

(No Model.)

A. DEWES & R. P. FRIST.
WASHER CUTTER.

No. 465,840.

Patented Dec. 29, 1891.

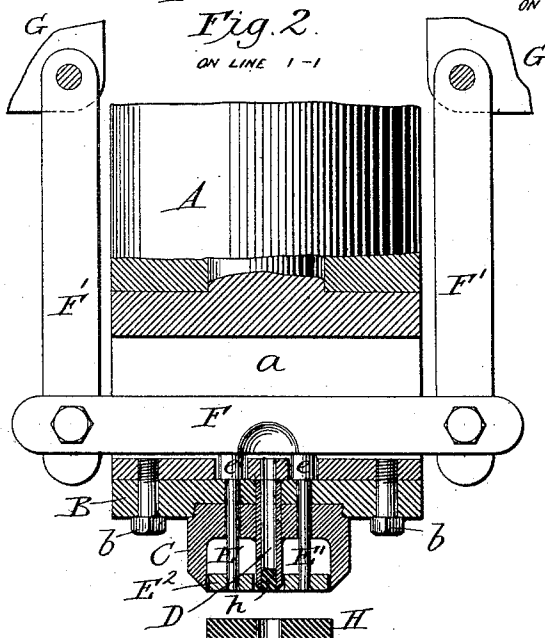
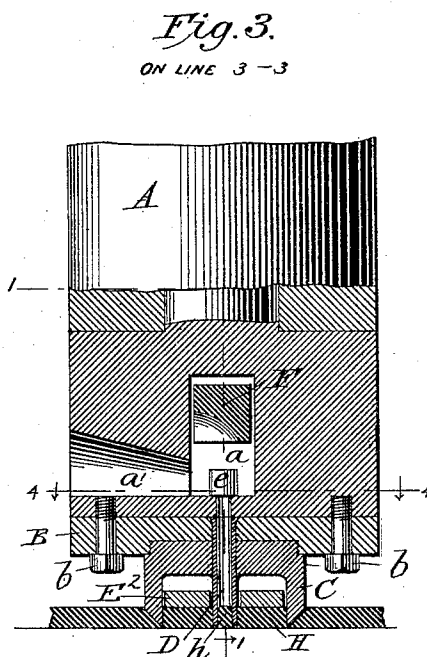
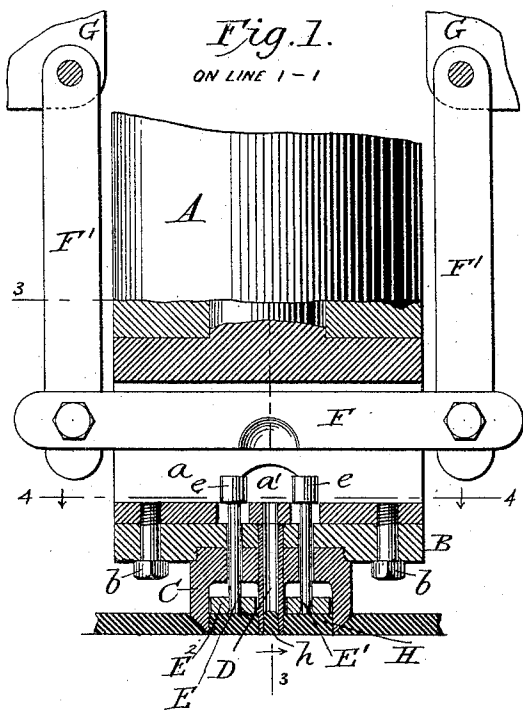


Fig. 4.
ON LINE 4-4

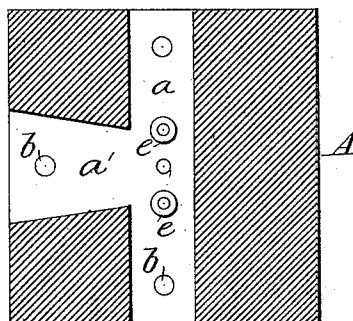
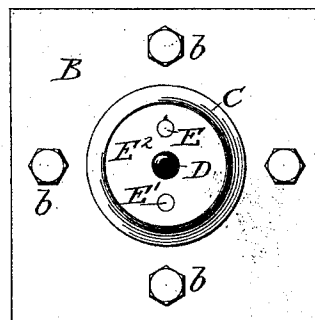


Fig. 5.



Witnesses
Sidney P. Hollingsworth
Baltus D. Long.

Inventors
Abednego Dewes
Robert P. Frist
by their attorneys
Palmer Davidson & Wright

UNITED STATES PATENT OFFICE.

ABEDNEGO DEWES, OF BROOKLYN, NEW YORK, AND ROBERT P. FRIST, OF WILMINGTON, DELAWARE, ASSIGNORS TO THE DELAWARE HARD FIBRE COMPANY, OF WILMINGTON, DELAWARE.

WASHER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 465,840, dated December 29, 1891.

Application filed June 25, 1891. Serial No. 397,501. (No model.)

To all whom it may concern:

Be it known that we, ABEDNEGO DEWES, a subject of the Queen of Great Britain, residing in Brooklyn, county of Kings, and State of New York, and ROBERT PORTER FRIST, a citizen of the United States, residing in Wilmington, county of Newcastle, State of Delaware, have jointly invented certain new and useful Improvements in Washer-Cutters, of which the following is a specification.

