan of the attachment.

Fig. 3 is an end elevation of the attachment.

Fig. 4 is a front elevation of the attachment.

On the base *a* of the machine is mounted a table or platform *b* provided with longitudinal slots *c c* and transverse slots *d d*. Mounted on the table *b* is a fence *e* on which are disposed rollers *f f*. The fence is adapted to be secured by bolts *g g* passing through the slots *d d* whereby its position can be adjusted.

In the slot *c* is mounted a stud *h* which can be secured at any required distance from the punch *j*.

In use, after the first hole has been produced in the material, say a ship plate, the plate is moved along until the newly made hole is placed over and upon the stud *h*, and the edge of the plate at the same time requires to be kept firmly against the grinding rollers. With these lateral and longitudinal guides the material is accurately placed to receive the next hole. Repetition of this action will cause the holes to be placed at similar distances apart, according to the pre-determined distance of the stud *h* from the hole punch *j*.

In place of the stud *h* I may employ a spring pressed stud which is adapted to rise into the hole as the plate passes over the stud.

The stud *h* is tapered and slightly smaller than the holes to be punched or drilled so as to admit an easy and ready adjustment of the material and prevent the possibility of seizing and the slot for the stud may be either plain or notched to keep the stud staunch and tight.

In the event of the plates which are to be punched being faulty or irregular at the edges, the stud *h* could be used in conjunction with lines previously marked on the plate.

In place of the slots *c c* I may employ holes into which the stud *h* may be dropped.

The stud holder and fence may be independent of the machine but I may arrange them to be permanently amalgamated with the machine.

In some cases they may be independent or adjustable so that the invention can be arranged on a plate or other base for use on drilling machines or on arm or arms for punching machines. I may also use either part of the arrangement as desired as a per-

manent part of the punching machine or drilling machine, the remaining portions to be portable.

I may also construct the several parts of castings, wrought iron, or any suitable material as found necessary, these parts to be affixed to whatever part of the punching machinery or drilling machine most suitable to the working of the arrangement.

What I claim and desire to secure by Letters Patent is:—

In punching drilling and like machines a platform, a fence mounted on said platform, said fence being adjustable in one direction, rollers on the fence against which the plate to be punched is adapted to bear, a stud mounted on the platform adjustable perpendicular to the direction of adjustment of the fence said stud being adapted to enter a hole made by the machine in a plate so as to regulate the spacing between the holes.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

BENJAMIN SCOTT ELDER.

Witnesses:

A. Y. B. COWEY,

C. C. LIDDLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."