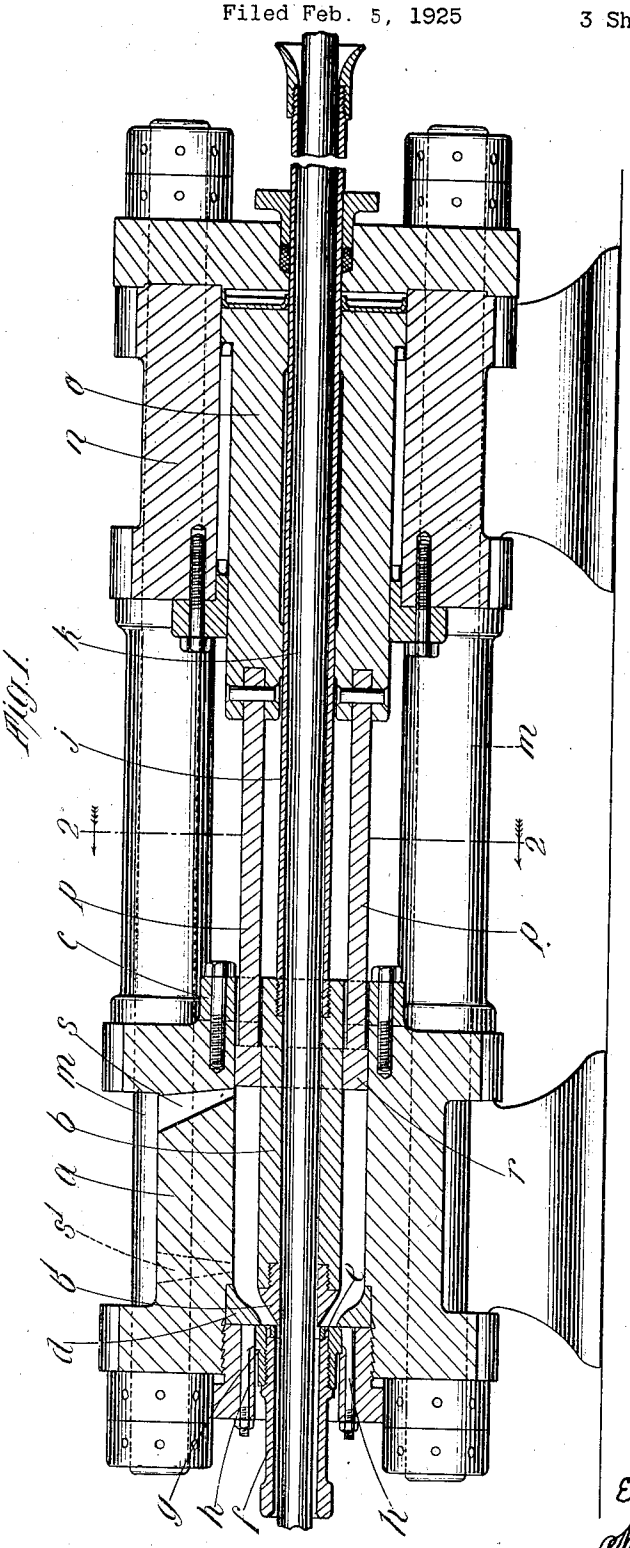
March 9, 1926. 1,575,768

E. E. JUDGE

LEAD COVERING OF ELECTRIC CABLES AND THE LIKE BY EXTRUSION

Filed Feb. 5, 1925 3 Sheets-Sheet 1



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LEAD COVERING OF ELECTRIC CABLES AND THE LIKE BY EXTRUSION

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Fig. 2.