Our invention more especially relates to washer-cutters of the class adapted to forming-washers. Its objects are to obtain a compact, simple, effective, rapidly-working, and quickly-clearing cutter, which ends we attain by certain novel organizations of instrumentalities hereinafter specified.

The accompanying drawings show so much only of our improved apparatus as is necessary to illustrate the subject-matter claimed. Unless otherwise indicated, its parts are of usual approved construction.

Figure 1 represents an elevation, partly in section, on the line 1 1 of Fig. 3, looking to the right, with the cutters depressed to form a washer; Fig. 2, a similar view with the cutters retracted and the washer discharged. Fig. 3 is an elevation, partly in section, on the line 3 3 of Fig. 1, looking to the right; Fig. 4, a horizontal cross-section on the line 4 4, looking downward; and Fig. 5 a face view of the cutters.

A reciprocating plunger A is shown as provided at bottom with a transverse slot *a*, with which a flaring discharge-opening *a'* communicates. A cutter-plate B, secured to the bottom of the plunger by screw-bolts *b*, is recessed and screw-threaded to receive a circular cutter C D. A central cutter or punch D likewise screws into a central opening through this plate. Clearing-rods E E' are secured at bottom to an annular clearer E², moving endwise in the space between the cutters C D. This center punch, by the way, tapers slightly inward at its lower end, so as to prevent friction on the clearer when discharging the washer.

The clearing-rods E E' extend up through guide-holes in the plate D and carry heads *e* screwed thereon to admit of the ready re-

moval and replacement of the clearer and clearer-rods. These heads also work in openings in the bottom of the punch communicating with the transverse slot above mentioned, and are provided with square shoulders which abut against the cutter-plate to limit the outward movement of the clearer, but when pressed inward by the cutting of a washer project into this slot so as to be acted upon by a stationary clearer-bar F, passing there-through and suspended by links F' from a fixed portion G of the frame.

The operation will readily be understood from the foregoing description.

Fig. 2 shows the normal relation of the parts at the beginning of each stroke. This figure shows the cutters and punches raised so that the heads or stops *e* rest against the clearer-bar F. The follower or plunger then descends and the parts assume the relation shown in Figs. 1 and 3, both cutters having passed through the material from which the washer is to be cut, thus forming the ring-washer H and its central plug *h*. The follower then rises again, the stops *e* abut against the clearer-bar F, and the ring-washer H is ejected. Each central plug or scrap *h* is in turn pushed inward by its successor through the center cutter D and discharged through the slot *a* and discharge-opening *a'*.

Under our improved organization, it will be observed, the cutters and clearers are the only movable parts. Both are positively actuated, thus dispensing with springs, and the relation of the cutter and clearer is likewise positively controlled by the stops.

The cutters and clearers both reciprocate relatively to the frame, and the clearer has a differential movement relative to the cutters. The cutter-plate being removable permits of the ready substitution of cutters of varying sizes.

Having thus described the construction, organization, and operation of our improved ring-washer cutter, what we claim therein as new and as of our own joint invention is—

1. The combination, substantially as hereinbefore set forth, of a reciprocating plunger provided with a transverse slot, concentric cutters carried by the plunger below the trans-

55

6c

65

7c

75

8o

85

9o

95

10o

verse slot, an annular clearer between the cutters, the clearer-rods projecting through openings in the cutter into the transverse slot of the plunger, and a fixed bar in said slot which engages with the clearer-rods, the organization being such that the ring-washer is cut on the forward movement of the cutters and discharged on the backward movement.

2. The combination, substantially as hereinbefore set forth, of a reciprocating plunger provided with a transverse slot, concentric cutters carried by the plunger below the transverse slot, an annular clearer between the cutters, rods connected to the annular clearer projecting into the transverse slot and provided with removable heads, and a fixed bar in the transverse slot adapted to engage with the heads of the rods on the backward movement of the plunger.

3. The combination, substantially as hereinbefore set forth, of a reciprocating plunger provided with a transverse slot and having a discharge-opening connected therewith, a tubular central cutter connected with the plunger and communicating with the transverse slot and discharge-opening therein, a concentric cutter also carried by the plunger, an annular clearer interposed between the cutters, rods secured to the annular clearer

and projecting through vertical openings in the cutter and extending into the transverse slot of the plunger, and a bar suspended from a stationary part of the press and extending through the slot, the organization being such that the ring-washer is cut on the forward movement of the plunger and discharged on its backward movement, while the central scrap is forced inward by the succeeding one and is discharged through the slot and discharge-opening in the plunger.

4. The combination, substantially as hereinbefore set forth, of a reciprocating plunger provided with a transverse slot, a cutter-plate removably secured to the face of the plunger, concentric cutters secured to said plate, an annular clearer interposed between the cutters, clearer-rods traversing guide-openings in the cutter, the cutter-plate and the plunger, and a fixed stop or bar against which the rods abut.

In testimony whereof we have hereunto subscribed our names.

ABEDNEGO DEWES.
ROBERT P. FRIST.

Witnesses:

FRANK S. OBER,
EDWARD C. DAVIDSON.