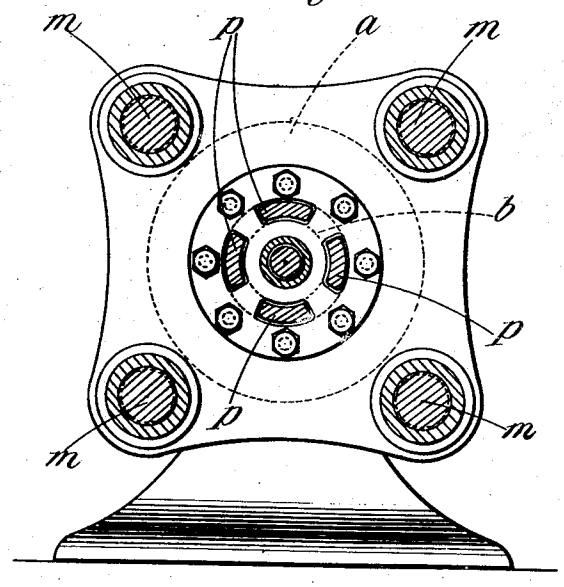
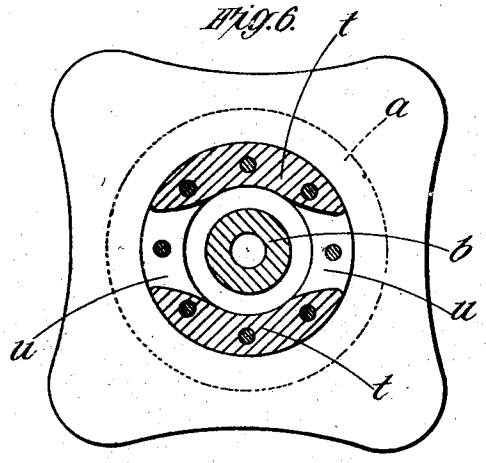


Fig. 6.



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Fig. 5

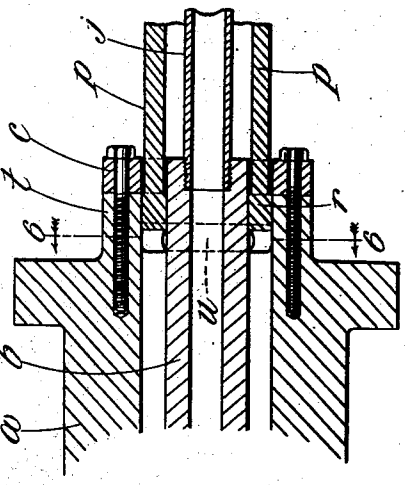


Fig. 4.

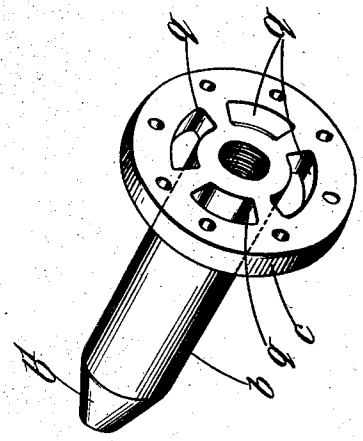
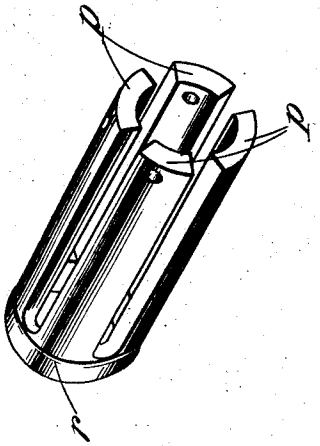


Fig. 3.



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UNITED STATES PATENT OFFICE.

ERNEST EDWARD JUDGE, OF GRAVESEND, ENGLAND, ASSIGNOR TO W. T. HENLEY'S TELEGRAPH WORKS COMPANY LIMITED, OF LONDON, ENGLAND.

LEAD COVERING OF ELECTRIC CABLES AND THE LIKE BY EXTRUSION.

Application filed February 5, 1925. Serial No. 6,952.

To all whom it may concern:

Be it known that I, ERNEST EDWARD JUDGE, of 66 Pelham Road, Gravesend, in the county of Kent, England, a British subject, have invented certain new and useful Improvements in or Relating to the Lead Covering of Electric Cables and the like by Extrusion, of which the following is a specification.

This invention relates to the lead-covering of electric cables by extrusion, and has for its object a continuous extrusion process which enables not only any desired length of cable to be sheathed but also prevents the formation of splits in the lead-covering of an electric cable, a disadvantage which has been found to result from the usual process of extrusion.

In accordance with the present invention a tubular holder for the nose or point of the die, is supported at its rear end within and by the cylinder from which the lead is to be extruded, the cylinder being adapted for the charging thereinto of molten lead so that it will unite with the lead left from the last operation.

Preferably the point-holder is supported axially within the cylinder, and the forked members of the plunger are disposed substantially symmetrically around said point-holder and are united at their operative ends by a ring which presents the working face of the plunger. The cylinder or an extension thereof may be formed with one or more lateral apertures to enable access to be obtained to the working face when the plunger is at the back end of its stroke, so that said face may be kept clean.

In the accompanying drawings Figure 1 is a sectional elevation of one form of extrusion machine for the lead-covering of electric cables constructed in accordance with this invention; Figure 2 is a cross-section thereof on the line 2—2, Figure 1; Figure 3 is a perspective view of the plunger; Figure 4 is a similar view of the point, point-holder and its support; Figure 5 is a fragmentary section illustrating a modification; and Figure 6 is a cross-section on the line 6—6, Figure 5.

In the lead cylinder *a* of the machine is coaxially disposed a holder *b* for a nose or point b^1, the rear end of which holder is flanged at *c* in order that it may be bolted to the rear end of the cylinder *a*. At the front end of the cylinder *a* are arranged the usual guide ring *d*, die *e*, die-holder *f*, and a ring *g* with an inclined periphery with which coact correspondingly inclined faces on wedge bolts *h* for centralizing the die *e*. The point-holder *b* is tubular and provided with a rearward tubular extension or guide *j* to give passage to the cable *k* to be covered. The cylinder *a* is connected by tie-bars *m* with a hydraulic cylinder *n* the ram *o* of which gives passage to the guide *j*, and has attached to its front end the four members *p* of a forked plunger, which pass through apertures *q* in the flange *c* of the point-holder *b* and are united at their front ends by a ring *r* adapted to be reciprocated in the annular space between the cylinder *a* and point-holder *b*.

For use, after the cable *k* has been introduced, molten lead is poured into the cylinder *a* through an aperture *s*, which may be at or near the rear end thereof as shown in full lines, or at or near the front end thereof as shown at *s'*, in broken lines, in which latter event a suitable valve or the like must be provided to close the pouring aperture *s'* before the plunger *p r* is operated. The solidified lead is then extruded by forcing forward the plunger *p r* by means of the ram *o*, the surface friction between the cable and the extruded lead being sufficient to advance the former. After the plunger *p r* has been retracted more molten lead is poured into the cylinder *a* and on coming into contact with the solid lead near the guide ring *d* left from the last operation, it melts the surface of said solid lead and welds therewith. The operation is then repeated until the desired length of cable has been covered.

The only welding of lead necessary in the practical operation of this invention is transverse of the direction of extrusion and is effected by bringing molten lead into contact with solid lead.

As, in use, the working face of the plunger *p r* may become roughened by the adherence thereto of particles of lead, it is desirable to provide means for giving access to said face so that it may be wiped. For this purpose the rear end of the cylinder *a* may be extended as at *t*, Figures 5 and 6, and lateral openings *u* formed in said extension, it being understood that, before

molten lead is poured into the cylinder *a*, the plunger *p r* is advanced sufficiently to close said openings *u*.

I claim:

1. A press for the continuous extrusion of lead sheathing on electric cables and the like comprising a cylinder adapted to be charged with molten lead, a supporting ring at the rear end of said cylinder, a tubular point holder supported so as to form an annular space within said cylinder by having its rear end mounted on said supporting ring, a plunger adapted to be reciprocated in said cylinder, said plunger having sector-like guide members adapted to slide through corresponding apertures in said supporting ring and an annular front end filling the annular space between said cylinder and said tubular point holder.

2. A press for the continuous extrusion of lead sheathing on electric cables and the like as claimed in claim 1, wherein the cylinder wall is formed with a charging aperture near its rear end for charging molten lead into the annular space of said cylinder in front of said annular plunger.

ERNEST EDWARD JUDGE.